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UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

SAN JOSE DIVISION

TODD CROWDER, KEVIN SCHULTE, and GARRICK VANCE, on behalf of themselves and all others similarly situated,

Plaintiffs,

v.

LINKEDIN CORPORATION,

Defendant.

Case No. 5:22-cv-00237

CLASS ACTION COMPLAINT

DEMAND FOR JURY TRIAL

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INTRODUCTION

1. This lawsuit concerns the unlawful monopolization of the professional social networking market by defendant LinkedIn. Plaintiffs are LinkedIn Premium subscribers who have been overcharged due to LinkedIn's unlawful conduct, which has enabled LinkedIn to extract supracompetitive profits from its subscribers through inflated subscription prices and data sale revenues.

2. After emerging as the unchallenged leader in the professional social networking market through what its founder Reid Hoffman called "Blitzscaling"—the rapid race to capture network and lock-in effects by scaling at any cost—LinkedIn quickly turned to protecting and monetizing its position, including by using sophisticated data acquisition and analysis to maximize user attention and revenues. By 2015, LinkedIn's subscription business was protected by a powerful barrier to entry, which was the net sum of LinkedIn's data centralization and aggregation, its machine learning and AI infrastructure, and the inferred data it produced. This Data, Machine Learning, and Inference Barrier to Entry ("DMIBE") became LinkedIn's greatest asset, and in 2016 drew a $26.5 billion acquisition of the company by Microsoft—owner of one of world's largest and most powerful arsenals of massively scalable on-demand computational hardware. Combining LinkedIn's unrivaled professional data trove and infrastructure with its parent Microsoft's high-end cloud computing arrays, the companies are developing an AI and machine-learning-backed monopoly of enormous scale—fortifying and profoundly strengthening the DMIBE. At the time of this Complaint, the DMIBE represents a near-insurmountable, and growing, barrier to meaningful entry in the professional social networking market, let alone entry at sufficient scale to effectively check LinkedIn's pricing and subscription terms.

3. Since the Microsoft acquisition, LinkedIn has engaged in affirmative anticompetitive conduct that has strengthened (and continues to strengthen) the DMIBE, that has reduced consumer choice, and that has allowed LinkedIn to charge and maintain inflated Premium subscription prices and

subscription terms with no competitive check. This conduct has prevented—indeed, effectively precluded—entry by others into the professional social networking market, insulating prices from competition. Among this anticompetitive conduct was (and is): (i) LinkedIn's non-optional sale of Premium user data to unnamed "partners," which forcibly grafts a negative value feature—one that materially harms competition in the professional social networking market and at the same time lacks measurable procompetitive effects, even aside from its lack of consumer benefit—onto LinkedIn's Premium subscription product; (ii) deploying sophisticated technological countermeasures specifically designed by LinkedIn to prevent users' ***public*** data from being accessed by potential or actual competitors, thereby maintaining and fortifying the DMIBE and hindering potential entry at scale; (iii) aggressively integrating LinkedIn's unmatched professional social networking data repository and pipeline and its powerful AI and machine-learning data and infrastructure with its parent company Microsoft's Azure cloud servers and arrays of Graphical Processing Units ("GPUs")—an internationally scarce hardware resources necessary for complex AI and machine learning computation at scale; and (iv) expressly or tacitly dividing markets with LinkedIn's most natural potential competitor, Facebook—an agreement that, as explained in detail in this complaint, apparently continues to this day.

4. Plaintiffs seek trebled damages for the price overcharge they have experienced (and continue to experience) for LinkedIn Premium subscriptions due to LinkedIn's monopolization of the professional social networking market. They also seek injunctive relief to stop LinkedIn's anticompetitive conduct, including, among other things, injunctive relief allowing Premium subscribers to opt out of LinkedIn's parasitic data sale to unnamed partners and injunctive relief halting and unwinding the unprecedented and anticompetitive integration of LinkedIn's professional data, machine learning, and AI infrastructure with Microsoft's powerful cloud computing hardware. Absent abatement by this Court,

LinkedIn's will continue to fortify and strengthen the DMIBE, potentially sealing off the professional social networking market from competition for years and perhaps decades to come.

* * *

5. Reid Hoffman, the enigmatic co-founder of PayPal, took away an important insight from his wildly successful early venture: rapidly scaling a online business can create powerful network effects, and those network effects can be durable. Hoffman didn't just take this lesson to heart; he designed his professional life around it; evangelized it to everyone who would listen; and spent more than a decade trying to harness this phenomenon on his own. Hoffman called his business strategy of deploying massive first-mover resources to capture durable network effects, "Blitzscaling."

6. As Hoffman explained about his success at PayPal, "the faster we got to scale, the stronger we created network effects. . . ." In 2003, Hoffman took this key insight and applied it to his new venture, a professional social network called LinkedIn.

7. Hoffman rapidly scaled LinkedIn, and by the middle of 2005, the company had 1.7 million users. By the summer of that same year, LinkedIn's user base had doubled to 3.3 million. In Hoffman's pursuit of blitzscaling for LinkedIn, nothing was off limits—even the reviled (and likely unlawful) tactic of commandeering LinkedIn users' contact lists and spamming those contacts with invitations to Hoffman's new venture.

8. Hoffman recognized that LinkedIn's exponential growth was the result of powerful network effects stemming from user growth, the inelastic ubiquity of job hunting and professional connection, and LinkedIn's role as a source of professional identity. As Hoffman explained, "Just one of these network effects would probably be enough to create first-scaler advantage; all three working together built a massive strategic moat that protected the LinkedIn business from any new entrants."

9. After a few years, LinkedIn had become the *de facto* standard for online professional identity, and the unchallenged market leader in professional social networking, both domestically and worldwide. But although LinkedIn had rapidly, and in some sense successfully, "blitzscaled," two significant obstacles remained: user engagement and monetization.

10. On the issue of monetization, the specific market niche LinkedIn had grown to dominate was (and is) unique from other social networking markets: professional social networking participants will pay upfront for important business services like advanced hiring tools and direct connections to other businesspeople. LinkedIn introduced Premium subscription products, and quickly accreted subscribers and subscriber revenue. But by the mid-2010s, as data aggregation and monetization technology—fueled by the rise of powerful machine learning and artificial intelligence tools, including powerful GPU arrays available in the cloud—transformed the business of high technology, LinkedIn realized that its monopoly could be supercharged (and supra-monetized) by leveraging data anticompetitively, including against its own Premium subscribers.

11. That is exactly what LinkedIn did—and continues to do.

12. As the 2010s reached their midpoint, it was clear to LinkedIn that the real profit-center in its business going forward was data-driven—and the company took a series of coordinated actions to leverage its market dominance in professional social networking to develop, deploy, and weaponize a massive-scale data acquisition, machine learning, and artificial intelligence apparatus that would both supercharge its overall profits, but also fortify and maintain the barrier to entry around its business. not only to serve content to users that drove engagement, but to monetize user data for profit.

13. By 2015, LinkedIn had begun developing cutting edge machine learning and artificial intelligence infrastructure that could algorithmically serve content to users that drove engagement—and monetize user data for profit. That infrastructure included the vectorization, centralization, and

structuring of user data; the streamlining of real-time updates of user data and the development of machine learning and artificial intelligence models; the collection of detailed telemetry information derived from user interactions with LinkedIn's app; and a massive trove of "inferred" data about users—data derived from predictions by machine learning and artificial intelligence models.

14. As these new data tools and practices began to transform LinkedIn's backend, a powerful barrier to entry formed around the company's business—exponentially more powerful, indeed, than the network effects that had facilitated LinkedIn's blitzscaling in the first instance.

15. This new, incredibly powerful barrier to entry comprised (and comprises) three primary aspects: (1) LinkedIn's data centralization, (2) LinkedIn's machine learning models, and (3) the resulting trove of inferred data. What's more, these three aspects of LinkedIn's business together reinforced—and reinforce—each other, resulting in a Data, Machine Learning, and Inference Barrier to Entry ("DMIBE").

16. Standing alone, LinkedIn's AI and machine-learning juggernaut was already extremely valuable (and ripe for misuse, given LinkedIn's monopoly position in professional networking)—but in the hands of a company with a ubiquitous presence in the office, it could become an impenetrable source of monopoly rents for decades. This is precisely what happened after office software and cloud computing giant Microsoft acquired LinkedIn.

17. By the middle of 2016, Microsoft, which had dominated office productivity software for decades, saw LinkedIn as a missing piece of its new business—artificial intelligence and machine learning in the cloud. LinkedIn needed more user engagement, and Microsoft's cloud infrastructure and direct input into corporations around the world created powerful synergies.

18. In June 2016, Microsoft announced that it would acquire LinkedIn for $26.2 billion—then the largest acquisition in Microsoft's history. As Microsoft's CEO Satya Nadella explained, the purpose of the merger was the "coming together of the professional cloud and the professional network."

19. As the Financial Times described the merger, the acquisition was the product of "data gravity"—the "tendency for large bodies of data to attract suppliers of services and applications." Despite concerns raised by Europe's competition chief; the CEO of Salesforce, Marc Benioff; and others, the FTC did not challenge the acquisition out of a fear that if it challenged any merger based on data aggregation, it would have to challenge a host of other similar deals.

20. In Microsoft's hands, the DMIBE protecting LinkedIn's monopoly in the professional social networking market became even more powerful. LinkedIn quickly began taking measures to further strengthen the DMIBE to keep out new entrants and competitors, but also began rapid integration of LinkedIn's AI and machine-learning systems with Microsoft's cloud computing service, Azure.

21. From 2017 to the present, LinkedIn aggressively protected the DMIBE, including through anticompetitive conduct. Among them are four primary courses of action, which have irreparably sealed off LinkedIn from competition.

22. *First*, LinkedIn aggregates and structures user data, then sells that data through its application programming interfaces ("APIs") to private, undisclosed "Partners." This paid access creates public-facing, permissioned endpoints that provide external access to LinkedIn's massive trove of user data, which has been carefully structured, cleaned, and centralized for programmatic use and consumption.

23. These data sale agreements with Partners dangerously expose user data. LinkedIn has no control over the data while it is in the hands of its partners; it does not disclose who its "partners" are with respect to the LinkedIn APIs; and the APIs create a massive security vulnerability by centralizing large amounts of user data and exposing that data to outward-facing interfaces. Indeed, massive troves of data corresponding to LinkedIn users—data purportedly gleaned at least in part from LinkedIn APIs—are currently being sold on the dark web.

24. LinkedIn's data sale to Partners provides no value to Premium subscribers, and those subscribers cannot opt out of the data sale—or subscribe to a Premium product that does not include the sale of their data. At the same time, this data sale reinforces the DMIBE and allows LinkedIn to extract monopoly rents from subscribers and from contracting API Partners. Moreover, by exclusively partnering with certain consumers of its API, LinkedIn ensures that a new entrant—or even a firm that does not have a contract with LinkedIn—cannot surmount the DMIBE. These data sales reduce consumer choice, provide no pro-competitive effects for consumers, inflate prices, and prevent competition and entry, including by reinforcing the DMIBE.

25. *Second*, LinkedIn protects the DMIBE and maintains its monopoly by deploying technological countermeasures that prevent any other party, competitor, or potential entrant from accessing public data on its site—even data that users ***want*** to make public. Indeed, a LinkedIn page is a public-facing professional resume and identity. Many (if not most) users elect to make these profiles public. LinkedIn, however, uses technological countermeasures, including technology it calls Fuse and Org Block, to prevent access to even public data. At the same time, LinkedIn whitelists certain companies such as Google, exempting them from LinkedIn's technological countermeasures. By doing this, LinkedIn hoards millions of ***public*** identities provided by premium subscribers, preventing any potential entrant or competitor from developing a rival product. This has ensured that no price check has appeared or imminently will appear, allowing LinkedIn to maintain its DMIBE, monopoly, and unchallenged subscription prices.

26. *Third*, despite maintaining its own servers before 2016, since the Microsoft acquisition LinkedIn has integrated—and is currently integrating—its standardized and structured trove of user data (and inferred data) with Microsoft's powerful AI technology and Graphics Processing Unit ("GPU") hardware, which it provides through its Azure cloud computing business. These cloud-based arrays of

GPUs are a scarce resource and are necessary for developing cutting-edge AI and machine learning models, including large language models. Only Google, Amazon, and Microsoft have such cloud-based hardware, and LinkedIn's integration of its massive data infrastructure with Microsoft's cutting-edge hardware, including NVIDIA A100 Tensor Core GPUs, creates a full-scale AI and machine-learning juggernaut acquiring, processing, analyzing, and re-analyzing LinkedIn's unique pipeline of professional social networking data—permanently sealing off LinkedIn from competition, let alone competition at scale.

27. Upon completion of the integration of LinkedIn's AI and machine learning tools and data infrastructure with Azure, the DMIBE will be irreversibly strengthened, and LinkedIn's integration efforts to date have already significantly fortified the DMIBE. This integration lacks procompetitive benefits, let alone benefits that outweigh the massive anticompetitive effects in the Professional Social Networking market. The net result is that LinkedIn will become virtually unchallengeable, and its subscription prices and terms will remain unchecked for years—and perhaps decades—to come.

28. *Finally*, LinkedIn agreed with its most obvious natural competitor—social networking juggernaut Facebook—to divide markets, sealing off the last remaining source of potential rivalry to LinkedIn's professional social networking dominance. As a result of this agreement, which appears to have grown of data access negotiations between the two companies in the early 2010s, LinkedIn has maintained its monopoly in professional social networking without the threat of entry by Facebook, and Facebook has fortified its dominance and control over personal social networking, perhaps through data assistance from LinkedIn—similar to an agreement that Facebook recently struck with its would-be competitor Google.

29. By 2015, competition between Facebook and LinkedIn seemed inevitable. Press speculation that Facebook was building a professional social network to rival LinkedIn had reached a

fever pitch, as Facebook secretly developed a new product called Facebook at Work. For example, in November 2014, the Financial Times reported based on communications with "individuals familiar with the matter" that Facebook at Work would "allow users to chat with colleagues, connect with professional contacts and collaborate over documents, competing with Google Drive and Microsoft Office." In December 2015, Forbes predicted that "LinkedIn could face intense competition from 'Facebook at Work,'" which was at the time to be imminently released.

30. Internally, Facebook was preparing for scorched earth competition with LinkedIn. According to publicly reported internal Facebook documents, Facebook had identified LinkedIn as a competitive threat, and was threatened by LinkedIn's access to Facebook user data through Facebook APIs. According to Facebook Vice President Chris Daniels, representatives of the companies had met in 2013, and LinkedIn had agreed with Facebook "not to access [Facebook's] APIs until [the companies] worked out an agreement both ways . . . ." Nonetheless, LinkedIn appeared to be aggressively scraping Facebook user data as part of an arms race for user identities.

31. Facebook's senior executives scrambled to audit all of the applications using Facebook's Platform APIs, bucketing each of the thousands of apps by whether they were competitive threats. Facebook identified LinkedIn as a competitive threat in the "reputation" category. After the audit, Facebook prepared to remove API functionality, breaking thousands of competitive apps, sparing only companies that entered into secret agreements with Facebook. Facebook internally debated what it would do about LinkedIn, including whether it would demand data from LinkedIn in exchange for its access to Facebook's APIs beyond "status updates." As Facebook Vice President Konstantinos Papamiltiadis internally stated, such a meager amount of data from LinkedIn was "not good enough for [him]." Facebook also sought a bargaining chip in its negotiations with LinkedIn, including a trumped-up policy

violation that it could use as a fig leaf for denying LinkedIn access to its APIs and the removal of "work history" information from LinkedIn's scope of access.

32. Although the specific result of the then-ongoing negotiations between the companies is not known, what happened after Facebook removed API functionality for thousands of developers speaks volumes. From April 2015 until the present, LinkedIn suffered no public problems or deprecation after Facebook privatized its APIs, indicating to some degree of certainty that a deal of some sort was in fact struck between the companies. And the other side of the equation—Facebook's behavior—has been even more striking. Despite entering every adjacent market within its grasp, and seeking to leverage its professional social networking data and tools in products from messaging, to video, to gaming, and beyond, Facebook never entered the market for professional social networking. Even the expected Facebook at Work product, which was released under the name Workplace, had a glaring omission—it was released without any professional social networking functionality, and there was no competing subscription social networking product to rival LinkedIn. Facebook had carefully excised from its Workplace product features that would compete with LinkedIn's professional social networking products and services.

33. From 2016 until the present, Facebook aggressively diversified its lines of business, entering virtually every technology market. Facebook challenged ad giant Google in internet advertising and user tracking; Facebook acquired Instagram, directly competing with photo sharing and microblogging apps, including Twitter; Facebook aggressively moved into video sharing and streaming with its Facebook Live product; it launched Messenger and even spent billions acquiring WhatsApp; Facebook made several forays into payments, taking on the likes of PayPal and Venmo; Facebook took on eBay and Amazon with its Marketplace product; Facebook planned its own crypto currency; and Facebook even bought a virtual reality company, Oculus.

34. The only market it did not even attempt to enter was the one LinkedIn controlled—a market where users paid expensive subscriptions out of pocket for professional social networking. That market could have supported an additional competitor, and Facebook could have undercut prices to obtain market share, but Facebook never set foot near LinkedIn's monopoly.

35. This lack of entry is not reasonably explicable absent an agreement between LinkedIn and Facebook not to compete with each other, particularly given the state of the companies' negotiations in 2013 to 2015, which included potential data reciprocity terms.

36. To this day, both companies deny that they compete with each other. Indeed, even though Facebook internally considered LinkedIn potentially competitive in late 2013, and it was widely reported that Facebook was preparing to launch a professional social networking product in 2015, Facebook CEO and founder Mark Zuckerberg told the U.S. Senate in 2018 that Facebook "do[es]n't consider LinkedIn to be one of our direct competitors." LinkedIn did not list Facebook as a competitor in its SEC filing when it went public in 2015.

37. All of this evidence indicates that LinkedIn and Facebook reached an agreement—whether express or tacit—between 2013 and 2016 that the companies would refrain from directly competing with each other in conjunction with some sort of exchange or bargain concerning user data. By all indications, that agreement stands today, protecting LinkedIn's monopoly, as it has for several years.

38. As described above, the DMIBE has allowed LinkedIn to fortify and weaponize its preexisting market share in the professional social networking market. It has made LinkedIn's professional social networking business so impervious to competition that even LinkedIn's most obvious natural competitor, Facebook, has never entered the LinkedIn's lucrative market.

39. With no actual competition and no realistic threat of nascent competition, LinkedIn has been able to extract monopoly rents from Premium subscribers and from data-sale Partners. The DMIBE

also forces LinkedIn Premium subscribers like Plaintiffs to pay for the privilege of having their data mined and monetized without creating any meaningful value (or compensation to) them.

40. LinkedIn's anticompetitive conduct has permitted (and permits) it to overcharge Premium subscribers like Plaintiffs—by precluding any competition, particularly price competition; by strengthening the DMIBE; and by directly preventing entry by a competitor. Today LinkedIn continues to enjoy more than 90% of the Professional Social Networking Market, and its subscription pricing has never been challenged. With its unchallenged market power, LinkedIn is able to extract additional value from its subscription users by selling their data to "partners" through its API—a parasitic, negative-valued product that subscribers cannot opt out of.

41. LinkedIn's conduct, including its extant integration with Microsoft's Azure, should be enjoined, and subscribing users should be provided with the option to opt out of LinkedIn's misuse and sale of their data to partners. Moreover, LinkedIn's subscribers should be compensated, including through trebled damages, for LinkedIn's anticompetitive monopoly maintenance and collusive agreements.

PARTIES

I. PLAINTIFFS

42. Plaintiff Todd Crowder is a resident of Georgia. Plaintiff Crowder has been a LinkedIn user since 2019 and has been paying for LinkedIn Premium Career in September 2019 and from March 2021 to present. Plaintiff Crowder has personally spent approximately $500 on LinkedIn subscription fees from 2018 to present. His current subscription rate for the LinkedIn Premium Career product is $29.99 per month.

43. Plaintiff Kevin Schulte is a resident of Arizona. Plaintiff Schulte has been a LinkedIn user since at least January 2020 and has been paying for LinkedIn Premium Career from at least the period of

March to December 2020. Plaintiff Schulte has spent approximately $700 on LinkedIn subscription fees from 2018 to present.

44. Plaintiff Garrick Vance is a resident of Texas. Plaintiff Vance has been a LinkedIn user since at least 2013 and has been paying for LinkedIn Premium Career from at least 2010 to present. Plaintiff has spent approximately $1,000 on LinkedIn subscription fees from 2018 to present.

45. Plaintiffs do not pay subscription fees for any other social networking product.

46. Plaintiffs use LinkedIn on either or both the mobile app and through a web browser to network with other professionals and to keep current about developments in their professional social networks.

47. Plaintiffs' premium subscriptions allow them to (among other things) view who has viewed their profiles, send inMail messages, receive "job insights," and view "salary insights."

48. Plaintiffs paid prices for these services that were higher than they would have been absent LinkedIn's anticompetitive conduct and unlawfully acquired and/or maintained monopoly.

49. LinkedIn caused Plaintiffs to pay supracompetitive prices for LinkedIn services as a result of the market power LinkedIn obtained and/or maintained as a result of the anticompetitive scheme described in this Complaint.

II. DEFENDANT

50. Defendant LinkedIn Corporation is a Sunnyvale, California-based corporation incorporated under the laws of Delaware.

51. LinkedIn is a social network focusing on professional connections. It has over 750 million members worldwide, including members from every Fortune 500 company.

52. LinkedIn has over ten thousand employees in offices around the world. LinkedIn's headquarters is located at 1000 W. Maude Avenue, Sunnyvale, CA 94085.

53. LinkedIn is a wholly owned subsidiary of Microsoft Corp. Microsoft integrates LinkedIn's products with other products offered by the company. As Microsoft explained in its 2021 10-K, filed with the United States Securities and Exchange Commission:

> Our growth depends on securely delivering continuous innovation and advancing our leading productivity and collaboration tools and services, including Office, Dynamics, and LinkedIn. . . . Microsoft Relationship Sales solution brings together LinkedIn Sales Navigator and Dynamics to transform business to business sales through social selling. Dynamics 365 for Talent with LinkedIn Recruiter and Learning gives human resource professionals a complete solution to compete for talent. . . .

54. Microsoft also operates LinkedIn as a separate professional social network, for which it charges subscription fees. Microsoft describes its LinkedIn business as follows:

> **LinkedIn**
>
> LinkedIn connects the world's professionals to make them more productive and successful and transforms the way companies hire, market, sell, and learn. Our vision is to create economic opportunity for every member of the global workforce through the ongoing development of the world's first Economic Graph, a digital representation of the global economy. In addition to LinkedIn's free services, LinkedIn offers monetized solutions: Talent Solutions, Marketing Solutions, Premium Subscriptions, Sales Solutions, and Learning Solutions. Talent Solutions provide insights for workforce planning and tools to hire, nurture, and develop talent. Marketing Solutions help companies reach, engage, and convert their audiences at scale. Premium Subscriptions enable professionals to manage their professional identity, grow their network, and connect with talent through additional services like premium search. Sales Solutions help companies strengthen customer relationships, empower teams with digital selling tools, and acquire new opportunities. Finally, Learning Solutions, including Glint, help businesses close critical skills gaps in times where companies are having to do more with existing talent. LinkedIn has over 750 million members and has offices around the globe. Growth will depend on our ability to increase the number of LinkedIn members and our ability to continue offering services that provide value for our members and increase their engagement. LinkedIn revenue is mainly affected by demand from enterprises and professional organizations for subscriptions to Talent Solutions, Learning Solutions, Sales Solutions, and Premium Subscriptions offerings, as well as member engagement and the quality of the sponsored content delivered to those members to drive Marketing Solutions.

55. Year over year, LinkedIn continued to grow in 2021, with revenues increasing 27%, by about $2.2 billion, from 2020. Based on these figures, LinkedIn's annual revenues were approximately $10.3 billion in FY 2021, up from approximately $8.1 billion in FY 2020.

56. LinkedIn makes extensive—and increasing—use of Microsoft's cloud services, including Azure's highest-end and most expensive on-demand hardware and services, including GPU arrays and machine learning/artificial intelligence services.

JURISDICTION AND VENUE

57. This action arises under Sections 1 and 2 of the Sherman Antitrust Act (15 U.S.C. §§ 1, 2) and Sections 4 and 16 of the Clayton Act (15 U.S.C. §§ 15, 26). Plaintiffs and the putative class seek to recover treble damages, interest, costs of suit, equitable relief, and reasonable attorneys' fees for their damages resulting from LinkedIn's monopolization and attempted monopolization of the Professional Social Networking market as described in this Complaint. Plaintiffs and the putative class seek declaratory and injunctive relief to remedy ongoing harm to Plaintiffs and class members due to LinkedIn's anticompetitive conduct described in this Complaint, including LinkedIn's ongoing fortification of the DMIBE through integration with Azure.

58. This Court has subject-matter jurisdiction under 28 U.S.C. §§ 1331 (federal question), 1332(d)(2) (class action diversity jurisdiction), and 1337(a) (antitrust); and under 15 U.S.C. § 15 (antitrust).

59. Venue is proper in this district under 15 U.S.C. § 15(a) (Clayton Act), 15 U.S.C. § 22 (nationwide venue for antitrust matters), and 28 U.S.C. § 1391(b) (general venue provision). LinkedIn transacts business within (and indeed, is headquartered in) this judicial district, and transacts its affairs and carries out interstate trade and commerce in substantial part in Santa Clara County, within this judicial district. Additionally, a substantial part of the events giving rise to the claims in this action—including

acts and/or omissions constituting material parts of the anticompetitive scheme alleged in this Complaint—occurred in this judicial district.

60. The Court has personal jurisdiction over LinkedIn as it is subject to general jurisdiction in the State of California, where it maintains its headquarters and principal place of business. The scheme, conspiracy, and monopolization (and attempted monopolization) alleged in this Complaint were targeted at individuals throughout the United States and caused injury to persons in the United States, including in this judicial district.

61. Additionally, jurisdiction and venue are proper in this Court because LinkedIn's user agreement provides:

> The laws of the State of California, U.S.A., excluding its conflict of law rules, shall exclusively govern any dispute relating to this Contract and/or the Services. You and LinkedIn both agree that all claims and disputes can be litigated only in the federal or state courts in Santa Clara County, California, USA, and you and LinkedIn each agree to personal jurisdiction in those courts.

62. In addition to federal question subject-matter jurisdiction, this Court has subject-matter jurisdiction over this matter pursuant to the Class Action Fairness Act of 2005, 28 U.S.C. § 1332(d)(2), because this is a class action, including claims asserted on behalf of a nationwide class, filed under Rule 23 of the Federal Rules of Civil Procedure; there are likely to be hundreds of thousands if not millions of putative class members; and the amount in controversy exceeds the jurisdictional amount of $5 million.

63. Moreover, there is minimal diversity present as to the class members and Defendant LinkedIn.

DIVISIONAL ASSIGNMENT

64. This action is properly assigned to the San Jose Division of this District, pursuant to Civil Local Rule 3-2(c) and (e), because LinkedIn is headquartered in Santa Clara County (which is served by

the San Jose Division) and a substantial part of the events or omissions that give rise to the claims in this action occurred there.

FACTS

I. LINKEDIN: THE BEGINNING OF A WINNER-TAKE-ALL BUSINESS

A. SocialNet: A Social Network Before Its Time

65. LinkedIn was founded by Reid Hoffman—but it was not Hoffman's first attempt at a startup (even a social media one). Hoffman's first Internet startup was SocialNet.com. Launched in 1997, it included features such as online dating and a system to match users with similar interests.

66. Hoffman's early foundations and goals for LinkedIn began there—in 1997, with SocialNet.

67. The focus of SocialNet was so-called "real identity." The website included professional networking, sports interests, dating, and other interest matching—all built on a user's actual (offline) identity.

68. As Hoffman explained in a 2016 interview:

> The theory behind SocialNet was that the web wasn't just a place where traditional publishers could distribute content more efficiently, or where readers would just have more opportunities to comment on stories that professional writers had written. The web was a place where millions and millions of people would create their own media identities, share information about themselves, and look for opportunities to connect with each other in ways that could truly enhance their lives. SocialNet also started with a particular set of key relationships in human life: dating, work, social, and living (roommates).

69. Hoffman's close friend from Stanford, Peter Thiel, called SocialNet "literally an idea before its time. It was a social network 7 or 8 years before that became a trend."

70. Despite being ahead of its time, SocialNet ultimately resulted in what Silicon Valley investors refer to as a "push"—a return of capital to investors.

71. The germ of the idea, however, would linger in Hoffman's head for years to come.

B. PayPal and the Power of Network Effects

72. While Hoffman was at SocialNet, Thiel tapped Hoffman to join the board of directors at a new company called PayPal.

73. PayPal sought to create a new kind of payment system—one that allowed one user to send another money over the Internet. After the failure of SocialNet, Hoffman dedicated his efforts fully to PayPal.

74. The PayPal business model was one that depended on generating a critical mass of users, which would in turn increase the value of the payment network. The more users PayPal acquired, the more valuable the payment network became, which in turn attracted more users.

75. The focus on achieving that critical mass, however, was extremely costly for the young startup—exponentially so. At the turn of the millennium, as the dot-com bubble began to wobble, PayPal was running low on cash, despite significant venture funding.

76. In September of 2000, Peter Thiel, Max Levchin, and Hoffman retreated from PayPal's offices to Hoffman's grandparents' cabin to solve the serious cash burn problem at PayPal. As Hoffman explained in a 2014 podcast:

> We said ok, we have one shot to try to fix PayPal. At the time, August of 2000, PayPal had burned $12,000,000 in one month, not a dime of revenue, and the cost line was exponentiating. . . .

77. As Hoffman posed the problem, the product was "free credit card processing, with exponentiating transaction volume." This ensured that PayPal lost money with every transaction, and that the company's losses would grow exponentially.

78. The key insight Hoffman and others reached was that the rapid and exponential losses were justified only if PayPal could scale rapidly enough to build a powerful feedback loop based on network effects.

79. Reaching a tipping point or critical mass meant potentially capturing the entire market. As Hoffman told Business Insider:

> At PayPal, we had a window of opportunity—to scale up a new digital payments system on a global level before huge companies with far more resources and experience in the payments industry truly understand what was possible. So we learned to move boldly, decisively, and fast. At PayPal, we helped pioneer the idea that growth is the foundation for an internet company. ***The faster we got to scale, the stronger we created network effects***, the more enduring business that we created.

(emphasis added).

80. Hoffman realized that many of the problems PayPal faced could be solved with sufficient scale. For example, when PayPal faced a large amount of fraudulent transactions in 2001, Hoffman and others at PayPal began leveraging the network itself to determine whether transactions were fraudulent. That is, the network itself allowed PayPal to derive "identity" and "reputation," which in turn allowed PayPal to attack the fraud problem it faced. As Hoffman explained in a June 2016 interview:

> And that was a key personal lesson to learn: a network of identities, communications, and transactions can be a platform for a number of applications. In PayPal, we had payment but also identity and anti-fraud. When you build a platform that creates all kinds of relationships and enables a huge number of interactions of one kind or another, the data that it generates ends up creating all kinds of strategic advantages. You see that in many of our post-PayPal businesses . . . .

81. Hoffman realized that networks, particularly networks that generate user-to-user interactions, generate valuable data that create "strategic advantages" for the overall business. He had learned that network effects, if exploited, can lead to data-driven multipliers for a business. This would guide the rest of Hoffman's career.

82. Thiel described PayPal's strategy as achieving escape velocity in order to avoid the perils of competition. In a conversation between Thiel and Hoffman published by the Harvard Business Review, Thiel explained:

> We needed to achieve escape velocity, we needed to grow so quickly that it would discourage anybody from even trying to compete with us. On the one hand, you have to race really hard to scale fast, but then the benefit if you do it is that you're sort of achieving escape velocity from the black hole that is hypercompetition.

83. To achieve that escape velocity, Hoffman, Thiel and others at PayPal devised a plan that would virally grow the network: they would directly pay users to refer the service to others. As Hoffman recounted:

> Well one of the specific inventions that the PayPal team did to scale was to say that, all these other Internet services are paying for advertising. What we're going to do is much much better, we're just going to give the money directly to our customers because we have a money transmission business anyway. So giving essentially money for them to transmit. So if someone brings in a new person, they got 10 bucks, and the person she brings in gets 10 bucks. This was actually one of the innovations that was a cheaper form of customer acquisition than the current highly competed form of advertising.

84. The gambit worked. PayPal rapidly expanded to 200 million user accounts worldwide.

85. PayPal completed its initial public offering in 2002, which was valued at $1.2 billion. Shortly after the IPO completed, on October 3, 2002, eBay acquired PayPal for $1.5 billion.

C. "Blitzscaling": Hoffman's Insight from PayPal

86. In 2002, at age 35, Hoffman had exited his first successful startup.

87. PayPal made Hoffman a wealthy man, but it also had taught him an important lesson: rapid scaling matters. And, in network-effect markets, scaling can matter more than efficiency.

88. Hoffman would later call this insight and approach "Blitzscaling." In network-driven markets, the first to reach critical mass achieves lock-in effects and competitive advantages, thus justifying aggressive risks to obtain scale.

89. In a book bearing the same title, Hoffman described the process:

> For successful blitzscaling, the competitive advantage comes from the growth factors built into the business model, such as network effects, whereby the first company to achieve critical scale triggers a feedback loop

> that allows it to dominate a winner-take-all or winner-take-most market and achieve a lasting first-scaler advantage.

90. Hoffman understood that the value of getting there first in network-effect markets justified the downside of taking aggressive risks with incomplete information about a business's viability. Hoffman contrasted such risk with conventional business risks taken by other founders, such as Walt Disney:

> Blitzscaling goes beyond just a strategy of aggressive growth because it involves doing things that don't make sense according to traditional business thinking, such as prioritizing speed over efficiency despite an uncertain environment. At the same time, blitzscaling also goes beyond just risk taking. It may be risky to bet the company, as Walt Disney did when he borrowed against his own life insurance to build Disneyland, but it's not Blitzscaling. Blitzscaling would have involved inefficiencies like paying construction crews to work twenty-four hours a day in order to get Disneyland open a few months earlier, or reducing ticket prices 90 percent to get to one million visitors faster—knowing that those one million visitors were networked to ten million more.

91. Being the first to achieve the critical mass of users or network elements required to trigger powerful feedback loops was paramount to Hoffman.

92. However, because network effects are built on feedback loops, they actually place *downward* pressure on a company's growth until it reaches a certain a certain scale, which Hoffman calls a "tipping point." As Hoffman explains:

> A key element of leveraging network effects is the aggressive pursuit of network growth and adoption. Because the impact of network effects increases in a superlinear fashion, at lower levels of scale, network effects actually exert downward pressure on user adoption. . . .
>
> With network effects businesses, you can't start small and hope to grow slowly; until your product is widely adopted in a particular market, it offers little value to potential users. Economists would say that the business has to get past the "tipping point" where the demand curve intersects with the supply curve.

93. Hoffman explained that achieving those reinforcing network effects—reaching the tipping point—may mean "losing money in the short term," which may "allow you to make money in the long term, once you're past the tipping point."

94. Having successfully exited PayPal, Hoffman turned to his next venture. Hoffman wanted to again tackle the social network concept he first sought to implement with SocialNet. This time, Hoffman would do so with a deep understanding of network-based markets.

95. He would scale fast at any cost.

III. THE RISE OF LINKEDIN: A SPRINT TO DOMINANCE

A. The Founding of LinkedIn

96. In December 2002, Hoffman founded a new social network that was to be focused on professional identity: LinkedIn.

97. Hoffman understood from the beginning that this idea would require hyperaggressive scaling—the sort of rapid "blitzscaling" he had learned about at PayPal. As Hoffman later reflected about LinkedIn:

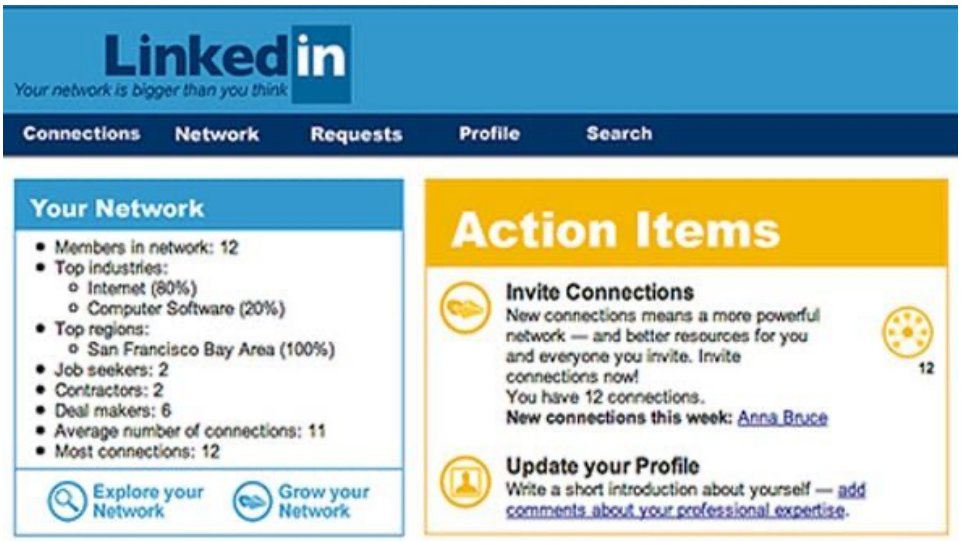
> The long-term value of LinkedIn was always intended to come from network effects. As a professional social network, LinkedIn leveraged both direct and two-sided network effects, as well as becoming a standard format for presenting one's professional identity. The direct network effects come from the fact that each additional user makes the network slightly more valuable to all other LinkedIn users. The two-sided network effects occur because more users attract more corporate employers, while more employers increase the value of LinkedIn as a passive job-hunting tool. Finally, by becoming an integral part of most people's professional online identities, LinkedIn has become a standard that has largely replaced the traditional resume. Just one of these network effects would probably be enough to create first-scaler advantage; ***all three working together built a massive strategic moat that protected the LinkedIn business from any new entrants***, and even from attempts by consumer networks like Facebook to take away the professional market.

(emphasis added).

98. Hoffman understood that his new social network was targeting employers, employees, and job hunting. To keep others out of the market, he would have to launch the company and immediately scale it as fast as possible. Capturing the winner-take-all market meant sealing off the captured market from competition, including from general purpose social networks.

99. Hoffman initially bankrolled the new venture himself and started the company out of his living room. The company's start came in the aftermath of the dot-com bubble, which Hoffman referred to as the "dot-com winter."

100. After months of development, LinkedIn launched on May 5, 2003. The interactive web application was a no-frills website, with few pictures, advertisements, or images.



101. Hoffman immediately targeted a goal of obtaining 1 million LinkedIn users. Hoffman pursued that goal single-mindedly, refusing to refine the business model. He had learned his lesson from PayPal—and from SocialNet.

102. In its first week online, LinkedIn captured 2,500 users, which grew to 6,000 after the first month. Within six months, LinkedIn had reached 37,000 users. Its growth was exponential—by design and dogged, single-minded pursuit.

103. By the middle of 2005, LinkedIn had reached 1.7 million users, and by August 2005, the service had 3.3 million users. Hoffman had not only met but exceeded his singular goal to achieve 1 million users.

104. LinkedIn did so in part through aggressive and unwanted tactics. Most notably, LinkedIn mined users' address books and sent users' contacts repeated e-mails asking them to join LinkedIn—sometimes without clear notice to the users it was doing so.

105. Hoffman shrugged off the tactic in an October 2015 Article in the New Yorker:

> Almost from the beginning, LinkedIn offered members the opportunity to upload their entire e-mail contact list, which generates large numbers of automatic invitation. Hoffman is aware that some people find this annoying, but that is a problem only if it impedes growth. As he puts it, "People may say, 'I'm getting all these fucking invitations,' but you don't tune it too high or too low."

106. LinkedIn was sued for the tactic by a class of users and ultimately settled the suit.

107. The spam invitations were a means to an end—rapid scaling. For Hoffman, it was worth it, even if it invaded user privacy.

108. Hoffman knew from his time at PayPal: if he captured enough market share to trigger powerful network effects, he would take the entire market.

B. LinkedIn Begins Monetizing Its Network of Users

109. That year, LinkedIn began monetizing its new social network. Hoffman turned his focus to generating revenue. LinkedIn began with paid job postings, then added subscriptions, and ultimately advertising. He recounted the shift in a June 2009 CNN Money interview:

> We launched three revenue streams in 2005. The first was job listings. The second we figured would help us get to profitability fast. We launched subscriptions, which was enhanced communications and search capability. People need to talk to people they don't already know in order to get the job done. That's the plural majority of our business today.

110. LinkedIn's new subscription business gave subscribers enhanced access to scour LinkedIn's network of users. A subscriber could perform powerful searches across LinkedIn's network to look for users with particular experience, attributes, or employment history.

111. LinkedIn's new subscription offering also allowed access to a new communications feature, called InMail. Subscribers could now cold-contact LinkedIn's users simply by paying a subscription fee.

112. LinkedIn's August 8, 2005, announcement described these new features:

> For recruiters, finding the right candidate can mean tens of thousands of dollars in placement fees. For hedge fund managers or venture capitalists, finding and gathering insights from the right due diligence sources can make or break investment decisions. LinkedIn's new premium service provides more powerful search tools to these professionals, addressing their need to find the right job candidates and experts quickly and efficiently. Users who upgrade to a Business account gain access to more powerful search tools. By upgrading, recruiters and researchers can find job candidates and experts not just from their networks, but also from the complete LinkedIn Network of 3.3 million registered professionals. Many users will now search a space 10 times larger and will be 10 times more likely to find the right person.

113. LinkedIn's new InMail product sold direct access to anyone in LinkedIn's network. A subscriber could directly contact a company's decision-maker, or even a high-profile CEO. For a price, a message could be sent to anyone with a LinkedIn inbox:

> LinkedIn also now provides a new communication mechanism called InMail™ to Business account holders. While contacting a user through introductions is likely to yield the highest response rate, InMail provides the fastest replies and gives Business account holders the option to send confidential information directly to users, without exposing it to intermediaries providing an introduction. And InMail is the only way to reach LinkedIn users more than three degrees away.

114. LinkedIn was already considered "uncool" compared to other social networks, but now that it was directly selling access to users' inboxes, it had become the ultimate utilitarian social network—a tool for monetization.

115. The Wall Street Journal described LinkedIn's divergence from other social networks in April 2016:

> At Social Media High, Facebook is the all-star quarterback, Twitter is the school paper's editor in chief and Snapchat is the mysterious, Harley-riding transfer student. That makes LinkedIn the nerd who skips prom for the mathlympics.
>
> Yet, like in every great John Hughes movie, the underdog actually belongs in the in-crowd.
>
> Admit it. Your most frequent interaction with the world's uncoolest network is deleting those "Join my network" emails. You're not alone: 61% of LinkedIn users visit the site no more than every few weeks, according to Pew Research Center.

116. As LinkedIn "blitzscaled" users and rushed to monetize them in the first decade of the company's existence, its user experience lagged. By 2016, LinkedIn's web app was a mess, described by the Wall Street Journal as "inexcusably terrible" and "unintuitive." On the plus side, LinkedIn had created a new iOS mobile app, which included a "personalized feed of job advice and industry news."

117. At the same time, spammy InMail messages continued to be a turnoff for many on the network. As the same Wall Street Journal article recounted:

> Since everyone I accepted could message me, my inbox was full of junk. No, attorney in Indonesia, I don't need representation. Another major reason to be wary? Some of the invites could be from scammers or phishers, aiming to leverage your information.

118. By April of 2016, Pew Research reported that 18% of LinkedIn members used the service daily. LinkedIn's product had utility, particularly to those seeking to leverage the network's user base for profitable information, but it continued to be viewed as a less-engaging platform than other general purpose social networks, like Facebook. Indeed, Pew research had found that 76% of Facebook's users used its product daily in the same time frame.

119. LinkedIn had a serious problem to overcome—it needed to engage its users. Without that user engagement, LinkedIn, while useful and monetizable, would lack the critical mass of user data needed to capture the winner-take-all professional market for social networking.

120. For that, it would turn to Microsoft and cutting-edge, data-hungry artificial intelligence.

IV. LINKEDIN IS ACQUIRED BY MICROSOFT WITH AN EYE TOWARD AI-DRIVEN MONETIZATION

121. On June 14, 2016, Microsoft agreed to acquire LinkedIn for $26.2 billion—then the largest acquisition in Microsoft's history. The deal would pay $196 per LinkedIn share, a 50% premium to the social network's closing price the Friday before the announcement.

122. The business case for the merger, Microsoft CEO Satya Nadella explained, was to marry together Microsoft's office productivity software with a professional network of users. Nadella stated on the day of the merger: "It's really the coming together of the professional cloud and the professional network."

123. Many in the press saw synergies with Microsoft's software, including Microsoft's Office suite and the LinkedIn network of working professionals. As the Wall Street Journal stated when the merger was announced:

> For instance, connecting Office directly to LinkedIn could help attendees of meetings learn more about one another directly from invitations in their calendars. Sales representatives using Microsoft's Dynamics software for managing customer relationships could pick up useful tidbits of background on potential customers from LinkedIn data.

124. Those synergies may have potentially existed, but the merger brought with it an even greater potentiality—the marrying of Microsoft's artificial intelligence know-how and cloud-based hardware with the massive amount of data LinkedIn collected through its network of users.

125. LinkedIn needed to fix its engagement problem, and Microsoft could do that. As the Wall Street Journal explained:

> To achieve that end, LinkedIn needs members such as Mr. Frank to engage more frequently, updating their job titles, contacts, career achievements and more—data crucial to Microsoft's plans to integrate its expensive acquisition. Microsoft wants to pump that data into artificial-intelligence offerings, business-software services and even its Office productivity tools, such as its Outlook email and calendar programs. Artificial intelligence could help Microsoft's Dynamics business play catch-up to Salesforce.com Inc. To that end, Microsoft is using LinkedIn data to help sales representatives target fertile prospects, critical in the so-called customer-relationship management market that Gartner Inc. estimates hit $39.4 billion last year.

126. LinkedIn's focus after the merger would be not merely to scale its user base, but to blitzscale users' engagement with and on the platform.

127. The next winner-take-all market was professional data, and rapidly scaling to capture a network-driven market was in LinkedIn's DNA.

128. The acquisition, however, gave regulators pause, particularly in Europe. At the center of their angst over the deal was the marrying of Microsoft's powerful artificial intelligence with LinkedIn's unique collection of data.

129. Europe's competition chief, Margrethe Vestager, had revealed in September of 2016 that she was taking a close look at the value of the information in LinkedIn's hands and how acquisition by Microsoft could tilt the competitive playing field.

130. The press quickly homed in on the threat posed by combining various data streams together—namely, Microsoft's business data with LinkedIn's professional data. Putting together such an unprecedented combination and scale of data could lead to powerful network effects, making the acquisition problematic. As the Financial Times observed in November 2016:

> A further consideration is the network effects that are leading to the creation of increasingly powerful pools of data online. "Data gravity" is a phrase that has been used to describe the tendency for large bodies of data to attract suppliers of services and applications, who are drawn to information that makes their products more useful. That, in turn, adds to the value of amassing more data in a single place.

131. Microsoft's head of cloud and enterprise, Scott Guthrie, confirmed that Microsoft was eyeing the powerful data synergies that would result from the merger. In a November 2016 interview, Salesforce's CEO Marc Benioff recounted a speech given by Guthrie at a recent investment conference:

> [Guthrie] started talking about how he was going to wind the LinkedIn data with their CRM data, with their productivity data, with all the other data streams that Microsoft has—and especially proprietary data streams—to create what he said was essentially a barrier to entry for other players in business productivity, where they have a monopoly or other markets. And that was their vision . . . And that was something where we said, whoa, that sounds like something that's illegal, actually.

132. The FTC did not challenge the acquisition. It was not its practice to consider data aggregation in its merger clearance decisions.

133. At the time of the merger, Deborah Feinstein, the director of the FTC's Bureau of Competition, was reported as stating that the FTC had never challenged a merger on the basis of competitive practices over user data, and that if it started to challenge mergers on that basis, it could end up blocking a lot of future deals.

V. LINKEDIN'S DATA AND AI JUGGERNAUT

134. With the Microsoft acquisition, LinkedIn began focusing on increasing user engagement. Increasing that engagement meant collecting more data, which LinkedIn could then monetize through its products, including, as explained in Section VI of this Complaint, through its third-party developer platform.

135. LinkedIn would be different in Microsoft's hands. It would leverage artificial intelligence ("AI") and machine learning to achieve a new scope and depth from the network effects LinkedIn had long aggressively pursued. LinkedIn's new strategy was to use machine-learning inference to create an impenetrable barrier to entry, then aggressively monetize data and inferences on an unprecedented scale, creating a powerful feedback loop that protected LinkedIn's business from competition.

136. And the scheme has worked. LinkedIn's aggressive, AI-focused strategy and actions since its acquisition by Microsoft have resulted in a professional data aggregation, standardization, and processing apparatus that is unprecedented in size, scope, and one-way scalability. No ostensible peer comes close to LinkedIn's massive undertaking on this score. In fact, LinkedIn invented many of the tools widely used to create real-time data streams, to aggregate and standardize data, and to feed and update machine-learning algorithms.

137. This data infrastructure serves as the backbone for the powerful barrier to entry protecting LinkedIn's monopoly in the Professional Social Networking Market.

A. LinkedIn's Extraction of Structured User Data to Train Machine-Learning Models

138. On October 6, 2016, LinkedIn Engineering posted a blog post titled, "Building The LinkedIn Knowledge Graph." The post explained the ubiquity of LinkedIn's machine-learning systems across its products and network:

> At LinkedIn, we use machine learning technology widely to optimize our products: for instance, ranking search results, advertisements, and updates in the news feed, or recommending people, jobs, articles, and learning opportunities to members. An important component of this technology stack is a knowledge graph that provides input signals to machine learning models and data insight pipelines to power LinkedIn products.

139. The blog post described LinkedIn's "knowledge graph" as data arising from interrelationships between various "entities" on the LinkedIn network:

> LinkedIn's knowledge graph is a large knowledge base built upon "entities" on LinkedIn, such as members, jobs, titles, skills, companies, geographical locations, schools, etc. These entities and the relationships among them form the ontology of the professional world and are used by LinkedIn to enhance its recommender systems, search, monetization and consumer products, and business and consumer analytics.

140. LinkedIn's challenge was not only collecting this data, but cleaning it. LinkedIn employed complex systems to, among other things, standardize data, feed it into its machine-learning algorithms, generate inferential data, and make recommendations.

141. Unlike data that comes from websites, LinkedIn's data is generated from its users, meaning that its data is far less noisy than information extracted from the Internet.

142. For example, Google's extraction of data as it crawls websites is far from a standardized process. Indeed, much of Google's work goes into parsing unstructured data and imposing order on it. LinkedIn could impose that order directly from its structured user interactions.

143. As LinkedIn's engineering team explained in 2016:

> Creating a large knowledge base is a big challenge. Websites like Wikipedia and Freebase primarily rely on direct contributions from human volunteers. Other related work, such as Google's knowledge Vault and Microsoft's Satori, focuses on automatically extracting facts from the internet for constructing knowledge bases. Different from these efforts, we derive LinkedIn's knowledge graph primarily from a large amount of user-generated content from members, recruiters, advertisers, and company administrators, and supplement it with data extracted from the internet, which is noisy and can have duplicates. The knowledge graph needs to scale as new members register, new jobs are posted, new companies, skills, and titles appear in member profiles and job descriptions, etc.

144. LinkedIn solved its data problem through data standardization, a process that uses machine learning to structure data absorbed from LinkedIn's network in a way that facilitates training of machine learning models:

> To solve the challenges we face when building the LinkedIn knowledge graph, we apply machine learning techniques, which is essentially a process of data standardization on user-generated content and external data sources, in which machine learning is applied to entity taxonomy construction, entity relationship inference, data representation for downstream data consumers, insight extraction from graph, and interactive data acquisition from users to validate our inference and collect training data.

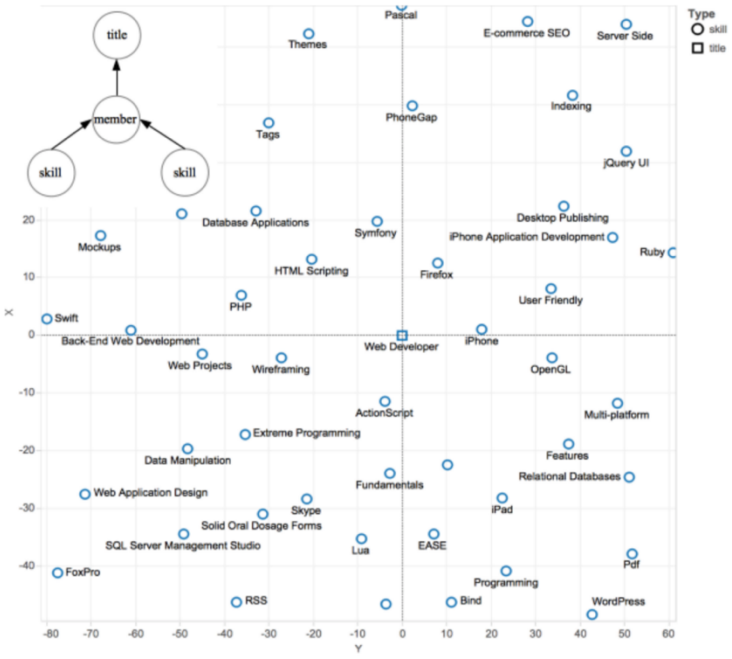
145. As LinkedIn explained, a central goal of its data extraction process is to generate "training data" for its machine learning algorithms. From there, LinkedIn can draw inferences about users, about their relationships, and most importantly, about the prospective monetization of their data.

146. Once LinkedIn data has been extracted, updated in real time, and standardized, it can be used "downstream" by consumers of that data—machine-learning algorithms:

> **Data representation**
>
> Entity taxonomies and entity relationships collectively make up the standardized version of LinkedIn data in a graph structure. Equipped with this, all downstream products can speak the same language at the data level. Application teams obtain the raw knowledge graph through a set of APIs that output the entity identifiers by taking either text or other entity identifiers as the input. Various classifiers results are represented in various structured formats, and served through Java libraries, REST APIs, Kafka (a high-throughput distributed messaging system) stream events, and HDFS files consistently with data version control. These data delivery mechanisms on the raw knowledge graph are useful for displaying, indexing, and filtering entitles in products.

147. In other words, LinkedIn standardizes the data it extracts, then centralizes it in a format that can be consumed for various purposes across many machine-learning models.

148. LinkedIn also "vectorizes" its data. This allows quantitative measurements between entities on LinkedIn's network—for example, the geometric distances between entities in a vector space. LinkedIn's 2016 blog post presents an example:



149. In the example, various entities, which could be people or concepts or technologies or products, are vectorized, and their distance from each other then becomes measurable. As LinkedIn's Engineering team explained:

> In this example, the model has a single objective, which is to predict a member's title latent vector based on simple arithmetic operations on the member's skill latent vectors. It is particularly useful to infer the entity relationship from member to title. By optimizing the model for multiple objectives simultaneously, we can then learn latent representations more generically. Representing heterogenous entities as vectors in the same latent space provides a concise way of using the knowledge graph as a data source for which we can extract various kinds of features to feed relevance models. This is particularly useful to relevance models, as it significantly reduces the feature engineering work on the knowledge graph.

150. LinkedIn, in other words, extracts properties of various entities on its network, turns them into numbers, then assembles those numbers into vectors—a mathematical representation of a point in some *n*-dimensional space, where *n* represents the number of parameters or pieces of data being modeled. Once that standardization occurs, virtually anything on LinkedIn's network can be represented and the association between and among entities quantitatively measured.

151. Data standardization and vectorization allow more sophisticated machine-learning models to be constructed—that is, models that simultaneously account for multiple relationships and attributes among entities.

152. For example, as LinkedIn's engineers explained in a 2018 academic paper about LinkedIn's recruiter search product:

> Unlike traditional search and recommendation systems which solely focus on estimating how relevant an item is for a given query, the talent search domain requires mutual interest between the recruiter and the candidate in the context of the job opportunity. In other words, we simultaneously require that a candidate shown must be relevant to the recruiter's query, and that the candidate contacted by the recruiter must also show interest in the job opportunity. Therefore, we define a new action event, *inMail Accept*, which occurs when a candidate replies to an InMail from a recruiter with a positive response. Indeed, the key business metric in the Recruiter product is based on inMail Accepts and hence we use the fraction of top *k*

> ranked candidates that received and accepted an inMail (viewed as *precision@k*[2]) as the main evaluation measure for our experiments.

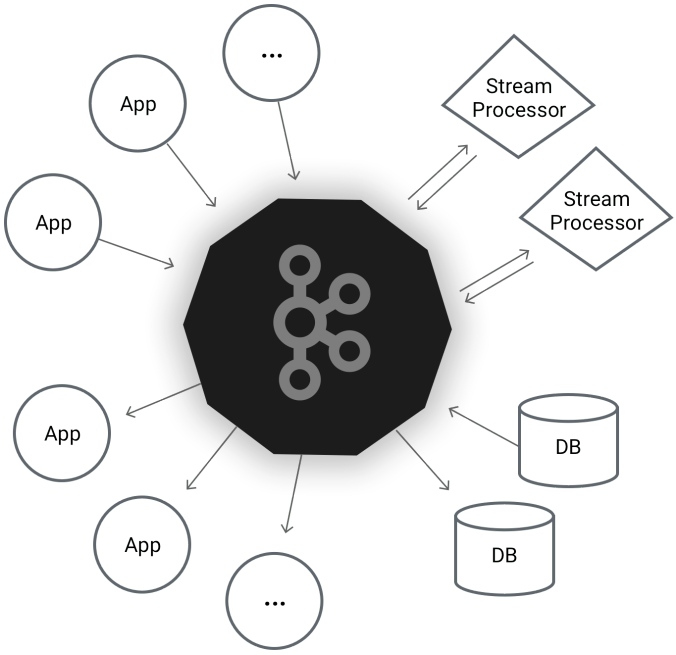
153. The standardization and vectorization of LinkedIn's massive collection of user data is the precursor input to many of the most sophisticated machine-learning algorithms used by LinkedIn and across many of its data-monetizing products.

B. LinkedIn's Data Centralization and Distribution Infrastructure

154. When LinkedIn standardizes or vectorizes the data it collects, it necessarily imposes structure on the data. And to allow multiple machine-learning models to consume that data, LinkedIn centralizes the data it gathers and structures.

155. LinkedIn uses software, sometimes open-source software modified by LinkedIn, to create "streams of data" that can be consumed by various machine-learning algorithms. In other words, LinkedIn manages a "data pipeline."

156. LinkedIn, for example, uses software called Kafka, which was built by LinkedIn and donated to the Apache Foundation. Kafka is a distributed platform that allows data to stream to various consumers of data, such as machine-learning models associated with various LinkedIn products.



157. LinkedIn's tooling, including Kafka, sits at the center of its data collection, ingestion, and distribution infrastructure.

158. Kafka allows the distribution of the data through "streams," and an additional piece of software called Gobblin allows for the integration and unification of data from various sources. As a software engineering website explained LinkedIn's "Data Infrastructure" in 2020:

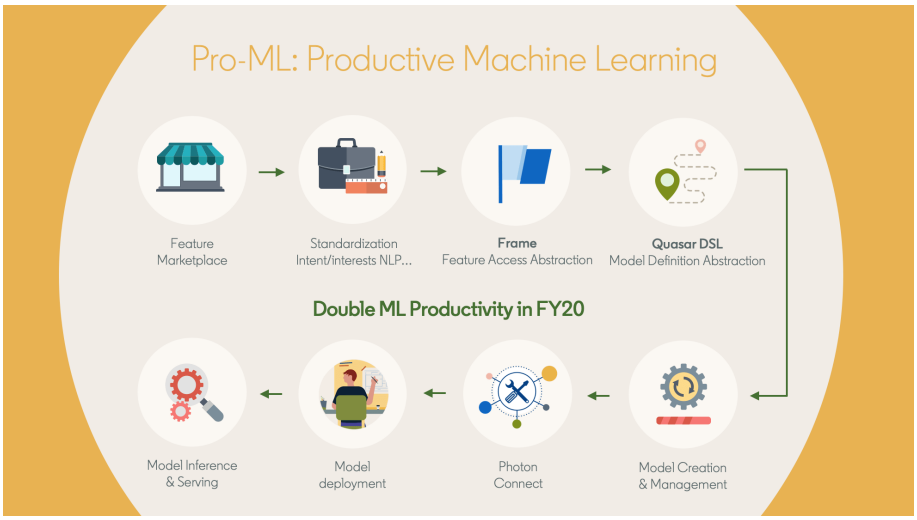
> Complementing Kafka is a tool called Gobblin, a distributed data integration framework. Gobblin is used to ease and unify the integration of data between different sources and sinks, providing scalability, fault tolerance and quality assurance in one tool. Developed initially to serve as an "uber-ingestion framework" for Hadoop at LinkedIn, Gobblin was open-sourced and donated to Apache where it has taken on new integrations and a diverse community of committers.

159. LinkedIn also creates and maintains data centralization and standardization infrastructure so that it can feed various machine-learning models throughout its organization. One such tool is called Pro-ML:

> LinkedIn has many teams for each ML application, from Feeds to Communities. Each of these areas poses unique challenges in defining the right objectives, applying the correct modeling technique, and successfully serving complex models with low latency at scale. Each model must be

> tightly integrated within the serving stack specific to its problem space. At the same time, there must be a single unified framework that provides a battery of tools to solve the myriad challenges that come with dealing with complex models that operate on a very large set of data.
>
> LinkedIn's solution is Pro-ML.
>
> The goal of Pro-ML is to double the effectiveness of machine learning engineers while simultaneously opening the tools for AI and modeling to engineers from across the LinkedIn stack.

160. As part of this tool, LinkedIn relies on a "feature marketplace" and natural-language-processing-based standardization of data, which captures user intent and interests. From that centralized data, machine-learning models can be trained and refined.

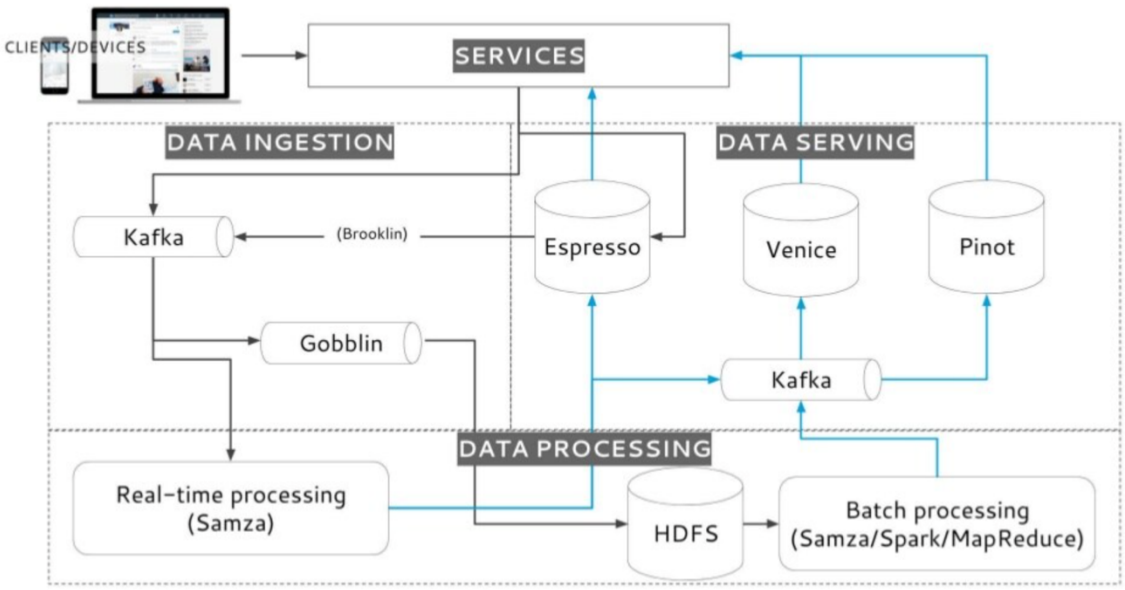


161. In other words, LinkedIn creates a centralized and standardized pool of data that machine-learning models can rely on downstream.

162. Because LinkedIn relies on these machine-learning models to drive engagement and to monetize its network, the centralization and standardization of data is a feature, not a bug. Indeed, it is the sort of thing LinkedIn engineers describe as technical accomplishments in blog posts and in academic papers.

163. LinkedIn also created and maintains a software tool called Brooklin, which, in the words of LinkedIn engineers, allows for "continuous data movement between various sources and destinations."

164. In the aggregate, these tools allow real-time ingestion of data from users on LinkedIn, whether on their cell phones or on their computers, and then the movement of structured data to various machine-learning models throughout LinkedIn's systems.



165. LinkedIn engineers described such an architecture at the 2017 Kafka Summit in New York City.

166. This massive effort is directed at structuring, centralizing, and moving user data. It is how LinkedIn created and maintains a powerful barrier to entry protecting its business, and it is also how LinkedIn is able to efficiently monetize its structured user data through various channels.

C. LinkedIn's Social, Telemetry, and Inferred Data

167. LinkedIn is able to ingest a massive amount of information from a variety of sources. LinkedIn ingests, for example, data from user interactions. As explained in a web article about LinkedIn's data infrastructure:

> The first source is transactional data from the users: every action taken by a user in the form of status updates to post "likes" and job views must be stored. The second source is telemetry data, which comes from monitoring applications to gain insight into how the different components of the platform are performing. The third source, one without an upper bound according to Surlaker, is derived data, generated by developers for

> numerous purposes such as data sets to be used for analysis and building machine learning models.

168. In other words, LinkedIn is able to extract data from users as they interact with each other. It is also able to view what users do on the platform—referred to as "telemetry." Finally, LinkedIn then creates derived data, including data inferred, structured, or vectorized from the user data it collects.

169. One example of telemetry data is perhaps from LinkedIn's mobile library called Hakawai. After LinkedIn was caught repeatedly reading from "clipboards" on users' iPhones, LinkedIn's Erran Berger explained that it was likely code embedded in its own code base that was similar to Hakawai. That code repeatedly read from iPhone clipboards, likely as part of a broader system designed for telemetry extraction while on LinkedIn's mobile app.

170. LinkedIn takes all of this data, structures it, centralizes it, then trains machine-learning and AI models that allow it to make inferences about its users—or even about organizations or groups of users.

171. LinkedIn, for example, infers common salary data for cohorts of users. LinkedIn described its Salary product in a March 22, 2020 blog post:

> LinkedIn Salary uses salary data submitted by LinkedIn members to compute user salary insights (in aggregate) for a given job title, company, and region. We share salary insights with members only once we collect a minimum amount of data so that we protect the privacy of our members who have provided their salary data, and so that salary insights are less likely to be skewed. When we don't have member-submitted data, salary insights are inferred using data between similar companies, job titles, location, and other job attributes.

172. Put simply, LinkedIn determines salary data across common users and organizations, and when it does not have direct salary data, it uses various factors to infer it.

173. As part of this process, LinkedIn will even infer relationships among a "cohort" of users:

> **Important:** The Accuracy of LinkedIn salary information depends on the availability of data for combinations of specific job titles, regions, and companies. To avoid providing inaccurate estimates inferring from invalid

> cohorts where the company may not have a presence, we ensure that we have at least five LinkedIn members with their LinkedIn profile matching the inferred cohort. Some estimates will be more accurate due to greater data availability. Others may be invalid due to outdated profile information where members forget to update their profile information after changing jobs.

174. LinkedIn infers other user attributes, such as age or gender, from other information available, such as pronouns used by a recommender or the year a user graduated from school.

175. And, when a LinkedIn user is on the web and LinkedIn does not have cookie information, LinkedIn may even "infer the association between the member and the device" being used.

176. Inferred data, such as salary data, requires machine-learning algorithms that train on the underlying data and make predictions or inferences based on that data. This ensures that no single data point is dispositive. An entire vector of data can be used all at once to make a prediction about a user, organization, or group of users.

D. LinkedIn's Acquisition of Drawbridge

177. LinkedIn also uses data it collects to determine the "identity" of a user. Specifically, LinkedIn collects data that it uses to evaluate whether a mobile user, for example, is one of the users on its network—or, more generally, to inferentially determine a particular user's identity.

178. This data-based user-identification process is probabilistic and built on machine-learning models. As LinkedIn explained on its website in 2020:

> Consumer online activity today is fragmented across different devices and platforms. Members' exposure to marketing on one device often results in engagement (such as a visit to the advertiser page and/or purchase of their product) on a different device.
>
> For members who have not logged in to LinkedIn, the LinkedIn cookie is absent, so identification is not possible. For members who are not logged in to LinkedIn and are outside the Designated Countries and Brazil, we infer the association between the member and the device.
>
> The probabilistic identity graph technology forms likely pairs/associations of IDs (such as Google Ad ID on Android or IDFA on iOS, cookies on

> browsers) to the same device and devices to the same user. More importantly, this is done such that we don't have in this system an understanding of which specific user (as identified by their member information) is involved.

179. For example, per its website, LinkedIn collects at least the following data for identity inferences:

- Cookies on a mobile or desktop browser, Google Ad ID on Android or IDFA on iOS
- Operating system, device make and model (User Agent)
- IP address
- Time of access (Time Stamp)
- Page URL or application name, as applicable

180. LinkedIn explains that the above "data [is] used to infer identity" as follows:

> The probabilistic identity graph technology forms likely pairs/associations of IDs (such as Google Ad ID on Android or IDFA on iOS, cookies on browsers) to the same device and devices to the same user. More importantly, this is done such that we don't have in this system an understanding of which specific user (as identified by their member information) is involved.

181. Identity is vital to LinkedIn's data monetization efforts. In fact, the network itself is built around the central building block of accurate, distinguishable user identity, particularly professional identity—which can be associated with characteristics and actions and monetized for value many times over to purchasers/"partners" across the Internet (and indeed, offline). One of LinkedIn's most important business priorities is therefore to collect and aggregate detailed information associated with particular user identities. From there, LinkedIn can make powerful inferences not only about that user, but about her connections.

182. In 2019, LinkedIn acquired an important piece of technology that allowed it to better identify users through machine learning. That is, on May 28, 2019, LinkedIn quietly announced the acquisition of a company called Drawbridge.

183. Drawbridge's business centered around identifying users across various devices. Drawbridge's technology could identify users across various devices with surgical precision: it claimed 97.3% accuracy in identifying users across devices and systems.

184. Drawbridge had stored these identities as part of its Connected Consumer Graph, which included more than one billion consumers across five billion digital touchpoints.

185. CNBC identified Drawbridge as one of its top "disrupters":

> This San Mateo, California-based company has built a technology platform that allows companies to identify the multiple devices (phone, laptop, tablet) that are most likely being used by the same person. This enables brands to better target their ads and messaging. So for instance, if a company is using Drawbridge's technology, the activity you're (anonymously) engaged in on your desktop or laptop could influence the ads you see pushed out to you on your smartphone. If you then make a purchase on your laptop, Drawbridge can tell the advertiser which ad prompted you to do so.

186. LinkedIn acquired Drawbridge to get at this powerful technology. LinkedIn did not disclose the price of its acquisition in May, and many speculated an 8-figure or lower price. The next month, however, it was revealed that LinkedIn paid $300 million for the company. LinkedIn's VP of marketing solutions commented after the acquisition, "Over a period of some years, it will pay for itself."

187. Not long after the Drawbridge acquisition, LinkedIn shuttered the company as a separate concern. Its tech and founders were quietly folded into LinkedIn, and a lengthy discussion of LinkedIn's "Probabilistic Identity Inferences" suddenly appeared on LinkedIn's "Marketing Solutions Help" website.

VI. THE LINKEDIN API AND THE SALE OF USER DATA TO PARTNERS

A. LinkedIn's REST and JSON API System

188. LinkedIn's social network is designed to provide information to web and other software clients in response to requests made to its servers. These requests are made through standardized interfaces—portals purpose-built to respond to queries with defined structures, which include specified information.

189. These interfaces are called Application Programming Interfaces ("APIs"). LinkedIn's APIs allow developers to make requests to LinkedIn and to receive substantive responses to their requests.

190. For example, an API request may ask for profile information about a particular LinkedIn user. Such a request would provide LinkedIn's servers with a particular category (or categories) of profile information, along with an identifier associated with the user, and the server would respond by providing the requested information to the application or system that issued the request.

191. APIs can be designed to prevent large numbers of queries—a practice often referred to as "rate limiting." APIs can also require certain permissions associated with particular request types. For example, an API may allow only certain, approved developers to obtain a user's home address or e-mail address. These approved requesters usually require some form of authentication such as a cryptographic token to identify themselves as "authorized" to an API server.

192. LinkedIn's APIs use the same technology underlying the World Wide Web. That is, requests are made to a public-facing web server, and the responses are provided in structured form.

193. This sort of web-based interface allows for a stateless series of requests, meaning that queries and responses are generally made without a prior series of prefatory requests or communications. Stateless requests are made to LinkedIn's APIs, and responses are provided in Java Script Object Notation ("JSON") format.

194. JSON responses allow for data to retain a predefined structure that can be easily parsed after it is received. For example, the query below shows a field name, followed by a field value. The open and closing curly braces create a tree-like substructure to the data, such that fields and sub-fields can be returned.

JSON Copy


```
{
   "firstName":{
      "localized":{
         "en_US":"Bob"
      },
      "preferredLocale":{
         "country":"US",
         "language":"en"
      }
   },
   "localizedFirstName": "Bob",
   "headline":{
      "localized":{
         "en_US":"API Enthusiast at LinkedIn"
      },
      "preferredLocale":{
         "country":"US",
         "language":"en"
      }
   },
   "localizedHeadline": "API Enthusiast at LinkedIn",
   "vanityName": "bsmith",
   "id":"yrZCpj2Z12",
   "lastName":{
      "localized":{
         "en_US":"Smith"
      },
      "preferredLocale":{
         "country":"US",
         "language":"en"
      }
   },
   "localizedLastName": "Smith",
   "profilePicture": {
        "displayImage": "urn:li:digitalmediaAsset:C4D00AAAAbBCDEFGhiJ"
   }
}
```


195. Through standardized responses that preserve structure, a developer querying LinkedIn's API can obtain detailed information about a user, about user's interconnections, and even about network of users.

B. LinkedIn Privatized Its APIs in 2015

196. LinkedIn initially announced its APIs in 2010 as a means for developers to build apps that could interact with LinkedIn's network of professionals. As LinkedIn explained, the APIs allowed developers to build applications based on "professional reputation and relationships."

197. Within six months of launch, LinkedIn's APIs allowed developers to query full profile information about users, as well as information about a given user's connections. As LinkedIn's Lucian Beebe explained in a June 25, 2010 blog post, titled "Greater Access and More Profile Data for Developers":

> In the past, we've returned two versions of profiles:
>
> - For your users who grant you access, you get the fully detailed profile
> - For everyone else, we return the current job information only
>
> Effective now, you will get the full profile details for users who grant you access (no change there) and also for those users's *[sic]* connections as well. This matches the site more closely and lets you present deeper insights to your users.

198. The profile information returned by the APIs included several fields. These fields were highly detailed. According to 2010 documentation for the LinkedIn APIs, the fields included:

- A member's name
- A unique identifier for the member's user account
- The degree of distance between members (*e.g.*, 1st, 2nd, or 3rd degree connections).
- The honors and association a member has.
- Educational information, including the institutions where the user obtained his education, the month-year information for each institution, and the fields of study.
- A collection of current former employment positions the member had.
- Personal information, such as birthdate, phone number, and address.

- Information about the user's instant message, twitter, and other accounts.
- Recommendation information, including identifiers for recommendations and recommendation types.

199. On February 12, 2015, LinkedIn shut off general developer access to its APIs, particularly as to profile fields for its users.

200. Instead, LinkedIn mandated that access to profile information would require an application to register with LinkedIn and obtain permission from LinkedIn to use a particular field of information.

201. LinkedIn described permissioned developers as "Partners" and charged these developers money for access to user information fields. At the time of its announcement, LinkedIn's partners included Samsung, WeChat, and Evernote.

202. The announcement came in the form of a blog post by LinkedIn's Adam Trachtenberg, titled "Changes to our Developer Program":

> Starting on May 12, 2015, we will be limiting the open APIs to only support the following uses:
>
> - Allowing members to represent their professional identity via their LinkedIn profile using our Profile API
> - Enabling members to post certification directly to their LinkedIn profile with our Add to Profile tools.
> - Enabling members to share professional content to their LinkedIn network from across the Web leveraging our Share API.
> - Enabling companies to share professional content to LinkedIn with our Company API.
>
> All other APIs will require developers to become a member of one of our partnership programs. For more information about these programs and to apply, go here. A more technical breakdown of exactly what's changing at the API level can be found in our transition guide and our updated API Terms of Use. We encourage all developers to review both documents to ensure their applications are supported and to ensure a smooth transition.

C. LinkedIn Enters into Agreements with Select "Partners" for User Data Purchases through the APIs.

203. LinkedIn immediately implemented a program through which it could monetize API-based access to detailed user information. "Partners" that were approved would often pay consideration, and in exchange, could continue to access structured user and user-network information from LinkedIn.

204. As Tech Crunch reported, the APIs would be restricted to "partners" with deep pockets:

> Use of anything beyond [the uses listed in the LinkedIn announcement] will require membership in LinkedIn's partnership programs, which are not easy to get into and which in truth mean most small developers without deep pockets or ample time likely won't be able to partake.

205. LinkedIn closely guards the identity of its "partners," including the terms of its deals with them.

206. Without discovery, the identities of LinkedIn's data-sale/-access "Partners" and the specific terms of their deals cannot be precisely determined. What is clear, however, is that LinkedIn sells these "partners" access to user data collected through its network.

207. By doing so, LinkedIn creates a dangerous vulnerability—a centralized point for an attacker to obtain a massive amount of structured user data.

VII. THE DATA, MACHINE LEARNING, AND INFERENCE BARRIER TO ENTRY

208. LinkedIn's rapid acquisition of users from its inception until its purchase by Microsoft in 2016 created powerful network effects. However, after the Microsoft purchase, LinkedIn has rapidly escalated warp and woof of its machine learning and data pipeline infrastructure, including by integrating Microsoft's powerful cloud-based machine learning / AI tools at scale into the collection, analysis, aggregation, and re-analysis of LinkedIn data. This integration has turned LinkedIn's data-based network effects into a Professional Social Networking monopoly protected by a powerful data, machine learning, and inference barrier to entry.

209. LinkedIn's data centralization, machine learning models, and resulting trove of inferred data, creates a powerful barrier to entry—a moat around its business. These three things together reinforce each other, creating a combination of machine learning systems, user data, and inferred data that a new entrant could not possibly obtain without itself reaching a critical mass of user data, a data pipeline and infrastructure to support machine-learning models, and a comparable trove of inferred data.

210. Without these three components, a new entrant could not viably compete with LinkedIn. This allows LinkedIn to charge supracompetitive prices for subscriptions. Moreover, as explained below, it allows LinkedIn to bundle its negatively valued product—the monetization of a user's data—with its expensive, paid subscriptions.

211. Put simply, this Data, Machine Learning, and Inference Barrier to Entry ("DMIBE") allows LinkedIn to extract monopoly rents in the form of subscriptions to its social network and Partner arrangements from API-using developers. The DMIBE also forces LinkedIn subscribers to pay for the privilege of having their data mined and monetized without creating any meaningful value for (or compensation to) them.

A. Data Aggregation, Centralization, and Infrastructure Effects

212. LinkedIn's centralization and standardization of data is the first synergistic component of its DMIBE.

213. No single piece of data in isolation is likely as important for inference as an entire set of information considered together. A person's height may be a loose heuristic for the ability to play basketball, but it is unlikely enough information to infer whether the person is a professional basketball player, or how the person spends their time, or whether they are even interested in basketball.

214. When many points of data, however, are combined, a model can predict the outcomes of more complex systems. For example, adding annual income and age to height would likely improve the

ability to predict if someone is in fact a professional basketball player. The more information available—particularly predictive information—the more accurate inference can be.

215. Modern machine-learning models can consume many data points about a user, interaction, or object at once. They can then make accurate inferences based on that information.

216. To use many of these machine-learning algorithms, however, the input data must be standardized and often converted into a vector. That is, information about a user must somehow be quantified or tokenized, then mapped to a common space of data so that various data points can be mathematically compared.

217. Once data is standardized, a machine-learning model can be "trained" from that data. That is, unlike a traditional computer program, which executes pre-written instructions by a "programmer," machine-learning models are often trained directly from data.

218. Large training sets allow for more robust training. Datasets that are too small may not be sufficiently predictive—they may result in "underfitted" machine learning models.

219. Thus, for example, a model that predicts whether someone is a professional basketball player solely based on height will be missing information necessary to make accurate predictions. It will be a blunt instrument that is wrong in most cases.

220. Machine learning trained on data sets that are very large may cause overfitting—meaning that the machine learning model essentially memorizes the data instead of learning from it. Those data sets need careful training, and most importantly, they need careful cleaning and standardization.

221. Because machine learning models require computationally expensive "training" based on structured data, they can be onerous to create and test. Each machine learning model may need its own unique set of standardized data. A particular machine learning model may rely only on a subset of useful

or predictive data. Moreover, different machine learning models may be designed to tolerate different levels of error.

222. For example, a machine learning model designed to carefully control a pacemaker has little room for error, whereas, a machine learning model meant to predict a person's favorite color for a user interface can be far from pinpoint accurate and yet still be good enough and indeed relatively valuable for its intended use.

223. LinkedIn tackles this problem by centralizing its data upstream. The data it acquires is fed into its data pipeline (described earlier in this Complaint), standardized, and then aggregated in a centralized place. The data can then be subsetted and consumed by "downstream" machine learning algorithms.

224. This centralization has a powerful effect. It allows LinkedIn to rapidly develop, train, and update machine-learning algorithms without having to create separate data stores for each machine learning system.

225. A new entrant is unlikely to have such a data pipeline and infrastructure. The new entrant would not merely have to obtain user data—a critical mass of it—that can rival LinkedIn in quality, quantity, and predictive value; the entrant would then have to structure the data in a way that permits (and indeed, facilitates) its transmission to and consumption by machine-learning models.

226. Although other firms, such as Google and Facebook, maintain robust and highly sophisticated data centralization and transfer pipelines, none of them have an infrastructure and pipeline centered upon the acquisition, cleaning, structuring, centralization, and machine learning analysis of professional user data that is comparable to what LinkedIn harvests and stores from its users.

227. In other words, it is not merely sufficient to have a data infrastructure or data pipeline. Nor is it sufficient to have a trove of professional user data. To replicate the data aggregation and centralization

aspect of LinkedIn's DMIBE, a new entrant or competitor would have to develop data infrastructure around a particular trove of data—in the case of LinkedIn, professional social data. Anything less would die (and, in practice, has died) on the vine due to the powerful network effects—supercharged by a massive machine learning head start that continues to grow unchecked—that fortify LinkedIn's competitive dominance.

228. To date, there are no competing firms that rival LinkedIn in this regard. Firms that maintain troves of professional social data lack the infrastructure to update that data in real time. For example, a competitor that maintains a robust list of user work history, will not have an infrastructure that automatically updates changes in employee status in real time. Nor do any firms have a means of centralizing and standardizing such data for immediate incorporation into downstream machine learning models.

B. The Effects of LinkedIn's Machine-Learning Systems

229. LinkedIn maintains sophisticated machine learning systems that are capable of inferring massive amounts of information from the user data LinkedIn harvests from its professional social network.

230. For example, LinkedIn can make inferences about a user or organization's salary information. It can make inferences about connections among users, including the degree of familiarity between them. It can draw inferences about whether a particular user would be a match to work at an organization. It can predict whether an InMail message targeted through its network will garner a response. What LinkedIn can predict based on the data it harvests from its PSN is too vast to enumerate.

231. The result of this inferential data is a powerful augmenting effect on LinkedIn's data-based competitive moat against potential PSN rivals. LinkedIn not only has access to real-time, actionable user data, it has access to a massive (and continuously growing) trove of inferences about users, about networks of users, and about the organizations they belong to.

232. Thus, even if a competitor or new entrant were to obtain the raw user information collected from LinkedIn's network users—for example, e-mail address, phone number, app telemetry data, or work history—it would not be enough to overcome LinkedIn's DMIBE. LinkedIn has already derived (and continuously derives) massive amounts of *more-actionable* information from that data using inferences from its machine learning models.

233. LinkedIn's machine learning models take vast amounts of aggregated information to train and test. A new entrant or competitor would have to build, train, and test machine learning models capable of inferring the same types and quantities of real-time, actionable information LinkedIn infers about its users in order to compete with LinkedIn head-on. And scope and quantity of inferential data is only one component: quality and accuracy of inferential data—which LinkedIn has a years-long head start on through continuous training and re-training of its models—is another feature a potential PSN competitor would need to demonstrate quickly and at scale in order to effectively compete with LinkedIn.

234. The information that LinkedIn infers from its machine learning models allows LinkedIn to target content, predict user behavior, and even precisely target users for subscriptions, all in real-time, at scale, with continuous improvement through feedback loops and ever-growing raw and inferential data.

235. The inferred data also allows LinkedIn to sell information about its users to "partners" and other paying counterparties. Without LinkedIn's inferred data, a competitor or new entrant cannot rival the value—including real-time, actionable quality—of user data LinkedIn can offer to third-parties, making LinkedIn the only viable, centralized repository of actionable professional user information.

236. To train machine learning models that can generate a rival trove of inferred data, a competitor or new entrant would have to enter at scale, with sufficient breadth, sophistication, and quality of professional data (and of tools and infrastructure to seamlessly and continuously intake, clean,

aggregate, and assemble such data) and with purpose-trained machine learning models capable of immediately generating inferred data of scope and quality sufficient to erode the DMIBE.

237. Although a core set of inferred data about a professional user could potentially be derived by a rival given enough data and machine learning technology, LinkedIn, as explained below, has taken pains to prevent anyone from securing even a toehold in that direction—including by aggressively preventing anyone from obtaining and storing even public data from LinkedIn's network.

238. LinkedIn's synergies with parent Microsoft also reinforce the repelling effects of its machine learning models on competition. Few rivals have access to sophisticated systems designed to process vectorized information.

239. To train machine learning models, including cutting edge deep neural networks, LinkedIn must use arrays of processing units designed to handle vectors of numbers. More generally, a processor that trains machine learning models will have to handle multi-dimensional information, or tensors, in order to successfully make inferences from the data.

240. Conventional central processing units in computer systems are not up to the task. Those processors do not often have the ability to handle vectors or tensor of data. Moreover, they are not designed to move massive amounts of tensor or vector information in and out of computer memory with enough speed such that a processing bottleneck does not emerge.

241. For this sort of computation, machine-learning systems rely heavily on graphics processing units ("GPUs"). Originally designed to process computer graphics, including in 3D video games, GPUs are uniquely suited to processing vectors or tensors of information at once. They are also designed to move data in and out of memory at significantly faster speeds than most general purpose CPUs.

242. In addition, some machine learning systems use specially designed processing units, called tensor processing units ("TPUs") to handle machine-learning training and inference.

243. A new PSN entrant wishing to challenge's LinkedIn's dominance would therefore not only need to obtain the data (quantity and type) required to train machine learning models, it would need voluminous (and continuous) access to expensive arrays of GPUs or TPUs to train those models. LinkedIn, by contrast, has spent the past several years using the powerful GPUs/TPUs of its corporate parent Microsoft to train and re-train its machine models—and to produce inferential professional data at scale, continuously growing and fortifying the DMIBE through a (not-so-)virtuous circle.

244. In addition, LinkedIn's machine-learning advantage is reinforced by its workforce of data scientists and machine learning engineers. In fact, LinkedIn was one of the first companies to assemble a data science team. Its data science teams, which first appeared publicly in 2014, are focused on developing new machine learning models and deriving valuable inferences from LinkedIn's user data.

245. Beginning in 2014 and 2015, LinkedIn subdivided its data science teams to pair them with LinkedIn's analytics personnel. As an October 31, 2014, Venture Beat article recounted at the beginning of this corporate shift:

> The company's data scientists—numbering close to 150 now—had the option to go with one group or the other. But for the most part, their day-to-day work consists of the same type of tasks.
>
> If anything, the reorg pairs up the analytics people, who focus on paid products like recruiting tools, with data scientists, who look into ways people use LinkedIn's free "consumer" service for connecting with others. As for the product data scientists, working with the engineering staff reduces the potential for redundancy.

246. Since then, LinkedIn has not only further developed its data science know-how and talent, it has expanded its AI and machine learning engineering team. LinkedIn has also formalized the internal process it uses to explore data and develop new machine learning models.

247. Beginning in August 2017, LinkedIn began its new initiative called "Productive Machine Learning," also referred to as "Pro-ML." The initiative was designed to break down silos among LinkedIn's machine learning teams.

248. The Pro-ML initiative standardized the way LinkedIn's machine learning teams developed new models. Under Pro-ML, the process begins with "exploring and authorizing" machine learning model prototypes; then trains the models on real-time or live data; then deploys the model, including by running the models through REST API-based services. LinkedIn tests its machine-learning systems through this standardized process.

249. Notably, LinkedIn's engineering team draws on a centralized repository of user data, called the "feature marketplace," where "ML engineers" can "search for features based on various facets including the type of feature (numerical or categorical), statistical summary, and current usage in the overall ecosystem."

250. LinkedIn not only maintains a critical mass of machine learning models, necessary GPU and TPU hardware, and engineering / data science talent; the company has developed a standardized system of developing new machine learning models.

251. In other words, to replicate (or overcome) the powerful effects LinkedIn's machine learning advantage, a new entrant or competitor would have to develop not just a talent pool of engineers and scientists, but an organizational structure that can rapidly generate, test, and deploy new machine learning models at scale.

C. The Effects of Inference

252. LinkedIn leverages the data it collects from its users to generate additional information about the user. This is data that is inferred using machine learning and AI algorithms.

253. Because inferred data about the user can only be obtained by a company that has access to the primary data collected from users ***and*** to machine-learning algorithms trained to make particular inferences, a new entrant or competitor faces a powerful barrier to entry.

254. To generate sufficient inferred data to overcome LinkedIn's DMIBE, an entrant or competitor would have to obtain a critical mass of user data, infrastructure to standardize and prepare data for use with machine learning algorithms, and then train (and continuously re-train) machine learning algorithms to generate massive amounts of inferred data.

255. Generating inferred data is not enough. Inferred data is actionable data, meaning it must be put to use. It can be used to make predictions about, for example, whether a user will respond to an InMail message, whether a user will click on advertising, whether a user's content will propagate through the social network, or whether the user is a valuable lead for marketers.

256. A rival would not only have to generate inferred data comparable to the trove of data LinkedIn possesses, but it would also have to monetize that inferred data to compete with LinkedIn. LinkedIn enjoys existing monetization channels for data, including "partner" deals for data access, subscriptions for data access, and user-targeted advertising.

257. Inferred data is closely coupled with the underlying data used to generate it. Thus, inferred data from other social networks would not be as valuable. Data inferred from a non-professional social network, for example, would have little predictive value as to whether a user is a good business-to-business lead on the LinkedIn platform.

258. Inferred data from other social networks or sources may also be poorly suited to predict behavior on LinkedIn itself, such as the likelihood of response to an InMail message.

259. Thus, even a rival that could generate inferred data about some portion of LinkedIn's user base could not replicate LinkedIn's actionable trove of inferred data about its professional social network.

VIII. LINKEDIN ANTICOMPETITIVELY MAINTAINS ITS MONOPOLY

260. Since it emerged with a monopoly in the Professional Social Network Market, LinkedIn has engaged in conduct designed to strengthen the DMIBE, extract supracompetitive subscription prices from users, and force a parasitic data-sale product on its subscription users.

A. LinkedIn Enters into Agreements to Anti-Competitively Sell User Data to "Partners" Through Its Privatized APIs

261. In 2015, LinkedIn ended most third parties' API access to its user data. From this point on, access to such data has been limited to unidentified third-party "partners" who seek and obtain permission from LinkedIn to access its data through APIs.

262. Since 2015, LinkedIn has approved API access by selected partners that provide LinkedIn with payment such as money, expenditures, and/or in-kind consideration.

263. LinkedIn's programmatic distribution of its users' data through its paid API "partners" program constitutes an overt sale of user data. Once that data leaves LinkedIn's hands, LinkedIn has no direct control over the data's security, structure, or use.

264. LinkedIn does not disclose the identity of its partners. It does not disclose the amount of money or expenditures it requires for programmatic access to its users' data, nor other concessions it extracts from partners as a quid pro quo for data access. And it provides no information about how this user data is maintained, secured, stored, mined, resold, or redistributed once it has been pulled by "partners" using LinkedIn's APIs.

265. LinkedIn also does not disclose the security measures—if any—taken by "partners" with access to users' data through LinkedIn APIs.

266. LinkedIn's "partner" agreements (the "API Agreements") do not enhance the value of the subscription products and services that LinkedIn sells to users of its professional social network. The API Agreements are nothing more than the direct monetization, by LinkedIn, of LinkedIn's structured, real-

time data about users. What's more, LinkedIn does not disclose these Agreements' terms—not to the LinkedIn social network users whose data LinkedIn is selling, nor even to LinkedIn Premium subscribers like Plaintiffs.

267. LinkedIn's monetization of user data through the API Agreements does not enhance its LinkedIn Premium subscription product in any meaningful way. LinkedIn's Premium subscribers do not benefit from having their data accessed and used in undisclosed ways, under undisclosed terms and security conditions, by undisclosed third parties. Indeed, LinkedIn's Premium product does not appear to derive any of its value to subscribers from API "partner" access to and use of subscriber data.

268. Paid access to LinkedIn's APIs also creates public-facing, permissioned endpoints that permit external access to LinkedIn's massive trove of user data, which data has been carefully structured, cleaned, and centralized for programmatic use and consumption.

269. LinkedIn's structuring and centralization of vast quantities of user data for consumption and analysis by ML / AI tools and other systems creates a substantial security and data privacy risk. Specifically, if LinkedIn's systems were to be compromised, a malicious actor could access massive amounts of structured data stored centrally.

270. LinkedIn's data sale through its API partner program greatly exacerbates this already substantial security and data privacy risk, because it creates and promulgates a public-facing means (indeed, an entire set of them, including test interfaces and other easy-to-overlook public-facing endpoints) for third-party systems outside of LinkedIn's internal ecosystem/network to query and use LinkedIn's structured data.

271. Even carefully permissioned APIs may be potentially compromised from outside of LinkedIn's systems; but maintaining a broad set of public-facing but secretive endpoints that permit (and indeed, are designed to facilitate) paid third-party access to centralized, cleaned, structured data of

LinkedIn users is a security and data privacy nightmare. And this security and data privacy nightmare has reared its head repeatedly over the past few years, which have seen in substantial exfiltration and perhaps misuse of LinkedIn user data, including the data of Premium subscribers.

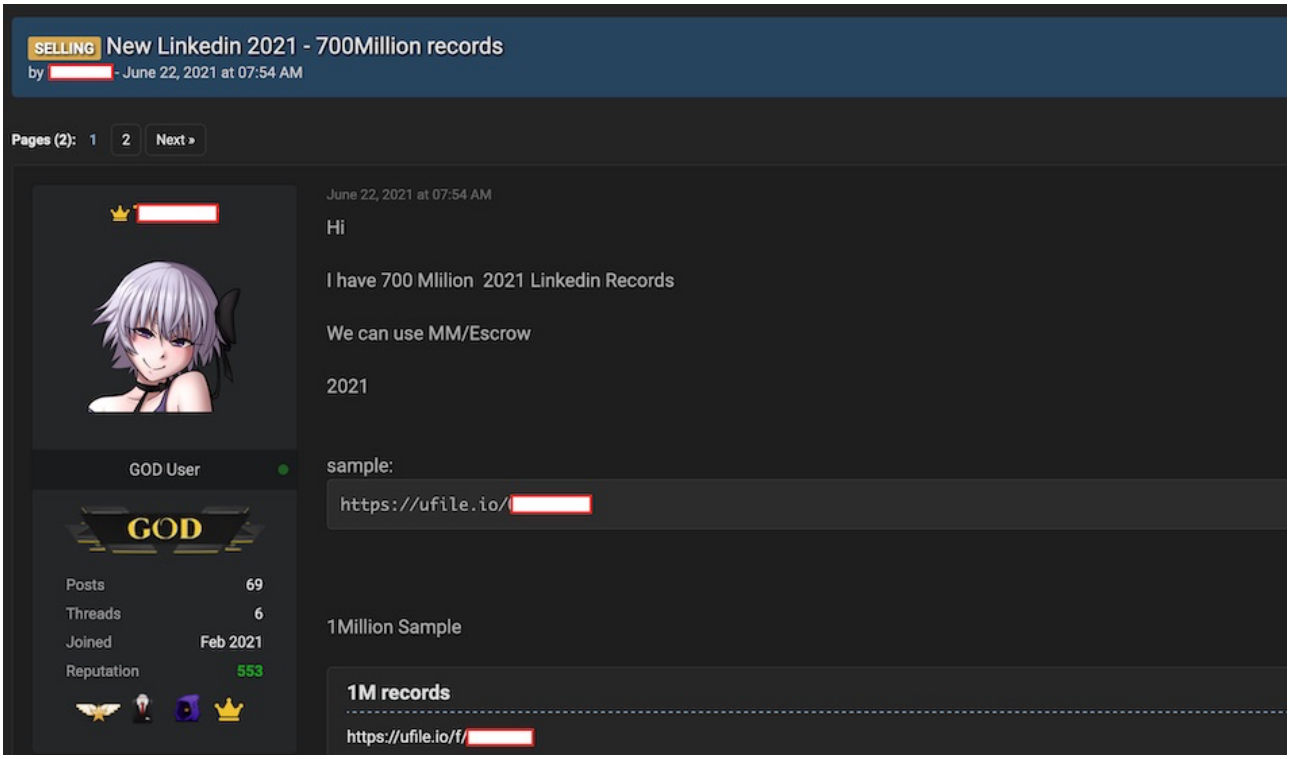
272. As cybersecurity expert David Greer explained in a February 13, 2019, blog post, many of the massive data breaches that have occurred in recent years have been the result of API vulnerabilities:

> You've heard that nation-state hackers stole 145 million consumer records in the 2017 Equifax breach. Did you know that this attack and breaches at Amazon, Facebook, T-Mobile, and the Black Hat security conference all targeted vulnerable APIs?
>
> Thanks to APIs, your consumers, employees, and partners benefit from robust applications with rich features. But cyberthugs profit too, because they can leverage APIs and their flaws to get to your data.

273. LinkedIn's integration with Azure (described, *infra*) further increases the attack surface from LinkedIn's sale of user data sale through its API partner program, as API keys may be stored on Azure cloud-based systems, which if compromised, would provide access to otherwise carefully permissioned API resources.

274. Moreover, LinkedIn's APIs appear to be—at least in part—the purported source of some of the data currently being sold on the dark web.

275. For example, on June 22, 2021, a user of a popular hacker forum advertised data from 700 million LinkedIn users for sale.



276. The forum user posted a sample of the data that included 1 million LinkedIn users. The trove of information included e-mail addresses, full names, phone numbers, physical addresses, Geolocation records, LinkedIn username and profile URL, personal and professional experience, background, gender, and other social media accounts and user names.

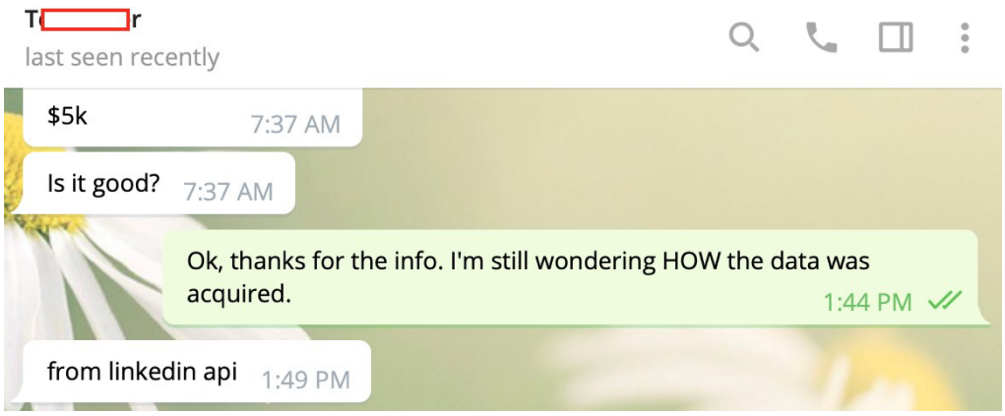
277. The June 22, 2021, trove of data purportedly covered 92% of LinkedIn users. The data also included other fields, such as "inferred_salary" and "inferred_years_experience."

"full_name":"charlie [redacted]","gender":"male",
"linkedin.com/[redacted]5",
"linkedin_username":"charlie-[redacted]5","linkedin_id":"2[redacted]3",
"facebook_url":"facebook.com/v[redacted]",
"facebook_username":"v[redacted]",
"facebook_id":"1[redacted]5",
"work_email":"c[redacted]com",
"mobile_phone":"+15[redacted]8",
"industry":"biotechnology",
"location_name":"cambridge, massachusetts, united states",
"location_metro":"boston, massachusetts"
"location_geo":"42.37,-71.10","location_last_updated":"2020-12-01",
"linkedin_connections":120,"inferred_salary":"[redacted]",
"inferred_years_experience":5,
"summary":"I am a moti[redacted]
"full_name":"mehari [redacted]"
"linkedin_url":"linkedin.com/[redacted]",
"linkedin_username":"mehari-[redacted]55",

278. LinkedIn quickly responded to reports of its compromised data with a carefully worded statement that blamed the information's release on data scrapers, and suggested that some of the data may have come from sources other than LinkedIn.

279. LinkedIn never clearly stated what portion of the data came from it and its APIs.

280. But, when cybersecurity journalists interacted with the purveyor of the LinkedIn data, they asked about its source. The seller stated that the data came from the LinkedIn API.



281. In any event, whether some, all, or none of the data posted on the dark web in June 2021 ultimately came from the LinkedIn APIs is immaterial to the ultimate point: exposing centralized repositories of structured data to public-facing endpoints—even ostensibly permissioned ones—creates a substantial, widely recognized, and frequently exploited security and privacy risk to that data.

282. In some cases, a degree of data access security/privacy risk may be justifiable as part of a particular product or service—*e.g.,* because the product or service requires third-party data access to function, and only those specific third parties are provided carefully-controlled data access in connection with the product or service.

283. LinkedIn's API partner program does not fall within the above category of data access. The question is not close, especially in connection with LinkedIn's Premium subscription product. LinkedIn's API Agreements are not necessary to LinkedIn's Premium subscription product. LinkedIn user data is not made broadly accessible, such that its availability would promote competition. Instead, LinkedIn sells Premium users' data to unnamed third parties, under undisclosed terms, through poorly documented and impossible-to-secure private endpoints. And the users themselves—even those that pay significant monthly fees to LinkedIn for its Premium product—do not receive any portion of the fees or value collected by LinkedIn in exchange for their data.

284. The harm to LinkedIn Premium users from having their data internally centralized, aggregated, structured, and then exposed through public-facing endpoints through LinkedIn's API program greatly outweighs any procompetitive effects of selling user data through the API Agreements. The sole purpose of this API data sale is to allow LinkedIn to further monetize its users' data in addition to collecting subscription fees from Premium users; it offers no discernible consumer benefit to Premium subscribers, nor to consumers generally (given that the data sale is private and secretive, and indeed

intentionally and carefully designed to avoid creating a competitive market for such user data), let alone a substantial one.

285. LinkedIn further externalizes the risk to user data, including Premium users' data, by failing to tell consumers—including Premium subscribers—precisely who has access to their data, on what terms, for what purpose, and under what security conditions. If, for example, some user data made accessible to a third party through LinkedIn's API program were to be compromised (which may already have happened, and indeed likely has, perhaps repeatedly and continuously), there is no clear or disclosed means for LinkedIn—let alone its users (including Premium subscribers), whose data would be the subject of such compromise—to monitor or mitigate such an event.

286. As explained below (§ IX, *infra*), LinkedIn's sale of user data through its APIs does nothing more than allow LinkedIn to extract monopoly prices for the data, reinforce the DMIBE, and maintain its monopoly over professional social networking. There are no apparent procompetitive effects.

287. Moreover, the conduct creates a dangerous vulnerability that allows an attacker access to massive amounts of structured user and Premium subscriber data in a centralized place.

B. LinkedIn Employs Technical Countermeasures to Prevent Rivals or Potential Entrants from Obtaining Even Data Users Have Decided to Make Public

288. LinkedIn also reinforces the DMIBE by anticompetitively deploying technological countermeasures that prevent rivals and potential entrants from accessing even public data that LinkedIn's users ***want*** to be publicly available.

289. LinkedIn allows users to create a web presence. A LinkedIn profile page is essentially a user's public CV. LinkedIn users who opt to make their profiles (or some portion of their profiles) publicly available derive value from their LinkedIn profile appearing in search results.

290. Public LinkedIn profiles can be used to vet a new contact, conduct business due diligence, or even to coordinate meetings among relevant stakeholders.

291. For LinkedIn, however, public access to its users' data means that others—including potential rivals, competitors, or entrants in the professional social networking market—could potentially obtain LinkedIn user data, save that data, and augment it with their own data.

292. This potential ability of a would-be rival, competitor, or entrant to create a trove of user information and profiles is a threat to LinkedIn's DMIBE, which is reinforced by LinkedIn's critical mass of users and user data.

293. To prevent potential rivals from creating their own trove of user data, LinkedIn uses technological countermeasures to restrict access to user information that LinkedIn users have decided to make public.

294. LinkedIn, for example, uses technology it developed called FUSE to limit requests from LinkedIn members to its servers. FUSE detects high volume requests, particularly of certain types of content (such as other users' profiles) and denies service to such requests. The technology is specifically designed to prevent automated access to LinkedIn users' data, even if public.

295. LinkedIn also uses technology called Quicksand. This technology analyzes patterns of webpage requests to determine whether the requester is a computer program designed to consume LinkedIn data.

296. LinkedIn also employs a technology called Sentinel, which analyzes any attempt to obtain public LinkedIn data and blocks requests from any source deemed "suspicious" by LinkedIn.

297. LinkedIn even monitors blocks of IP addresses using what it calls its Org Block system. This includes a manual list of known IP addresses LinkedIn believes belong to competitive (or potentially competitive) companies seeking to obtain public LinkedIn data.

298. LinkedIn, moreover, overtly discriminates as to who can obtain user information that a LinkedIn user herself has set to public. LinkedIn, for example, whitelists companies such as Google. A

"whitelisted" company or source is essentially exempted from LinkedIn's technological countermeasures.

299. LinkedIn's technological countermeasures against certain types of access to ostensibly public LinkedIn user data reinforce and strengthen the DMIBE by ensuring that rivals (and potential rivals) cannot obtain baseline professional information about LinkedIn's user base. That baseline information, once obtained, could be augmented with other sources of information and even machine-learning based inference, thereby potentially allowing meaningful entry and competition against LinkedIn in the professional social networking market. But instead, LinkedIn's technological countermeasures—***deployed to limit access to data that users affirmatively seek to make public***—ensure that rivals and potential entrants never obtain even the baseline public information they would need to construct a rival professional social network and trove of professional data.

C. LinkedIn Strengthened the Data, Machine Learning, and Infrastructure Barrier to Entry by Integrating with Parent Microsoft's Azure Cloud and AI Systems

300. Although LinkedIn initially maintained its own servers after its 2016 acquisition by Microsoft, it announced in July 2019 that it would transition to Microsoft's Azure server cloud.

301. LinkedIn's integration of its standardized and structured trove of user data (and inferred data) with Microsoft's powerful AI technology and GPU hardware massively strengthens the DMIBE, sealing out potential rivals from competing with LinkedIn in the professional social networking market.

302. Indeed, there are today only three major private-sector entities with massive on-demand computational capacity that includes substantial, scalably deployable GPUs or TPUs: Google (through Google Cloud), Amazon (through Amazon Web Services), and Microsoft (through Azure).

303. LinkedIn's combination of its vast, standardized and structured data acquisition, aggregation, and cleaning pipeline and infrastructure with Microsoft's on-demand, scalable computational hardware and public cloud systems creates an unrivaled (and unrival-able) combination to

reinforce, fortify, and maintain the DMIBE protecting LinkedIn's professional social networking dominance. The Microsoft-LinkedIn integration, once Azure was fully deployed on LinkedIn data, fused (and fuses) LinkedIn's valuable infrastructure, machine-learning, and user data with Microsoft's public cloud systems and GPU arrays.

304. This integration significantly—potentially irretrievably—fortified (and fortifies) the DMIBE, preventing even a powerful new entrant like Google or Amazon from competing directly with LinkedIn without first acquiring a critical mass of professional user data and the machine-learning capacity to mine that data.

305. LinkedIn explained the move in a blog post by Senior Vice President of Engineering Mohak Shroff on July 23, 2019:

> As we've grown, our engineering team created a world class infrastructure and a set of tools and products to make it all possible. We've built a data infrastructure that operates at a scale very few companies have achieved. We've never shied away from challenges, which includes rebuilding our entire software development infrastructure with Project Inversion, and we've developed and open sourced world-class technologies, including Kafka that fields 4.5 trillion messages a day for LinkedIn.
>
> Today's technology landscape makes the need for constant reinvention paramount, especially as we look to scale our infrastructure to drive the next stage of LinkedIn's growth. With the incredible member and business growth we're seeing, we've decided to begin a multi-year migration of all LinkedIn workloads to the public cloud.
>
> In recent years, we've leveraged a number of Azure technologies in ways that have had notable impact on our business. The agility, capacity and elasticity that Azure provides has allowed us to accelerate video post-delivery, improve machine translation in the Feed and keep inappropriate content off our site. That success, coupled with the opportunity to leverage the relationship we've built with Microsoft, made Azure the obvious choice. Moving to Azure will give us access to a wide array of hardware and software innovations, and unprecedented global scale. This will position us to focus on areas where we can deliver unique value to our members and customers. The cloud holds the future for us and we are confident that Azure is the right platform to build on for years to come.

306. LinkedIn's full adoption of Microsoft's public cloud in 2019 was the beginning of a powerful augmentation of the machine-learning effects contributing to the DMIBE. LinkedIn's machine-learning models could now be trained using the world's second largest array of cloud-based hardware—hardware uniquely designed to fuel machine-learning and AI systems.

307. The integration was slated to occur in phases, beginning with the back-end and machine-learning infrastructure.

308. LinkedIn's CTO Raghu Hiremagalur estimated in January 2020 that by 2021, LinkedIn would begin integrating the customer-facing aspects of its business with Azure.

309. LinkedIn's integration with its parent company's Azure cloud product gives LinkedIn access to approximately 20% of the total public cloud infrastructure (by expenditures) worldwide.

310. Azure's public cloud infrastructure not only allows LinkedIn on-demand access to massive GPU arrays from its parent Microsoft, it allows LinkedIn to auto-scale its use of that hardware based on demand.

311. Moreover, Microsoft announced on June 1, 2021, that it would be providing massive, supercomputer grade GPU computing capacity through its Azure cloud infrastructure:

> Today Azure announces the general availability of Azure ND A100 v4 Cloud GPU instances—powered by NVIDIA A100 Tensor Core GPUs—achieving leadership-class supercomputing scalability in a public cloud. For demanding customers chasing the next frontier of AI and high-performance computing (HPC), scalability is the key to unlicking improved total Cost of Solutions and Time-to-Solution.
>
> Simply put, ND A100 v4—powered by NVIDIA A100 GPUs—is designed to let our most demanding customers scale up and scale out without slowing down.

312. In other words, LinkedIn's migration to its parent company's Azure cloud infrastructure now allows LinkedIn on-demand, dynamically scalable access to the most cutting-edge arrays of GPU

hardware. This represents a significant fortification of the DMIBE surrounding LinkedIn's professional social networking dominance.

313. Moreover, unlike other third-parties that use Microsoft's Azure product, LinkedIn's use of its parent's product comes with a significant cost advantage. That is, LinkedIn and Microsoft can share resources without any meaningful cost to LinkedIn.

314. Indeed, as LinkedIn's Shroff told the press after the 2019 announcement, the migration would be "cost neutral," even though LinkedIn's data acquisition and analysis apparatus likely uses tens of millions of dollars worth (if not more) of expensive, high-end on-demand computing power and services from Azure every quarter.

315. For rivals or potential entrants in the professional social networking market, the massive, on-demand use of a public cloud's top-shelf GPU arrays and AI infrastructure would be far from "cost-neutral"—it would in many cases be cost prohibitive.

316. Moreover, the fusion of LinkedIn's data pipeline and infrastructure with its corporate parent's cloud services arm was neither necessary nor inevitable. LinkedIn was (and remains) capable of designing and operating its own software and hardware infrastructure for its machine-learning applications. LinkedIn's integration with Azure was (and is) not necessary for LinkedIn to maintain its member products and services, and the anticompetitive effects (including the fortification of the DMIBE protecting LinkedIn's professional social networking dominance) of fusing LinkedIn's massive data and machine-learning infrastructure with Microsoft's hardware, cloud systems, and business data from office productivity applications substantially outweighs any procompetitive effects.

IX. LINKEDIN AGREES WITH FACEBOOK TO DIVIDE THE MARKET

317. LinkedIn also expressly or tacitly entered into an agreement with Facebook to preserve its unopposed position in the Professional Social Networking Market. To this day, Facebook has not entered the Professional Social Networking Market, and as a result LinkedIn's dominance of that market has

strengthened, grown, and solidified, allowing LinkedIn to charge supracompetitive prices to LinkedIn Premium subscribers like Plaintiffs and to forcibly bundle a negative-value data sale feature with such subscriptions.

A. LinkedIn and Facebook Were Poised to Compete Before 2015

318. As Facebook amassed a large trove of data from its users, including information about their work histories, it appeared inevitable by 2014 that Facebook would next challenge LinkedIn for a portion of the lucrative, and LinkedIn-dominated Professional Social Networking market.

319. Facebook's social network had long been banned in many workplaces, making it difficult to leverage its control over general social networking into the office. In November 2014, however, Facebook was planning its first foray into the workplace, announcing a new product called Facebook at Work.

320. The Financial Times broke the news in a November 16, 2014 article:

> Facebook is secretly working on a new website called "Facebook at Work" to get a foothold in the office that will see the social network of more than 1bn people compete directly with Google, Microsoft and LinkedIn.
>
> The Silicon Valley company is developing a new product designed to allow users to chat with colleagues, connect with professional contacts and collaborate over documents, competing with Google Drive and Microsoft Office, according to people familiar with the matter.
>
> The new site will look very much like Facebook—with a newsfeed and groups—but will allow users to keep their personal profile with its holiday photos, political rants and silly videos separate from their work identity. Facebook declined to comment.

321. The speculation was that Facebook would create a new social network that would be segregated from its general, personal social network, providing the sort of professional identity and focus needed for connections and communications specific to the business world. In other words, the expectation was that Facebook's new product would challenge both Google's office productivity suite and LinkedIn's professional social network:

> Facebook's new product could take market share from LinkedIn, the social network for professionals with 90m active monthly users. LinkedIn has become the dominant site for online business networking, but Facebook at Work could also challenge Google's drive, email and chat products and Microsoft's Outlook email service, Office software and Yammer, the corporate social network it bought for $1.2bn in 2012.

322. The Wall Street Journal echoed the speculation of impending competition the next day, noting the natural synergy between Facebook's massive user base and the market it would likely attempt to penetrate:

> Facebook will bring one big asset to the enterprise: Its social network is one of the most commonly used pieces of software, with 1.3 billion users. Facebook at Work will look very similar to the online social network, the person briefed on the matter said, which could help speed up its adoption in workplaces.

323. Speculation about competition between LinkedIn and Facebook reached a fever pitch by December 2015. A December 2, 2015, Forbes Article entitled, "Is LinkedIn Ready to Face Competition?" summarized the sense of expectancy:

> LinkedIn could face intense competition from "Facebook at Work", which was launched in beta version in the beginning of this year and might be rolled out by the end of 2015, and other new entrants such as Connectifier. While currently LinkedIn competes with other local players such as Xing in Germany and Viadeo in France, given its nearly 400 million strong user base and global presence (spread across 200+ countries), it does not face a serious threat from these local players. However, Facebook@Work and innovative product offerings by smaller start-ups could have the potential to grab a piece of LinkedIn's pie.

324. LinkedIn's dominance in the Professional Social Networking market was unchallenged by the end of 2015, and none of its potential (small) competitors—which were mostly in Europe—were serious threats. The only company that could pose a serious threat to LinkedIn's massive user base (and data store) was Facebook, and the consensus was that Facebook's existing social network could be leveraged to gain a foothold in professional social networking.

325. As Forbes observed, Facebook's user base was its best chance at competing with LinkedIn:

> At the end of Q3 2015, LinkedIn had 396 million members while Facebook has more than a billion monthly active users. As Facebook prepares to launch its professional version, Facebook@work, the popularity of the social networking site can give a head start to its professional version by attracting more corporate users and employees. Although Facebook is banned at several workplaces, the professional version, if separated from its social counterpart, has the potential to become highly popular. If successful, it might be easier for Facebook@Work to surpass LinkedIn's user base. While Facebook at Work will allow users to connect with professional contacts, its recruiting features are not known. Currently LinkedIn is the most popular social recruiting website, and we expect it to reach 100,000 corporate clients by the end of our forecast period.
>
> Facebook@Work is still in initial stages and is yet to prove its potential, especially in the social recruiting space. Its success depends on user preference to use the same platform for social and professional networking, engagement levels and innovative features offered. However, it does pose a threat to LinkedIn given Facebook's wider reach and a better product offering would be key for LinkedIn to counter this threat.

326. From all public indications, competition was inevitable. Facebook's general user base could potentially translate into a specialized, professional social network if Facebook's new product could penetrate the workplace with sufficient features to garner a critical mass of users and employers.

327. Facebook and LinkedIn, however, had other plans. As explained below, the expected competition never came. LinkedIn—to this day—remains unchallenged in the Professional Social Networking Market. And, because of the powerful DMIBE, LinkedIn's monopoly may potentially be unchallengeable today, even by Facebook. Consumers—especially LinkedIn Premium subscribers like Plaintiffs who have to pay supracompetitive prices and endure negative-value data sale bundling due to the absence of competitive checks or offerings—have suffered and continue to suffer antitrust injury as a result.

B. Internally, LinkedIn and Facebook Secretly Negotiated an Agreement

328. In 2013 and 2014, Facebook and its senior executives saw LinkedIn as a significant competitive problem.

329. Internal documents from Facebook released by NBC News in 2019 paint a detailed picture of the potential competitive threat LinkedIn posed to Facebook—and vice versa.

330. According to these public documents, which include e-mails, Facebook internally identified LinkedIn as a competitive threat as part of an internal audit to target potentially competitive applications.

331. Facebook's audit was used to prevent competitive applications from accessing Facebook user data through Facebook Platform APIs and other endpoints without a company-to-company agreement in place.

332. Facebook had discovered from its audit that LinkedIn was using Facebook's Platform to pull information about Facebook users' friends. In the fall of 2013, Facebook Vice President Chris Daniels wrote:[1]

> I'm really uncomfortable with LinkedIn. Can you easily find out when they started to pull friends, etc.?
>
> The reason I ask is that we had discussions with them 6-9 months ago where we told them not to access our APIs until we worked out an agreement both ways, but it seems they unilaterally decided to do so.

333. As Daniels noted, the companies had been in negotiations and had negotiated a temporary standstill in pulling data from each other's Platforms until their negotiations for a data exchange was complete. LinkedIn had nonetheless continued to pull Facebook user data as part of its arms race for user identities.

[1] All references to Facebook documents and information are based on publicly available documents published by NBC News at https://www.nbcnews.com/news/all/leaked-documents-show-facebook-leveraged-user-data-fight-rivals-help-n1076986 (accessed Dec. 8, 2021).

334. Facebook Vice President Konstantinos Papamiltiadis responded to Daniels on September 24, 2013, promising to obtain more information about LinkedIn's use of Facebook's APIs:

> Unfortunately, I can't find API logs beyond the last 3- days. Need to double check with someone from the e-team in case I am missing something though.
>
> In the meantime, as far as I can tell from insights, around mid April, the API calls LinkedIn makes have doubled while the number of DAUs remained flat. The attached slide may give you an idea of this increase.
>
> I will revert back with an update if I can pull more specific data.

335. Facebook had internally categorized apps it deemed potentially competitive. It had categorized LinkedIn as competitive in the "reputation" category—a category which Facebook intended to move into in the 2013 time frame. As Daniels explained in an e-mail on September 23, 2013:

> This is great. I'm most interested in seeing what apps that we are going to put into the audit in each category. For example, some apps I do want to review and keep an eye on include:
>
> -LinkedIn (I assume falls into "reputation"?)
>
> -Sync.me (contacts)
>
> -Airbnb (I assume that this falls under you're *[sic]* "reputation" bucket?)

336. By November 10, 2013, Facebook internally began considering limiting LinkedIn's access to Facebook user data that could be used to compete with a potential Facebook product in the future—that is, unless the parties could reach an agreement.

337. One type of data Facebook was concerned about was user Facebook users' "work history." In an e-mail thread tiled "The LinkedIn Scenario" dated November 10, 2013, Papamiltiadis explained the issue to Facebook's Eddie O'Neil:

> As you may recall, we had a chat a few days back on how best to deal with LinkedIn going forward. Indeed to understand a few things with regards to your current thinking about Unified Review, PS12n and how the "competitive businesses" will be treated, in order to decide whether we should take action now or leave for late PS12n comes to light.

> 1. Are we deprecating the ability for developers to access work history generally?
>
> My current understanding is that this won't be deprecated, but depending on the use case under which the data is used, we can allow devs to access work history as part of the Unified Review.
>
> 2. Is PS12N changing the definition of what is competitive today?
>
> This is a grey area for me. Last time we talked, the plan was not ready to be distributed to a wider audience, but could you give me an idea of what constitutes competitive and how we are planning to treat them differently? i.e. less permissions, restrict access to APIs, block them all together, etc.
>
> 3. How specifically will PS12n impact LinkedIn?
>
> If none of the above 2 will apply to LinkedIn, do you foresee them being affected somehow?

338. Unless LinkedIn and Facebook came to a data reciprocity agreement, LinkedIn would be treated like other "competitive" developers and prevented from accessing valuable user data, including data about Facebook's users' friends.

339. Papamiltiadis also internally searched for a bargaining chip in the negotiations with LinkedIn, including a potential violation of Facebook's policies that could be used as a fig leaf for exclusion that could then be leveraged over LinkedIn:

> Just fyi, when the DevOps team reviewed LinkedIn recently for me, there could not find a noticeable Policy Violation that would allow us to block them from accessing sensitive data. In terms of the plan, my current thinking is to allow them to use the data but push them into a direction where:
>
> 1/ User changing jobs and announcing that on LinkedIn will be able to share on FB
>
> 2/ User's *[sic]* being promoted and changing titles on LinkedIn will be able to share on FB
>
> 3/ Other lifetime events, such as Education History, Qualifications, etc should be shared on FB.

> At this point of time, sharing a status update posted on LinkedIn to FB is not good enough for me, but is deemed good enough in terms of reciprocity.

340. In other words, Facebook wanted more than merely sharing a status update posted on LinkedIn to Facebook in order to allow LinkedIn access to its friends data. Even though that would likely be enough "in terms of reciprocity" for other developers, it was not "good enough" for Facebook in terms of its dealings with LinkedIn.

341. The NBC News documents do not contain any additional information about the negotiations between LinkedIn and Facebook as 2014 rolled around and Facebook publicly prepared to enter the Professional Social Networking market in earnest and with great public fanfare, as reported throughout domestic and international news media. But was followed was striking.

342. As explained below, Facebook never entered the Professional Social Networking market. Even though Facebook possessed massive amounts of user data (including job history and other ostensibly professional data), and even though Facebook had a billion-person active user base (compared to LinkedIn's then-400 million), and even though Facebook ***actually announced*** its imminent entry into the Professional Social Networking space, Facebook never ended up releasing a Professional Social Networking product. Instead, LinkedIn's dominance—and indeed, monopoly—in the Professional Social Networking market has remained and in fact solidified in the absence of meaningful entry or competition, allowing LinkedIn to charge supracompetitive prices and bundle negative-value data policies. And Facebook has moved into numerous other markets in search of additional revenue, profits, and diversification, but not the obvious one it stood poised to enter in 2014-2015.

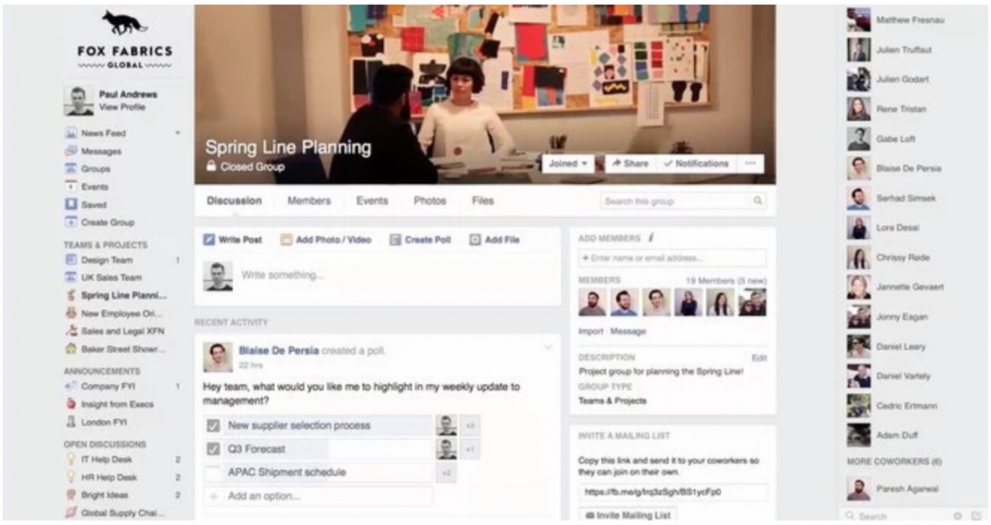
C. After the Negotiations, Facebook Never Entered the Market with a Rival Product

343. On April 30, 2015, Facebook removed developer access to its APIs, with the exception of hand-picked developers that it had struck agreements with.

344. From 2015 until the present, all competition between Facebook and LinkedIn has stopped in its tracks. None of the speculation about Facebook@Work came to fruition.

345. In fact, when Facebook finally announced its for-businesses product, it appeared to be a clone of Slack and other file management and communication software. There was no professional social network—the very product type that Facebook was known for, and that its business was centered around monetizing.

346. By 2016, the Facebook@Work product was rebranded as Workplace, and it had a glaring piece missing—there was no professional social network bundled with (or even included in) its features.



347. Instead, the product appeared to provide organizations an internal communications tool. It was ***not*** geared towards providing a public professional profile. There was ***no subscription product*** to rival LinkedIn. There was ***no professional social network*** with similar features.

348. It was clear: Facebook was staying out of LinkedIn's lane. It appeared that Facebook had gutted its new product of any professional social networking features that directly competed with LinkedIn.

349. Indeed, Facebook's announcement of Workplace described the new product as a communications tool, not the LinkedIn killer everyone had expected:

> The workplace is about more than just communicating between desks within the wall of an office. Some people spend their entire workday on the go, on their mobile phone. Others spend all day out in the field, or on the road. We've been amazed by the breadth of organizations who've embraced Workplace—from a shipping company that can now connect with their ship crews using live video, to a bank that now uses Workplace instead of fax machines and newsletters to share updates with its distributed bank branches. Large multinational companies like Danone, Starbucks and Booking.com, international nonprofits like Oxfam, and regional leaders such as YES Bank in India and the Government Technology Agency of Singapore have all embraced Workplace. People work in different ways, around the world, and Workplace's mission is to help them stay connected.

350. Facebook's new Workplace product allowed the creation of groups, internal updates, newsletters, video chat and other communications, but inexplicably cut out features that directly competed with LinkedIn's professional social network. The product was entirely directed towards internal communications at organizations.

351. At the same time, seeking diversification and profits from its dominance in general social networking, over the past decade Facebook aggressively entered almost every conceivable Internet application market, but from 2015 until the present, never set foot in the Professional Social Networking market. This despite Facebook's near-perfect competitive profile to enter it.

352. For example, over the past decade:

- Facebook challenged ad giant Google for internet advertising and user tracking.
- Facebook acquired Instagram, directly competing with photo sharing and microblogging apps, including Twitter.
- Facebook aggressively moved into video sharing and streaming with its Facebook Live product.
- Facebook launched its Messenger product and even spent billions acquiring WhatsApp.
- Facebook bought a virtual reality company—Oculus Rift.

- During the period from 2015 until the present, Facebook made several forays into payments, taking on the likes of PayPal and Venmo.
- Facebook's Marketplace product directly challenged eBay and Amazon. Facebook even planned a cryptocurrency called Libra.

353. LinkedIn moved into every conceivably adjacent market to its personal social network product. Not once, however, did it venture into LinkedIn's Professional Social Networking territory during this same period. And this despite a soft announcement that Facebook would do just that in 2014-2015—and the supracompetitive profits that LinkedIn has consistently and increasingly derived from the Professional Social Networking market since 2015.

354. Indeed, over the past several years, Facebook even launched a product for job postings, but again, did not attempt to create a rival Professional Social Networking product, even though such a product would have been a complement to Facebook's new jobs product.

355. Facebook's refusal to directly compete with LinkedIn in the Professional Social Networking market is, on its face, inexplicable, particularly given that the companies looked poised to compete in that market by the end of 2015, with publicly reported imminent entry into professional social networking by Facebook. Even more critically, Facebook's ultimate declination to compete with LinkedIn was entirely inconsistent with Facebook's own internal view in 2013 and 2014 that LinkedIn was a "competitive" enterprise that Facebook planned to take on.

356. Facebook's lack of entry is, however, consistent with negotiations occurring between the companies from 2013 to 2015 about the companies' respective data and businesses, including negotiations to refrain from scraping each other's products using APIs.

357. Based on the entire context of the relevant market, the companies' positions with respect to it in 2015 and thereafter, the companies' documented histories and communications with one another,

and Facebook's own documented history of market division over the same time period, the most plausible inference is that Facebook and LinkedIn entered into an agreement—either expressly or tacitly—not to compete with each other in or around 2015, allowing LinkedIn undisputed dominance of the Professional Social Networking Market so long as LinkedIn refrained from making incursions into Facebook's general social networking business.

358. To this day, both companies deny that they compete with each other. Indeed, even though Facebook internally considered LinkedIn potentially competitive in late 2013, and it was widely reported that Facebook was preparing to launch a professional social networking product in 2015, Facebook CEO and founder Mark Zuckerberg told the U.S. Senate in 2018 that Facebook "do[es]n't consider LinkedIn to be one of our direct competitors."

359. LinkedIn, for its part, never listed Facebook as a competitor in its filings to the SEC for its IPO in 2011. LinkedIn's founder Hoffman has publicly denied that LinkedIn competes with Facebook.

360. Moreover, even though LinkedIn is able to charge substantial monthly subscription fees for a particular type of social networking product (and Facebook cannot for its general social network, despite a larger and in many ways more engaged user base), Facebook has never attempted to offer a competing professional social networking product. Doing so would have meant potentially diverting to Facebook some of LinkedIn's lucrative subscription revenue—and perhaps even ultimately leading this lucrative, adjacent online submarket, given Facebook's billions of active users and huge trove of personal data—but Facebook never even attempted to do so. Instead, over the past six years LinkedIn has solidified and expanded its dominance and DMIBE barrier to entry in the Professional Social Networking market, essentially conceding the market to LinkedIn for all time, from any would-be competitor (absent court intervention).

361. Put simply, although it was economically rational, given all the relevant facts and context, for Facebook to leverage its user base and data to enter the Professional Social Networking Market and compete directly with LinkedIn there, Facebook never did. And to this day, it has not done so.

362. All of this is evidence that the companies reached an agreement—whether express or tacit—between 2013 and 2016 that the companies would refrain from directly competing with each other in conjunction with some sort of exchange or bargain regarding user data.

363. Discovery is required to determine the extent of the companies' data sharing, the existence and contents of any express agreements between the companies, and the existence and contents of any tacit agreement for Facebook not to enter the Professional Social Networking Market.

D. Facebook Has a Practice of Dividing Markets with Potential Competitors, which Is Consistent with the Apparent Agreement Between LinkedIn and Facebook

364. Facebook's inexplicable refusal to enter—or even touch—the Professional Social Networking market despite overwhelming facts and circumstances suggesting that Facebook's imminent entry in or around 2015 with a professional social networking product was both economically rational and actually contemplated/announced, coupled with documented internal negotiations between Facebook and LinkedIn from 2013 to 2015 about data sharing/access and potential competition between the companies, strongly suggests an express or tacit market division agreement between Facebook and LinkedIn.

365. However, the Facebook-LinkedIn market context and communications are not the only facts pertinent to this evaluation. In fact, there is additional public evidence that such market division agreement is ***precisely*** the sort of thing that Facebook would enter into—***and has recently entered into***—in order to protect its own monopoly over general social networking.

366. On December 29, 2020, the Wall Street Journal reported that in years prior, Google and Facebook had entered into a secret contract, codenamed "Jedi Blue," which agreed to divide the

respective markets for social advertising (controlled by Facebook) and for programmatic advertising (controlled by Google). The purpose of this agreement was to solidify Facebook's waning dominance of social advertising by shoring up its data barrier to entry in that market using Google's data tools, in exchange for staying out of the Google-dominated programmatic advertising market.

367. Specifically, in or around 2015-2016, Facebook's ability to track its users outside of its walled garden was fading. Facebook therefore ventured into Google's online advertising territory and supported new technology called "header bidding," which allowed competitive bidding for advertising that appeared on pages throughout the Internet. Header bidding—if supported by a giant like Facebook—could potentially take Google's ad exchange (a lucrative middleman) out of the online advertising equation in many circumstances. Simultaneously, Google's AI and machine learning infrastructure allowed it to pinpoint with great accuracy whether a user that visited a particular site was also a Facebook user. This was something Facebook needed to solidify its own social advertising business.

368. The companies struck a deal. Google would help Facebook identify Facebook's own users throughout the Internet (and outside its walled garden), and in exchange, Facebook would stop its support for header bidding. Google also gave Facebook priority over bidding on ads targeting Facebook's own users, provided that Facebook spent billions on such ads on Google's ad exchanges.

369. The overt market division in the so-called Jedi Blue agreement was brazen, and its effect was unmistakable. Facebook maintained control over the ability to advertiser to its own users, delaying its obsolescence for years as programmatic advertising took hold. Google maintained its stranglehold over advertising exchanges during the same period.

370. Facebook's agreement with Google—in which Facebook agreed to stay out of a Google-dominated market it had been poised to enter in exchange for data assistance from Google to help

Facebook supracompetitively monetize its walled gardens—creates an additional datapoint that points to a market division agreement with LinkedIn.

371. Here, LinkedIn dominated a market that Facebook was perfectly positioned to enter—and by all accounts, was on the verge of actually entering. At the same time, Facebook—which has since 2015 negotiated aggressively for data from outside its walled garden to better monetize its legacy products—was directly and indisputably negotiating with LinkedIn regarding data exchange and API access. In approximately 2015, Facebook's then-imminent entry into the Professional Social Networking market faded away, and the companies have carefully and repeatedly stated they do not compete with one another ever since.

372. Given Facebook's pattern and practice of entering market division agreements in order to preserve its own personal social networking dominance, and the parties' history of arms-length negotiations over precisely the sort of subjects Facebook and Google entered into a market division agreement about, Facebook's refusal to enter—and glaring gerrymandering around—the LinkedIn-controlled Professional Social Networking market over the past six years appears to be the product of an anticompetitive agreement to divide markets between LinkedIn and Facebook.

X. THE RELEVANT MARKETS

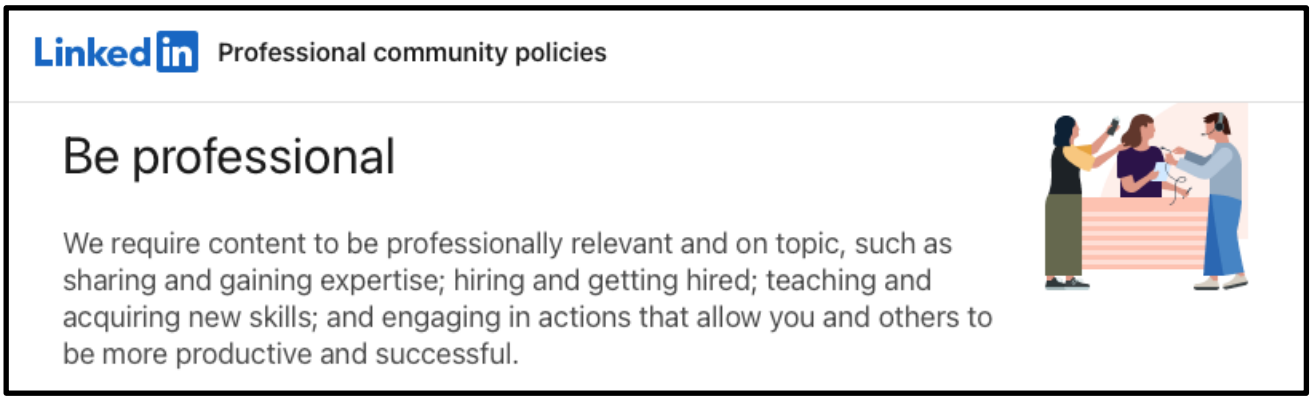
373. LinkedIn dominates a market of its own creation—the Professional Social Networking Market. This market is a sub-market of the Social Networking Market and, unlike the general Social Networking Market, includes a subscription-based product for which individual end users will pay money—which LinkedIn offers as LinkedIn Premium.

A. The Professional Social Networking Market

374. LinkedIn is a social network, but a specific kind of social network. It is not a place where people come principally to share pictures of their children, to organize dinners, to set up dates, to send personal messages, or to share videos of their vacations. Indeed, when LinkedIn users occasionally do

engage in these sorts of activities, the LinkedIn community (and indeed, sometimes LinkedIn itself) will self-moderate or otherwise discipline a user for posting things that are "out of place" on LinkedIn.[2]

375. Moreover, LinkedIn's Professional community policies expressly warn: "Do not use LinkedIn to pursue romantic connections, ask for romantic dates, or provide sexual commentary on someone's appearance."[3] LinkedIn's specific mandate for its own social network is clear: Be professional.



376. LinkedIn "require[s] content to be professionally relevant and on topic," and further promulgates "Publishing Platform Guidelines" that explain:

> LinkedIn's Publishing Platform is an ideal forum to develop and strengthen your ***professional identity*** by sharing your knowledge and expertise ***in your job***. It will be ***tied to your professional profile***.

(Emphases added.)

[2] Thus, for example, the Internet, and indeed LinkedIn itself, is replete with what is essentially a meme (whole-heartedly supported by LinkedIn itself): "LinkedIn is not a dating site." As one February 21, 2020 post put it (reposting a popular article that has been around since at least 2014): "LinkedIn still creates discussion: recruiters love it, some people don't see the point of using it, but there is always a lot of talk about and on it. However, you feel about the site, there is one thing that most people agree on: LinkedIn is not a dating site."

[3] https://www.linkedin.com/legal/professional-community-policies (accessed Dec. 8, 2021).

377. By consumer self-selection and community policing and by LinkedIn's own careful marketing, curation, and moderation, LinkedIn is where users display their professional persona and share strictly professional content related to their careers and work.

378. LinkedIn's professional social network is regarded as a person's virtual CV or resume on the Internet. A LinkedIn profile contains a user's job history, skills, professional connections, professional posts, and recommendations from current and former colleagues.

379. LinkedIn's social network is intended to be, and principally is, used exclusively for business or career related communications and connections. Content is required to be professional and job-related, and all postings, even if ostensibly more wide-ranging, are squarely and solely tied to a user's professional profile.

380. Even the degree and type of familiarity associated with online connection works uniquely on LinkedIn among social networks, reflecting the unique role and scope of a professional social networking product. Thus, the term "connect with me on LinkedIn" has a well-understood meaning in online (and indeed, offline) discourse, and is meant to represent the possibility of a professional connection, rather than a romantic or personal one, as in a traditional social network like Facebook. For example, when a person with both LinkedIn and Facebook profiles meets a new coworker or someone at a professional conference, that person may seek to connect with that coworker/conference attendee on LinkedIn (where they will learn about each other's professional background and goals, and may discuss professional issues), but not on Facebook (where both persons' respective wedding pictures, birthday greetings, concert reviews, and strong views on the Third Amendment may be posted and highlighted).

1. The Professional Social Networking Market Is a Distinct Submarket.

381. The Professional Social Networking market is a distinct submarket, with its own pricing, functionality, and principal product. Several relevant factors confirm this:

382. ***Industry or public recognition of the submarket as a separate economic entity***. LinkedIn itself recognizes that its social network is distinct from other social networks. Indeed, in its 2015 Form 10-K, LinkedIn described itself as a "professional network" or an "online professional network."

383. LinkedIn explained that it faced competition from other online professional networks or from social networks that "are developing or could develop solutions that compete" with LinkedIn's. In other words, other general social networks do not naturally compete with LinkedIn if they do not develop competitive products targeting online professional networking.

384. As Linkedin further explained in its 2015 10-K:

> Additionally, we face competition from a number of companies outside the United States that provide online professional networking solutions. We also compete against smaller companies that focus on groups of professionals within a specific industry or vertical.

385. That is, LinkedIn regards itself as providing social networking that targets professional networking and professionally directed activities. It regards itself as competitive in respect to its social network only with companies that either provide professional social networking services or that could provide such services if they developed additional products.

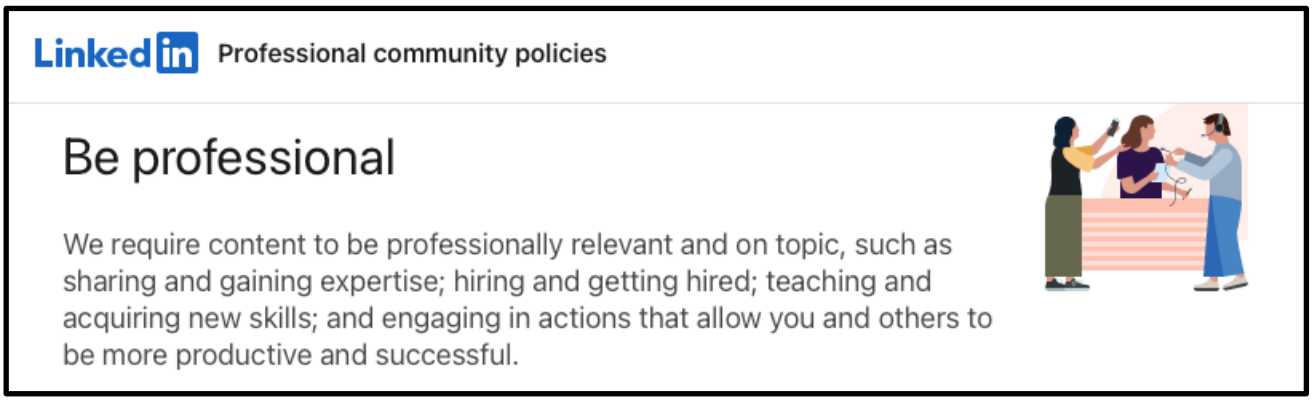
386. When LinkedIn went public in January 2011, it filed a Form S-1. There, it also emphasized that it generates its revenue from professionally oriented social networking:

> We generate revenue from enterprise and professional organizations by selling our hiring solutions and marketing solutions offline through our field sales organization or online on our website. We also generate revenue from members, acting as individuals or on behalf of their enterprise or professional organizations, who subscribe to our premium services.

387. Third parties routinely distinguish LinkedIn as a distinct form of social network product that is directed exclusively towards professional networking. For example, the website How Stuff Works cogently explains the difference between LinkedIn's Professional Social Network and other social networks:

> LinkedIn is different than other social networking sites in that it's designed solely for the purpose of professional networking. As we said earlier, a LinkedIn profile page is essentially an online resumé. You can't post photos (other than your profile photo). You can't host a blog. You can't embed your favorite YouTube videos or playfully "poke" your friends. You can't personalize the colors or layout of your profile page or search for "single females, age 25-30" in your area. . . .
>
> We also mentioned that a connection on LinkedIn implies more than a casual acquaintance. LinkedIn recommends that all connections be viewed as potential professional or personal references. You should feel confident that all of your connections would give you a positive recommendation to a future employer or a kind of introduction to other members of their network. Also, once someone becomes your connection, they'll have access to all of your other connections. You don't want to connect with anyone who will embarrass or misrepresent you with your other connections.

388. Even as LinkedIn has offered more robust content publishing options over time, its singular, distinct mission and product—a ***professional*** social network, and nothing else—has remained the centralizing organizing feature of LinkedIn's social network, and LinkedIn itself has carefully sought to police and distinguish this mission, including through express guidelines to that effect:



389. A New York Times article entitled *Why Aren't We Talking About LinkedIn* further explains the difference between LinkedIn's Professional Social Network and other Social Networks:

> LinkedIn was never meant to "connect the world," at least not without a caveat and a reason: it was built to connect "the world's professionals," and specifically "to make them more productive and successful." Any debate about "free speech" on LinkedIn has to square with the fact that it's a place where you have to pay to message people with whom you aren't already

> connected. If Facebook or Instagram sent a notification every time you looked at another user's profile, it would be a scandal; on LinkedIn, it's a core feature of the platform. On other social media platforms, users might be careful in case employers see evidence of their lives outside of work. The identities performed on LinkedIn are contrived with employers in mind.

390. In other words, LinkedIn's Professional Social Network is composed of contrived profiles designed to make business connections; to impress others; and to find or change jobs. Posts on LinkedIn are of a different sort from those on general social networks, and they are regarded as such by the public and the industry. Again, LinkedIn requires as much, in express "Publishing Platform Guidelines":

> LinkedIn's Publishing Platform is an ideal forum to develop and strengthen your professional identity by sharing your knowledge and expertise in your job. It will be tied to your professional profile.

391. LinkedIn's unique role—and the unique characteristics of a Professional Social Network, as distinct from a general one—can also be seen in how LinkedIn has been regarded and described by potential rivals or competitors, including the most natural potential entrant in the Professional Social Networking market: Facebook.

392. For many years, Facebook gathered professional information from its users, and prior to 2015, internally considered LinkedIn to be potentially competitive, including through the potential development of a Facebook-branded Professional Social Networking product. However, six years later, Facebook no longer considers LinkedIn's social network to be potentially competitive with any of Facebook's products, and Facebook has declined to launch a professional social network to rival LinkedIn.

393. As NBC News reported as part of its publication of internal Facebook documents, prior to 2015, Facebook tried to block LinkedIn from obtaining access to Facebook users' data, and asked LinkedIn to refrain from accessing Facebook's APIs until the companies could reach a data reciprocity deal. Although the outcome of those negotiations cannot be known without discovery, Facebook never

entered the Professional Social Networking market after those negotiations—and has not done so to this day. In fact, Facebook has recently launched other professionally-directed products, including Workplace by Facebook (a Slack competitor) and yet studiously avoided launching a professional social network.

394. And even though Facebook now maintains multiple general social networks (Facebook and Instagram), ubiquitous messaging products (Messenger and WhatsApp), and its own office communications suite (Workplace), when Facebook CEO Mark Zuckerberg was testifying at the U.S. Senate in May 2018, he said: "I don't consider LinkedIn to be one of our direct competitors." In short, although Facebook is the most natural potential entrant into the Professional Social Networking market, it has not done so, and distinguishes its general social networks (and other products) from LinkedIn's professional social network.

395. LinkedIn's founder Reid Hoffman likewise has not regarded the leading general social network, Facebook, to be a direct LinkedIn competitor.

396. LinkedIn's paid subscription product is considered distinct from other social networking products. For example, while LinkedIn allows paid subscribers to view information about users that viewed their profile, other social networks do not offer such functionality.

397. More significantly, general social networks such as Facebook and Twitter are not viewed by LinkedIn users, and particularly LinkedIn Premium subscribers, as comparable products to LinkedIn's professional social network, particularly for business networking and professional communications.

398. ***The product's peculiar characteristics and uses***. Unlike LinkedIn's social network, general social networks like Facebook are not generally viewed or targeted for obtaining professional access to decisionmakers at companies and business enterprises. By contrast, LinkedIn serves as a point of connection among business professionals, in which individuals in their uniquely professional roles and identities can communicate, can connect, can market themselves, and can be marketed to in a way

analogous to real-world office visits and communications—distinct from a visit or call to a person's home or in public, as in the analog of a Facebook or Twitter post or communication.

399. A LinkedIn Premium subscription is not interchangeable with user accounts on other social networks like Twitter or Facebook. Professionally-oriented posts and communications, tied to one's professional identity, would not and do not propagate through those general social networks (which are designed around and littered with personal content, including family photos, personal events, political and social commentary, birthdays, and other non-professional content, all tied to a general, personal identity) in a similar manner, with similar effectiveness, or with materially similar goals and results, as they do on LinkedIn's social network.

400. The machine-learning algorithms powering general purpose social networks are not specifically tuned toward maximizing business networking connections and opportunities.

401. Twitter and Facebook's content service systems, which decide what to show users, are not specially tuned towards providing users information relevant to their business interests and distinct professional identity.

402. General social networks do not have the ability to facilitate cold messaging in an avowedly professional context with a person in their distinctly professional identity, such as with LinkedIn's InMail product.

403. LinkedIn's machine-learning algorithms are specially tuned towards professional information and inferences particularly relevant for recruiting and job hunting, whereas general social networks are not so tuned.

404. General social networks do not have comparable products to LinkedIn's "Sales Navigator," which is available by subscription only.

405. Most general social networks do not allow users to determine who has viewed their profile or their content—let alone in the context and with information specifically directed toward both the poster and the viewer's professional identities. LinkedIn provides that functionality as part of its paid subscription products.

406. There are no competing paid subscription products on any general social network that provide the same—or even arguably competitively similar—premium professional services and functionalities available through LinkedIn Premium, including InMail, Sales Navigator, granular professional search, and professionally-oriented user viewing information.

407. ***LinkedIn's premium product features are only available on LinkedIn.*** No other social network provides comparable subscription products to LinkedIn. LinkedIn has several subscription products ranging from $29.99/month to $99.95/month. Each plan provides some degree of access to InMail Credits, Profile Viewer information, and LinkedIn Learning (a library of online courses).

408. LinkedIn's Premium Career plan starts at $29.99 a month, and includes 3 InMail message credits; allows the subscriber to compare themselves to other job candidates applying for the same job; and includes interview and recruitment resources.

409. LinkedIn's Premium Business plan starts at $47.99 a month, and includes 15 InMail message credits; insights and information regarding company pages; and the ability to view an unlimited number of people when browsing through the LinkedIn site.

410. LinkedIn's Sales Navigator product starts at $64.99 a month and provides tools to generate sales and build sales leads. It includes 20 InMail message credits. It provides features that allow insights on potential accounts and leads on LinkedIn. And it allows the creation of lists via an on-site lead builder.

411. LinkedIn's Recruiter Lite product is the highest-end tier for individual subscriptions and starts at $99.95. It provides for 30 InMail message credits. It allows for advanced unlimited searches with

filters designed for recruiting. It integrates hiring and candidate tracking functionality. And it also provides recommendations for potential candidates.

412. The functionality offered by these LinkedIn premium subscription products is not available on any other social network. Indeed, no major general social network provides cold-introduction functionality such as InMail. None of the general social networks provide recruiting tools. The leading general social networks do not publicly offer paid functionality that allows a user to determine who, by specific professional identity, has viewed their (or their company's) page.

413. None of the leading general social networks provide a paid ability to traverse the network looking for users by granular professional characteristics such as work experience, business connections, and qualifications for particular jobs.

414. There is no cross-elasticity of demand between LinkedIn's premium products and an account on other general social networks like Twitter and Facebook. This is because none of the general social networks offer the same (or even competitively similar) professional functionality provided through LinkedIn subscription products.

415. Moreover, none of the general social networks provide the same context, degree, and overall type and level of access to business decisionmakers accessible through premium subscription features on LinkedIn's massive, professionally-focused network of business professionals.

416. ***Unique production facilities.*** LinkedIn's subscription products and user products are powered by LinkedIn's unique network of business connections and the LinkedIn social network's explicit, avowed professional focus—with no other focus permitted by LinkedIn's own express rules and guidelines. No other social network contains, promotes, and surfaces exclusively business-related connections, communications, and content among individuals in their professional (rather than personal or other type of) identity and capacity.

417. LinkedIn's machine-learning algorithms require specific professionally-focused data derived from LinkedIn's user network. LinkedIn produces inferred professional data from its professional social network. LinkedIn's recommendations of professional content, individuals, jobs, and organizations rely on and feed back into these particularized machine-learning and AI algorithms.

418. Other social networks do not possess the real-time information about business and professional interactions that LinkedIn possesses. For example, while other social networks may possess job posting information, LinkedIn produces machine-learning based inferences that match individuals with jobs and other professionals based on their business-related interactions, education, job history, and skillset. General social networks do not have access to comparable data, particularly data that is updated in real time.

419. ***Distinct customers.*** LinkedIn's subscription customers are business professionals that seek to find, connect with, and communicate with other professionals and with business decisionmakers in an avowed, bilaterally understood professional context. This exclusively professional context, and these avowedly, definitionally professional connections and communications, are unavailable from general social networks, which do not offer actually or even potentially competitive alternatives to business professionals who are willing to pay for the unique professional social networking tools and services that LinkedIn offers through its Premium subscriptions.

420. Indeed, a profile on a general social network like Facebook may include content and connections that may be inappropriate or far too informal for business contacts, and the overall context does not permit the sorts of professionally-oriented, bilaterally understood searches, connections, and communications that are by specific design and cultivation definitionally and ubiquitously present on LinkedIn's social network, especially through its paid products like InMail and advanced professional search.

421. LinkedIn premium subscription purchasers are unable to buy comparable products from other general social networks, so their purchases are entirely distinct from those made on general social networks.

422. A LinkedIn premium subscriber cannot obtain any of the additional services, such as InMail, profile viewer information, or granularly targeted professional search, from other social networks. No comparable products are offered by these general social networks, such as Facebook or Twitter.

423. ***Distinct prices and sensitivity to price changes.*** LinkedIn charges premium subscription prices that range from $29.99 to $99.95. No general social networks provide comparable subscription products that enhance a user's ability to access information about others on the social network. Facebook and Twitter, for example, do not offer products that allow paid-for access to professional messaging with business decisionmakers in their professional capacity; to information about a user's profile views; or to powerful, granular professional search; nor do general social networks provide the ability to traverse professional user profiles using attenuated second- and third-order connections.

424. LinkedIn's users are also far more valuable, on a per-user basis, than users on general social networks. As LinkedIn states on its website, 4 out of 5 LinkedIn members "drive business decisions." LinkedIn's members have "2x the buying power of average web audiences," and LinkedIn provides the "#1 platform for B2B lead generation, rated by marketers." LinkedIn's customer and user bases are thus distinct and distinguishable from other general social network customer and user bases.

425. Moreover, teenagers, retirees, and other non-career-oriented individuals represent a small minority of LinkedIn users, and even smaller minority of active LinkedIn users, and a vanishingly small minority of LinkedIn Premium subscribers—whereas these individuals make up significant portions of the user bases of leading general social networks, including Facebook, Twitter, Instagram, and TikTok.

426. LinkedIn also experiences price stability that is unheard of in any similarly structured market. It has largely maintained its prices with no competitive check from 2015 until the present.

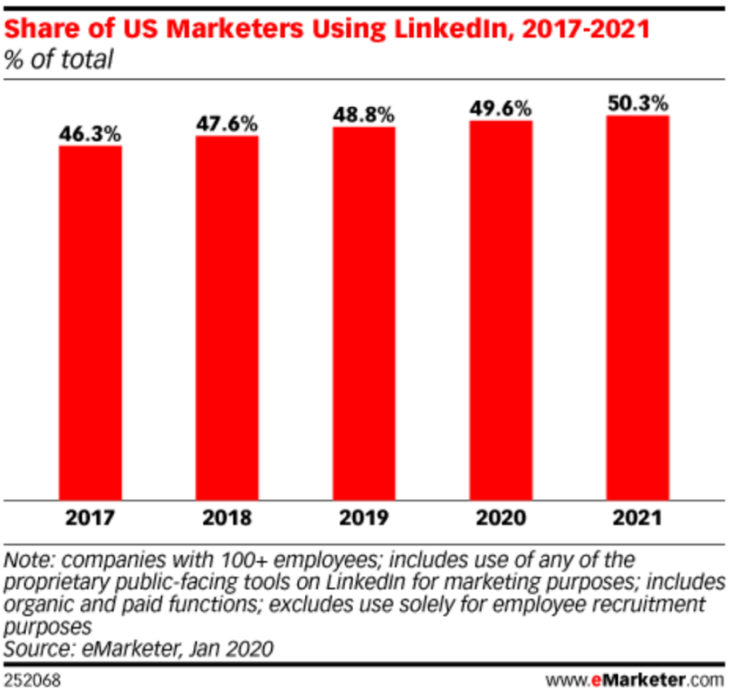
427. Moreover, through the addition of new subscription offerings, LinkedIn has essentially raised all-in prices without any competitive check.

428. ***Specialized vendors.*** LinkedIn has spawned an industry of specialists that help users with their LinkedIn profiles; with lead generation and sales on LinkedIn; and with maintaining an enterprise or organizational presence on LinkedIn's professional social network.

429. There are, for example, third-party LinkedIn consultants that optimize LinkedIn profiles, including profile photos, headlines, summaries, and content curation.

430. Online professional freelancing sites include posts for jobs such as "LinkedIn Specialists" who focus on LinkedIn content creation, profile optimization, and LinkedIn sales strategy optimization.

431. Moreover, marketers use LinkedIn at significant rates. Indeed, more than half of U.S. marketers will use LinkedIn in 2021, and the share of marketers using LinkedIn has risen steadily since 2017.



432. These marketers are specialized vendors that have developed and targeted LinkedIn's professional social network as a unique and distinct marketing channel. Their purpose is to target the unique user base and context offered by LinkedIn's one-of-a-kind professional social network.

2. LinkedIn Possesses Monopoly and Market Power in the Professional Social Networking Market

433. LinkedIn possesses a monopoly and market power in the Professional Social Networking Market.

434. LinkedIn is the only major Professional Social Network in the United States. Sites like Indeed, New Work SE, ZipRecruiter, glassdoor, SimplyHired, and Snagajob are job boards, not professional social networks. They do not provide comparable user-oriented features. None of them offer subscription-based professional social networking.

435. Social networks such as Facebook, Twitter, and YouTube provide the ability to post content, interact with friends or connections, and message other users on the social network. But none of those social networks provide business or professionally oriented connections, access to an exclusively professional network, or subscription-based products directed toward professional features.

436. Moreover, messaging functionality on other social networks do not include the ability to buy messages providing cold introductions to other users on the network in an avowedly professional context, such as with LinkedIn's InMail product.

437. LinkedIn dwarfs other professional social networks. For example, the professional social network Xing, although oriented towards professionals and business connections, has approximately 15 million users worldwide compared to LinkedIn's 690 million users, and has approximately 20 million monthly visits compared to LinkedIn's over 980 million visits. Xing competes mostly in Europe, and generated a paltry (lined up next to LinkedIn's FY 2021 revenue of $10.3 billion) € 15.4 million Euros in 2019. Xing's user share and revenue share of the Professional Social Networking Market is at most approximately 1-2%.

438. AngelList, although popular among younger users and startup companies, is also significantly smaller than LinkedIn and provides far more limited functionality. It mostly serves to connect job seekers, with approximately 548,000 job seekers and 16,000 companies interacting on its Platform. AngelList's subscription product starts at approximately $250 per user per month and is focused almost entirely on searching job candidates and resumes. It is not a substitute for LinkedIn's professional social network, and does not offer a meaningful substitute to LinkedIn's principal Premium subscription products. AngelList accordingly does not possess a meaningful share of the Professional Social Networking market, and does not offer products/services with cross-elasticity of demand with LinkedIn's Premium subscription products.

439. Professional social network Viadeo also has a very small share of the Professional Social Networking Market. Viadeo has only 720,000 recruiter users and 6.4 million professionals on its network. Although Viadeo sells a premium subscription-based product in the market, the company generates only $26.5 million in annual revenue, and has been in decline since at least 2017. Viadeo also does not maintain a significant share of the United States-based geographic market, as it is used mostly in France.

440. Other rivals in the Professional Social Networking market are even narrower in their product offerings. For example, professional social network Lets Lunch is focused on connecting professionals during their lunch hours. It too accounts for a tiny share of the overall Professional Social Networking market, with only 2,000 companies and a *de minimis* number of users in comparison to LinkedIn's 690 million (worldwide)/174 million (U.S.) user base.

441. When all rival professional social networks are accounted for, LinkedIn possesses between 97% and 99% of the share of users and user engagement, and between 95 and 99% of the revenue share of the subscription and user-oriented products sold in the entire Professional Social Networking market.

442. LinkedIn's massive market share allows it to essentially set the prices of its subscription products with little or no competitive check, as LinkedIn Premium users faced with price increases could not obtain the same product features elsewhere.

443. Even job search functionality available on other sites would not provide the same functionality as job search functionality on LinkedIn, because no other professional social network has the same size and depth of LinkedIn's network of professionals and companies. Moreover, no other competitor has the access to LinkedIn's professionally-oriented trove of data, nor its sophisticated—and professional data-trained and targeted—machine-learning systems and inferential data.

444. LinkedIn is therefore able to make a small but significant non-transitory increase in prices for its LinkedIn Premium subscription products without facing any competitive check.

445. Indeed, LinkedIn is able to charge significant, and all-in increasing, user-facing prices for several of its most popular and integral professional social networking services (*e.g.,* In Mail, profile view information, and advanced professional search), while other social networks like Facebook are able to provide only free products without sacrificing the size of their networks.

446. LinkedIn is also able to increase prices for certain functionality, such as for unlimited searching of its network or for additional InMail messages per month. None of LinkedIn's tiered offerings have led to any entry by a competitor, nor has there been any price pressure on LinkedIn from other firms, rivals, or competitors.

3. Relevant Geographic Market

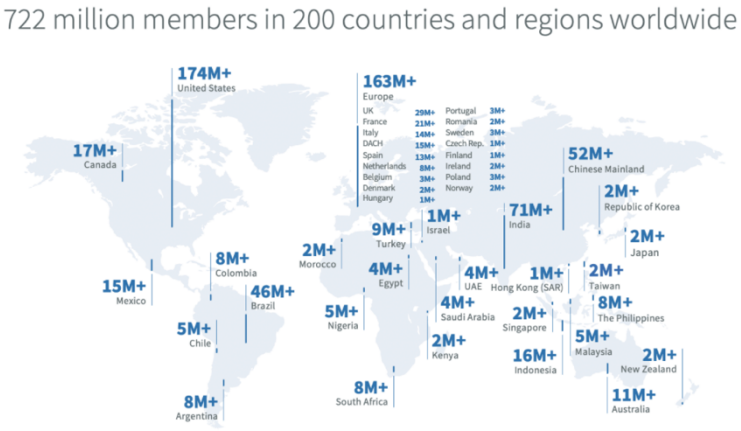
447. The relevant geographic market for the Professional Social Networking market is the United States.

448. First, job-seekers in the United States rarely seek work outside of the United States. Although there are exceptions, LinkedIn users who buy subscription services generally interact with other U.S. professionals and with U.S.-based companies or with companies or organizations with major U.S. presences.

449. Second, language differences also limit the interaction across LinkedIn's professional social network. LinkedIn users, for example, who communicate with Arabic or Chinese character sets will interact far less frequently with U.S. members who communicate in English and with English character sets.

450. The United States is also LinkedIn's largest market, with 174 million users—a large share of all professionals in the United States.

451. In the alternative, even if the Professional Social Networking market is viewed worldwide, LinkedIn is available in more than 200 countries and includes 163 million users in Europe (including the UK), 196 million in Asia Pacific and 107 million in Latin America.



Source: LinkedIn

452. Even on a worldwide basis, LinkedIn is the largest professional social network by a wide margin, with more than 90-95% of the worldwide share in users, user engagement, and subscription product revenue. There are no rivals with a meaningful share of the market or with any ability to check LinkedIn's pricing, monopoly, and market power.

4. Barriers to Entry

453. The Professional Social Networking market is protected by several significant barriers to entry.

454. As described above, the Professional Social Networking market is subject to powerful network effects. The more professional users use the network, the more valuable the network becomes, which in turn, attracts more users.

455. This feedback loop results in tipping-point effects, meaning that a firm competing in the market cannot build a competitive product without first obtaining a critical mass of users. Once a critical

mass of users is obtained, the firm obtaining that critical mass experiences a surge in additional users, as the network itself becomes more valuable.

456. A similar feedback loop exists with respect to user data. Because a Professional Social Network obtains profits by deploying machine-learning algorithms and AI to target content and to search through the network of users, a critical mass of data is required. Without a critical mass and quality of data, a competitor in the market could not accurately train machine-learning models, impairing its ability to monetize its network or to serve content to it is users, thus diminishing the value of the network.

457. Likewise, a significant barrier to entry arises from the computational hardware and software infrastructure required to process large amounts of data, particularly in real time. User data, once collected, must be fed back into existing machine-learning algorithms and models. For the data to be most actionable, particularly for content targeting, that data must be incorporated into the trained machine-learning algorithms.

458. These effects together are referred to as the Data, Machine Learning, and Inference Barrier to Entry (described, *supra*). The DMIBE protects LinkedIn's business. To overcome it, a new entrant must replicate LinkedIn's massive data trove, its data processing and machine-learning infrastructure, obtain comparable inferred data, and must have access to scalable computing power, including GPUs, capable of generating inferred data.

459. Once LinkedIn completes its integration with Azure, it will have irreversibly and significantly strengthened the DMIBE, as a new entrant would have to obtain access to a rival source of cloud computing, GPU arrays, and additional business data (from office productivity applications) such that the entrant could rival the LinkedIn-Microsoft combined entity.

XI. HARM TO COMPETITION

460. LinkedIn's conduct, taken together or individually, harms competition in several ways.

461. The alleged conduct includes (a) the integration of LinkedIn's data, infrastructure, and inference data with Microsoft's Azure cloud systems and GPU arrays, (b) the implementation of aggressive countermeasures designed by LinkedIn to prevent potential rivals and entrants to access even public data that LinkedIn's users ***want*** to be made publicly available, and (c) the sale of user data through private sales of structured data to unidentified "partners," on unknown terms.

462. LinkedIn's conduct may include other over acts, including anticompetitive data sharing agreements. Discovery is required as to the details of such agreements, including agreements with "partners" for access to LinkedIn user data.

463. Taken together, this conduct strengthens the DMIBE, preventing any significant competitor from entering the Professional Social Networking Market. LinkedIn seals off competitors from the market by reinforcing the DMIBE.

464. The conduct also reduces consumer choice. Because the strengthening of the DMIBE prevents entry by any rival Professional Social Network, consumers have only one choice for Professional Social Networking and will pay inflated subscription prices for access to services provided only by LinkedIn.

465. LinkedIn's sale of data to "partners" also reduces consumer choice, as LinkedIn users have no ability to opt out of the sale of their data. They also cannot reduce the attack surface as to their data by opting out of data centralization, which necessarily occurs by virtue of the structuring and hosting of APIs available to "partners" as well as from LinkedIn's AI and machine learning conduct. Because there is no competitive alternative to LinkedIn's Premium products—nor, absent judicial intervention—any near-term prospect of one—LinkedIn has been able to essentially engraft a negative-value good (data sale on unknown terms, with significant but undisclosed data security and privacy risks) as a take-it-or-leave-it condition of an expensive, recurring product for which such data sale is completely unnecessary, the

LinkedIn Premium products. This harms consumers in the Professional Social Networking market, including LinkedIn Premium subscribers like Plaintiffs, who would prefer to purchase a premium professional social networking product that does not entail their data being dangerously and covertly sold and trafficked in undisclosed ways. But LinkedIn, because of its unrivaled dominance in the Professional Social Networking Market, does not offer such a product.

466. Absent LinkedIn's anticompetitive conduct, entry would be possible and LinkedIn would have to compete with other entrants and companies providing the same or similar services. In all likelihood, LinkedIn would not be able to charge similar subscription fees in a competitive world. Indeed, general social networks do not charge comparable subscription fees (if any at all) and monetize user engagement mostly through advertising revenue. LinkedIn's ability to charge a subscription fee thus stems from the DMIBE and the anticompetitive conduct that reinforces and strengthens it.

467. Moreover, in a competitive world, LinkedIn would not bundle a negative-value data sale feature with its LinkedIn Premium products, or some competitor would offer a premium professional social networking offering that would not require subscribers to have their data sold and exposed to substantial and undisclosed security and privacy vulnerabilities as a prerequisite to subscribing. This increased choice would unambiguously benefit consumers in the Professional Social Networking market, including Plaintiffs. LinkedIn's ability to bundle a negative-value data sale feature with its (already supracompetitively priced) LinkedIn Premium products also stems from the DMIBE and the anticompetitive conduct that reinforces and strengthens it.

468. LinkedIn's conduct is also likely to continue absent injunctive relief. LinkedIn's users should be able to opt out of the sale and aggregation/centralization of their data, as well as the storage of their data on Microsoft's Azure cloud systems, where the data may be increasingly vulnerable to attack

and misappropriation. The sale of users' data also lacks any procompetitive justification and has no apparent economic efficiency.

469. Plaintiffs and the Class are harmed—and will continue to be harmed—by LinkedIn's anticompetitive conduct.

470. Plaintiffs and the Class have been overcharged for subscriptions by LinkedIn as a result of the anticompetitive conduct, including the strengthening of the DMIBE and preclusion of entry by a rival that could serve as a price check.

CLASS ACTION ALLEGATIONS

471. The class's claims all derive directly from a course of conduct by LinkedIn. LinkedIn has engaged in uniform and standardized conduct toward the class. It did not materially differentiate in its actions or inactions toward members of the class. The objective facts on these subjects are all the same for all class members. Within each Claim for Relief asserted by the class, the same legal standards govern. Accordingly, Plaintiffs bring this lawsuit as a class action on their own behalf and on behalf of all other persons similarly situated as members of the proposed class pursuant to Federal Rule of Civil Procedure 23.

472. This action may be brought and properly maintained as a class action because resolution of the questions it presents is one of a common or general interest, and of many persons, and also because the parties are numerous, and it is impracticable to bring them all before the court. Plaintiffs may sue for the benefit of all as representative parties pursuant to Federal Rule of Civil Procedure 23.

The Class

473. Plaintiffs bring this action and seek to certify and maintain it as a class action under Federal Rule of Civil Procedure 23 on behalf of themselves and a class defined as follows:

> All persons, business associations, entities, and corporations who purchased LinkedIn Premium services or otherwise paid LinkedIn for any upgraded account features from the period beginning January 13, 2018, to the present (the "Class Period").

474. Excluded from the nationwide class is LinkedIn, its employees, officers, directors, legal representatives, heirs, successors, and wholly or partly owned subsidiaries or affiliates; and the judicial officers and their immediate family members and associated court staff assigned to this case.

Numerosity and Ascertainability

475. The members of the class are so numerous that a joinder of all members would be impracticable. Indeed, there are millions of LinkedIn users that pay anticompetitively inflated subscription fees.

476. The class is ascertainable. The class definition identifies groups of unnamed plaintiffs by describing a set of common characteristics sufficient to allow a member of that group to self-identify as having a right to recover based on the description. Other than by direct notice, alternatively proper and sufficient notice of this action may be provided to the class members through notice disseminated by electronic means, through broadcast media, and published in newspapers or other publications. Moreover, LinkedIn is in possession of all user contact information, including e-mail addresses.

Predominance of Common Issues

477. A well-defined community of interest in questions of law or fact involving and affecting all members of the class exist, and common questions of law or fact are substantially similar and predominate over questions that may affect only individual class members. This action is amenable to a class-wide calculation of damages, or the establishment of fair and equitable formulae for determining and allocating damages, through expert testimony applicable to anyone in the class.

478. The most significant questions of law and fact that will decide the litigation are questions common to the class, or to definable categories or subclass thereof, and can be answered by the trier of

fact in a consistent manner such that all those similarly situated are similarly treated in the litigation. The questions of law and fact common to the Plaintiffs and class members, include, among others, the following:

a. Whether LinkedIn unlawfully monopolized the market for Professional Social Networking;
b. Whether LinkedIn unlawfully attempted to monopolize the market for Professional Social Networking;
c. Whether LinkedIn has market power in the market for Professional Social Networking;
d. Whether LinkedIn's conduct, including its integration with Azure, its public-data countermeasures, and its user-data sale through its API "partners," is anticompetitive;
e. Whether LinkedIn's anticompetitive conduct lacks any pro-competitive benefits or whether the anticompetitive effects outweigh the pro-competitive benefits of the conduct;
f. Whether LinkedIn unlawfully entered an agreement, either express or tacit, to divide markets with Facebook;
g. Whether the members of the Class are entitled to trebled damages, attorneys' fees, costs, and other monetary relief under the antitrust laws;
h. Whether the members of the Class are entitled to injunctive relief allowing them to opt out of LinkedIn's anticompetitive data sale or the centralization/structuring of their data;
i. Whether the members of the Class are entitled to injunctive relief allowing them to opt out of the storage of their personal data on LinkedIn's public cloud;
j. Whether LinkedIn should be enjoined from its integration with Microsoft's Azure public cloud;
k. Whether LinkedIn has unlawfully and anticompetitively reinforced and strengthened the DMIBE through its conduct.

Typicality

479. Plaintiffs' claims are typical of the members of the class. The evidence and the legal theories regarding LinkedIn's alleged wrongful conduct are substantially the same for Plaintiffs and all of the class members.

Adequate Representation

480. Plaintiffs will fairly and adequately protect the interests of the class members. Plaintiffs have retained competent counsel experienced in antitrust and class action litigation to ensure such protection. Plaintiffs and their counsel intend to prosecute this action vigorously and have the financial resources to do so. Neither Plaintiffs nor their counsel have interests adverse to those of the Class.

Superiority

481. This action satisfies the requirements of Fed. R. Civ. P. 23(b)(2) because LinkedIn has acted and refused to act on grounds generally applicable to the Class, thereby making appropriate final injunctive and/or corresponding declaratory relief with respect to each Class as a whole.

482. This action satisfies the requirements of Fed. R. Civ. P. 23(b)(3) because a class action is superior to other available methods for the fair and efficient adjudication of this controversy. The common questions of law and fact regarding Defendant's conduct and responsibility predominate over any question affecting only individual Class members.

483. Because the damages suffered by each individual Class member may be relatively small, the expense and burden of individual litigation would make it very difficult or impossible for individual Class members to redress the wrongs done to each of them individually, such that most or all Class members would have no rational economic interest in individually controlling the prosecution of specific actions, and the burden imposed on the judicial system by individual litigation by even a small fraction

of the Class would be enormous, making class adjudication the superior alternative under Fed. R. Civ. P. 23(b)(3)(A).

484. The conduct of this action as a class action presents far fewer management difficulties, far better conserves judicial resources and the parties' resources, and far more effectively protects the rights of each Class member than would piecemeal litigation. Compared to the expense, burdens, inconsistencies, economic infeasibility, and inefficiencies of individualized litigation, the challenge of managing this action as a class action are substantially outweighed by the benefits to the legitimate interests of the parties, the court, and the public of class treatment in this Court, making class adjudication superior to other alternatives, under Fed. R. Civ. P. 23(b)(3)(D).

485. Plaintiffs are not aware of any obstacles likely to be encountered in the management of this action that would preclude its maintenance as a class action. Rule 23 provides the court with authority and flexibility to maximize the efficiencies and benefits of the class mechanism and reduce management challenges. The Court may, on motion of Plaintiffs or on its own determination, certify nationwide, statewide, and/or multistate classes for claims sharing common legal questions; utilize the provisions of Rule 23(c)(4) to certify any particular claims, issues, or common questions of fact or law for class-wide adjudication; certify and adjudicate bellwether class claims; and utilize Rule 23(c)(5) to divide any class into subclasses.

REALLEGATION AND INCORPORATION BY REFERENCE

486. Plaintiffs reallege and incorporate by reference all the preceding paragraphs and allegations of this Complaint, as though fully set forth in each of the following Claims for Relief asserted on behalf of the class.

CLAIMS FOR RELIEF

COUNT ONE:
(on behalf of Plaintiffs and the Class)
Monopolization of the Professional Social Networking Market in Violation of 15 U.S.C. § 2

487. Plaintiffs brings this count against LinkedIn on behalf of themselves and the putative class.

488. LinkedIn has willfully acquired and maintained monopoly power in the relevant market for Professional Social Networking.

489. LinkedIn possesses monopoly power in the Professional Social Networking market. LinkedIn has the power to control prices and exclude competition in the Professional Social Networking market.

490. LinkedIn possesses a dominant position in the market for Professional Social Networking, and has enjoyed that position since at least 2015. LinkedIn's share of users in the Professional Social Networking market is between 97 and 99%. LinkedIn possesses between 95 and 99% of the revenue share from subscription and user-oriented products sold in the Professional Social Networking market.

491. LinkedIn has willfully acquired and maintained monopoly power in the Professional Social Networking market by exploiting powerful network effects. The more users that use LinkedIn's network, the more valuable the network becomes. This, in turn, attracts more users.

492. LinkedIn's conduct as alleged in this Complaint has had an anticompetitive effect in the Professional Social Networking market.

493. LinkedIn's anticompetitive conduct as alleged in this Complaint has no legitimate business purpose or procompetitive effect.

494. LinkedIn's anticompetitive conduct as alleged in this Complaint has had a substantial effect on interstate commerce.

495. Plaintiffs and the class members have been and will be injured in their business or property as a result of LinkedIn's anticompetitive conduct alleged in this Complaint, including LinkedIn's

monopolization of the Personal Social Networking market. For example, Plaintiffs and each class member have paid and/or continue to pay supracompetitive subscription prices for one or more LinkedIn Premium products. These supracompetitive prices were caused by LinkedIn's unlawful anticompetitive conduct as alleged in this Complaint, including LinkedIn's monopolization of the Professional Social Networking market. Plaintiffs and the class members seek to recover overcharge damages for paying these supracompetitive LinkedIn Premium subscription fee prices to LinkedIn.

496. LinkedIn's monopolization of the Professional Social Networking market has allowed LinkedIn to forcibly bundle a negative-value data sale good with Plaintiffs' and the class members' LinkedIn Premium subscription products. Plaintiffs and the class seek injunctive relief—including the ability to opt out or be compensated for LinkedIn's sale of their data—to remedy this injury.

497. As a result of LinkedIn's monopolization of the Professional Social Networking market, Plaintiffs and the class members have suffered and will suffer injury of the type the antitrust laws were intended to prevent, including the anticompetitive overcharge and reduced consumer choice described above. Plaintiffs and the class members have been and will be injured by the harm to competition as a result of LinkedIn's monopolization and associated anticompetitive conduct.

COUNT TWO:
(on behalf of Plaintiffs and the Class)
Attempted Monopolization of the Professional Social Networking Market in Violation of 15 U.S.C. § 2

498. Plaintiffs bring this count against LinkedIn on behalf of themselves and the putative class.

499. LinkedIn has engaged in predatory, exclusionary, and anticompetitive conduct, including but not limited to: charging supracompetitive subscription prices; integrating its AI, data, and machine-learning infrastructure with Microsoft's Azure public cloud; forcing data-sale products on its subscription users; and deploying technological countermeasures that prevent rivals and potential entrants to the

Professional Social Networking Market from accessing public data. The purpose of this conduct is to eliminate competitive threats before they became too formidable.

500. This conduct caused LinkedIn to have a dangerous probability of achieving a monopoly in the Professional Social Networking market.

501. LinkedIn's conduct as alleged in this Complaint has had an anticompetitive effect in the Professional Social Networking market.

502. LinkedIn's anticompetitive conduct as alleged in this Complaint has no legitimate business purpose or procompetitive effect.

503. LinkedIn's anticompetitive conduct as alleged in this Complaint has had a substantial effect on interstate commerce.

504. Plaintiffs and the class members have been and will be injured in their business or property as a result of LinkedIn's anticompetitive conduct alleged in this Complaint, including LinkedIn's attempted monopolization of the Personal Social Networking market. For example, Plaintiffs and each class member have paid and/or continue to pay supracompetitive subscription prices for one or more LinkedIn Premium products. These supracompetitive prices were caused by LinkedIn's unlawful anticompetitive conduct as alleged in this Complaint, including LinkedIn's attempted monopolization of the Professional Social Networking market. Plaintiffs and the class members seek to recover overcharge damages for paying these supracompetitive LinkedIn Premium subscription fee prices to LinkedIn.

505. LinkedIn's attempted monopolization of the Professional Social Networking market has allowed LinkedIn to forcibly bundle a negative-value data sale good with Plaintiffs' and the class members' LinkedIn Premium subscription products. Plaintiffs and the class seek injunctive relief—including the ability to opt out or be compensated for LinkedIn's sale of their data—to remedy this injury.

506. As a result of LinkedIn's attempted monopolization of the Professional Social Networking market, Plaintiffs and the class members have suffered and will suffer injury of the type the antitrust laws were intended to prevent, including including the anticompetitive overcharge and reduced consumer choice described above. Plaintiffs and the class members have been and will be injured by the harm to competition as a result of LinkedIn's attempted monopolization and associated anticompetitive conduct.

COUNT THREE:
(on behalf of Plaintiffs and the Class)
***Per Se* Market Division in Violation of 15 U.S.C. § 1**

507. Plaintiffs bring this count on behalf of themselves and the putative class.

508. LinkedIn's conduct as alleged in this Complaint, including its conduct with regards to Facebook, directly involves the use of interstate commerce, including by providing services over the Internet and entering into an agreement concerning such services.

509. LinkedIn and Facebook entered into an express or tacit agreement to divide markets, with Facebook pledging not to enter the Professional Social Networking Market.

510. Beginning approximately 6-to-9 months before September 2013, Facebook and LinkedIn entered into negotiations for data reciprocity, including terms of exchange and access to user data such as work history. At or around that time, Facebook had labeled LinkedIn potentially competitive, apparently because Facebook had nascent plans to enter into the so-called "Reputation" vertical by offering some sort of business-centered social networking product.

511. In 2014 and 2015, it was publicly announced by numerous media outlets that Facebook was preparing in earnest to compete directly with LinkedIn by offering a professional social networking product. At the time, Facebook had a larger user base (approximately 1 billion active users to LinkedIn's approximately 400 million); years of work history and other professional information from users and businesses; a substantial data acquisition and analysis apparatus; and a well-documented desire to enter

every possible socially-adjacent market that Facebook could identify as the company looked to fend off nascent competitors, find new revenue streams, and diversify its legacy social network product. At the same time, LinkedIn was beginning to aggressively and publicly monetize its dominance in the Professional Social Networking market, including through hefty Premium subscription fees (a product Facebook long coveted, but was unable to charge its personal social network users).

512. In view of all the above, Facebook's imminent entry into the LinkedIn-dominated Professional Social Networking market in or around 2015 appeared to be not just assured, but a competitive no-brainer for Facebook. It was not just economically rational for Facebook to enter the Professional Social Networking market at this time, it was an economic sure thing.

513. Nonetheless, in 2015, Facebook declined to enter the Professional Social Networking market, going so far as to release a business-facing product that carefully gerrymandered any professional social networking-type features from its offerings. Facebook has declined to enter the Professional Social Networking market to this day.

514. At the same time, LinkedIn and Facebook had been engaged in direct, arms-length data exchange and reciprocity negotiations just a year prior, in late 2013. One aspect of these negotiations involved continued access to certain Facebook APIs, which were made publicly unavailable absent a data exchange agreement in April 2015. There is no public indication that LinkedIn lost access to Facebook data in early 2015, indicating that the two companies likely indeed came to some kind of agreement in or around that time.

515. Since the date of Facebook and LinkedIn's apparent agreement regarding data exchange in or around early 2015, Facebook has aggressively walked back plans to enter LinkedIn's market through the release of a Facebook Professional Social Networking product. In fact, a previously announced Facebook@Work product was ultimately released without expected professional social networking

features, and further iterations of this product (now called Workplace), as well as Facebook's Jobs products, studiously avoid offering professional social networking functionality and products that would compete directly with LinkedIn, including LinkedIn's premium subscription offering. Facebook has never released a professional social networking product in the years since the parties' apparent data exchange agreement leading up to early 2015.

516. Both companies' founders have denied that they compete directly with each other. And even though Facebook internally viewed LinkedIn as a competitive threat in late 2013, by May 2018 Facebook's CEO Mark Zuckerberg told the U.S. Senate that Facebook does not directly compete with LinkedIn.

517. Zuckerberg's May 2018 testimony was correct—after the companies reached an express and/or tacit agreement: Facebook never entered the Professional Social Networking market, whether by creating a directly competing professional social network or by leveraging its user data and machine learning to enter the Professional Social Networking market at scale. Although the LinkedIn quo to Facebook's quid cannot be known specifically without discovery, the companies' course of dealing, including their multi-month, arms-length negotiations over a data exchange and/or reciprocity agreement in 2013 and ahead of a 2015 API deprecation suggests that LinkedIn likely offered some sort of data advantage to Facebook in exchange for Facebook staying out of the Professional Social Networking market.

518. The above inference is made more likely by the fact that Facebook has been publicly documented to have made just this kind of data-for-market-division agreement with rival Google in or around 2018, in an agreement code named "Jedi Blue." Facebook's history of making anticompetitive market division-for-data agreements with principal competitors during the same time period where Facebook and LinkedIn appear to have come to some sort of market division agreement, at a time when

both companies were already negotiating an agreement over data exchange and access, makes it highly likely that there was, in fact, an express or implicit agreement between LinkedIn and Facebook in or around 2015 by which Facebook agreed not to enter the Professional Social Networking market.

519. This express or tacit agreement between LinkedIn and Facebook was (and is) *per se* unlawful under the Section 1 of the Sherman Act, and allowed LinkedIn the unfettered ability to charge unchecked subscription prices in the Professional Social Networking Market, including the supracompetitive prices that LinkedIn charged to Plaintiffs and other class members for LinkedIn premium subscriptions during the class.

520. This unfettered control over prices resulted in an overcharge of Plaintiffs and other class members for LinkedIn Premium subscription fees.

521. Plaintiffs and the class members have been and will be injured in their business or property as a result of LinkedIn's anticompetitive conduct alleged in this Complaint, including LinkedIn's unlawful agreement with Facebook to divide markets, in which Facebook and LinkedIn expressly or tacitly agreed that Facebook would not enter the Professional Social Networking market. For example, Plaintiffs and each class member have paid and/or continue to pay supracompetitive subscription prices for one or more LinkedIn Premium products. These supracompetitive prices were caused by LinkedIn's unlawful anticompetitive conduct as alleged in this Complaint, including LinkedIn's unlawful agreement with Facebook to divide markets, in which Facebook and LinkedIn expressly or tacitly agreed that Facebook would not enter the Professional Social Networking market. Plaintiffs and the class members seek to recover overcharge damages for paying these supracompetitive LinkedIn Premium subscription fee prices to LinkedIn.

522. LinkedIn's unlawful agreement with Facebook to divide markets, in which Facebook and LinkedIn expressly or tacitly agreed that Facebook would not enter the Professional Social Networking

market, has allowed LinkedIn to forcibly bundle a negative-value data sale good with Plaintiffs' and the class members' LinkedIn Premium subscription products. Plaintiffs and the class seek injunctive relief—including the ability to opt out or be compensated for LinkedIn's sale of their data—to remedy this injury.

523. As a result of LinkedIn's unlawful agreement with Facebook to divide markets, in which Facebook and LinkedIn expressly or tacitly agreed that Facebook would not enter the Professional Social Networking market, Plaintiffs and the class members have suffered and will suffer injury of the type the antitrust laws were intended to prevent, including the anticompetitive overcharge and reduced consumer choice described above. Plaintiffs and the class members have been and will be injured by the harm to competition as a result of LinkedIn's unlawful agreement and associated anticompetitive conduct.

PRAYER FOR RELIEF

WHEREFORE, Plaintiffs request that judgment be entered against LinkedIn and that the Court grant the following:

A. Determine that this action may be maintained as a class action pursuant to Rules 23(a), (b)(2), and/or (c)(4) of the Federal Rules of Civil Procedure, and direct that reasonable notice of this action, as provided by Rule 23(c)(2), be given to the Class, and declare Plaintiffs as the representatives of the Class;

B. Enter a judgment against LinkedIn in favor of Plaintiffs and the Class;

C. Grant permanent injunctive relief to remedy the ongoing effects of LinkedIn's unlawful and anticompetitive conduct;

D. Award Plaintiffs and the Class actual and/or trebled damages;

E. Award Plaintiffs and the Class their costs of suit, including reasonable attorneys' fees as provided by law; and

F. Award such further and additional relief as the case may require and the Court may deem just and proper under the circumstances.

JURY DEMAND

Plaintiffs demand a trial by jury on all claims so triable as a matter of right.

Dated: January 13, 2022

Respectfully submitted,

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