IS MERGER ENFORCEMENT **KEEPING UP WITH THE CLOUD?**

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By Diana L. Moss

U.S. merger enforcement has taken a back seat in the cloud market, which has grown largely through acquisition and is now relatively mature. When merger enforcement in cloud does take shape, however, it could serve both to head off harmful consolidation and support non-competition cloud policy objectives such as the stability of cloud infrastructure and managing the demands of generative AI models. This article asks whether merger control is keeping up with the cloud. The first part begins by assessing antitrust's role in broader cloud policy, followed by a look into evolving competition concerns in cloud markets. The second part looks at major issues in merger enforcement, including cloud market structure and what the 2023 U.S. Merger Guidelines mean for consolidation moving forward.

01

ANTITRUST'S ROLE IN BROADER CLOUD POLICY

The cloud plays an increasingly critical role in the economy and society. Cloud computing services are delivered via a "stack" of interconnected hardware and software technologies. These include computing infrastructure, platform and storage infrastructure, and applications. As major market participants, cloud providers host resources to deliver services to users via the internet or networks. The cloud has become a ubiquitous tool, with an estimated 60 percent of global corporate data stored in the cloud in 2022.[2] Moreover, cloud adoption rates in the U.S. are the highest of any country, with an estimated 14 percent of total spending on information technology directed at the cloud in 2022.[3]

The explosive growth of cloud over the last 20 years is galvanizing policy attention. For example, there is an intensifying focus on ensuring the stability and resiliency of cloud infrastructure. Another top line issue is balancing the economic benefits of cloud technology with other public policy objectives, such as access and data privacy. There is also growing attention to the role of competition in cloud markets as calls for regulatory oversight increase. These and other factors are reflected in the uptick in governmental probes into cloud infrastructure and markets, including the Federal Trade Commission's ("FTC's")[4] inquiry into cloud computing, and the European Union's sovereignty requirements for cloud providers.[5]

The focus of this issue of CPI's TechREG Chronicle is regulation of cloud computing. Legal, economic, and policy experts often think of "regulation" in two ways. One is as a set of *ex ante* rules and requirements that govern firm conduct, or even how certain markets (e.g. spectrum, airline takeoff and landing slots) are designed to promote competitive outcomes. This includes economic regulation in response to market failures such as natural monopoly and social regulation to address privacy, health, and safety issues.

A second way to think about "regulation" is as a broader of collection of complementary policy tools for addressing existing or potential problems in certain sectors, technologies, and supply chains. This approach includes tools such as intellectual property, trade, labor, and consumer protection law; standard-setting, and antitrust enforcement. But the importance of promoting well-functioning, competitive cloud markets is not limited to antitrust policy. Competition issues are also central to the achievement of non-competition policy goals in the cloud sector.

This article focuses on the role of antitrust enforcement, especially merger enforcement, as an essential element of broader policy in the cloud sector. This focus is long overdue, for two reasons. First, while monopoly enforcement seems an almost exclusive focus of the Biden antitrust enforcers, merger enforcement in digital markets (including cloud) remains far below the average across all sectors. Annual U.S. enforcement data shows, for example, that from 2001-2021, the average rate of merger challenges for data processing, hosting, and related services is only 2 percent ¾ far below the all-sector average of about 15 percent.[6] This puts merger enforcement in catch-up mode as attention to strategic consolidation and certain business practices in cloud ramp up.

Second, the inherent dynamism of cloud technology warrants policy approaches for promoting competition but that are also responsive to technological complexity. Antitrust's typically narrow focus, which often examines markets in isolation, can mask important context for evaluating competitive concerns in cloud markets. This includes multi-level integration in cloud ecosystems, novel business partnerships between rival cloud providers, and competitors' longer-range strategic expansion objectives. The uptick in antitrust interest in cloud thus comes at a time when the market has grown largely through acquisition, is now well-established, and market participants are beginning to voice competition concerns. The U.S. antitrust agencies' lack of merger enforcement experience in cloud, however, presents something of a conundrum.

2 Michael Georgiou, *8 Industries Cloud Computing is Radically Transforming for Good*, Imagnovation Insider, https://imaginovation.net/blog/8-industries-cloud-computing-transforming-for-good/.

3 Laurence Goasduff, *Cloud Adoption: Where Does Your Country Rank?* Gartner (Aug. 19, 2019), https://www.gartner.com/smarterwithgartner/cloud-adoption-where-does-your-country-rank.

4 Nick Jones, *Cloud Computing RFI: What we heard and learned,* Fed. Trade Comm'n. (Nov. 16, 2023), https://www.ftc.gov/policy/advocacy-research/tech-at-ftc/2023/11/cloud-computing-rfi-what-we-heard-learned; and

5 Luca Bertuzzi, *EU cloud scheme slightly tones down sovereignty requirements*, Euractiv (Nov. 22, 2023), https://www.euractiv.com/section/cybersecurity/news/eu-cloud-scheme-slightly-tones-down-sovereignty-requirements/.

6 Statistics are based on analysis of data from the *Annual Reports to Congress Pursuant to the Hart-Scott-Rodino Antitrust Improvements Act of 1976*, Fed. Trade Comm'n., https://www.ftc.gov/policy/reports/annual-competition-reports. Merger challenges are measured as a percent of transactions cleared to either the FTC or DOJ. Data processing, hosting, and related services corresponds to the 3-digit NAICS code 518.

02

EVOLVING COMPETITION CONCERNS IN CLOUD MARKETS

While the antitrust community is just beginning to unpack issues involving cloud markets, information technology and decision science experts flagged the numerous policy issues surrounding the cloud in the late 2000s.[7] The FTC's summary of comments in response to its recent inquiry into cloud computing identifies a number of major issues. These include competition issues relating to customer and vendor switching and lock-in, such as: (1) software licensing practices that limit the ability to use software in rival cloud infrastructures; (2) the effect of exit fees for transferring data on discouraging switching and multi-clouding; and (3) minimum spend (i.e. volume) contracts that incentivize consumers to consolidate cloud services with one provider.[8]

The FTC's comment summary also identified issues that are indirectly related to competition in cloud markets, such as "single points of failure" and the demands of generative AI on cloud computing resources.[9] It is well known that a *lack* of competition limits the stability and resiliency of supply chains, as witnessed in the breakdown of the beef supply chain early in the COVID-19 pandemic.[10] Similarly, cloud-related outages due to single points of failure controlled by one or only a few rivals could have, as the FTC summary notes, a "cascading impact on broader cloud infrastructure."[11] Competition in cloud is likely to ameliorate the single points of failure problem. The FTC summary also explains that generative AI models, which consume enormous cloud computing resources, are highly reliant on cloud providers. Likewise, more competition in cloud computing services is likely to produce lower prices and switching costs, and decrease the possibility of vendor lock-in for cloud customers with AI workloads.[12]

The foregoing examples highlight the potential scope of competition issues relating to cloud markets, prompting us to consider how the agencies will initiate investigations into some mergers. A number of factors can induce antitrust enforcers to take a careful look at deals, such as: information contained in pre-merger filings; complaints from customers, distributors, or rivals; reporting in the media or trade press; and Congressional inquiries. The historically low merger enforcement rate in the digital sector does not provide a good roadmap for assessing what spurs the agencies to launch inquiries. Given the structure of cloud markets, however, we should not underestimate the role of complaints from market participants regarding strategic consolidation, such as maintaining a market position or foreclosing access to critical resources.

For example, Amazon and Google have become more vocal in criticizing Microsoft's cloud licensing agreements. Both companies have alleged that Microsoft's policies restrict competition in the United Kingdom's cloud computing market by making it harder for customers to switch to alternative providers or run competing services in parallel to Microsoft's Azure cloud services.[13] As discussed next, the structure of the cloud market is likely to magnify these concerns, warranting more, not less, enforcement scrutiny.

7 See e.g. Paul T. Jaeger, Jimmy Lin & Justin M. Grimes, Cloud Computing and Information Policy: Computing in a Policy Cloud? 5 J. of Information Technology and Politics (2008), https://doi.org/10.1080/19331680802425479; and Sean Marston, et al., *Cloud computing — the business perspective*, 51 Decision Support Systems 176 (2011).

8 FTC, *supra* note 4.

9 *Id.*

10 Diana L. Moss & Laura Alexander, *When COVID-19 is the Symptom and Not the Disease: Consolidation, Competition, and Breakdowns in Food Supply Chains*, American Antitrust Institute (May 7, 2020), https://www.antitrustinstitute.org/work-product/when-covid-19-is-the-symptom-and-not-the-disease-consolidation-competition-and-breakdowns-in-food-supply-chains/.

11 FTC, *supra* note 4.

12 *Id.*

13 Jess Weatherbed, *Amazon slams Microsoft's business practices in UK cloud market probe*, The Verge (Dec. 5, 2023), https://www.theverge.com/2023/12/6/23990374/amazon-microsoft-uk-cloud-market-competition-probe.

03

THE COMPETITIVE IMPLICATIONS OF CLOUD MARKET STRUCTURE

The myriad issues raised by the explosive development of cloud technology and the evolution of the cloud market have been largely displaced by debates over the digital sector more generally. The focus on the growth of major digital platforms and ecosystems in social media, internet search, and eCommerce; the rise and commercialization of AI; and privacy issues surrounding the collection and enrichment of vast troves of user data. As these concerns consume public and political attention, the Biden Administration's FTC and U.S. Department of Justice ("DOJ") have committed significant enforcement resources to pursuing a number of high-profile digital monopolization cases. But merger enforcement remains on the back burner.

To get a better sense of this disconnect, it is important to note that three major cycles of acquisition-driven growth have produced the large digital business ecosystems that we see today. These include an initial cycle between 1994-2004, a second between 2005-2011, and the most recent between 2012-2023.[14] Some of the major digital ecosystems, Amazon Web Services ("AWS"), Microsoft Azure, and Google Cloud, are also the largest providers of cloud services. But other "dedicated" cloud competitors ¾ IBM, Oracle, Salesforce, Alibaba Cloud, and Tencent ¾ have an important role in the cloud market.[15]

The top cloud providers have dramatically expanded their cloud capabilities over the last 25 years. Recent analysis of the cloud market indicates that the top eight cloud providers made about 1,100 acquisitions from 1995-2022.[16] About 480 of total acquisitions, or almost 45 percent of the total, involved cloud assets. Cloud acquisitions by the top providers range from small transactions, many of which fall under the federal Hart Scott Rodino Act antitrust reporting thresholds, to some worth almost $20 billion.[17]

In 2014, for example, Microsoft purchased Capptain for $9.3 billion, a French startup specializing in a mobile app management platform, to "beef up" Azure.[18] In 2019, Google's bought data analytics startup, Looker, for $2.6 million.[19] The acquisition followed on the heels of Google's purchase of data analytics firm Alooma, a cloud data migration provider, and Cask Data, a data pipelining tool, in 2018. In 2019, Salesforce acquired Tableau, a startup specializing in analytics, AI, cloud computing, and other markets, for almost $17 billion.[20]

The bulk of the "buildout" in cloud capability by the top eight providers occurred between 2000 and 2015.[21] In the early 2000s, about four major providers were behind most cloud acquisitions. But by 2015 and beyond, almost all firms were active. Despite this explosive growth via acquisition — and significant organic expansion by AWS — the relative market positions of the three major cloud providers remain the same. AWS is still the market leader, currently with 32 percent of the market, Microsoft Azure follows with 23 percent of the market, and Google Cloud has

14 Diana L. Moss, Gregory T. Gundlach & Riley T. Krotz, *Market Power and Digital Business Ecosystems: Assessing the Impact of Economic and Business Complexity on Competition Analysis and Remedies*, American Antitrust Institute (Jun. 1, 2021), at p. 4, https://www.antitrustinstitute.org/wp-content/uploads/2021/06/AAI_digital-ecosystems_FINALV5.pdf.

15 Diana L. Moss, *The Cloud Technology Market: Storm of Innovation or Rainy Days for Competition?* American Antitrust Institute (Jun. 21, 2023), https://www.antitrustinstitute.org/wp-content/uploads/2023/07/AAI-Report-Cloud-Markets_7.5.23.pdf.

16 *Id.*, at Section IV.

17 *Non-HSR Reported Acquisitions by Select Technology Platforms, 2010-2019: An FTC Study*, Fed. Trade Comm'n. (Sep. 15, 2021), https://www.ftc.gov/system/files/documents/reports/non-hsr-reported-acquisitions-select-technology-platforms-2010-2019-ftc-study/p201201technologyplatformstudy2021.pdf.

18 Ingrid Lunden, *Microsoft Buys Mobile App Management Platform Capptain To Beef Up Azure*, TechCrunch (May 28, 2014, 9:50 AM), https://techcrunch.com/2014/05/28/microsoft-buys-capptain-a-mobile-app-management-platform-based-in-paris/.

19 Ron Miller, *Google closes $2.6B Looker acquisition,* TechCrunch (Feb. 13, 2020, 11:35 AM), https://techcrunch.com/2020/02/13/google-closes-2-6b-looker-acquisition/.

20 Adam Selipsky, *Salesforce Signs Definitive Agreement to Acquire Tableau,* Tableau (June 10, 2019), https://www.tableau.com/about/blog/2019/6/blog-1-110508.

21 Moss, *supra* note 15, at 9.

10 percent. The top three thus account for 65 percent of the cloud market while those with smaller market shares comprise the fringe competition.

The dispersion in shares of the major cloud players, coupled with the fringe of smaller players, keeps market concentration hovering just below the highly concentrated level at 1,700 HHI. Against this backdrop, consolidation involving the complex array of technologies, products, and services the make up the cloud stack may create fertile ground for strategic practices. These include controlling rivals' access to critical inputs or distribution channels and minimizing customer switching between competing cloud providers¾all good reasons why antitrust enforcers should monitor the competitive incentives created by cloud consolidation.

04

WHAT THE 2023 MERGER GUIDELINES MEAN FOR CLOUD CONSOLIDATION

The FTC and DOJ issued the final 2023 Merger Guidelines in December 2023.[22] The guidelines significantly revise the 2010 Horizontal Merger Guidelines and cover both horizontal and vertical mergers. They include a total of 11 guidelines, six of which aide the agencies in identifying a merger that raises the prima facie concern, i.e. that it is likely to substantially lessen competition. The remaining five guidelines apply those frameworks in specific market settings.[23] The revised guidelines incorporate long-established market power concerns covered in the 2010 Guidelines such as high increases in concentration, head-to-head competition, anticompetitive coordination, potential entry, and partial ownership.

These traditional merger concerns remain highly applicable in investigations involving cloud consolidation. For example, the trend toward interconnecting multiple cloud environments (i.e. cloud integration), and coordination between cloud providers and vendors to customize infrastructure to handle big data and AI workloads, is spurring cloud firms to explore strategic partnerships.[24] Such partnerships may invoke concerns around anticompetitive coordination (guideline #3), as well as information sharing and weaker competitive incentives that arise in some partial ownership transactions (guideline #11).

The 2023 Guidelines also include theories of competitive harm that have until now been uncodified, some of which have important implications for cloud consolidation. For example, cloud stacks involve highly integrated technologies to support computing, networking, and analytics services, the value of which is clearly recognized by corporate cloud users and will likely shape consolidation moving forward.[25] Consolidation involving complementary levels in the cloud stack can raise concerns under guideline #5, which addresses vertical mergers that enhance incentives to limit rivals' access to inputs or distribution. Other competitive concerns addressed in the 2023 Guidelines include transactions that entrench or extend a dominant position (guideline #6); further a trend toward consolidation (guideline #7); and involve serial or successive mergers (guideline #8). Cloud mergers are likely to raise issues under these guidelines as well.

As noted earlier, for example, many of the top eight cloud providers have grown through acquisition. As shown in the figure below, between 1995-2022, Google was the most acquisitive with about six cloud acquisitions annually and 27 percent of total acquisitions, followed by IBM (20 percent) and Microsoft (18 percent).[26] Growth by acquisition is not inherently problematic. However, a cloud acquisition that the agencies determine is part of a longer series, or occurs in a cloud market that is trending toward consolidation may trigger concerns under the 2023 Guidelines. Moreover, maintaining or extending a dominant position in a cloud market (guideline #6), especially via the acquisition of a smaller rival (guideline #4), could also generate antitrust scrutiny. As noted, the unique structure of the cloud market makes these competitive concerns particularly salient and timely.

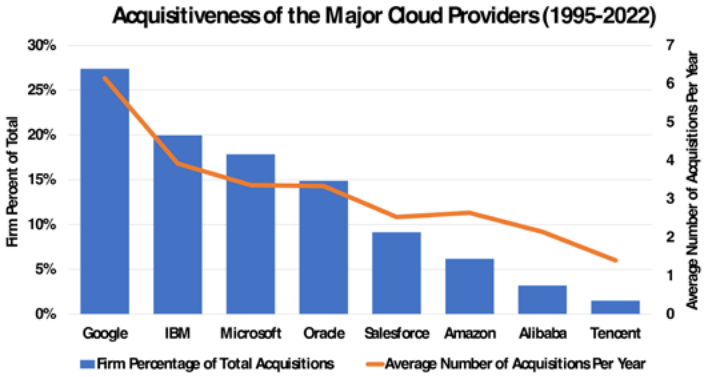
22 U.S. Department of Justice and Fed. Trade Comm'n., *Merger Guidelines* (December 20230, https://www.justice.gov/d9/2023-12/2023%20Merger%20Guidelines.pdf.

23 *Id.*, at p. 2.

24 Naiomi Sherry, *A look at cloud integration, what it entails and how you can start planning your path*, IBM (Apr. 5, 2021), https://www.ibm.com/blog/what-is-cloud-integration/. See also, James Montgomery, Kurt Marko, and Nicholas Rando, *cloud infrastructure*, TechTarget, https://www.techtarget.com/searchcloudcomputing/definition/cloud-infrastructure.

25 *Closing the cloud strategy, technology, and innovation gap*, Deloitte (2022), https://www2.deloitte.com/content/dam/Deloitte/us/Documents/consulting/us-future-of-cloud-survey-report.pdf.

26 Moss, *supra* note 15.



Finally, a word on the 2023 Guidelines treatment of "rebuttal" evidence around claimed cost savings or consumer benefits (i.e. efficiencies) resulting from a merger. Parties to cloud transactions will most certainly argue that the economic features of cloud mergers will have a moderating, if not neutralizing, effect on anticompetitive incentives and lower costs and prices. These include economies of scale in some cloud services such as software as a service ("SaaS"), economies of coordination between complementary cloud technologies, and the elimination of markups paid for some cloud inputs. The 2023 Guidelines carry forward the 2010 Guidelines' stringent requirements on efficiencies. For example, the must be merger-specific and verifiable, neutralize incentives to exercise market power, and occur in the market where harm is identified (i.e. no out-of-market efficiencies).[27] Given the more vigorous stance on merger enforcement of late, we can expect vigorous push-back on claims that mergers will lower prices or enhance quality and innovation. How the courts address these concerns in litigated merger proceedings under the 2023 Guidelines remains uncertain.

27 2023 Merger Guidelines, *supra* note 22, at Section 3.3.

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