Forecast Analysis: Public Cloud Services, Worldwide, 1Q21 Update

Published 27 May 2021 - ID G00748510 - 9 min read
By Analysts Colleen Graham, Brandon Medford, Neha Gupta, Vanitha Dsilva

Initiatives: Technology Market Essentials

Revised assumptions around the infrastructure as a service market are driving increased growth expectations for the public cloud services forecast. With a five-year CAGR of 19.6%, spending on public cloud services will reach $661 billion in constant U.S. dollars in 2025.

Overview

Forecast Assumptions

- Through 2024, organizations will bring forward digital business transformation plans by at least five years to adapt to a post-COVID-19 world that involves permanently higher adoption of remote work and digital touchpoints.

- By 2023, more than 10% of large enterprises will be running on-premises public cloud infrastructure in their data centers, which is an increase from fewer than 1% in 2019.

- By year-end 2023, 20% of installed edge computing platforms will be delivered and managed by hyperscale cloud providers, compared with less than 1% in 2020.

Market Impacts

- The economic, organizational and societal impact of the pandemic will continue to serve as a catalyst for digital innovation and adoption of cloud services, especially for use cases such as collaboration, remote work and new digital services to support a hybrid workforce.

- Distributed cloud capabilities will accelerate the adoption of integrated cloud offerings as a way to resolve challenges related to regulatory/compliance issues, perceived risks from lack of control/visibility, and connectivity/latency issues. Mainstream use of distributed cloud will be an extension of integrated cloud infrastructure and platform services (CIPS) environments.

- Edge computing complements cloud computing. Through centralized, cloud-hosted management and a growing portfolio of common cloud and edge capabilities, hyperscale cloud providers will address an increasingly broader range of requirements for computing closer to the edge.
Notable Changes

The infrastructure as a service (IaaS) market performed better than expected in 2020, and market indications reflect not only a continuation but an acceleration of IaaS adoption. We have therefore made significant upward revisions to the IaaS forecast from 2020 through 2025.

Gartner updated the constant currency regime to a new base year of 2020. Data reported in constant currency now uses the 2020 U.S. dollar exchange rates as the base value (2020 as base year) to convert other currencies, instead of the 2013 exchange rates as the base value (2013 as base year) used in previous iterations.

The change of base year will better present the overall market growth opportunity, by eliminating the effect from historic exchange rate fluctuations between the U.S. dollar and other currencies. This will impact the data level in constant currency for many countries when compared with prior publications. Spending/revenue in constant currency now will be closer to the data in U.S. dollar. This can result in changes in growth rates at higher levels of aggregation, such as regions or worldwide total. The change of base year causes the relative weight changes for individual countries within the regional aggregate.

Gartner also updated the currency basket for “Rest of Middle East and North Africa” and “Rest of Sub-Saharan Africa.” Their values are revised to link with only the U.S. dollar instead of both the U.S. dollar and euro.

For the current currency regime that reports data in U.S. dollar, the same methodology is used as before. Gartner exchange rates are updated each quarter, that correspond with the publishing cycle of Market Share, Forecast and Forecast Analysis documents.

Forecast Data Summary

Figure 1 shows the 2020 through 2025 compound annual growth rate (CAGR) for each public cloud service. The bubbles show the relative size of market spending in each segment in 2020.
Figure 1: Public Cloud Services Spending by Segment

Table 1 provides an annual breakdown of global public cloud service spending by segment for this same time period.

Note: The size of each bubble represents 2020 end-user spending by public cloud service segment in current U.S. dollars. 
Source: Gartner (April 2021) 
ID: 748510
## Table 1: Figure 1: Public Cloud Service Market Forecast by Subsegment, Worldwide (Millions of Constant U.S. Dollars)

<table>
<thead>
<tr>
<th>Subsegment</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>2025</th>
<th>CAGR 2020-2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>PaaS</td>
<td>46,335</td>
<td>57,824</td>
<td>69,214</td>
<td>85,519</td>
<td>106,595</td>
<td>127,816</td>
<td>22.5%</td>
</tr>
<tr>
<td>SaaS</td>
<td>102,798</td>
<td>118,953</td>
<td>140,145</td>
<td>166,396</td>
<td>197,706</td>
<td>231,714</td>
<td>17.7%</td>
</tr>
<tr>
<td>IaaS</td>
<td>59,225</td>
<td>79,013</td>
<td>102,334</td>
<td>132,457</td>
<td>168,836</td>
<td>211,762</td>
<td>29.0%</td>
</tr>
<tr>
<td>Cloud Management and Security Services</td>
<td>14,323</td>
<td>15,519</td>
<td>17,315</td>
<td>19,118</td>
<td>21,114</td>
<td>23,163</td>
<td>10.1%</td>
</tr>
<tr>
<td>DaaS</td>
<td>1,220</td>
<td>1,982</td>
<td>2,572</td>
<td>2,960</td>
<td>2,995</td>
<td>3,029</td>
<td>19.9%</td>
</tr>
<tr>
<td>BPaaS</td>
<td>46,131</td>
<td>48,949</td>
<td>51,471</td>
<td>54,899</td>
<td>59,414</td>
<td>63,927</td>
<td>6.7%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>270,033</td>
<td>322,239</td>
<td>383,050</td>
<td>461,349</td>
<td>556,659</td>
<td>661,411</td>
<td>19.6%</td>
</tr>
</tbody>
</table>

Source: Gartner (April 2021)

### Forecast Model Summary

Figure 2 illustrates the market forecast model summary for public cloud services.
Influencing Factors and Assumptions

At a high level, end-user spend on IaaS consists of two revenue streams. The first revenue stream is recurring spend for workloads that have already been moved to the cloud, and it includes any increases in capacity demanded to run those workloads. The second stream comes from new workloads being run on the cloud, and it consists of workloads being moved from noncloud platforms and net new cloud-native workloads.

Historically, recurring spend and spend on increased capacity has provided a solid revenue “floor” for the market with the bulk of revenue growth (year-over-year increase) predominantly driven by new customers and workloads. In 2020 this paradigm reversed.

An analysis of vendor financial results reveals that in 2020, an unusually large portion of revenue growth came from increased cloud service consumption by existing workloads. IaaS underpins almost every
A cloud collaboration offering in use, including Zoom, Webex and Slack. Likewise, IaaS underpins every major consumer-focused online offering, including gaming platforms (Supercell, Electronic Arts), music (Pandora, Sirius XM), video (Netflix, Hulu, Disney+) and the over 5 million apps available on mobile phones. In hindsight, a strong increase in demand to support these workloads seems like an obvious outcome of a global wave of remote working and government-imposed lockdowns. Nonetheless, the magnitude of the increase was impressive.

Looking to 2021-22, we expect some of the demand for capacity to support workloads like the ones cited above to gradually wane. However, we do not expect demand from these workloads to return to prepandemic levels. Instead, a new “floor” will be established that reflects demand to support a hybrid workforce and a global population accustomed to living a greater portion of their lives online. Grandparents who used Zoom to stay engaged with friends and family during the lockdown will continue to use video chat and other technologies, albeit at a reduced level, once they are able to travel and visit freely. People who became accustomed to using services to order delivery of food and other essentials, such as Grubhub and Instacart, will continue to use these services on occasion, also likely at a lower level than during the peak of the pandemic.

Through the forecast, this higher level of recurring spend will increasingly be augmented with revenue from workloads being moved from noncloud infrastructure into the cloud as well as net-new workloads running on the cloud. According to a Gartner survey conducted from July through August 2020, 69% of organizations surveyed plan to increase cloud spending in the wake of the disruption caused by COVID-19 (see Figure 3).
Hybrid Workforce

The impact of COVID-19 turned remote working from a privilege into a necessity and spurred many organizations to radically accelerate their digital business plans. Forced to operate remotely during 2020, many leaders are moving to a hybrid workforce, aggressively planning and adopting digital approaches that were not even under consideration before the crisis (see Forecast Analysis: Remote Workers Forecast, Worldwide).

Through 2024, organizations will be forced to bring forward digital business transformation plans by at least five years to adapt to a post-COVID-19 world that involves permanently higher adoption of remote work and digital touchpoints.

A hybrid workforce will be the future of work, with both remote and on-site options as part of the same solution to optimize employers’ workforce needs. Cloud adoption underpins organizations’ ambitions to create a hybrid workplace that balances employees’ needs with business success and provides a flexible
but consistent workplace in any location. Supporting the hybrid workforce model demands remote connectivity, increased scalability and improved elasticity, and it is driving organizations to accelerate cloud adoption and migrate off legacy infrastructure. By stepping up investment in mobility, collaboration, videoconferencing and virtual desktops, and other remote working technologies and infrastructure, Gartner expects growth in cloud to be sustained through 2024 (see The Distributed Workplace of the Future Is Now).

Distributed Cloud Adoption

While most organizations are making substantial commitments to public cloud infrastructure, many are also starting to make investments in edge locations and deploying IoT devices throughout the enterprise. These investments are allowing organizations to enable remote-location services requiring low-latency compute capabilities. Low-latency compute, where the compute operations for the cloud services are closer to those who need the capabilities, is increasingly being achieved through “distributed cloud” adoption. Distributed cloud is an emerging trend where cloud providers extend their cloud services to the locations designated by their customers. Distributed cloud services come in different form factors, including software and hardware and are managed, monitored and controlled by the central public cloud provider. It addresses the need to have cloud services closer to the physical location where data and business activities happen and can provide major improvements in performance, security and compliance.

By 2023, more than 10% of large enterprises will be running on-premises public cloud infrastructure in their data centers, which is an increase from less than 1% in 2019.

By year-end 2023, 20% of installed edge computing platforms will be delivered and managed by hyperscale cloud providers, compared with less than 1% in 2020.

Distributed cloud brings together edge and hybrid and enables new use cases and new revenue streams for cloud providers. Cloud providers are working with data center, micro data center and telecom providers to deploy cloud-tethered offerings closer to the edge. Because edge requirements can be highly diverse and are difficult to address with general-purpose solutions, cloud providers will focus on partnerships, rich integration capabilities, cloud-based management and cloud-based functional services for a wide range of diverse edge computing solutions. In the end, edge computing will be delivered by ecosystems of partners that vary across use cases and to offer solutions that can be deployed in enterprise data centers.

Evidence

1 The 2020 Gartner Cloud End-User Buying Behavior Survey was conducted to understand how technology leaders approach buying, renewing and using cloud technology.
The research was conducted online from July 2020 through August 2020 among 850 respondents from midsize and larger ($100 million-plus in revenue) organizations in the U.S., Canada, the U.K., Germany, Australia and India. Industries surveyed include energy, financial services, government, healthcare, insurance, manufacturing, retail and utilities. All organizations were required to have cloud deployed.

Respondents are involved, either as a decision maker or decision advisor, in new purchases, contract renewals, or contract reviews for one of the following cloud types in the past three years: public cloud infrastructure (IaaS), public cloud platform (PaaS), public cloud software (SaaS), private cloud infrastructure, hybrid cloud infrastructure or multicloud infrastructure. Respondents were also required to work in IT-focused roles, with a small subset of procurement respondents.

The study was developed collaboratively by Gartner analysts and the Primary Research team.

Disclaimer: Results of this study do not represent global findings or the market as a whole but reflect sentiment of the respondents and companies surveyed.

Document Revision History

Forecast Analysis: Public Cloud Services, Worldwide - 3 June 2020
Forecast Analysis: Public Cloud Services, Worldwide - 14 November 2019
Forecast Analysis: Public Cloud Services, Worldwide, 4Q18 Update - 8 February 2019
Forecast Analysis: Public Cloud Services, Worldwide, 3Q18 Update - 30 November 2018
Forecast Analysis: Public Cloud Services, Worldwide, 2Q18 Update - 16 August 2018
Forecast Analysis: Public Cloud Services, Worldwide, 1Q18 Update - 18 June 2018
Forecast Analysis: Public Cloud Services, Worldwide, 4Q17 Update - 28 March 2018
Forecast Analysis: Public Cloud Services, Worldwide, 3Q17 Update - 12 December 2017
Forecast Analysis: Public Cloud Services, Worldwide, 2Q17 Update - 28 September 2017
Forecast Analysis: Public Cloud Services, Worldwide, 1Q17 Update - 12 May 2017
Forecast Analysis: Public Cloud Services, Worldwide, 4Q16 Update - 31 January 2017
Forecast Analysis: Public Cloud Services, Worldwide, 3Q16 Update - 23 November 2016
Forecast Analysis: Public Cloud Services, Worldwide, 1Q16 Update - 2 May 2016
Forecast Analysis: Public Cloud Services, Worldwide, 2Q15 Update - 26 August 2015
Forecast Analysis: Public Cloud Services, Worldwide, 1Q15 Update - 17 June 2015
Forecast Analysis: Public Cloud Services, Worldwide, 4Q14 Update - 10 April 2015
Forecast Analysis: Public Cloud Services, Worldwide, 3Q14 Update - 20 November 2014
Forecast Analysis: Public Cloud Services, Worldwide, 2Q14 Update - 11 August 2014
Forecast Analysis: Public Cloud Services, Worldwide, 1Q14 Update - 13 May 2014
Forecast Analysis: Public Cloud Services, Worldwide, 4Q13 Update - 20 March 2014
Forecast Analysis: Public Cloud Services, Worldwide, 3Q13 Update - 20 January 2014

Recommended by the Authors

Predicts 2021: Cloud and Edge Infrastructure
How to Bring the Public Cloud On-Premises With AWS Outposts, Azure Stack and Google Anthos
‘Distributed Cloud’ Fixes What ‘Hybrid Cloud’ Breaks

© 2021 Gartner, Inc. and/or its affiliates. All rights reserved. Gartner is a registered trademark of Gartner, Inc. and its affiliates. This publication may not be reproduced or distributed in any form without Gartner's prior written permission. It consists of the opinions of Gartner's research organization, which should not be construed as statements of fact. While the information contained in this publication has been obtained from sources believed to be reliable, Gartner disclaims all warranties as to the accuracy, completeness or adequacy of such information. Although Gartner research may address legal and financial issues, Gartner does not provide legal or investment advice and its research should not be construed or used as such. Your access and use of this publication are governed by Gartner's Usage Policy. Gartner prides itself on its reputation for independence and objectivity. Its research is produced independently by its research organization without input or influence from any third party. For further information, see "Guiding Principles on Independence and Objectivity."
### Table 1: Figure 1: Public Cloud Service Market Forecast by Subsegment, Worldwide (Millions of Constant U.S. Dollars)

<table>
<thead>
<tr>
<th>Subsegment</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>2025</th>
<th>CAGR 2020-2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>PaaS</td>
<td>46,335</td>
<td>57,824</td>
<td>69,214</td>
<td>85,519</td>
<td>106,595</td>
<td>127,816</td>
<td>22.5%</td>
</tr>
<tr>
<td>SaaS</td>
<td>102,798</td>
<td>118,953</td>
<td>140,145</td>
<td>166,396</td>
<td>197,706</td>
<td>231,714</td>
<td>17.7%</td>
</tr>
<tr>
<td>IaaS</td>
<td>59,225</td>
<td>79,013</td>
<td>102,334</td>
<td>132,457</td>
<td>168,836</td>
<td>211,762</td>
<td>29.0%</td>
</tr>
<tr>
<td>Cloud Management and Security Services</td>
<td>14,323</td>
<td>15,519</td>
<td>17,315</td>
<td>19,118</td>
<td>21,114</td>
<td>23,163</td>
<td>10.1%</td>
</tr>
<tr>
<td>DaaS</td>
<td>1,220</td>
<td>1,982</td>
<td>2,572</td>
<td>2,960</td>
<td>2,995</td>
<td>3,029</td>
<td>19.9%</td>
</tr>
<tr>
<td>BPaas</td>
<td>46,131</td>
<td>48,949</td>
<td>51,471</td>
<td>54,899</td>
<td>59,414</td>
<td>63,927</td>
<td>6.7%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>270,033</td>
<td>322,239</td>
<td>383,050</td>
<td>461,349</td>
<td>556,659</td>
<td>661,411</td>
<td>19.6%</td>
</tr>
</tbody>
</table>

Source: Gartner (April 2021)

### Distributed Cloud Adoption

While most organizations are making substantial commitments to public cloud infrastructure, many are also starting to make investments in edge locations and deploying IoT devices throughout the enterprise. These investments are allowing organizations to enable remote-location services requiring low-latency compute capabilities. Low-latency compute, where the compute operations for the cloud services are closer to those who need the capabilities, is increasingly being achieved through “distributed cloud” adoption.

Distributed cloud is an emerging trend where cloud providers extend their cloud services to the locations designated by their customers. Distributed cloud services come in different form factors, including software and hardware and are managed, monitored and controlled by the central public cloud provider. It addresses the need to have cloud services closer to the physical location where data and business activities happen and can provide major improvements in performance, security and compliance.