

Expansion of 'Cloud Engine' Speed/Scale To Continue Escalating

Companies: AMZN, CIEN, CRM, CSCO, DDOG, F, GLW, GOOG/GOOGL, IBM, IRDM, MDB, MSFT, NOK, NVDA, SAP, SMCI, SNOW, VWS.CO

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"Heard, tracked, understood, witnessed, confirmed, and you should really think about paying attention to this stuff."

Research Question:

How will the continuing development of hyperfast "cloud engines" affect the way all types of computing and digital innovation will be driven moving forward?

Key Findings

- The three major clouds—Amazon.com Inc.'s (AMZN) Amazon Web Services, Microsoft Corp.'s (MSFT) Azure, and Alphabet Inc.'s (GOOG/GOOGL) Google Cloud Platform—are locked in an escalating battle to provide faster, more powerful platforms for their customers to run software applications that will soon be unable to operate effectively on even recently installed computing fabrics.
- It is not only artificial intelligence that is forcing this to happen. For any type of next-generation software development and commercial viability to happen and be realized, sources say, computer network speed has to be able to scale up on a global footprint while delivering the kind of computational power that one source described as being the equivalent of a "gigantic collection of digital jet engines or even powerful rocket motors" that can be tapped into by developers of anything from advanced AI to the software used in the daily operations of business processes.
- "Applied technology devops are where we see it coming fastest," said one executive source at a technology consultancy specializing in the leveraging of these "cloud engines" to enhance the capabilities of his clients across areas of healthcare, transportation, manufacturing, and biotech. "It is correct to forecast that the underlying enablers of this are companies like Nvidia [Corp./NVDA] and other advanced computer and network fabric entities that are pushing the envelope on speed. Because they sell to the big clouds, this is where this speed-and-scale equation comes into play. Use the high-speed components in advanced servers to do the work, push the work out everywhere on the cloud scale. The computing speed innovations are increasing at an unprecedented pace, while the global cloud infrastructure platforms continue to expand without any slowdown regardless of the economy because they simply must to remain competitive among one another."
- The result is almost a type of economic immunity for systems companies such as Nvidia and Super Micro Computer Inc. (SMCI), fiber networking companies like Corning Inc. (GLW), optical switching operators like Ciena Corp. (CIEN), and networking companies such as Nokia Oyj (NOK). In Nokia's case, sources say the company is poised to benefit from the speed/scale arms race with new products designed to help, as one network communications source summed it up, "try to keep the big telecom carriers from becoming irrelevant in the face of the big three clouds and their investments in networks and facilities. The carriers need end-to-end systems that are tied into the cloud hyperscalers, and this is the future for Nokia. I think they have been dismissed for a long time, but they are in the right place moving forward. They are innovating and have a solid networking portfolio."
- The big cloud companies dictate the broad directions of information technology now. IBM has a solid AI track record, but no large-scale cloud data center facilities of its own. Then, there are companies that can use the cloud platforms to leverage the advanced computing capabilities building out inside the clouds to develop their own technologies and advancements. Sources cited companies such as Vestas Wind Systems A/S (VWS.CO), Ford Motor Co. (F), and Iridium Communications Inc. (IRDM) as examples of major companies in existing verticals that have embraced high-performance cloud computing to push innovation. [Vestas is using Microsoft AI](#) to advance its system capabilities, while [Ford has a partnership with Google](#). Several other sources pointed to [Iridium's combining its satellite services with AWS](#) for customers to create a new way to gain universal connectivity across devices scattered around the globe. "It's genius," said one advanced-communications source. "It shows how combining technologies in the high-speed cloud world creates these engines, as you call them, that can push almost anything forward. Iridium took space-based technology, tied it into the sheer size and scope of AWS' terrestrial assets and created a very useful new thing that benefits all its users."

Positive: AMZN, CIEN, F, GOOG/GOOGL, GLW, IRDM, MSFT, NOK, NVDA, SAP, SMCI, VWS.CO

Neutral: CSCO

Negative: CRM, DDOG, IBM, MDB, SNOW

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It's Powerful Big Cloud Computing And Powerful Small Edge Computing—With The Middle Shrinking

Sources have many ways to talk about where advanced computing is taking us, but they agree it breaks down into two categories: very fast, large-scale core cloud computing, complemented out on the edge by very fast clusters that are tied back to the big clouds in two-way relationships. That architecture leaves less and less for the middle ground we have known as do-it-yourself enterprise IT.

“If you want to innovate and create, you are already tapped into the cloud and working there if you’re a startup or a company in a fast-moving industry that can’t afford to run its own advanced compute block,” said the CEO of a network integration company that specializes in streamlining clients’ IT resources from end users into cloud deployments at all three of the major cloud platforms. “Regardless of the slowdown in IT spending at end customers, the big three clouds are not going to stop building faster and bigger systems because their own competitive status against each other, as well as countering threats from China, hang in the balance. The big three keep buying from the likes of Nvidia because those types of companies put the horsepower under the hood. Then you have IBM [International Business Machines Corp./IBM], which is in some of the correct places in high-speed processing and the use of advanced computing in developing areas like AI—the same as the big three at AWS, Microsoft, and Google. But they also have that foot caught in the cement of the legacy world, where you do not want to be lingering. They also do not have the infrastructure scale, which puts them at a disadvantage. This has them betting on things like quantum down the road, which is smart.

“However, in the meantime, they are navigating a very rapidly moving landscape where they are pitted against the big cloud momentum. They will have to reach some sort of broader accommodation with those clouds in a collaborative sense, I think. They can’t allow themselves to be left behind the development curve again like they did when they originally called the idea of the public clouds’ growth a fad. Right now, I’d be worried about the direction of IBM because they do not have anything unique enough to carry the ball, and they don’t have scale.”

Yet sources were quick to point out that the cloud engine world is not so great for some key areas of IT commerce, namely many types of software and software as a service (SaaS). “The big-time cloud computing capabilities that keep expanding into AI and very fast data processing across all types of application scenarios devalues a lot of standalone software that is out there trying to compete on its own,” said the CEO of a company that manages clients’ cloud deployments and streamlines their end users’ access with the cloud applications they use. “I’d cite companies such as Salesforce [Inc./CRM], Datadog [Inc./DDOG], Snowflake [Inc./SNOW], among those you ask about, as facing serious issues into the next few years because they are up against these cloud engines you’re outlining. That’s exactly what these things are—extremely big data engines backed by increasingly fast hardware that can be tapped into at will by anyone anywhere, for the most part. When you see these clouds developing AI around database analytics and management or customer relations management, for example, the question that has to be asked of the people running these companies—firms like Salesforce, for example—is, ‘How, exactly, do you think you’ll be able to compete against that [the expansion of the fast clouds] over the long run when you do not have the size and capabilities of a Microsoft?’ That’s a fair way to look at this.

“It is a war of attrition for the companies I call the outsiders. By that I mean they really rely on the clouds in order to be able to do business. If they are selling their licenses as SaaS, they have to deliver the software from a cloud-hosted platform. If they license it for hybrid use, their customers are putting it up in the cloud, and that means the cloud providers still play the vital role. Either way, the outsiders are beholden to the cloud.”

Other sources repeatedly referred to competition as the pressure that pushes third-party software vendors into situations where they have to tap into the cloud acceleration capabilities to develop their applications fast enough to remain relevant. Then they sell the software they developed on high-performance cloud instances to their customers, while that software is then also hosted in the cloud as a SaaS product or by customers placing the applications in the cloud themselves. In other words, sources said, outside software companies that do not have unique applications are caught in the crosshairs of a very difficult situation.

“The amount of software being self-hosted on a company’s own resources is shrinking very rapidly now,” said a senior executive at a large value-added-reseller (VAR)/integration company serving very large customers on the East Coast. “We have seen it go from 80% self-hosted on our customers’ servers to less than 20% in the past four years. It was already going south before the pandemic, but that situation essentially set off the rush to cloud SaaS. It won’t be much longer now before the only things we will be dealing with for our customers will be security at the endpoints, device management and monitoring their cloud deployments to make sure everything is operating smoothly. Obviously, our heavy focus on security is one reason we are still

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around. We have seen countless general-purpose IT networking VARs go out or be bought up by these large Indian companies that try to convert the customer bases of the companies they acquire into services clients. This is why I think Cisco [Systems Inc./CSCO] will not be able to withstand the cloud rush for too much longer. There is no reason for all but a few of our big customers to hire Cisco to run their networks for them. If you are looking to do that, you will incrementally move various resources to the cloud in a migration pattern piece by piece until you have come to the point where a complete cutover makes sense. Then you pull the trigger. That's the way we see it happening.

"The key area you can't neglect is data protection. You also have to manage the workforce's interaction with the cloud or other networks. That's been our salvation. I would not want to be out there trying to sell software applications if those apps have a similar type of software that is already built into Azure or AWS. Database comes to mind, especially no SQL like MongoDB [Inc./MDB]. That can only become cheaper and cheaper, and in many cases, it is already free."

One longtime Tech Trends source who owns a company that does mass-scale data migrations for very large customers in the insurance and healthcare industries said one of the areas that the big clouds are aiming AI at is automating tools that can grab onto specific data sets that are within large data lakes and warehouses, define the targets and grab only the relevant data being sought for migration, and move that while leaving other data behind until it is wanted for some other reason.

"You aren't hearing about this yet, but this is well underway—data targeting within big data sets," the data migration source said. "Let's say you have an insurance database that contains millions of transactions around various types of losses that have been paid out over, say, 50 years. You have spent millions of dollars taking that information and holding it in various storage media. Now you want to recover data that can show a pattern of loss by cause, by region, by specific instances over a period of time so that you can develop loss mitigation strategies that govern the types of underwriting you do. You want AI to do this. You have Microsoft AI launch into your entire data store using versions of software that may have been out of date for years. The AI is trained to seek and extract exactly the data sets you want to recover and analyze. The AI crawls through these massive data dumps, and it pulls up just what you wanted and nothing else and, get this—it issues reports to you that actually suggest how you can go ahead and use what the AI has extracted in building out your new loss mitigation strategy for myriad situations. That will be worth trillions. Do you really think Microsoft, Google, or Amazon is going to let some outside company take that business? It is not going to happen because the clouds own the big platforms, and they have the AI development."

"I think SAP [SE/SAP] are getting the entire cloud proposition right," said the CEO of a UK-based IT integration management and consulting firm doing a lot of business with large customers on Microsoft Azure. "They embraced what could and can be done [using the scope and access available over here with Microsoft's cloud](#), and they have a very tight and collaborative partnership between them that is proving to be very profitable for both. I can't tell you how instrumental SAP continue to be in support of Ukraine in many areas, and if it were not for Microsoft's data infrastructure and network, delivery of the critical services SAP provides to Ukraine would likely be impossible.

"That said, if you take a firm the size of SAP and match it with a worldwide company like Microsoft that is pushing the envelope in every area of machine learning and artificial intelligence, that is a combination that will be extremely difficult to beat if you are in competition against that. We have seen one success after another, particularly with Teams and Rise. It is simply phenomenal, and it is still quite early innings."

Background

John Harrington has been the senior technology researcher for Blueshift Research since February 2014. He has an extensive background in reporting on trends for more than 20 years across all areas of information technology. For this report, John examines the rise of "cloud engines"—very fast computing fabrics deployed on a global scale and tied to very fast networks that deliver capabilities to end users that were unimaginable just four years ago. For this report, John interviewed 12 key executive sources—11 in the U.S. and one in the UK—who have direct experience in dealing with the expansion of very fast cloud computing and its effect on IT networking. Interviews were conducted in the last two weeks of April.

About the Author

John Harrington is an award-winning investigative reporter and veteran Wall Street researcher. John previously served as senior editor and senior researcher at OTR Global and was a three-time Emmy Award-winning TV journalist.

John brings expertise and relationships in internet networking, network security, fiber-optic communications, and data center computing to Blueshift Research. He will contribute regularly, sharing deep insight into tech and communications trends, often before they are recognized by Wall Street.

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Report Coverage Areas and Companies

Blueshift Research has been reporting on the following technology areas since Feb. 14, 2014, covering these public companies:

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