

Computing-Fabric Speed Gap Poses Severe Risks Across IT

Companies: AAPL, AMD, AMZN, CIEN, CSCO, DELL, GLW, GOOG/GOOGL, HPE, IBM, INTC, META, MSFT, NVDA, ORCL, QCOM, SMCI, TSM

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

Research Question:

As fast computing fabrics are increasingly built and installed in the cloud, is there a computing “fabric gap” opening between advanced computing and intelligent software development and commodity IT networking on increasingly outdated equipment and technology still being sold across enterprise networking? If so, what risks does this pose for vendors and customers?

Key Findings

- “We have entered the age of digital servitude, although not many people see it that way,” said a senior data network design executive at an IT integration firm serving large enterprise customers. “What I mean by that is, you either are on the developmental edge of fast computing, driving what it can do for you, or you are falling further behind to the point where you will have to eventually line up to pay for permission to use what the companies in control of fast computing fabrics decide to charge you. ... Ultrafast cloud computing being mainstreamed by Microsoft [Corp./MSFT], [Alphabet Inc.’s /GOOG/GOOGL] Google, and [Amazon.com Inc.’s/AMZN] AWS [Amazon Web Services] has opened a big gap. If you are trying to sell last-gen switch-and-server technology to customers still doing their own IT, your company is heading toward obsolescence, and you’re going to be unemployed.” Blueshift Tech Trends was already picking up on the start of this significant trend in a report [April 18, 2019](#).
- Sources related how vendors such as Dell Technologies Inc. (DELL), Cisco Systems Inc. (CSCO), and Hewlett Packard Enterprise Co. (HPE) continue to try to sell traditional on-premise network equipment and computers to customers to continue running in-house IT. At the same time, chip companies, fabricators, certain component makers, and advanced network computing vendors such as Advanced Micro Devices Inc. (AMD), Intel Corp. (INTC), Nvidia Corp. (NVDA), Qualcomm Inc. (QCOM), Super Micro Computer Inc. (SMCI), and Taiwan Semiconductor Manufacturing Co. Ltd. (TSM) have teamed with Microsoft, Google, and AWS to accelerate computing fabric speeds and capabilities, opening the way for advanced software programming to power initiatives such as Open AI and many other types of machine-learning advancements. Others pointed at Ciena Corp.’s (CIEN) optical switches and Corning Inc.’s (GLW) high-speed fiber optics as beneficiaries.
- “I see it every day,” said a senior network consultant with a national value-added-reseller/integration company. “It blows me away how so many [IT workers and employees of networking vendors] are trying to convince themselves that what they are doing still has a long shelf life. What you have is one class of workers rooted in the past, and the people out on the leading edge completely leaving those folks behind. It’s the biggest sea change I’ve seen since the internet began to be a force in business networking in the mid-2000s.”
- Sources agreed that this developing computing speed and capability fabric gap could radically alter the way business computing operates. “I think the biggest of the big players will adapt and/or be part of this,” said the CEO of a cloud networking management and migration company. “IBM [International Business Machines Corp./IBM] will have a portion of the company involved in the whole advanced computing spectrum, but other divisions like Red Hat will fall out of relevance. Cisco clearly sees the threat [and] has the money to try to reinvent toward fast fabrics. I think Dell and Hewlett Packard are in serious trouble because of the legacy pieces they own. ... Oracle [Corp./ORCL] is caught in a tough spot. They are trying to be a player in cloud—but the collective R&D across Google, Microsoft, and Amazon is staggering to try to chase. Meta [Platforms Inc./META] has the data centers to develop around fast fabrics. The issue there is how do they monetize it beyond just their own businesses. It’ll be a long haul for them. Apple [Inc./AAPL] is embracing advanced fabrics because their entire ecosystem can’t survive unless they are an innovator in the space, and they are. Eventually, we are going to have two classes of people involved here—the people driving innovation and the people lining up to use it. It will be a seller/customer situation where the way digital development has been done to this point ends, and a world of IT automation takes over. I would not want to be working for some of the last-generation vendors. Expect very big layoffs all this year.”

Positive: AAPL, AMD, AMZN, CIEN, GLW, GOOG/GOOGL, INTC, MSFT, NVDA, QCOM, SMCI, TSM

Neutral: CSCO, IBM

Negative: DELL, HPE, META, ORCL

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Most Of The World's Computing Systems Are Obsolete For Advancing AI And Machine Learning

Bet on cloud development and everything that supplies it or connects to it, sources say, as machine learning/artificial intelligence and process automation advance. Bet against last-generation technologies in IT network equipment; old software subscription models; and companies that are, as once source put it, “hopelessly living in the past thinking things will go back to the way they were.”

“You can’t launch a moon rocket on regular gas,” said a senior sales engineer at a cloud networking migration company specializing in Microsoft Azure deployments. “What Microsoft is saying is: ‘If you come over here [to Azure], you are coming on a rocket ride. You are not going to be left behind.’ It’s true. Instead of trying to keep up with the leading edge of application programming, network performance, and integration yourself, you can monitor what you’re trying to accomplish in your enterprise and match it to what you can get with Microsoft. Or you can hold back and keep trying to run things yourself and hope you’re keeping up with your competition. If you are looking into automation processes based on machine training, you’re not doing that on your own without spending millions to build the type of computing you’d need at any type of size. Some corporations and governments will do that, but the number is pretty small when you can tap into what the clouds are building. Where we see confusion is when companies like Dell keep pushing their agenda, which is selling stuff, against what Azure or Google are selling, which is speed and capability. If you are an end customer, and you keep delaying the inevitable by continuing to piece-and-patch your network together, you’re falling further and further behind.”

Sources said the sales slowdowns that have been hitting enterprise networking vendors are a result of what they are still trying to sell customers, more so than tight budgets and workplace disruption brought on by the pandemic. “The spending slowdown on doing one’s own IT, as opposed to partial or whole-cloth cloud adoption, is permanent,” said a senior executive at a UK IT integration company. “I think what you’re seeing now that seemingly all you hear about is AI is a forced reckoning among decision-makers as to what they need to do to keep advancing their respective organizations. Cloud computing—sort of 1.5, 2.0, whereby you would use certain mundane applications such as spreadsheets, word processing, and collaboration tools—kept things running during the COVID disruptions, certainly. That is not what the discussion is about now. We have moved off the notion that ‘OK, we can go back to doing things ourselves, now that the situation has more or less stabilized,’ to ‘We do not want to do that, and we want to know what else is on offer from these advancements like AI.’ Since your typical client is not spending time developing their own AI regimens, that means the cloud companies that are pushing forward in all types of machine learning and automated applications are where clients are turning for those things.

“That leaves the very serious question you are asking—what happens then to all the companies such as Cisco or a Dell, which has been very big here in the UK in places like the NHS [National Health Service]? I think you know the answer: They face serious problems moving forward—particularly Dell, because they do not have the communications [carrier and internet] network presence of Cisco. The industry is changing rapidly. Entire classes of IT jobs are at risk because there is no turning back to where we have been. It is a critical issue because there is so much misinformation regarding the need [to hire people for] low-level IT jobs, ... when in fact those are the types of jobs you will see disappearing in escalating fashion as automation becomes more widely spread.”

“I like looking at it from an end-to-end systems perspective,” said a senior sales executive at a data center computing and network design company with large multinational clients. “The areas we work on will always rely on metro, regional, continental, and undersea fiber networks for connectivity. The demand for bandwidth is constantly increasing. That means optical transit—the physical fiber, optical switching, routing, and data center switching—is going to remain in demand. On the computing end, the kinds of network developments, like the cloud, that are at the center of everything now are only going to have more pressure placed on them. Yes, I do believe that most of the core computing running right now must be replaced over the next few years—maybe 75 [percent] to 80 percent of it if the Western world intends to stay ahead of China in the technology race. That’s not a political statement; it is a rational view of tech development. If you are going to have an edge in the development of intelligent machines, you will have no choice but to upgrade fabrics. Next-level software isn’t going to be another iteration of something that has been around for decades. You’re absolutely right to see this as a gap between what is happening on the developmental edge and what you would term legacy computing. It’s already a big gap between the two and getting bigger. Eventually, the old stuff goes to the e-waste recycler, and the majority of advanced computing will be IaaS/SaaS [infrastructure as a service/software as a service].”

“The cloud access side is a great place to be if you have the PoPs [point of presence] to get edge customers direct connects into the clouds,” said a longtime Blueshift Tech Trends carrier and internet networking source. “I’m not so much talking about

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this silly 5G-vs.-terrestrial war of words you see on TV between the cell carriers and Comcast [Corp./CMCSA] Xfinity. Just look at what the big three clouds have in their own networks for fast access to their platforms. [Microsoft's is huge](#). So is [AWS' access network](#). Google started the whole dedicated-fiber-to-the-cloud thing, and they have [a huge network](#) because they have to run their global search and other businesses, like YouTube and Google Cloud, as well as everything else they do, across it. The key to understanding the real meaning of all this connectivity is to look at where this has come in just a few years. These three companies have better collective networks than the world's telecom companies as it relates to hooking up their data centers to users. It's not even close. If you understand that, without very fast network access, whatever you have in these cloud data centers is not as available to customers as it needs to be at mass scale. That means if you have an AI platform like what Microsoft is building around Open AI—what good is it unless there is extremely fast in/out from the data centers?

“This is where your real ‘fabric gap,’ as you put it, comes into play. The fast global networks the big three clouds have, tied to what they are doing in high-performance computing, is what makes a complete ‘fabric.’ If the computing is the cloth, the fiber is the thread. This is where traditional networking gets left behind. If you build, say, an internal local network to run your applications, and you have an ancillary internet connection to access whatever—some cloud apps, some storage you are putting in the cloud—but you are running most of your applications in-house, that's what most of hybrid networking is right now. Trust me, that is a dead duck, because if you take the network power of these clouds and tie it to their advancing computing power, that is the best way for anyone to understand this gap between how things were being done and how they will get done from here on out. You're either going to be out on the developing edge by leveraging these advanced computing and optical networking systems the cloud companies have and are expanding, or you will be left behind.

“The way you play this is to add up the access side points, what they have now and what they keep building, with the data center zones the big three have; and you figure out who supplies and partners with that effectively. Contrast that against the companies that are getting left on the outside looking in, and you will be able to forecast who makes it through to the next round and who doesn't.”

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 in all areas of information technology. For this report on the widening gap between next-generation information technology development and the lagging sector of last-gen IT, he interviewed 11 key sources in the U.S. and UK, all repeats from previous Tech Trends reports. Interviews were conducted throughout February.

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.

Report Coverage Areas and Companies

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- Fiber Network Construction and Implementation (ALU, CIEN, CSCO, DY, GLW, IESC, JNPR, NOK)

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