5 Data Center Technologies to Watch in 2019

By: Alan Seal on March 5th, 2019

Many of the innovative technologies powering today's internet got their start in data center facilities. While data centers may have changed quite a bit over the last few decades, they remain key players in driving innovation for IT infrastructure and network architecture. For companies looking to gain access to the latest and greatest computing technologies, partnering with a data center is one of the fastest and most cost-effective routes available to them.

Server Virtualization

With high-density deployments becoming more common (more on that in a moment), many data centers are shifting to a software defined data center (SDDC) service model to provide customers with better efficiency, scalability, and visibility. Virtualization techniques make it possible to abstract computing and storage capabilities into compartmentalized software, allowing data centers to parcel out portions of a server on an as-needed basis. This allows data centers to manage multiple customers on a single server, which greatly reduces operating costs and maximizes infrastructure resources. Since everything is software based, it's easily scalable and offers tremendous connectivity options for data center customers looking to build a customized IT infrastructure that meets their business needs. Hybrid cloud and multi-cloud deployments will certainly become much more common for SDDC customers using virtualization services, making virtualization a key data center technology trend to watch.

Encryption as a Service

In many ways, 2018 was the year of the cloud. A staggering 96 percent of organizations utilized the cloud in some form, with 81 percent of enterprises employing a multi-cloud strategy to meet their needs. With so many companies doing business over the cloud, they can't afford to take any chances with data security. A single breach could result in huge financial losses and cause irreparable damage to their brand reputation. For companies that utilize hybrid cloud and multi-cloud

deployments, ensuring that their data is protected both in transit and at rest is critically important. Edge computing architecture that incorporates the internet of things (IoT) devices also handle huge amounts of customer data that could potentially be vulnerable as it moves from point to point along the outer edges of the network.

Fortunately, data centers can better secure data and vital intellectual property assets through the use of strict encryption protocols. Hardware security modules (HSMs) have long allowed companies to protect their data both at rest and in transit by generating and managing encryption keys, but the price of these units made them an unrealistic solution for most. Cloud providers and data centers now offer HSM as a Service, providing customers with a scalable security solution for protecting their cloud infrastructure. These services will be an important data center technology trend to watch in the upcoming year.

Direct Cloud Service Connections

Speed matters in today's hyperconnected world. According to recent research, 62 percent of internet users will leave a website that doesn't load within five seconds. And 27 percent will be gone after only three seconds. Companies that can't meet those demands will have difficulty competing regardless of their industry. Data centers already offer a rich array of connectivity options, often over a single cross-connect to ensure better speed and service with minimal downtime. Many facilities, however, are going the extra step by offering direct connections to cloud providers that bypass the public internet altogether, delivering the very best in speed, accessibility, and security. Services like Microsoft Azure ExpressRoute are already becoming a necessity for companies wanting a competitive edge when it comes to delivering services. These connections can turbocharge conventional hybrid cloud and multi-cloud deployments, making them an important data center technology trend to look for.

High-Density Deployments

As processors become more powerful and efficient, data centers are deploying more high-density racks to accommodate them. A typical server rack may draw about 7 kW of power, but higher-density deployments could run as high as 30 to 40kW. All that power means better performance and better capacity.

These deployments allow data centers to pack more computing power into smaller spaces, which can reduce overhead costs and improve power distribution. Rather than spreading workloads over multiple low-density servers, facilities can concentrate them much more efficiently into a single high-density deployment. These powerful deployments also make it possible for data centers to power processing-hungry tasks like machine learning, sophisticated analytics, and artificial intelligence. The intense power demands of high-density deployments are also driving innovative liquid cooling technology, which promises to revolutionize data center design in the coming years.

Artificial Intelligence

Speaking of artificial intelligence, advancements in machine learning and AI also promise to revolutionize the way data centers operate. Today's facilities lean heavily upon analytics programs to operate more efficiently, but advancements in AI have the potential to revolutionize data center operations. Companies like Google are already using AI to manage the cooling infrastructure some of their private data centers. The real innovation, however, is the possibility of a completely self- managed data center that can operate fully autonomously. While remote hands services will always be necessary to address technical issues, AI makes it possible for data center infrastructure to self- diagnose and even self-correct many problems. It may take data centers many years to fully realize the potential of this technology, but the first steps have been taken.

Data centers are at the forefront of technological innovation. They have already revolutionized the way organizations manage their IT infrastructure, providing even the smallest startups with the connectivity options and computing resources that were once available to only the largest companies. As data centers continue to push the boundaries of innovation, those services will only become better, more versatile, and more cost-effective.

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