

**Article Abstract**  
**Mission Critical Magazine****Structured Cabling Making a Comeback  
with High-Speed, Low-Latency Data Center Deployments***Switch-to-server connections cannot be a weak link*

Emerging IoT and IIoT technologies like self-driving cars, virtual and augmented reality, artificial intelligence (AI), machine-to-machine (M2M) communication and advanced data analytics require faster transmission speeds and low-latency communication between servers and switches at the edge of the network. As modern hyper-converged data center environments look to support these emerging technologies, switch-to-server connections must not be a weak link in the chain. Migration strategies for switch-to-server connections that were once projected to advance from 10 to 40 Gig have now evolved due to innovations in switching technology. To minimize latency and bottlenecks, data centers have also shifted away from a traditional three-tier architecture to a more efficient fully-meshed leaf-spine fabric architecture. When it comes to switch-to-server connections, these technology trends indicate that fiber optic structured cabling with an “all-to-all” cross connect scenario may ultimately make the most sense for modern data centers. Data center managers embarking on modernization projects to support high-speed, low-latency performance would therefore be wise to keep their eye on the evolving landscape and the timeless benefits of structured cabling.

This paper takes a look at the current trends in data center architecture to support high-speed, low-latency performance, as well as advancements in technology and ensuing standards developments that are driving 25, 50 and 100 Gb/s server connections in both the enterprise and cloud/hyperscale data center environment. While there is no single infrastructure design for every data center, the current trends and developments make it clear that modern data center environments will benefit from the use of standards-based fiber optic structured cabling.