CASE STUDY SUMMARY

- Through its expertise in data center infrastructure, Rahi was able to design a fiber-optic cabling architecture to precisely meet Verizon’s operational requirements.
- The solution consolidates connectivity from Verizon’s core network to its server cabinets, eliminating copper cabling and the need for intermediary switches.
- Rahi helped Verizon select the right fiber-optic cables and connectors, configure the solution and troubleshoot any issues.
- A unique cassette solution provides a self-contained and standardized "patch panel" for connecting to uplinks and distributing bandwidth to servers.

FIBER-OPTIC CABLING INFRASTRUCTURE FOR VERIZON DIGITAL MEDIA SERVICES

Verizon was upgrading the core network supporting its digital media environment to a next-generation, 1.2 terabit per site architecture. The company was eliminating its copper cabling and looking to consolidate all of the connectivity from its servers directly to the core router without having to go through an intermediary switch. This required structured fiber-optic cabling from each server cabinet back to the core.

In designing the fiber-optic cabling infrastructure, Verizon was looking to utilize MTP distribution blocks to provide connectivity to its server racks. The Verizon team had limited experience with MTPs, however, and asked Rahi Systems to help develop a cabling architecture that would optimize both reliability and serviceability. The Rahi team also designed a unique cassette solution that provides the flexibility to meet a variety of cabling requirements and support future bandwidth upgrades.
While consolidating connectivity would provide Verizon with a number of operational benefits, the IT team was concerned about connecting too many servers via a single fiber-optic cable or distribution block. If maintenance were required, multiple servers would lose connectivity because they shared the same uplink to the core network.

Rahi helped Verizon evaluate MTP12 blocks, which would deliver 40 gigabits of bandwidth and support four servers, and MTP24 blocks, which would deliver 120 gigabits of bandwidth and support 12 servers. Ultimately, Verizon opted for the MTP12 solution, with 10 or 11 cables connecting directly to 40-gigabit router ports.

Rahi also helped design a cassette that breaks the 40-gigabit connection into four 10-gigabit links with LC connectors. The cassette installs in the back of a server cabinet, with each 10-gigabit cable connecting directly to a single server.

While the fiber-optic cabling architecture seemed straightforward on the surface, the Verizon team quickly realized there was a significant learning curve. Because of their expertise in fiber-optic cabling, the Rahi team was able to explain the various options that were available and the best way to configure them. Rahi also helped troubleshoot any issues that arose during testing, providing the Verizon team with a better understanding of the technology.

The cassette provides the capabilities of a patch panel in a form factor that can easily be reconfigured within the same footprint. Verizon can change the fiber count and bandwidth available to servers while maintaining the same connectivity out of the cassette to the core network.

It also provides a standardized, self-contained solution that speeds installation in the company’s data centers.

“The Rahi team played a key role in the success of this project,” said Adam Shing, Datacenter Operations, Verizon. “Rahi helped us design and configure the right solution, and educated our team so that we can better support the infrastructure going forward.”