Terenine Builds Dream Data Center with Force10

Founded in 2005, Terenine[SM] Technology Solutions is a cloud-based data center and technology services provider based in Chattanooga, Tennessee. When the company had an opportunity to build a world-class data center from the ground up, it chose Force10 switching solutions for maximum performance, scalability, and uptime.

Terenine began as the IT department of a major financial services firm, but having built an infrastructure that served several large business units, the group spun off from its parent firm and began offering cloud-based IT services to other companies. Today, Terenine serves customers around the world in financial services, e-commerce, and other industries.

As it moved to support commercial customers, Terenine had the opportunity to build a dream data center, according to Ashley Wilson, manager of global network services for Terenine. "We purchased the facility we're in now and gutted it, so we had the opportunity to build the data center from the ground up," he says. The result was a data center called DC1. Soon to follow was a higher-density companion to DC1 named TereVault™, which is one of only 13 Tier III Design Certified data centers in the U.S. based on the Uptime Institute's stringent criteria. This means that the data centers provide some of the nation's highest levels of security, redundancy, disaster recovery, and maintainability.

Rather than simply ordering additional gear from current suppliers to build this data center, the Terenine team designed a highly robust and fault-tolerant infrastructure and then tested all major industry solutions to assess their ability to support the overall vision. "We went back to the drawing board," says Wilson. "We looked for the best products, period, and that's what led us to Force10."

Force10's E-Series switches met several key requirements for Terenine, the first of which were scalability and port density. The underpinnings of DC1 and TereVault are a full-mesh network with virtually all of its compute resources virtualized, so density was important.

"One of the really nice aspects of Force10 is that the backplane connectivity in the switches gives us a lot of freedom to add line card after line card without having to worry about fully subscribing the backplane bandwidth," says Wilson. "The switches are built for redundancy on a component level, so even if something goes wrong we can isolate the issue with a smart approach to provisioning switch ports. There's so much internal bandwidth in the switch that we're able to scale far beyond where we are now without any performance impact."

The E-Series switches offer up to 3.5 Tbps of capacity, so they can easily handle the load from the data center's server and storage resources. And, although traffic has grown by orders of magnitude since DC1 and TereVault were initially launched, the Force10 switches have taken the increase in stride.

Another issue was that the Terenine team uses highly sophisticated routing protocols, and the Force10 switches were also much more capable of handling them. "We make heavy use of policy-based routing," says Wilson. "The way Force10 processes policy-based routing gave us some real performance gains over other architectures."

In addition, Terenine's routing protocols could be implemented within the Force10 switching platforms in a way that delivered excellent performance compared with competitive products. "There was a great performance advantage to using Force10 over other companies due to the way our architecture was designed," says Wilson.

For example, much of the decision-making actually happens on the line card in a Force10 switch, so at ingress, each packet's disposition is determined, and the process is not as dependent on the routing module as it would be in many other switching platforms. "To not have that bottleneck gives us a lot of flexibility and scalability," Wilson adds.

Additionally, Terenine's team liked the rigorous implementation of standards-based protocols in the Force10 switches, which ensures full interoperability with DC1 and TereVault's Dell, HP, and IBM servers as well as Fortinet firewalls and other gear.

Throughout deployment and ever since, Force10's global service and support organization has delivered outstanding follow-through for Terenine. "When we have questions about architecture, what happens under the covers, Force10's team has been very helpful in putting us in contact with the actual engineers who write the firmware," says Wilson. "They have really stepped up the plate in being more forthcoming than one would necessarily expect from a vendor in explaining how their devices behave on a very low level."

Given carte blanche to build a data center that would deliver some of the nation's highest and most robust cloud-based computing resources, Terenine has relied on Force10 and has never looked back, even as the company's business has significantly expanded. "Terenine is always looking for what's best for its customers, not the low-cost provider," says Wilson. "It's the totality of the solution that counts, not just how cheaply we can do it. It turns out with Force10 we got the best solution at an affordable price."

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