

Multinational Security Provider Scales Out Cybersecurity Solutions

Data Center Innovation Driven by Avi Networks and Cisco ACI

One of the largest security software vendors that provides antivirus software and internet security services recently chose Avi Networks and Cisco ACI to drive its data center innovation. This company's portfolio of computer security software protects families and businesses alike, delivering internet security, performance optimization, personal privacy, and identity protection for 200+ million active users across 167 countries.

True to its roots in security product innovation, this firm is ahead of the game in IT innovation and next-generation data centers. To stay agile and responsive to customer needs, the firm transformed its data center by adopting solutions built on software-defined principles. The Enterprise IT Architect and his team were tasked with supporting the company's next-generation flagship security solutions that needed more than 100,000 connections per second to access backend REST APIs. After looking at market-leading options for software-defined networking (SDN), the team decided that Cisco ACI was most flexible and well-aligned with its automation goals. With the SDN decision made, team members still needed to solve load balancing challenges, which led them to choose the Avi Vantage Platform for its software-defined, application-centric load balancing capabilities.

THE CHALLENGE

The lead IT architect describes the challenges that the firm encountered:

COST OF EXPANDED LB FOOTPRINT: The company's data center transformation initiative meant that the team needed to consider L4-L7 services across a lot more applications in the data center. The lead IT architect explains that, "with traditional appliance-based load balancers (hardware or virtual appliances), this looked like a daunting task when considering potential costs and the expanded footprint of the number of devices." The firm's evaluation of both appliance-based and open-source solutions led it to conclude that these solutions did not offer a software-defined approach that could offer flexible application scalability and security for L4-L7 services. In the lead architect's words, "Performance issues were significant enough that we had to turn off our WAF appliance during peak usage times, which didn't make sense. Virtualized solutions from our previous load balancing and WAF vendor were simply inadequate for our elasticity and automation needs."

INDUSTRY

Security Software

ENVIRONMENT

Cisco ACI

PROBLEM

- Lacked enterprise-grade elasticity and security
- Could not scale out horizontally across the environment
- Existing load balancers dropped 10x in performance when implementing SSL/TLS transactions

WHY AVI

- Seamless integration with ACI/APIC to provide L4-L7 services
- Separation of the data plane from the control plane, which enables on-demand autoscaling within minutes
- Custom data scripts with point-and-click simplicity
- Unparalleled analytics, including tree-views of network topology, granular details of virtual services, and overall health scores to monitor performance

RESULTS

- Can spin up and horizontally scale load balancers within minutes to support throughput requirements of ~100,000 SSL connections per second.
- Consistent troubleshooting in less than a minute, without relying on logs, tcpdumps, or traces.



We did some initial tests with appliance-based ADCs and realized they did not even come close to meeting our scale requirements. It was a daunting task from a financial and a data center footprint standpoint. We either had to sign up for racks and racks of load balancers or find another solution. And that's exactly what we did by choosing Avi Networks!

ENTERPRISE IT ARCHITECT

SCALING WIDE VS SCALING UP: Granted, the firm could have simply scaled up existing legacy load balancer by adding more hardware, but that would not have solved the problem. To support the 100,000+ SSL connections per second that new applications generated, the firm needed a solution that could scale out across the environment. With legacy vendors, the challenge was to “either go big or go home!” Neither the appliance-based nor the software-based, open-source solutions could scale horizontally to meet performance requirements.

LOAD BALANCING A LARGE VOLUME OF SSL/TLS TRANSACTIONS: The firm's next-generation antivirus solution is built on REST APIs that provides advanced intelligence to its security platform. Existing appliance-based load balancers had the ability to support traditional HTTP-based transactions. However, when the team implemented SSL/TLS transactions, its load balancer showed a 10x drop in performance. The team realized the urgent need for a load balancing solution that could support a large volume of SSL/TLS transactions without impacting performance or requiring additional hardware.

THE SOLUTION

SIMPLICITY AND EASE OF USE: When implementing its data center transformation strategy, the team sought out solutions that were straightforward and easy to use. Customizations with appliance-based solutions were tedious and required specialized technical skills from the IT team. On the other hand, with the Avi Vantage Platform, the team was able to build custom data scripts with point-and-click simplicity. The Avi Controller presented intuitive tree-views of network topology, granular details of virtual services (all the way to server pool and pool member details), and health scores that showed any performance concerns. This visibility enabled team members to get a quick overview of the application topology and identify applications or pool members that faced performance issues.

CISCO ACI/APIC INTEGRATION: The simplicity of integrating the Avi Controller with Cisco ACI/APIC made L4-L7 service insertion with automated device packages a painless process. The seamless integration mirrored the automation that the team was trying to achieve with Cisco ACI and created a flexible platform on which to deploy applications.

SCALE OUT: Avi's separation of the data plane from the control plane aligned with the firm's data center transformation objectives, and the software-defined architecture provided the central control necessary to manage a distributed pool of load balancers across the Cisco ACI environment. With Avi, load balancers could be spun up seamlessly in a matter of minutes where necessary and scaled out horizontally to support throughput requirements of ~100,000 SSL connections per second.

ANALYTICS: Granular visibility into round-trip time for each hop in a transaction helped the team pinpoint rogue transactions. Network administrators no longer had to comb through large amounts of logs, tcpdumps, or traces to figure out if the issue was a client-side or a server-side issue. Instead, analytics from Avi Vantage helped network administrators identify and troubleshoot problems in less than a minute.



THE RESULT

Avi Vantage extended the benefits delivered by the firm's choice of Cisco ACI for its SDN solution. The scale-out capabilities offered by Avi Vantage was unparalleled. In addition, the IT team benefited from the deep insights offered by Avi Vantage that helped administrators resolve issues from application teams quickly. The ability to record and replay network round-trip times and performance data during specific windows of time (past 15 minutes, 6 hours, day, etc.) enabled the team to diagnose issues and pinpoint the exact source of the problem in a few short clicks.

NEXT STEPS

The IT team at the firm intends to utilize Avi's self-service features by giving a slice of load balancing infrastructure access to each team to aid CI/CD objectives and accelerate application delivery cycles. The firm is focused on continued automation of its infrastructure and application services.

