CUSTOMER SUCCESS STORY

INDUSTRY

Financial Services

ENVIRONMENT

On-prem, edge, private and public cloud

PROBLEM

- The existing solution didn't meet the scale requirements
- Physical appliance deployment limited growth pace of the globally distributed multi-cloud architecture
- Limited visibility into application performance and end-user experience.

WHY AVI

- Met and exceeded the scale and security requirements
- End to end visibility into application performance and security
- Ability to automate application delivery across on-prem and hybrid cloud environments.

RESULTS

- Linear scalability reduced x86 consumption by 40%
- Real-time analytics reduced troubleshooting time and allowed for improving application behavior and performance.
- Out-of-box vCenter integration and Ansible playbooks allowed rollout to 11 locations in 2 weeks
- mTLS support for future use cases

VMware NSX Advanced Load Balancer (Avi Networks) Delivers Scalable, Automated Load Balancing for Modern Apps at a Global Financial Institution

BACKGROUND

The bank is a large financial service holding company with a diversified range of financial products and services. Their operations include consumer banking and credit, corporate and investment banking, securities brokerage, trade and securities services, and wealth management supporting clients over 160 countries. The bank was in urgent need to modernize their application delivery infrastructure to meet customer requirements.

CHALLENGES

Their globally distributed networking infrastructure supports and manages a range of applications and functions, including internal applications, CICD components of their software development life cycle, payment processing and regulatory compliance.

The steady increase in application volume and demand from lines of business within the bank along with unpredictable traffic peaks drove the need for agile software defined infrastructure to support future growth and to deliver exceptional customer experiences.

Initially the bank approached Dell EMC to develop a Cloud Native Platform (CNP) based on various technologies within the Dell Federation. The CNP is an on-premises solution that was designed to replace their existing solution. In addition to replacing some of their legacy load balancing infrastructure, the networking team at the bank upgraded from the NSX-T Load Balancer to the VMware NSX® Advanced Load Balancer™ (by Avi Networks) to address their scale and automation challenges.

Key requirements:

- Clusters must be deployable in a N+2 HA mode to address failure scenarios
- Ability to restrict traffic to TLS 1.2
- All Layer7 connections must have "X-Forwarded-For" header for consumption in the infrastructure
- Load balancers must be able to support:
  - 30,000 transactions per second through the load balancing layer
  - 4,000 "mongo" transactions per second
  - 55,000 "gemfire" transactions per second

BENEFITS

Reduced troubleshooting time
Avi's actionable insights gave engineers the ability to do an in-depth inspection of their application delivery infrastructure with a complete end-to-end picture which helped reduce troubleshooting time and provide accountability to application owners. They also eliminated cumbersome custom logging solutions.

Automation
With customers in over 160 countries and hundreds of load balancers in dozens of datacenters around the globe, the scale challenges are reduced with full lifecycle management and the ability to automatically deploy additional fully configured service engines based on application demand.

Improved traffic management
Avi being deployed throughout the entire network enabled the customer to do header, payload and cookie inspection, advanced request routing and header manipulation without the use of any additional software.

Operational Improvements
The combination of reduced troubleshooting time, automation and improved traffic management resulted in significant operational improvements enabling engineers to focus on application development

- Globally distributed, multi-cloud, edge load balancing / app security architecture
- Enhanced security for fraud prevention, credential stuffing, rate limiting
- Offer PCI Compliance support
- Reduced time to troubleshooting connectivity issues
- Easy to scale with application growth
- Secure transactions support with latest TLS and HTTP versions
- Elimination of special-purpose hardware, must run on generic x86 servers
- Globally distributed, multi-cloud, edge load balancing / app security architecture
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SOLUTION

The original solution for delivery of their high-performance applications was based on NSX-T integrated load balancing, but a migration from Pivotal Cloud Foundry (PCF) PAS v1 to PAS v2 introduced access control changes and a shift from basic layer 4 load balancing to advanced HTTP aware dual proxy layer 7 load balancing with increased end-to-end SSL encryption requirements.

Applying authentication and authorization access control at the server engineers required the original client IP address to be inserted into the HTTP header before being passed onto the server. This meant that the end-to-end encrypted SSL session needed to be decrypted and inspected. The original client IP needed to be inserted into HTTP header; and re-encrypted – before being sent to the server. These changes in processing significantly increased the performance and scalability requirements for the load balancer.

After they switched to the NSX Advanced Load Balancer not only were the needed scalability and performance requirements met, Avi's actionable analytics also enabled engineers to see when application servers didn't not perform as expected. which showed an 800% increase in response time at increased demand. (See Figure 1)

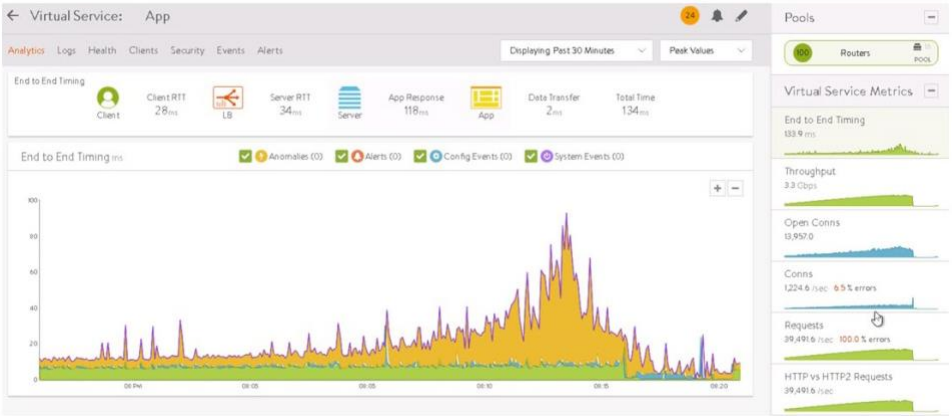

Figure 1: Application Performance Analytics

Having access to actionable insights across the entire application delivery fabric on the NSX Advanced Load Balancer, enabled engineers to uncover problems with their application servers. These insights reduced their troubleshooting time from weeks to hours because the analytics on the NSX Advanced Load Balancer showed that, during peak demand, poor application performance was caused by slow response times from the application server.

Upon successful completion of the initial tests in the Dell labs a second POC was conducted in the customers "pre-live production environment". There it was noticed that, through the integration of NSX Advanced Load Balancer with vCenter, deployment of the Avi Controller and Avi Service Engines took only one day. The same integration also enabled full lifecycle management of the Service Engines to automatically deploy additional fully configured service engines based on application demand.