

3rd Largest US Retailer Autoscales Applications with Avi Networks

BACKGROUND

The 3rd largest U.S. Department Store chains offers clothing, housewares, and other accessories to consumers. It operates over 800 stores across the US and generates multi-billion dollars in annual revenue through retail stores and online sales.

IT INFRASTRUCTURE

Supporting one of the largest retailers and e-tailers, the IT infrastructure is critical to the company's core business. The company operates multiple large data centers for hosting customer-facing e-commerce applications as well as internal applications for its business operations. The company has a large application development and operations (DevOps) organization for its business-critical applications.

BUSINESS CHALLENGES

The company was facing two challenges with its application infrastructure:

Static Infrastructure and Capacity Overprovisioning

Since the company lacked on-demand autoscaling for its business applications, it had to overprovision its capacity, which increased total costs of operation. Even so, critical business operations still faced challenges (especially during the holiday season when user demands spiked unpredictably), as evidenced by its pricing application. In order to react to customers' buying behavior and other market forces, every department made frequent pricing updates in its centralized pricing application at specific times of the day. The traffic on the pricing app would spike just before the cutoff times as all the departments tried to squeeze in their updates before the deadline. The steady-state server capacity was insufficient to serve these requests. Without additional server capacity, application users faced significant delays and occasionally missed cutoff times, causing a direct impact on company revenues. Without an on-demand scale offered by its compute infrastructure, the server team was forced to overprovision the capacity by up to 50%. This was a significant waste of resources since the additional capacity was not utilized for most of the day.

Slow Application Development Cycle

The company's development organization had multiple applications with similar on-demand scaling requirements to handle periodic spikes at specific application development stages. The absence of an agile infrastructure was slowing down the application development process, again negatively impacting company's competitive advantage.

INDUSTRY

Retail and online chain store

ENVIRONMENT

VMware

PROBLEM

- Lack of dynamic application delivery infrastructure that could support unpredictable spikes in user demand.
- Slow application deployment and deployment cycles
- Static overprovisioning and operational complexity

WHY AVI

- Software-defined application delivery and analytics
- Autoscaling of application infrastructure and network services
- Automated deployment with centralized management and monitoring

RESULTS

- Guaranteed business SLAs by dynamically scaling server and app delivery infrastructure based on real-time analytics
- Eliminated capacity overprovisioning and reduced server CapEx by 30%
- Increased application development efficiency by 25% via programmable app delivery infrastructure

Why the Legacy ADC was Insufficient

Existing application delivery controllers (ADCs) and load balancing solutions provided little visibility into the changing application demands and couldn't automatically scale the application delivery infrastructure. Scaling required manual provisioning of new devices, a process that was too slow and complex to meet the dynamic nature of the company's operations.

AVI NETWORKS SOLUTION

The DevOps team first installed the Avi Vantage Platform for its pricing application. Avi Vantage is a software-defined application delivery solution with integration visibility and analytics. It provides high availability, application security, and application acceleration services. It also measures application performance and end-user experience, and automatically scales out the application delivery infrastructure to maintain the business SLAs. A comprehensive suite of REST APIs allows seamless integration with existing orchestration systems, and offers complete programmability of its operations (See Figure 1).

Once Avi Networks was installed, the pricing application performance improved immediately:

- **Autoscaling of application infrastructure and network services:** As the traffic peaked during the pricing update intervals, Avi Networks automatically scaled out the load balancing infrastructure by spinning up new load balancer VMs (Avi Service Engines, abbreviated as SEs) and server infrastructure by triggering the creation of new application VMs through the VMware vCloud Director. As application traffic reduced, Avi Networks automatically scaled in the infrastructure by spinning down the Avi SEs and the application VMs, returning the capacity back to the free pool.
- **Ease of deployment and operations:** With Avi Networks' REST APIs, the entire solution was integrated with the company's orchestration system, automating the deployment of application delivery and analytics capabilities for new applications and providing real-time visibility into application performance and end-user experience.

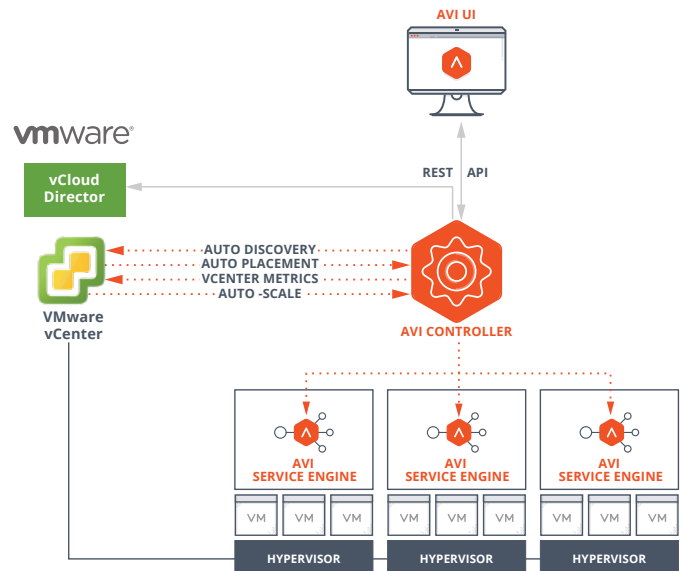


Figure 1: Avi Networks Deployment

BENEFITS

By deploying Avi Networks, the retail organization has significantly improved its operational efficiency and accelerated its application development process:

- Guaranteed business SLAs by utilizing real-time visibility into end-user experience and application performance to dynamically scale server and app delivery infrastructure
- Eliminated static overprovisioning of its server capacity, reducing the server CapEx by 30% and improving operational efficiency
- Increased application development efficiency by 25% by providing a programmable application delivery infrastructure for dev/test environments

LOOKING FORWARD

As the next holiday season approaches, the IT team is getting ready to deploy Avi Networks for some of its other online e-commerce applications. As Black Friday and Cyber Monday rolls along, Avi Networks will be providing real-time visibility into its customers' online experience, automatically scaling out the app delivery infrastructure in response to increasing demand and helping the company maximize its revenues.