

# Load Balancer Survival Tips: Black Friday & Cyber Monday

**EBOOK**

# The annual holiday shopping season starting with Black Friday is the litmus test for application availability and performance for online businesses.

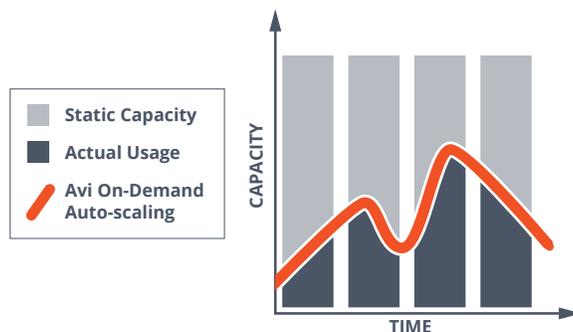
You want to ensure that end users have the best online experience and that your business does not suffer from unexpected application outages or performance issues. These disruptions are costly due to lost revenue and reduced customer satisfaction. With the spotlight on shopping experiences and the use of social media for customer feedback, high profile outages<sup>1</sup> can also adversely affect the reputation of the business.

For network administrators and architects, this means preparing networks and load balancers to handle demand spikes and react quickly to unexpected issues. Many IT administrators and network architects find that despite their best laid plans, things can go wrong and performance issues can bog down applications.

## TOP 5 TIPS

Here are the top 5 tips to help you ensure that your application services are ready to serve your business during the busiest time of the year.

### TIP #1: ELIMINATE OVERPROVISIONING WITH ON-DEMAND SCALING



**Figure 1: Legacy Overprovisioning vs. Elastic Autoscaling**

Overprovisioning of load balancers (and hence overspending) is a common complaint from network administrators. Unfortunately, network teams cannot take chances and must plan for worst case traffic scenarios, leading to situations where appliances only use a small fraction of their capacity during normal traffic levels. Many businesses purchase excess capacity for the holiday shopping season and are stuck with aging appliances after that.

The Avi Vantage Platform scales load balancing resources dynamically by spinning up software load balancers where needed on demand. With continuous insights gathered by the Avi Controller, the system analyzes latencies and predictively autoscales load balancers as well as application servers (pool members) through native integration with the underlying orchestration platform. You can provision your applications, scale out elastically as traffic increases, and then scale back down to normal levels (See Figure 1).

<sup>1</sup>Gustafson, K. (2015, November 28). Neiman Marcus suffers extended Black Friday outage. Retrieved from <http://www.cnn.com/2015/11/27/neiman-marcus-suffers-extended-black-friday-outage.html>

## TIP #2: LOWER COSTS WITH HIGH-PERFORMANCE, SOFTWARE LOAD BALANCERS

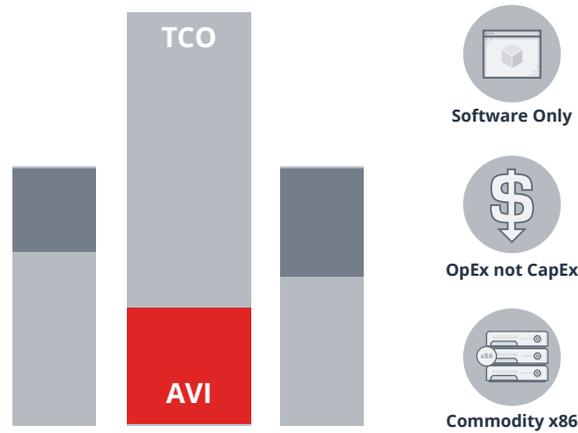


Figure 2: Lower TCO with High-Performance, Software Load Balancers

Load balancers using proprietary hardware have long been the only choice for provisioning applications. Unfortunately, hardware appliances (and their virtual machine versions) are expensive, lack multi-cloud support, and rely on manual configuration changes. They do not offer easy means to troubleshoot applications and are difficult to procure and provision when you are scrambling to fix performance problems on your application, or when you want to opportunistically use the public cloud. On the other hand, software-defined load balancers like the Avi Vantage Platform utilize the dramatic improvements in the computing power of standard Intel hardware, enabling application throughputs of over 20 Gbps and over 72,000 SSL transactions per second on a single server. With a 1U, 2 socket server costing just a few thousand dollars, the cost/performance ratio has never been better. In addition, technologies like Intel's data plane development kit (DPDK) provide fast network packet processing. Avi Vantage also provides a consistent architecture for application services across data centers and multi-cloud environments (See Figure 2).

## TIP #3: REDUCE OPERATIONAL ISSUES WITH CENTRAL MONITORING

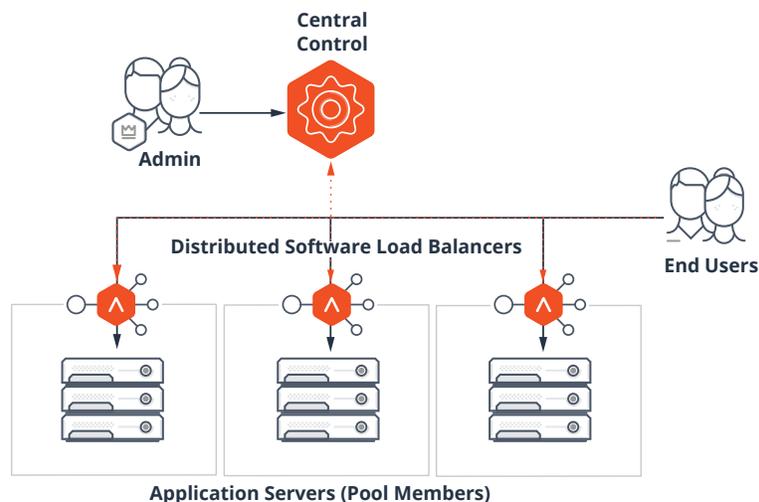
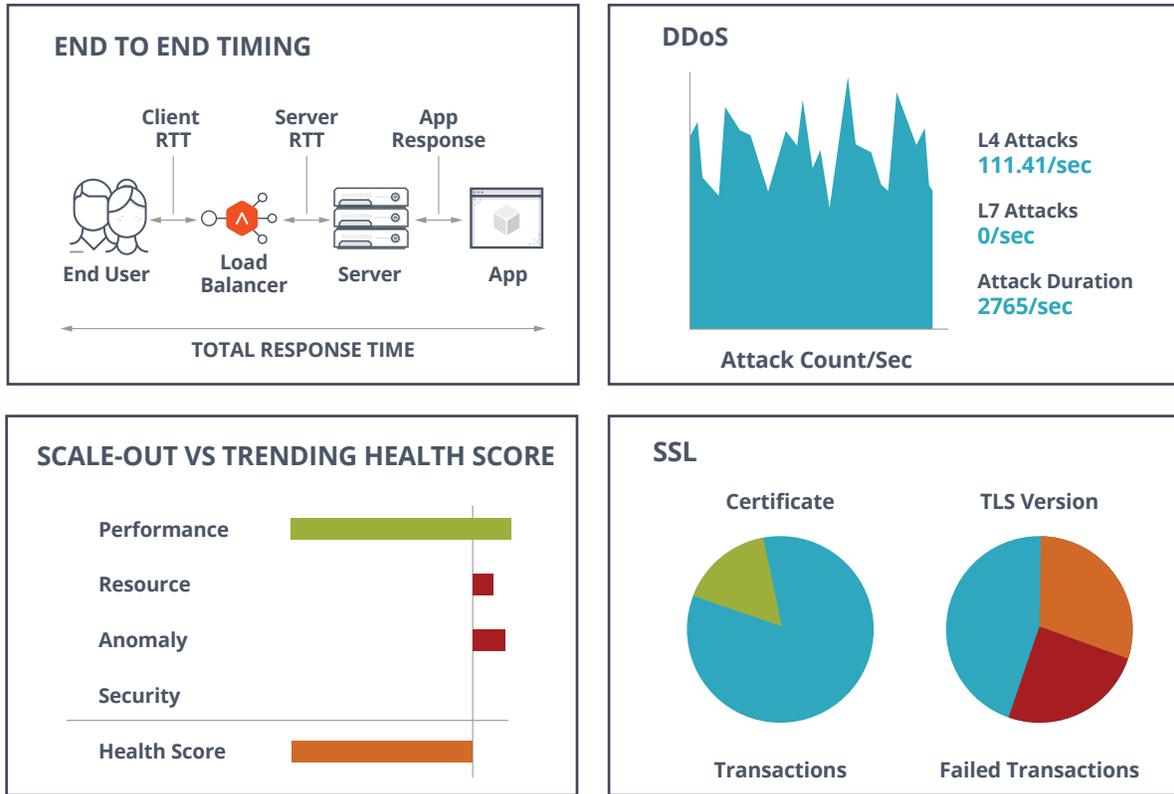


Figure 3: XYZ with Central Monitoring with Avi

Load balancers are a critical part of the application networking infrastructure. However, architectural limitations of most Application Delivery Controllers (ADCs) do not enable administrators to manage services centrally and gain actionable insights into applications. The Avi Vantage Platform is architected on software-defined principles with a central controller that orchestrates a fabric of distributed load balancers that can run on bare metal servers, virtual machines, or containers. The Avi Controller receives continuous performance and security insights from the distributed load balancers and analyzes and displays them on an easy to use dashboard. You can monitor application performance at a glance and take corrective actions immediately (See Figure 3).

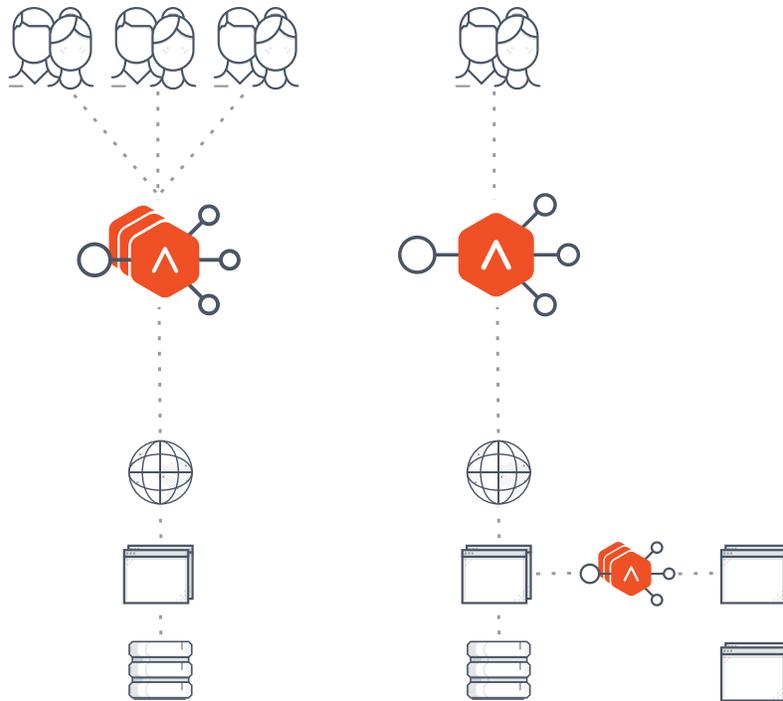
## TIP #4: TROUBLESHOOT IN MINUTES WITH ANALYTICS AND “RECORD AND REPLAY”



**Figure 4: Enhanced Troubleshooting with Avi Analytics**

Given that load balancers occupy a strategic location in the path of application traffic, they can be a powerful source of application intelligence. Legacy load balancers, however, do not provide application insights or meaningful end user information. The flexible architecture of the Avi Vantage Platform enables the collection of powerful analytics information about application performance, including precise roundtrip times for each network hop in individual transactions. The platform also includes security (SSL certificates used, potential DDoS attacks etc.) and end user (device, browser, location etc.) analytics for application transactions. All traffic events are recorded and can be played back for different time intervals (real time, last 15 minutes, last 6 hours, day, week etc.). The system also provides a quick way to search and filter for particular events using keywords such as “iPhone” (to identify all end user events from iPhone users), “404” (to search for page not found errors) etc. If you ever need to troubleshoot application issues, the system enables problem identification within a few minutes (See Figure 4).

## TIP #5: GAIN FLEXIBILITY WITH PER-APP LOAD BALANCING STRATEGIES



**Figure 5: Multitenant Deployments and Per-App Load Balancing with Avi**

Legacy load balancers are often deployed across multiple applications, with system capacity shared across virtual services. Enterprises are forced into this model since placing a load balancer in front of every application is too cost prohibitive. In these cases, multitenancy is decided based on cost constraints, not what is best for the backend application. With its software-defined architecture, Avi Vantage enables both multitenant deployments as well as per-app load balancing capabilities. Avi also offers the flexibility to deploy the right-sized load balancers for individual applications while still orchestrating or administering all of them centrally. This is especially useful when you are trying to isolate applications, adhere to SLAs, or scale services based on the needs of each application (See Figure 5).

## CONCLUSIONS

According to DynaTrace<sup>2</sup>, 49% of shoppers would abandon a site if it took more than 3 seconds to load, and 81% of millennials will abandon a buggy app and shop elsewhere. Load balancing and other L4-L7 application services are critical components of the application infrastructure that need to be a part of your good housekeeping rules for preparing for the busiest shopping season of the year. Don't let legacy load balancing architectures slow you down or risk your application availability.

To learn more, and schedule a meeting with the avi team, please visit: [avinetworks.com/blackfriday](https://avinetworks.com/blackfriday)

<sup>2</sup> GDynatrace survey. (2015, November 18). Retrieved from <https://www.dynatrace.com/content/dam/en/general/holiday-shopping-report.pdf>