CASE STUDY

Swisslos Delivers Superior Online Lottery Experience with Modern Application Delivery Network

BACKGROUND

Swisslos is a Swiss lottery company which offers lotteries, sports bets, and instant tickets in the entire territory of German-speaking Switzerland, Ticino, and the Principality of Liechtenstein. Swisslos structures its range of games in a socially responsible manner and transfers its entire net profit to the mandating cantons and the Principality of Liechtenstein to support public causes. With over 600 million Francs in prize money paid out to lottery winners every year, Swisslos' growing business needed to modernize its network. Swisslos' IT team was tasked with architecting a modern data center — replacing legacy hardware with software-defined components to deliver exceptional customer experiences and support future business plans. Joris Vuffray, Head of Network and System Management at Swisslos, led the charge with his team of network and systems engineers who are responsible for the gaming systems, storage, and databases.

CHALLENGES AND THE NEED TO MODERNIZE THE NETWORK

The lottery business is inherently unpredictable, with sudden peaks driven by jackpots and customer interest. It is hard to plan for jackpots and predict how many people will play. About a year and half ago Swisslos had a huge jackpot that grew quickly with significant interest from a large number of customers who were registered and playing. The main lottery application was supported by appliance-based load balancers and secured by web application firewall (WAF) appliances from the same vendor. The interest in the jackpot was so high that Swisslos had several users signing on just to check winning numbers. Joris Vuffray says, "We had a large volume of users and quickly ran into performance issues with our appliance-based load balancer and WAF solutions. The lack of elasticity and poor performance was impacting our ability to deliver a great experience for customers of our internet gaming platform." The inability to scale and the difficulty of configuring physical appliances and putting them into service drove Vuffray and his team to seek out alternative software-defined solutions for load balancing and web application security. "The 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 not adequate and did not meet our need for elasticity and automation," says Vuffray.

SWISSLOS

INDUSTRY
E-Commerce

ENVIRONMENT
On-premises, WAF

PROBLEM
- The main lottery application was supported by appliance-based load balancers and secured by WAF appliances from the same vendor.
- Lack of elasticity and poor performance impacted the ability to deliver a great experience.
- Inability to scale and difficulty configuring physical appliances significantly hampered application performance.

WHY AVI
- Avi was easy to use and deploy, especially with its user-friendly one-click deployment.
- Detailed application analytics reduced costs, especially since Swisslos paid according to volume of usage.
- Avi's API-driven model is designed from the ground up for automation and self-service.

RESULTS
- Operational savings were substantial at about 60%.
- Swisslos realized immediate operational improvements, using the central management console and one-click upgrades.
- Swisslos saved over 50% - 60% in application troubleshooting time and effort.

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JORIS VUFFRAY,
HEAD OF NETWORK
& SYSTEM MANAGEMENT

INFRASTRUCTURE REQUIREMENTS

Application Environment

The main website for Swisslos is home to several backend applications consisting of traditional as well as modern web workloads built on Node.js, Apache Tomcat, and all the other tooling expected in modern, dynamic webpages. The site and applications are hosted across two data centers using global load balancing to manage traffic between the two sites. All services are delivered in an active-active configuration and are synchronous. The system is designed to run the business out of just one data center.

Load Balancers and WAF

Load balancers are used in the Internet entry point and between frontend and backend servers to make applications highly available for other applications. WAF is used to protect web applications from common web vulnerabilities. Joris Vuffray says, "I believe there is no valid reason to provision a web application on the internet without a WAF. This is especially important to us since Swisslos needs to be compliant with industry regulations and certifications."

Evaluating and Deploying Avi Networks' Next-gen Application Delivery and Web Application Security

Given the common needs of elasticity, automation, and central management for both load balancing and WAF solutions, Swisslos preferred to consider both solutions from a single vendor. After seeing product demos of Avi Networks, the Swisslos team entered a proof-of-concept (PoC) phase to evaluate the Avi solution as a replacement to their current load balancer and WAF solutions. Joris' goal was to reproduce one of his test environments using the Avi solution. During the PoC the team made sure that their testers ran their complete test matrix against the system including all of security tests. After their PoC, the Swisslos decided that Avi was the right solution for Swisslos. The Avi solution was deployed within 1.5 to 2 hours on Swisslos' Nutanix based hyperconverged infrastructure environment. Joris and team noted three immediate advantages of using Avi.

- **Ease of use and deployment.** The team found Avi's load balancer and WAF to be extremely user-friendly, providing one-click deployment and one user interface to manage all virtual services and WAF instances. Unlike other products, the solution did not take a massive amount of education for the team to start using it.
- **Analytics.** The detailed application analytics provided by Avi gives an immediate picture of application performance. Avi can provide application insights that previously required separate log analytics and client-side APM tools. Apache web logs are voluminous and analyzing them is time consuming. The Avi UI gives the Swisslos team an easy way to understand the data save costs on their log analysis tools where they pay per volume of usage.
- **API-driven services.** The Swisslos team wanted to adopt a solution that is designed from the ground-up for automation. In the near future, Swisslos plans to adopt an API-driven model to deliver services and monitor applications.

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> **JORIS VUFFRAY,**
> **HEAD OF NETWORK**
> **& SYSTEM MANAGEMENT**

Benefits of Deploying Avi Networks

- **Cost savings.** Vuffray says, "The cost of deploying our previous vendors' solution was quickly becoming prohibitive when we looked at what we were paying for appliances, software, and three or five-year support. With Avi the cost and operational savings were substantial at about 60%."
- **Operational improvements.** The team was able to realize immediate operational improvements due to the ease of managing the solution using the central management console and the support for quick one-click upgrades.
- **Application Troubleshooting.** Vuffray says, "We saved over 50% to 60% in application troubleshooting time and effort. Before Avi we had to see in which data center a transaction was recorded and go to the correct appliance to troubleshoot. With Avi it was very easy because all troubleshooting information is displayed in a single UI, and you see exactly which virtual service handled a transaction and which node in the pool responded. It makes things a lot easier to debug."

NEXT STEPS

Joris believes that IT teams must get out of their comfort zone and shift their thinking from a systems point of view to the view of an application-centric analyst or even a developer who uses APIs to accomplish tasks. He believes that innovative new solutions have a lot to offer organizations that are willing to test out their options, which is one reason why Swisslos is constantly developing new applications including smart betting engines. In the next few years, the team plans to fully virtualize its infrastructure and obtain a secure, elastic, and software-defined data center.