Array NETWORKS

eClinicalWorks

APV SERIES CASE STUDY

eClinicalWorks

eCW gains power in the cloud using Array application delivery controllers (ADCs) to securely scale patient medical record (EMR) software-as-a-service (SaaS) offerings.

Industry:

Ambulatory clinical systems (Software-as-a-Service)

Challenges:

Data center consolidation necessitated a higher degree of application scalability

Consolidate data centers without negatively impacting the end-user experience

Mitigate the performance impact of processor-intensive 2048-bit SSL encryption

Drive down app delivery costs without sacrificing availability, security or performance

Solution:

Redundant pairs of Array APV10650 application delivery controller appliances deployed nationwide at new eCW mega data centers

AppVelocity-S hardware-accelerated SSL encryption

Benefits:

24/7 availability on a per customer basis, even under maximum traffic load

Ability to scale services while maintaining single-digit millisecond latency

Scalable and cost-effective 2048-bit SSL secure transaction processing

Cost savings that maximize profits and enable reinvestment in the business

Headroom and horsepower to accommodate business growth

Array as a trusted partner for application delivery networking

Background

eClinicalWorks (eCW) is a market leader in ambulatory clinical systems and a longtime user of Array Networks APV Series application delivery controllers to ensure the performance, availability and security of its medical record and management solutions for healthcare providers. Recently, eCW selected Array's APV platform to ensure application availability while consolidating its cloud-hosted application infrastructure.

Leveraging eCW's software-as-a-service (SaaS) offerings, physicians, health centers and hospitals benefit from increased productivity while simultaneously reducing operational costs and keeping confidential patient records secure. The cloud-hosted solution enables physicians and other medical personnel to effectively access patient records

anywhere to communicate with referring physicians or share consult notes and clinical data.

Array's application delivery controllers play an essential role in the eCW data center, providing scalability, availability, performance and security for patient data and medical records. Using Array, eCW ensures that applications remain available 24/7, individual servers are not overloaded, and if a server goes offline, traffic is rerouted to another available server. Moreover, with Array's high-end APV10650 appliances, eCW gains the ability to scale its SaaS offering to accommodate a growing business while maintaining a secure, reliable and low-latency experience for its healthcare provider customers.

Challenges

eCW is experiencing rapid growth and needed to take its service delivery model to the next level. In its early days, eCW had a smaller footprint in terms of customers – the earliest eCW data facility consisted of a mere five cabinets in a 20x20 cage. As eCW grew, in terms of both services and customers, the company stood up a series of points of delivery (PODs) distributed strategically across the country to keep data and applications closer to end-users. At the time, the strategy served eCW and its customers well, combating what was generally 80ms of delay from coast to coast and compensating for the chattiness and transactional nature of EMR and PM applications and latency and packet loss issues induced by previous generation Internet infrastructure.

However, with improvements in Internet communications and refinement of applications, processes and architecture at eCW, latency, chattiness and packet loss issues have by-and-large been resolved. And as a result of growing demand and a business model that is increasingly cloud based, eCW needed to consolidate its infrastructure into a smaller number of larger 1,000 square foot data centers to reduce overhead, simplify management and take advantage of economies of scale.

Solution

When equipping its new mega data centers, eCW turned to Array's flagship APV10650 application delivery controllers to provide the scalability essential for supporting data center consolidation and rapid growth in customer demand. Array APV10650 appliances load balance application servers in support of all of eCW's SaaS offerings, including electronic medical records (EMR), practice management (PM), revenue cycle management (RCM), electronic health exchange (EHX), patient portals, mobile access and others.

Regardless of whether the end-user customer is a single doctor or a large organization, every practice has its own app server on its own Java virtual machine (JVM) service and port to provide a layer of separation. The eCW service for each practice is a logical entity consisting of two app servers and two database servers load balanced by Array APV10650 application delivery controllers to ensure availability. In addition, the APV10650s provide load balancing for terminal servers used by eCW customers to manage applications (remote desktop alternative connectivity for customers and locations that suffer from sub-par Internet connectivity).

Array is able to provide the "raw horsepower," in the words of Matt Lewis, eCW's CIO, that the provider needed for a high degree of scalability in terms of throughput, connections per second, SSL transactions per second, input/output and other performance-related metrics.

In addition, Array offers reliability and a proven track record for supporting the load balancing and application availability features required to

support eCW's applications. During the selection process, eCW investigated three leading ADC providers as potential vendors. These vendors were selected for evaluation due to stated ability to meet the performance and scalability requirements mentioned above. In the end, each vendor supported the core feature sets and the performance and scalability eCW needed and each vendor had both pros and cons.

Array gives me everything I need in terms of load balancing and application delivery at almost half the price of competing vendors. Unless you have a specific need that justifies a premium price point, then there is no need to go there."

Matt Lewis
Chief Information Officer, eClinicalWorks

All things being equal, eCW conducted a cost/benefit analysis using the same methodology used to select each component in its infrastructure. Each eCW data center will contain multiple points of delivery (PODs) which can each support a set number of customers. To maximize profitability, eCW endeavors to build the PODs striking the optimal balance of sound technology and cost-efficiency.

"Using this criteria, several vendors priced themselves out of the opportunity," according to Lewis. "There was not enough technical differentiation to justify the premium price point," he noted. "While other vendors offered a compelling solution mostly on par with Array, Array had the advantage in terms of being the incumbent vendor in the data centers. Array has proven itself to us for unbeatable reliability, price-performance, consistency and a successful relationship of over five years." Array also won out over the competition because of its partnership with Imperva to offer a best-of-breed combination ADC and Web-application firewall functionality.

In sum, per Lewis, "Array gives me everything I need in terms of load balancing and application delivery at almost half the price of competing vendors. Unless you have a specific need that justifies a premium price point, then there is no need to go there."

Benefits

As a result of placing Array APV10650 application delivery controllers in front of the physical application servers, terminal servers and data base servers, eCW has achieved a level of redundancy that ensures its SaaS offerings will remain up and running in the event of hardware failure in the data center. In addition, providing redundancy at the logical level for each customer ensures that each customer has high availability for applications and is not impacted by issues that may occur with other services in the POD.

Moreover, Array APV10650 appliances ensure application performance and low latency for end-users as the number of customers supported by the cloud infrastructure scales – especially where SSL encryption is concerned. Testing of Array Networks supporting eCW applications has already demonstrated appreciable performance improvements, and through expanded utilization of integrated acceleration technologies present on APV10650 application delivery controllers there is potential for further performance enhancement in the future.

From a business perspective, eCW benefits from an ADC that exceeds its technical requirements, but does so at a price point that enables maximum ROI. And on the IT side of things, eCW benefits from what Lewis sees more as a partner relationship than a vendor relationship in terms of the support he receives from customer service, the account team and Array engineering.

According to Lewis – at the end of the day, he has been using Array for 6 or 7 years and he wouldn't stay with the technology that long if he wasn't confident in its ability to deliver. In fact, other vendors have come and gone, but Array and EMC have been there the longest and have a proven history of success.

Based on the success of Array load balancers and application delivery solutions, Lewis is now looking at Array WAN optimization solutions to meet the need for ensuring performance for data-center-to-data-center connectivity between eCW's new consolidated mega data centers.