

# SUNY – Upstate University Health System

## EXECUTIVE SUMMARY

Pulse Secure transforms data center networking with open, virtual, and automated solutions that empower organizations to maximize their investments for the New IP

### Challenges

- Ensure high availability of mission-critical electronic health records application
- Comply with hospital's virtualization plan and state's green initiatives

### Solution

- The Pulse Secure Virtual Traffic Manager, which runs on common off-the-server based on Intel's x86 architectures

### Benefits

- Ease of setting up the Pulse Secure Virtual Traffic Manager virtual appliances accelerated EHR deployment
- Virtual appliance option for Pulse Secure supports state-sponsored "green IT" initiatives
- Not a single instance of EHR services being down or offline since the system went live
- Load balancer's troubleshooting tools speed problem resolution; email alerts support proactive system management
- Scalability lets other hospital applications take advantage of the Pulse Secure Virtual Traffic Manager
- The New IP accelerates business change and growth by providing a new network architecture to support the Internet of Things, cloud, personalized, and digital business models.

## The Pulse Secure Virtual Traffic Manager Delivers 100% Uptime for Epic EHR System Used by Entire Healthcare Organization

SUNY Upstate Medical University in Syracuse, NY, is the only academic medical center in central New York. The affiliated Upstate University Health System serves 1.8 million people, often the most seriously ill and injured, and includes two hospitals and numerous satellite sites.

### Challenge: Deploy Epic EHR System-wide and Ensure the Application's Reliability

Three and a half years ago Upstate University Health System decided to adopt electronic health records (EHR). Chris Loughlin, Citrix certified administrator and Epic Client Systems Manager, was brought in along with two others to manage the Windows and Citrix infrastructure for the project.

Upstate chose the Epic solution from Epic Systems Corporation as its EHR software, and runs it as a server-based, Citrix-published application. Upstate has more than 30 Citrix servers with Epic Hyperspace applications installed. End users go to any web browser and

launch the Epic Hyperspace application, which then links to a variety of Epic auxiliary applications. "Epic is, by far, the health system's most widely used application, with between 2,700 and 3,500 concurrent users depending on the time of day," Loughlin explains.

According to Loughlin, Epic requires load balancing – to handle the load as more people come online, to allow updates without affecting users, and to balance the traffic among Epic's front-end and auxiliary applications. Epic Systems leaves the choice of the load balancer up to its customers. At the same time, New York State provided funding for green initiatives, which led Upstate to decide to virtualize as much of the EHR system as possible, including load balancing.

## Why Pulse Secure

*“It handles all our traffic with no problem, and the fact that I don’t have to do much with it is very important. With all the other stuff on my plate, not having to constantly watch over the load balancer is huge.”*

- Chris Loughlin, Citrix Certified Administrator and Epic Client Systems Manager

## Solution: Pulse Secure Virtual Traffic Manager - A Trusted Solution that Met the Budget

Loughlin considered two load balancing solutions: Citrix NetScaler and Pulse Secure Virtual Traffic Manager virtual application delivery controller (ADC). He chose the Pulse Secure Virtual Traffic Manager for a number of reasons.

First, the Pulse Secure Virtual Traffic Manager (then called Zeus Traffic Manager) was already being used successfully by the health system’s Radiology department. “The fact that they spoke highly of it was important in the selection process,” Loughlin notes. Second, the Pulse Secure solution cost less than the Citrix option. Loughlin also appreciated that, as a virtual appliance, the Pulse Secure Virtual Traffic Manager complied with his state’s green initiatives, and it fit nicely into the health system’s VMware environment.

Another advantage with the Pulse Secure Virtual Traffic Manager was that he could have load balancing up and running much sooner than if he had to order and install a physical appliance. In fact, it took less than a week to get it into production – from the time Loughlin downloaded the Pulse Secure Virtual Traffic Manager files to when it was load balancing the first application, the Citrix web interface.

Since then Loughlin has added the other Epic applications to the load balancer, for a total of about 15 applications in all. “Adding applications is quick and easy,” he says. So easy a few of his colleagues use Pulse Secure to load balance non-Epic applications. “Our use of the Pulse Secure Virtual Traffic Manager has grown, but I feel like we’re not really taxing it at all,” Loughlin adds.

## Benefits: 100% Up Time for Epic EHR, Set-it-and-Forget-it Load Balancing

According to Loughlin, the ease of setting up a Pulse Secure Virtual Traffic Manager appliance on a VMware virtual machine helped streamline the phased rollout of the EHR system. The rollout started with the smaller clinics and ended with the main hospital. “We had the process documented, so we just followed certain steps to get the service up and running,” Loughlin explains. “Build the VMware servers, add the Pulse Secure virtual server, get a name, and so on and then have it go live.”

Once an EHR system is in place, it is used by every healthcare provider in every patient-related activity. This is a truly mission-critical application. “There are disaster recovery procedures in place, but we hope to never use them,” Loughlin says.

So far, those procedures have not been needed. The Epic EHR system has been live system-wide for most of 2014, “with no instances where the Pulse Secure-dependent services have been completely down or offline,” says Loughlin. “A server may go down, but it’ll just bounce to the other server because of the built-in service level monitoring that comes with Pulse Secure. The Pulse Secure Virtual Traffic Manager keeps all our traffic really well-balanced and distributes the load really well.”

In addition to ensuring the reliable delivery of a mission-critical application, the Pulse Secure Virtual Traffic Manager gives Loughlin and his colleagues tools for proactive system management and also troubleshooting problems that occur. For example, they have set up the Pulse Secure email-alerting functionality so that when a server is having a problem, they learn of it almost immediately. This happens “before anything on the Epic side alerts us,” Loughlin says.

For troubleshooting, they take advantage of the Pulse Secure logging functionality. “Any time we have to

troubleshoot an issue, the Pulse Secure technical support people will request log files from us. It usually will lead us to an issue with a node being down or with a new service coming online that’s misconfigured. This is very useful,” Loughlin adds.

Now that the EHR system is live, Loughlin spends almost no time on the Pulse Secure virtual appliance. “Aside from periodic software updates, it’s pretty much just set it and forget it,” he says. Loughlin is aware that Pulse Secure has a lot more to offer, and is considering using additional functionality such as the TrafficScript customization language in the future.

When Loughlin had questions, he found Pulse Secure technical support very helpful. “We had a lot of newbie questions at the beginning and they were answered really easily,” Loughlin says. “Then we had some more complicated issues down the road and they were really helpful on working those through.”

Loughlin summarizes his experience with the Pulse Secure Virtual Traffic Manager this way: “It does what we need it to do very effectively and within our budget. It handles all our traffic with no problem, and the fact that I don’t have to do much with it is very important. With all the other stuff on my plate, not having to constantly watch over the load balancer is huge.”

## Summary

When Upstate University Health System needed a load balancer for its EHR application (Epic), IT considered two solutions: Citrix NetScaler and the Pulse Secure Virtual Traffic Manager. They went with the Pulse Secure Virtual Traffic Manager because it cost less than NetScaler, and because the hospital’s Radiology department gave it great reviews. Another plus: as a virtual appliance, the Pulse Secure Virtual Traffic Manager fit nicely with NY state’s green initiatives and the health system’s virtualization strategy.

Since the EHR system went live, there has not been a single instance of the services being down or offline. Built-in service level monitoring in the Pulse Secure Virtual Traffic Manager ensures that if one server goes down, traffic bounces to another, and that the load is well balanced during times of peak use. The ease of setting up the Pulse Secure Virtual Traffic Manager virtual appliances accelerated the EHR deployment, and the appliance’s scalability lets other hospital applications take advantage of its load balancing functionality.

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