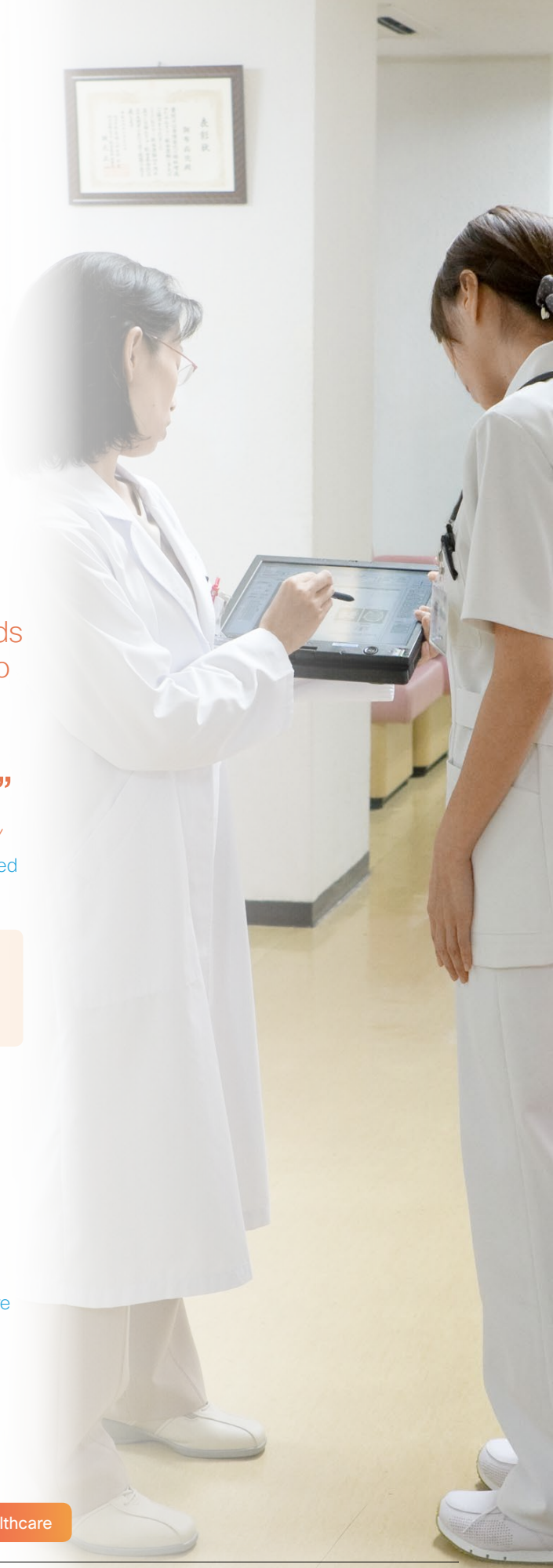
Reliable, secure foundation for electronic health records



Union Hospital of Cecil County detects and responds to security threats using Security Analytics on Cisco UCS® with Splunk.

"We can do more with our electronic health records system because we've built a solid foundation with Cisco and Splunk."

– Anne Lara, CIO, Union Hospital of Cecil County

In hospitals, there's no room for slow systems or privacy breaches. You need IT infrastructure that's fast, available, scalable, and secure.

Challenges

- Keep hospital systems available 24 hours a day
- Enable clinicians to quickly update EHRs
- Protect systems and patient information

Union Hospital of Cecil County is an award-winning, full-service community hospital in Elkton, Maryland. IT services need to be available around the clock. "We depend on the IT infrastructure both to take care of patients and get bills out the door," says Anne Lara, chief information officer (CIO) for Union Hospital. Critical systems include the Meditech electronic health records (EHR) system and the picture archiving and communications system (PACS) used for storing medical images.

The old infrastructure wasn't up to the task. "We were constantly buying new servers," says Nate Bradley, system administrator for Union Hospital. "They were eating up data center space. Power and cooling costs kept rising."

Deterring cyberattacks presented another challenge. Union Hospital needs to keep patients' medical information private to comply with the federal Health Insurance Portability and Accountability Act (HIPAA) requirements. Effective

Case Study | Union Hospital of Cecil County

Size: 84 Beds, 1,200 Employees | Location: Elkton, Maryland | Industry: Healthcare

security measures also count as “meaningful use” of the EHR system, qualifying the hospital for additional reimbursements from the U.S. government. To detect any security breaches and infections that made it past firewalls and antivirus software, the IT team had to manually review gigabytes of daily log data from thousands of network devices and servers. There wasn’t enough time in the day.

The tipping point came when the IT team decided to upgrade its Meditech EHR system to Version 6.1, becoming only the second hospital in the United States to do so. The powerful new features in Meditech 6.1 require more processing power and memory. Without faster servers, clinicians would notice a lag when accessing and updating patient records. “Our job is to make sure that our users can focus on patient care instead of being slowed down by technology,” says Bradley.

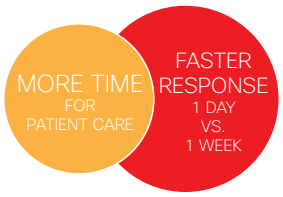
Hospital built reliable, secure EHR infrastructure with Cisco UCS and Splunk.

Solutions

- Built robust infrastructure using Cisco UCS and Nexus™ 7000 switches
- Gained visibility into threats with Security Analytics on Cisco UCS with Splunk

Delivering care quickly and reliably

Union Hospital built a private cloud using Cisco UCS blade servers, Cisco Nexus 7000 Series Switches, and virtualized storage. “Today’s healthcare depends on electronic information sharing,” says Lara. “The infrastructure has to be available and fast. If it’s not, things come to a screeching halt. Our Cisco® data center gives us the performance and scalability we need to deliver care.”



Cisco partner Clearpath implemented the solution. “The main appeal of the UCS is that it conserves space and saves time,” Bradley says. “When we need new servers we just throw a new blade in the chassis. I don’t have to spend all day connecting cables.” Two hundred applications fit on just six Cisco UCS chassis. That’s one-quarter the space of the old infrastructure, reducing power and cooling costs.

IT quickly detects and responds to threats

To protect patient information and hospital systems from cyberattacks, the hospital uses Security Analytics on Cisco UCS with Splunk. Splunk software helps organizations gain operational intelligence from machine-generated data while Cisco UCS provides a powerful, fast foundation.

With the Splunk solution correlating data from multiple network devices and servers, the Union Hospital IT team has the continuous, comprehensive visibility it needs to quickly detect and respond to known, unknown, and advanced threats. “Splunk software ingests any feeds you give it,” says Christopher Merida, information security analyst for Union Hospital. So far,

the hospital is analyzing the logs from firewalls and the servers used for antivirus, domain names, and Microsoft applications. Later the hospital will add data from the Cisco servers and switches.

Now the IT team finds out much sooner about threats so that it can take swift action. For example, the team receives Splunk alerts about unsuccessful attempts to log into Microsoft Exchange, and when someone attempts to access the network from a foreign country. The team finds out about potentially malicious files because Splunk Enterprise correlates Outlook Web App data with firewall and antimalware logs. The Splunk platform also detects malware that enters the network when employees click links in phishing emails. Its method: correlating logs from Exchange, antimalware servers, and firewalls.

Adding and managing servers takes less time

Union Hospital initially deployed the Meditech EHR system on two Cisco UCS chassis in each data center. Today each data center has 6 chassis with 34 blade servers hosting more than 200 virtual machines. The servers also host the Allscripts EHR system used by visiting physicians, PACS, administrative applications, virtual desktops, and Splunk Enterprise.

"We can get UCS servers up and running so much faster than our previous servers, because I don't have to spend all day running wires," Bradley says. With the old platform, each server needed multiple cables. With Cisco UCS, all servers in a chassis connect through the same redundant pair of Cisco UCS Fabric Interconnects, which connect to Cisco Nexus 7000 Series Switches and to storage by way of the Cisco MDS 9148 Multilayer Fabric Switch. The IT team doesn't have to individually connect each new server to the data and storage networks.

"Recently someone requested two new servers for EEG analysis," says Bradley. "We fulfilled the request the same day. With any other platform we would have needed a week."

Vital hospital services stay up

If a server needs maintenance, the IT team moves its virtual machines to another server with a few clicks. Taking a server offline doesn't interrupt the work of the hospital. In fact, the EHR system and other applications remain available even if an entire data center fails, because the two data centers are configured for active-active operation. They appear to be one big data center thanks to the FabricPath feature in the switches. "We can shut down either of our two data centers and continue running mission-critical applications," says Bernard Obegi, network engineer for Union Hospital.

Clinicians can quickly view and update EHRs

Although the newest version of Meditech 6.1 uses more memory and processing power, it runs just as fast on the Cisco UCS server as the previous version did on the old server platform. That means clinicians can spend less time waiting for the application to respond and more time caring for patients.

The 200 clinicians in the emergency room and operating room use virtual desktops to access EHR and other clinical applications. The Cisco UCS

platform hosts the virtual desktops. Clinicians can access their virtual desktops from anywhere and on any device, including hospital-owned thin clients, as well as personal laptops, tablets, and smartphones. Storing applications and data in the data center instead of user devices also strengthens security.

Results

- Freed up time for patient care by keeping EHR access fast
- Shrank footprint by 75 percent, reducing power and cooling costs
- Fulfilled server requests in 1 day instead of 1 week

Doing more with EHR

"Each year the government wants us to do more with the EHR system to demonstrate meaningful use," says Lara. "We can do more with our EHR system because we've built a solid foundation with Cisco and Splunk."

Learn more about Cisco data center solutions: www.cisco.com/go/datacenter.

Learn more about big data on Cisco UCS: www.cisco.com/go/bigdata.

Learn more about Security Analytics on Cisco UCS with Splunk: http://cs.co/9001Bn02S.

Products & Services

Data Center

- Cisco Unified Computing System (Cisco UCS)
- Cisco UCS B200 M3 servers
- Cisco UCS 6248 Fabric Interconnects
- Cisco Nexus 7004 Switch
- Cisco MDS 9148 Multilayer Fabric Switch

Partner Products

- Splunk Enterprise

Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
Singapore

Europe Headquarters
Cisco Systems International BV Amsterdam,
The Netherlands

Cisco has more than 200 offices worldwide. Addresses, phone numbers, and fax numbers are listed on the Cisco Website at **www.cisco.com/go/offices**.

02/16