Cisco Case Study
ProMedica

Software-defined network fabric reinforces mission-critical healthcare application

Size: 17,900 employees | Industry: Healthcare | Location: Toledo, OH

ProMedica is a nonprofit healthcare organization serving Ohio, Michigan, Indiana, Kentucky, Pennsylvania, and West Virginia. The 13-hospital system has more than 17,000 employees, 2700 physicians, and 920 healthcare providers. It offers a health plan, Paramount, which serves 344,000 members including more than 243,000 members in the statewide Medicaid plan. For more information about ProMedica, visit promedica.org/aboutus.

Challenges

- Overhaul an incongruent network environment to support a mission-critical application
- Improve system redundancy, application availability, and infrastructure management
- Enhance security and control to protect highly sensitive health data

Solutions

- Software-defined network fabric stretched across two data centers
- Centralized, policy-driven management and automation
- Next-generation intrusion prevention

Results

- Built a consistent, reliable network infrastructure spanning two data centers
- Established the framework for network isolation and segmentation, improving security and data protection
- Streamlined infrastructure and change management with single-pane-of-glass control

For More Information

- Visit: cisco.com/go/aci

Creating a purpose-built network for a mission-critical application

When patients visit a doctor, fill a prescription, file a health-related insurance claim, or pay a medical bill, there's a good chance it is logged in Epic. The most widely used electronic health record (EHR) application by hospitals and health systems, Epic supports the electronic records of 190 million patients around the world.

ProMedica decided to adopt the comprehensive EHR software to shed a number of disparate systems and establish a single platform for all of its operations. Before the massive, mission-critical application could be deployed, however, ProMedica needed to overhaul its data center network environment.

"It needed a tuneup," admits Ben Vickers, Director of IT at ProMedica. "We had a little bit of everything from a technology standpoint, and we needed better consistency, reliability, and control."

ProMedica attained all three with Cisco® Application Centric Infrastructure (Cisco ACI™), the industry's leading software-defined networking (SDN) solution.

Utilizing two data centers for high availability

Epic's critical and pervasive role in ProMedica's operations demanded continuous availability. So it was determined that both of ProMedica's data centers, which are roughly 20 miles apart, would actively sustain the new application.

"Almost everything we do relies on Epic," Vickers explains, "so we wanted a fully redundant environment supported by active-active data centers."

But Vickers didn't want to manage the data centers independently. He wanted them tied together and managed as one.

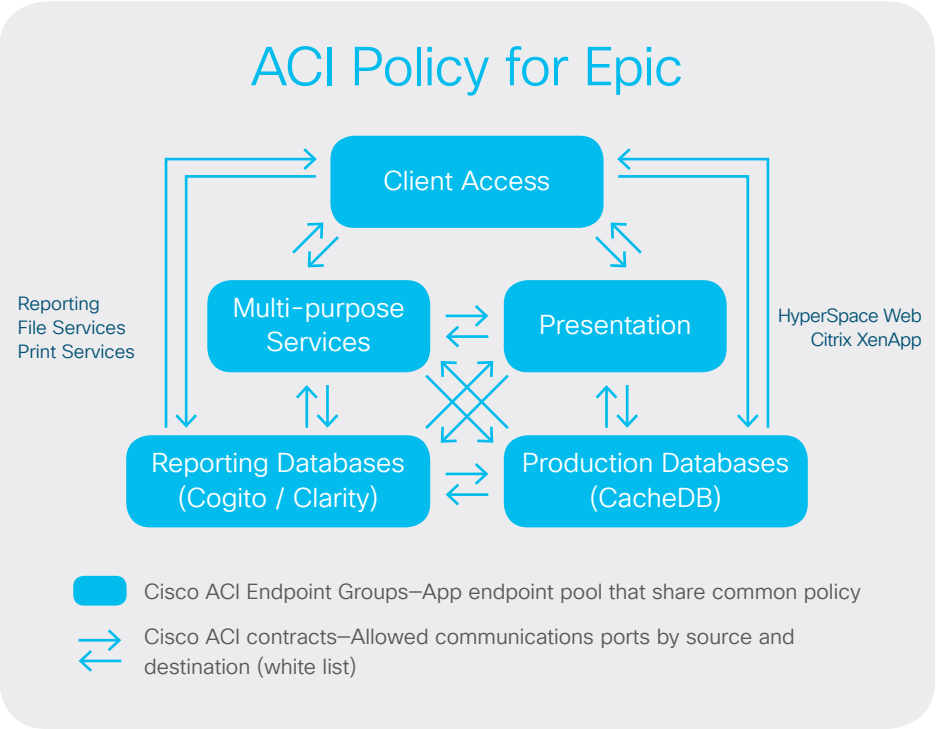
"Cisco ACI allowed us to stretch the network fabric seamlessly across both data centers," he says. "And it was the only solution that gave us single-pane-of-glass management, which simplifies network operations and makes load balancing and security more consistent."

While the network is extended logically across two data centers, it is isolated from the core ProMedica network. This separation provides a chokepoint of control, security, and risk mitigation, aided by Cisco Firepower® Next-Generation Intrusion Prevention System (NGIPS).

"We wanted a layer of security between the user and the data center. If a hospital workstation gets compromised, it can't impact the data center, and vice versa," Vickers says, noting the security and segmentation capabilities of Cisco ACI also enable full isolation of Epic's web, application, database, and presentation tiers.

The data center network includes four spines, roughly 100 leaves, and nearly 40 fabric extenders, with four firewalls separating it from the core network. 40 Gb interfaces from the spines to the leaves provide exceptional throughput and extremely low latency to support ProMedica's application needs for years to come.

"It's a future-proofed network," says Vickers.



Rapid implementation

Not only did the data center network need to be rock solid, it also had to be deployed in a matter of weeks. To attain application certification and receive a sizeable rebate from Epic, the network environment had to be in place prior to scheduled performance testing by Epic specialists.

Being a brand new network for us, it was a sprint," says Vickers. "Cisco Advanced Services stepped in and got the network up and running, then our ProMedica team of talented engineers, with assistance from CDW took it to the finish line by moving 3500 servers from the old fabric to the new one."

The data center network is fully "dialed in," he adds, with the stability and predictability the ProMedica team was seeking. And managing the environment is both effortless and worry-free.

"The fabric just works so well," Vickers says. "Changes are faster, easier, and less risky. We no longer upgrade something and wonder what else might be impacted. The fabric is so well scripted, we can make changes without worrying about the 3500 servers running on it."

"We're no longer dealing with switching problems on a box-by-box basis. We're focused on application interdependencies, microsegmentation, and automation—strategic and architectural tasks versus pure connectivity and box management."

Ben Vickers
Director of IT, ProMedica

Looking ahead

With a fully refreshed, software-defined data center network, ProMedica's IT staff is no longer weighed down with manual switch configurations, protracted troubleshooting investigations, or tedious change management tasks. According to Vickers, they are now concentrating on the "fun, fancy stuff."

"We're no longer dealing with switching problems on a box-by-box basis," he explains. "We're focused on application interdependencies, microsegmentation, and automation—strategic and architectural tasks versus pure connectivity and box management.

We can go deeper instead of wider."

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Products

- Cisco® Application Centric Infrastructure (Cisco ACI™)
- Cisco Firepower® Next-Generation Intrusion Prevention System (NGIPS)

Services

- Cisco Advanced Services