



**EXECUTIVE SUMMARY**

**BAPTIST HEALTH SOUTH FLORIDA**

- Healthcare
- Miami, Florida, United States
- 12,500 Employees

**CHALLENGE**

- Maintain maximum uptime of clinical applications and services
- Minimize need for planned network outages
- Provide capacity and versatility to support future applications

**SOLUTION**

- Cisco Medical-Grade network powered by highly reliable, modular Cisco Catalyst switches

**RESULTS**

- Reduced risk of outages or downtime
- Improved stability of wireless services
- Eliminated disruptions from planned outages

## Health System Builds Highly Available Wired and Wireless Network

Baptist Health South Florida uses a Cisco Medical-Grade Network powered by highly available Cisco Catalyst® switches to safeguard the reliability and uptime of critical hospital services and applications.

### Challenge

Baptist Health South Florida is one of the largest healthcare organizations in the region, encompassing a network of five major hospitals and more than 23 satellite locations that extends throughout two counties. Baptist Health has a reputation for excellent clinical care and for bringing advanced clinical technologies to the aid of patients. Today, nearly every aspect of patient care in Baptist Health hospitals is supported by clinical applications, delivered via a ubiquitous wired and wireless network.

“Everything from our emergency department, pharmacy, clinical areas, financial operations, and medical records and more is now digital,” says Gilbert Albornoz, director of telecommunication and network for Baptist Health.

“Technically, there is no area in our hospital operations today that isn’t relying on the network to function.”

In addition to supporting so many functions, the Baptist Health network is increasingly supporting critical patient systems. That means that in many areas, patient lives may literally depend on the availability and performance of the health system network. For example, clinicians in the emergency department and on patient floors rely on a Cisco® wireless network to access patient records, lab results, and pharmacy tools that help avoid dangerous drug interactions. The wireless network also supports hospital voice systems upon which doctors and nurses rely. The network even supports applications that monitor patients in the intensive care units, and the transfer of heart monitor data and patient vital signs to nurse stations.

To support all of these vital functions, Baptist Health needs to help ensure that the network infrastructure provides rock-solid reliability and continuous uptime, while still providing rich features and services. Because hospital applications must operate 24 hours a day, the health system also must minimize planned network outages for maintenance or software updates. And yet, with the need to protect that the network is protected with the latest security and software patches, occasional updates cannot be avoided.

“Instead of having to prepare for two weeks for a planned outage, software updates with the Cisco Catalyst 4500 ISSU features in the new emergency department are absolutely transparent. We no longer have any downtime at all.”

— Gilbert Albornoz, Director of Telecommunication and Network, Baptist Health

“Typically, when we need to perform maintenance on our network switches, that means downtime for our users,” says Albornoz. “Reloading and rebooting a traditional network switch takes 10 to 15 minutes, during which all of the services that switch supports are offline. We have to plan any scheduled downtime two weeks in advance and go through a long change control process so that care is not affected.”

## Solution

To provide the extraordinary reliability and high availability that hospital environments demand, Baptist Health relies on a Cisco Medical-Grade Network powered by Cisco Catalyst® 4500 Series switches with In-Service Software Update (ISSU) features. A Cisco Medical-Grade Network provides a highly reliable, high-performance environment for securely sharing vital healthcare information and improving interactions among stakeholders throughout the healthcare community. It allows clinicians and staff to deliver the right information, to the right people, at the point-of-need. Today, the entire wired, wireless, and security infrastructure at Baptist Health hospitals is built with Cisco solutions.

The modular Cisco Catalyst 4500 switches that serve as the standard LAN platform for the entire Baptist Health environment are custom-built to be highly available. They include network chips with a built-in error-checking system, redundant power supplies and fans, redundant supervisor engines, connections to redundant power circuits, and hot-swappable line cards. The Cisco Catalyst 4500 Series also incorporates redundant software capabilities with Cisco Nonstop Forwarding (NSF) technology (which allows the network to continue forwarding traffic even during a switchover after a failure) and ISSU. ISSU is the industry’s first comprehensive, transparent software upgrade capability for network devices. It allows Baptist Health IT engineers to apply bug fixes and deploy new features and services by upgrading device software without having to bring the switches offline. The ISSU features support the most critical areas, such as Baptist Health’s new, cutting-edge 100,000-square-foot Emergency Department.

“The number one reason we have standardized on modular Cisco infrastructure solutions is the reliability of the products,” says Albornoz. “In the many years we have relied on Cisco network devices, I cannot recall a single product that had frequent failures or needed to be replaced. Every product we’ve bought from Cisco has been reliable.”

The Cisco Catalyst 4500 switches are deployed with redundant Cisco Catalyst 4500 Supervisor Engine 6-Es to provide up to 24 Gigabits per second of throughput. The line cards deliver ample performance for even the most demanding diagnostic imaging applications, as well as support for the new Power over Ethernet Plus (PoEP) standard, providing the ability to connect next-generation wireless access points.

The Cisco Catalyst 4500s connect with redundant Cisco Catalyst 6500 Series switches in the core network. A second Cisco Catalyst 6500 pair provides the foundation of the health system’s wireless network, which provides secure delivery of clinical data to wireless mobile clinical assistant devices, as well as carrying voice traffic for wireless phones. To provide the utmost availability for these services, Baptist Health uses dual Catalyst 4500 Series switches with Power-over-Ethernet (PoE) functionality to both connect and power Cisco Aironet® 1250 Series Access Points deployed throughout the hospitals. The solution supports fast secure roaming and the latest voice features, such as 802.11e (the quality-of-service standard for multimedia traffic) for advanced mobility services such as voice. To centrally manage the entire wireless environment, Baptist Health uses the Cisco Catalyst 6500 Series Wireless

## PRODUCT LIST

### Routing and Switching

- Cisco Catalyst 4500 Series Switch
- Cisco Catalyst 4500 Supervisor Engine 6-E
- Cisco Catalyst 6500 Series Switch
- Cisco Catalyst 6500 Series Supervisor Engine 720
- Cisco Catalyst 3750 Series Switch
- Cisco Catalyst 4900M Switch

### Security

- Cisco Security Monitoring, Analysis, & Response System (MARS)
- Cisco ASA 5500 Series Adaptive Security Appliance
- Cisco IPS – Sensor

### Wireless

- Cisco Aironet® 1250 Series Access Point
- Cisco Catalyst 6500 Series Wireless Services Module (WiSM)
- Cisco Wireless Control System (WCS)

### Storage

- Cisco MDS 9500 Series SAN Switch
- Services
- Cisco Network Optimization Service

Services Module (WiSM)—a comprehensive wireless control solution integrated with the core network switch—and the Cisco Wireless Control System (WCS).

In addition to the quality and reliability of the Cisco solutions, Albornoz appreciates the ability to work with Cisco as a full partner in his business, not just a hardware vendor.

“The support we’ve received has always been excellent,” he says.

“Cisco sales staff and accounts managers are also at our disposal to provide advice and recommendations, and basically give us anything we need. It doesn’t matter what type of challenge we bring them, we always get the right answer or the right product to deal with it.”

Recently, Baptist Health embarked on a Cisco Network Optimization Service engagement. The service provides a comprehensive review of the health system’s network architecture to help ensure that it can support all of Baptist Health’s capacity, security, and performance requirements as the health system continues to grow.

## Results

With a robust Cisco Medical-Grade Network powered by Cisco Catalyst modular switches, Baptist Health has an advanced, highly reliable technology foundation on which clinicians and patients can depend. As a result, the health system can continue bringing innovative clinical technologies to the bedside, and help clinicians deliver safer and more effective patient care.

By deploying redundant, modular Cisco Catalyst switching platforms and enabling features such as NSF, Baptist Health’s IT team has ensured that, even in the event of a hardware failure, critical services will remain online. The groundbreaking ISSU capabilities have also made a major impact in the critical areas of the health system where they are enabled.

“Instead of having to prepare for two weeks for a planned outage, software updates with the Cisco Catalyst 4500 ISSU features in the new emergency department are absolutely transparent,” says Albornoz. “We no longer have any downtime at all. It’s a significant difference for our clinicians.”

The Cisco wireless services are also delivering highly reliable voice and data services. And, with the centralized Cisco WCS and the WiSM control system in the core network switches, Baptist Health engineers can secure and manage the wireless environment more easily than ever before.

“The biggest advantage that we gained when we deployed the WiSM solution was stability,” says Albornoz. “We’ve used it to implement redundant failover in our wireless access points and have significantly improved the stability of wireless services, especially for voice users. Since we completed the migration to the WiSM solution, we haven’t had any complaints about wireless failures or poor performance.”

The most important advantage of the Cisco Medical-Grade Network, however, is that it provides a robust, highly flexible foundation to support virtually any future requirements.

“Applications are continually added to our network environment, and the more our physicians and nurses use them, the more their operations depend on them,” says Albornoz. “Their expectation is that those applications will have maximum uptime. We believe that with the Cisco infrastructure we have in place, we have taken the right steps to deliver the redundancy and high reliability that our users demand.”

## For More Information

To find out more about Cisco solutions, visit:

- Solutions for health care providers: <http://www.cisco.com/go/healthcare>
- Catalyst Switches: <http://www.cisco.com/go/switching>
- Security Solutions: <http://www.cisco.com/go/security>
- Wireless Solutions: <http://www.cisco.com/go/wireless>
- Cisco Network Fabric: <http://www.cisco.com/go/networkfabric>



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