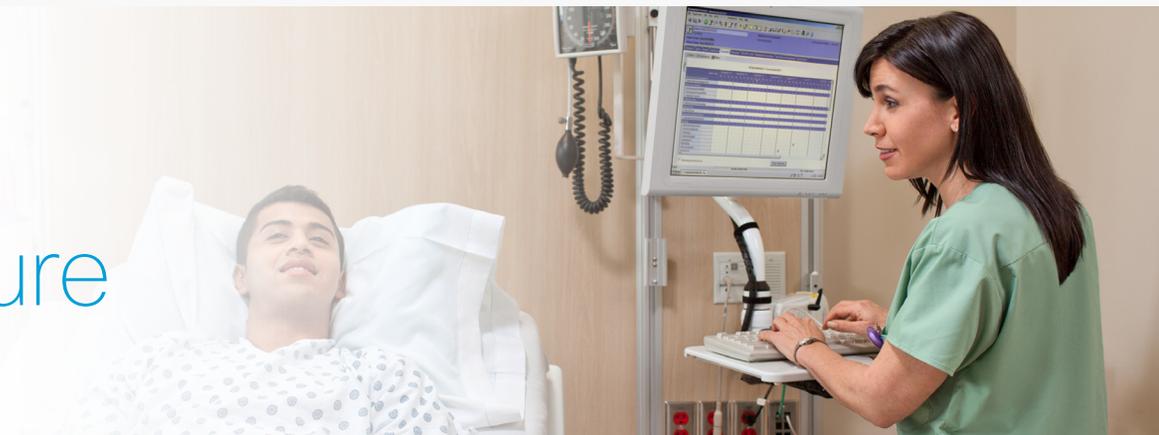


# Cisco Digital Healthcare Architecture



## Features of Cisco Digital Healthcare Architecture

- **Is built on top of Cisco best practices** using a number of horizontally focused Cisco Validated Designs for campus, data center, WAN and Internet edge
- **Uses two-directional approach** with the traditional bottom-up approach of Cisco Medical-Grade Network, as well as a top-down healthcare outcome approach
- **Maps healthcare business problems to architectural-based solutions delivering ROI** while providing measurable results to clinical teams, patients, and family

- **Uses a well-developed maturity model to** define various levels of capabilities because Healthcare delivery organizations (HDOs) use a phased implementation approach

- **Uses modular-based documentation** with both an infrastructure-based approach, as well as a top-down approach addressing real business challenges in delivering healthcare

The Cisco Medical-Grade Network has received significant industry adoption over the past 12 years. As the industry continues to evolve, the digitization of healthcare is increasing in ways that were not able to be conceived more than a decade ago.

## Changing the World of Digitized Healthcare

Almost every aspect of healthcare delivery has changed over the past 15 years. Common examples include the adoption of the electronic medical records (EMR), collaborative tools which enhance the communication of care teams, home-based patient monitoring, and the adoption of 3D prosthetic printing technologies. There is no argument, healthcare is changing and changing rapidly. As a result the underlying platform for the delivery of digitized healthcare needs to stay one step ahead. Healthcare delivery organizations (HDOs) need to use a modular architecture designed specifically for healthcare that builds on the collective set of best practices from both an infrastructure and business objective perspective.

As the next chapter of Cisco healthcare architecture unfolds, the industry can be confident that the approach is well developed and balanced between technology and business objectives. The approach that Cisco is using is to use the more than 12 years of experience, which began with the Cisco Medical-Grade Network, an architecture based on industry guidelines and best practices, and more tightly couple that with the business objectives and emerging trends facing healthcare delivery organizations worldwide.

Over the years, thousands of healthcare delivery organizations have relied on the Cisco Medical-Grade Network to guide the implantation of a solid infrastructure platform for the delivery of care. Through the continuum of that effort, the Cisco Digital Healthcare Architecture is poised to raise the bar by meeting the challenges facing the digital healthcare age.

The end result is the HDO's ability to adopt new methods that extend and enhance the delivery of healthcare, ultimately delivering better outcomes and extracting cost from the delivery of care.

## Use Case

### Adoption of Cisco Digital Healthcare architecture helps an accountable care organization (ACO) roll out a solution that lowers readmission rates

**Challenge:** Reduce 30- and 90-day re-admission rates for high-risk chronic obstructive pulmonary disease (COPD) patients being discharged.

**Vision:** The ACO established an in-home clinical collaboration platform for high-risk patients providing secure connectivity between the home and healthcare delivery organization. The solution is implemented with a low-touch Internet-based in-home video terminal, which is combined with secure in-home Wi-Fi that provides connectivity to in-home medical devices.

Information about the patients' health is securely communicated periodically or on a continuous basis. Analytical software at the ACO monitors the patient status and alerts members of the coordinated care team to developing health conditions prior to the development of a more serious condition requiring readmission. The coordinated-care nursing staff can make a video call to patients to discuss their conditions and changes to the home care plan. In addition, with the solution patients or family members can use video-conferencing terminals to initiate consultation on an as-needed basis to the coordinated care team for assistance.

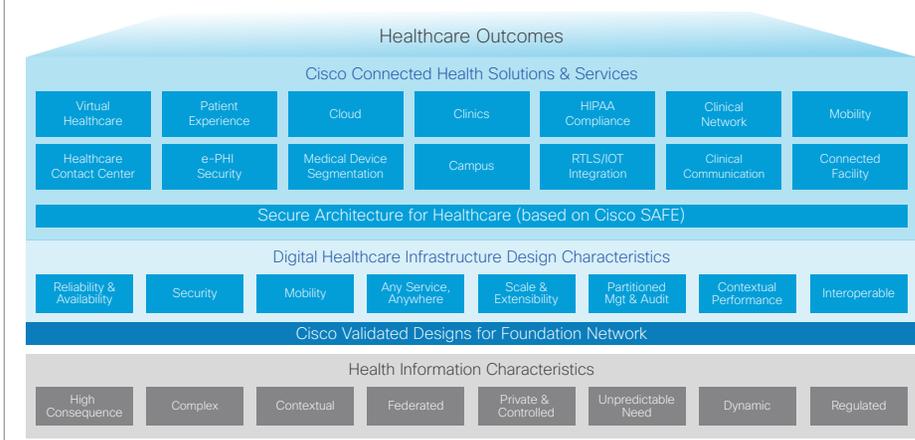
**Solution:** The ACO was able to realize significant benefits and positive patient outcomes because of its investment in the Cisco digital healthcare architecture. By using its investment in a number of Cisco digital healthcare architecture components, including collaboration, security and mobility, the healthcare organization was able to deploy the solution without the need to redesign its network. The solution consists of a Cisco DX80 or DX70 video endpoint connected through a cloud-managed Cisco Meraki® MX65W appliance, which provides secure connectivity to the ACO through existing broadband connectivity or optional LTE connectivity. Secure VPN connectivity is provided not only to the video endpoint, but also to any number of ACO-supported Wi-Fi-enabled in-home medical devices. Because the solution was built on top of the Cisco digital healthcare architecture, the ACO is able to rapidly prototype and deploy the solution at scale with a low cost of operation.

#### Potential Results:

The results of the in-home system were positive:

- A 20 percent reduction of 30-day patient re-admission and a 10 percent reduction of 90-day readmissions
- Increased adherence to prescription medications as directed
- Threefold increase in coordinated care team interaction with patient post discharge
- Overall improved patient experience with reduced cost in an ACO delivery model

## Cisco Digital Healthcare Architecture



## Health Information Characteristics

Let's face it: healthcare is a very different from all other forms of business. As such, consideration of this uniqueness must be acknowledged when developing an overarching architectural approach to delivering the promise of digitized healthcare. Clinical health information can be extremely complex and dynamic by nature. Timely access is key to positive patient outcomes and is both regulated and unpredictable. Cisco Digital Healthcare Architecture takes these characteristics into consideration for each component. In doing so, HDOs can be assured of employing a well-developed architectural approach for numerous solutions designed for the age of modern digital healthcare.

## Cisco Validated Design foundation

The Cisco Digital Healthcare Architecture uses a number of Cisco Validated Designs as its infrastructure foundation. Instead of re-creating the wheel, HDOs can be assured that proven best practices and architecture designs are used throughout the architecture. These validated designs are then applied in ways that address the unique characteristics of healthcare. For more information about Cisco Validated Designs, visit <http://www.cisco.com/go/designzone>.

### Digital Healthcare Architecture infrastructure design characteristics

Healthcare is both challenging and unique when compared to other industries on the road to digitizing their businesses to drive positive outcomes. Cisco Digital Healthcare Architecture has a number of healthcare-focused infrastructure design characteristics, which are considered when designing an infrastructure used to support healthcare delivery. Characteristics, such as reliability, security, contextual, scalability, mobility, and interoperability, when applied to a healthcare infrastructure design are major structural pillars. Design conversations that do not drive these key characteristics to the overall solution fail to deliver and may impact patient outcomes in their architecture and resulting infrastructure.

While using the horizontally focused infrastructure best practices found in each Cisco Validated Design, the Cisco Digital Healthcare Architecture uses the best practices that can be specifically applied to healthcare. With this combination of best practices in innovative and unique ways that address specific challenges in healthcare, Cisco Digital Healthcare Architecture is uniquely positioned to provide a pinnacle of design and enable positive healthcare focused outcomes.

### Taking the Next Step

Cisco is currently developing the Cisco Medical Grade Network architecture to meet the challenges of an increasingly digitized healthcare delivery model. Over the coming months, the Cisco Digital Healthcare Architecture will emerge through the release of a number of modular architectures that not only enhance the infrastructure but also take into consideration the emerging business challenges affecting healthcare today and in the future. To understand how well your digital infrastructure is helping to drive efficiencies, ensure compliance, and improve outcomes, visit <http://www.cisco.com/go/healthcare>.

