

# Intelligent Systems in Health



# The Internet of Things Starts with *Your* Things

The Internet of Things is “the network of physical objects that contain embedded technology to communicate and interact with their internal states or the external environment,” according to Gartner.

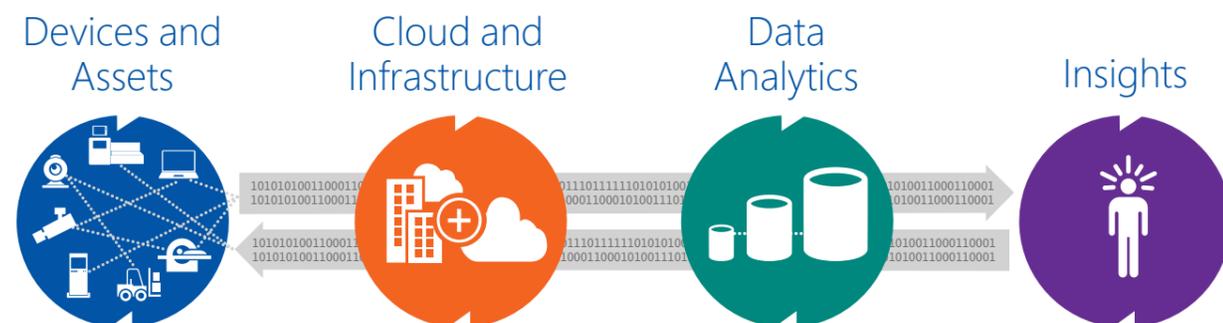
While the Internet of Things provides vast opportunities, it can seem overwhelming, complicated, and expensive. It doesn't have to be. Rather than think about billions of connected devices and sensors, start with the technology and infrastructure you already have in place. Start with *your* things. Utilize familiar assets and services in new ways, adding intelligent devices and optimizing the value of data you already collect to drive smarter operations, gain new insights, and deliver better patient care.

Increase efficiencies, lower costs, and improve outcomes with a truly flexible intelligent system tailored for your healthcare organization.

## Harness the Power of Your “Things” with Intelligent Systems

Healthcare providers need the Internet of Things to streamline data management and help drive organizational agility, more informed decision making, and ultimately better patient care.

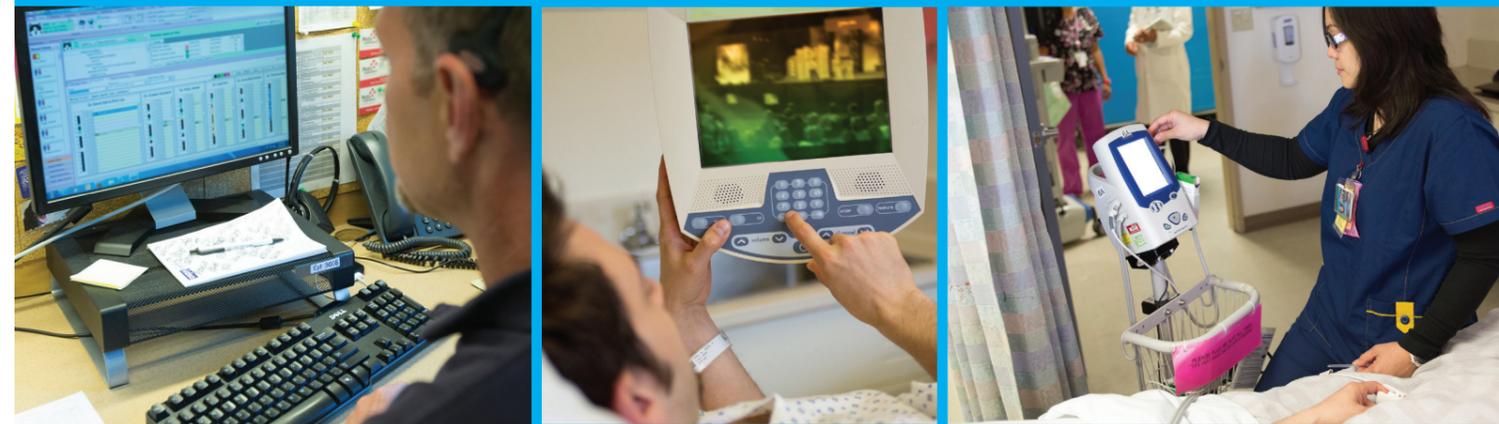
Intelligent systems enable data created by the Internet of Things to flow securely across an organizational infrastructure and to and from the cloud. From diverse front-line devices and sensors where valuable data is gathered, to back-end systems where it is stored and accessed on demand for insight and action, an intelligent system can derive more value from technology assets already in place. With cloud-based services like Microsoft Azure Intelligent Systems Service, it's now easier for healthcare organizations to more securely connect, manage, capture, and transform machine-generated data from front-line assets regardless of their location, form factor, or operating system.



# Transform Your Health Organization with Intelligent Systems

Microsoft provides a trusted platform where software developers can build solutions that enable anywhere, anytime access to patient data for better treatment decisions.

It starts with connected devices that collect data—devices in patients' hands like glucose meters and blood pressure monitors; on-premises devices like ultrasounds, PACS, and MRIs; and operational aids like digital signs, kiosks, and bar code scanners. Their data can be merged with transactional data, inventory data, social or streaming data, and more to deliver the higher digital intelligence needed to increase care team collaboration, drive smarter operations, and gain better patient insights.



With intelligent systems built on Microsoft technology, healthcare providers can:

### Improve Patient Care

Connected devices in patient hands, telehealth and telemedicine strategies, and bring-your-own-device compatibility can all help enable better care at lower cost. Embrace patient mobility and anywhere access without compromising security.

### Drive Smarter Operations

Smart, connected devices can reduce data entry errors and inventory management costs. Cloud computing can streamline system efficiency. Enterprise-grade security helps ensure that patient records are always kept safe.

### Increase Team Collaboration

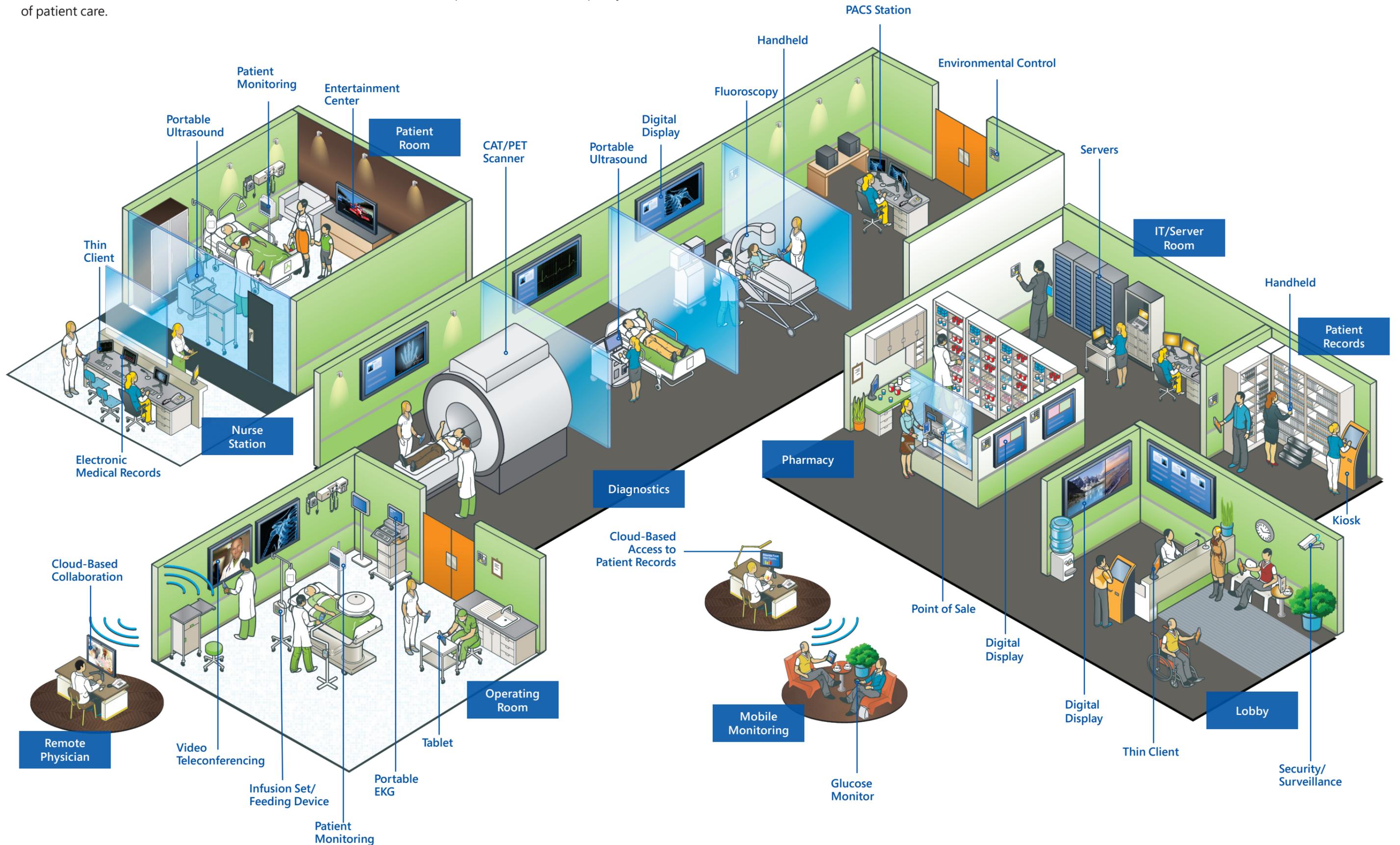
Distributed teams can collaborate seamlessly, coordinating care decisions across distance and multiple information systems. Providers who are less burdened by rote data entry tasks have more time to confer with patients and each other.

### Gain Better Patient Insights

Consolidating and analyzing disparate data can result in better patient care. Administrators can apply BI tools to assess organizational performance, unlock new ways to predict outcomes, and locate new opportunities for cost reductions.

# Intelligent Systems for Healthcare

Transform devices and sensors across the healthcare continuum into intelligent assets for streamlined, efficient data collection, easier access to critical information for authorized personnel, and better quality of patient care.



# Intelligent Systems for Healthcare: Start with the Internet of **Your** Things

Microsoft and its partners have the technology and the experience to transform your organization—right now. By building on your existing investments, it's easy to create one truly flexible intelligent system that unleashes the potential of the Internet of Your Things.

## Windows Embedded Devices

The Windows Embedded product portfolio is based on the Windows portfolio. It offers new capabilities designed specifically for healthcare devices that can enhance quality of care and improve organizational performance. Windows Embedded technology brings healthcare organizations the following benefits:

- **Targeted healthcare experience.** Windows Embedded offers advanced lockdown capabilities to tailor device functionality to the unique requirements of healthcare environments.
- **Immersive user experience.** Windows Embedded enables familiar, intuitive, interactive device experience through user-friendly applications and touch-enabled interactions.
- **Enterprise-class security.** Security and compliance are non-negotiable requirements in healthcare. The latest Windows Embedded features help to protect devices, data, and the network.
- **Seamless integration and management.** Devices built on Windows Embedded 8 easily integrate with existing IT infrastructure, including PCs and servers.

## Windows Embedded Portfolio of Products

### Windows Embedded Industry

Windows Embedded 8.1 Industry extends the power, familiarity, and reliability of Windows 8.1 to embedded devices with support for healthcare industry devices with enhanced lockdown capabilities and powerful connectivity.

### Windows Embedded Standard

Windows Embedded 8 Standard is a modular version of Windows 8 Pro with additional lockdown capabilities. It enables device manufacturers to create differentiated devices featuring dedicated narrow-mission experiences.

### Windows Embedded Pro

Windows Embedded 8.1 Pro is a full version of Windows 8.1 Pro with license restrictions specific to healthcare use scenarios, allowing device manufacturers to deliver new solutions quickly.

### Windows Embedded Handheld

Windows Embedded 8 Handheld addresses needs across the healthcare continuum, powering handheld devices that help increase productivity, reduce data entry errors, and improve patient care.

### Windows Server for Embedded Systems

Windows Server 2012 R2 Embedded Server and Microsoft SQL Server 2014 for Embedded Systems power server appliances designed to manage healthcare industry devices that deliver high-performance, long-term product availability with enhanced security.

### Windows Embedded Compact

Windows Embedded Compact 2013, the latest version of Windows Embedded CE, powers a wide range of small-footprint and rugged devices that need flexible hardware and real-time support.

## Microsoft Azure Intelligent Systems Service

Microsoft Azure Intelligent Systems Service is a comprehensive software-as-a-service (SaaS) cloud-based solution that enables healthcare organizations to use their existing infrastructure and assets to build intelligent systems quickly and securely so they can increase agility, enable better decisions, and improve patient outcomes.



## Harness the Power of Intelligent Systems Service

Intelligent Systems Service connects devices and services to one another, cloud-based services, and infrastructure in a heterogeneous environment, making it easier for healthcare organizations to securely connect, capture, manage, and use machine-generated data. With familiar and powerful Microsoft analytical tools such as HDInsight and Microsoft Power BI for Office 365, you can turn your data into insight that can lead to better, more timely decisions and improved, more efficient patient care.

Intelligent Systems Service can be extended easily and quickly by technology partners and healthcare organizations alike, resulting in rich, customized, efficient operations and high-quality healthcare delivery.

### Connect and configure.

Connect devices and sensors to one another and to other technology assets, cloud services, and your entire organizational infrastructure. Support heterogeneous technology-asset environments regardless of form factor or operating system.

### Innovate to enhance productivity.

With support from Microsoft partners, extend ISS capabilities to conceive and create rich, customized experiences that meet the specific requirements of your personnel and organization.

### Administer more efficiently.

Apply business rules to govern all connected devices. Remotely manage system monitoring, maintenance, data transfer, deployment of software, and configuration on convenient asset dashboards.

### Extend and grow to meet demands.

Address the unique demands of the healthcare industry with efficient, scalable, and secure data collection and storage in the cloud. Tap flexible processing and data storage options in the cloud or on-premises to deliver quality care when and where they are needed.



## A diverse ecosystem of partners and solutions.

Microsoft works with leading device manufacturers and healthcare solution providers to deliver next-generation devices and innovative solutions to help healthcare organizations build intelligent systems—and realize the benefits of the Internet of Things.

# Start small. Make a big impact.

Microsoft is already helping leading healthcare organizations use intelligent systems to take advantage of the Internet of Things. Here are some that started small and made a big impact on their ability to deliver efficient, quality healthcare.



**Great River Medical Center**, a regional healthcare provider, sought a better solution for medication management. It replaced manual processes and upgraded its distribution platform with an intelligent system from Microsoft and Omnicell based on Windows Embedded. The solution automatically prepares orders without manual intervention, preventing overstocks or outages and allowing managers to halve the amount of medication kept in inventory—saving Great River \$400,000.



**Siloah St. Trudpert Klinikum**, a leading German hospital, wanted to optimize healthcare and demonstrate its pioneering endoscopic surgical technique to visiting physicians. The hospital implemented a digital operating room from medical instrument maker Richard Wolf based on Microsoft technology.

It connects multiple endoscopic devices and data sources to a central control. More surgeons are trained through real-time video transmission of surgeries, including ultrasound and x-ray images.



**Henry Mayo Newhall Hospital**, a leading California healthcare provider, wanted to speed adoption of its electronic medical record (EMR) system with better access to data through multiple devices. The hospital implemented an intelligent, single sign-on system from HealthCast. With the solution's single sign-on capability, clinicians automatically log on to multiple applications without entering passwords.

## Put Microsoft Intelligent Systems to Work for You

- Learn more about the Internet of Your Things at [www.InternetofYourThings.com](http://www.InternetofYourThings.com).
- Learn more about how Microsoft helps healthcare providers transform their business with intelligent systems at [www.microsoft.com/intelligentsystems/health](http://www.microsoft.com/intelligentsystems/health).
- Visit Microsoft HealthVault, a trusted place for people to gather, store, use, and share health information online, at [www.healthvault.com](http://www.healthvault.com).



HealthVault offers patients a way to store health information from many sources in one location, so that it's organized and available online.