# MEDICAL DEVICE INFORMATION PLATFORM

ONE PLATFORM. COUNTLESS BENEFITS.

Medical device data is the key resource in transforming from today's reactive care environment to insight-driven, proactive care delivery. When data is aggregated and presented in context to the patient, care providers can prioritize and coordinate interventions and activities more effectively and efficiently.

Today, hospitals deal with data silos created by disparate systems and technologies. These silos must be removed to harness device data as a resource. IT departments are consolidating to single vendor, enterprise platform solutions to create efficiencies, increase data availability, and have the capabilities to adapt and scale to their ever-changing digital environments.

Each medical device is unique in its output and ability to connect to other systems – data needs to be liberated and then aggregated, so that applications can analyze and share data and insights across the care team.
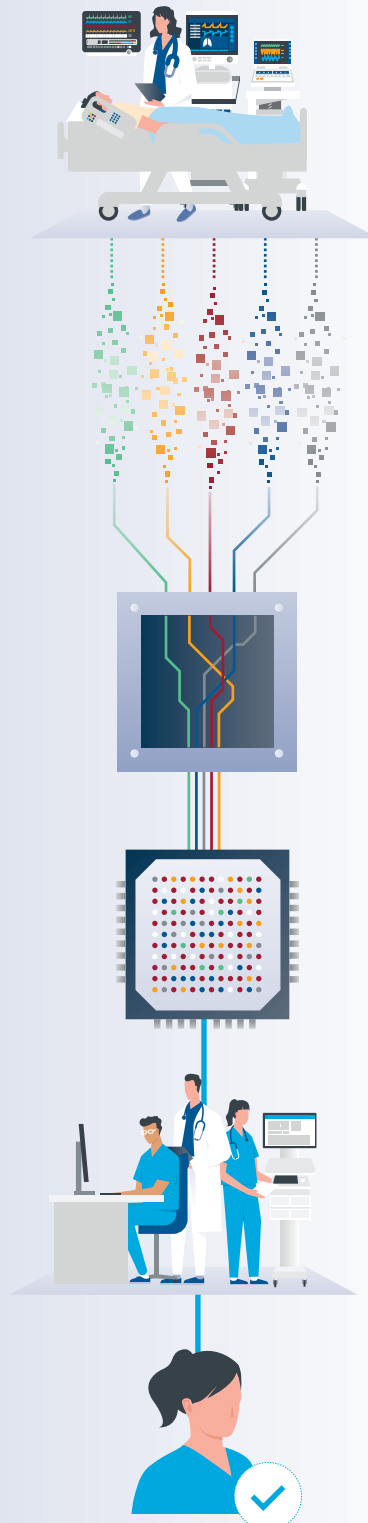
LIBERATE

Every medical device is unique in its approach to providing data for use. Capsule has multiple ways to connect with devices and works with device manufacturers to develop and maintain device drivers – creating a plug-and-play platform to capture live streaming data.

AGGREGATE

Once data is collected, it is normalized and prepared for use by one, or multiple systems that can be used to create a comprehensive patient view.

ANALYZE

Live streaming device data can be analyzed to detect subtle changes in patient condition to provide proactive and meaningful insights to care providers.
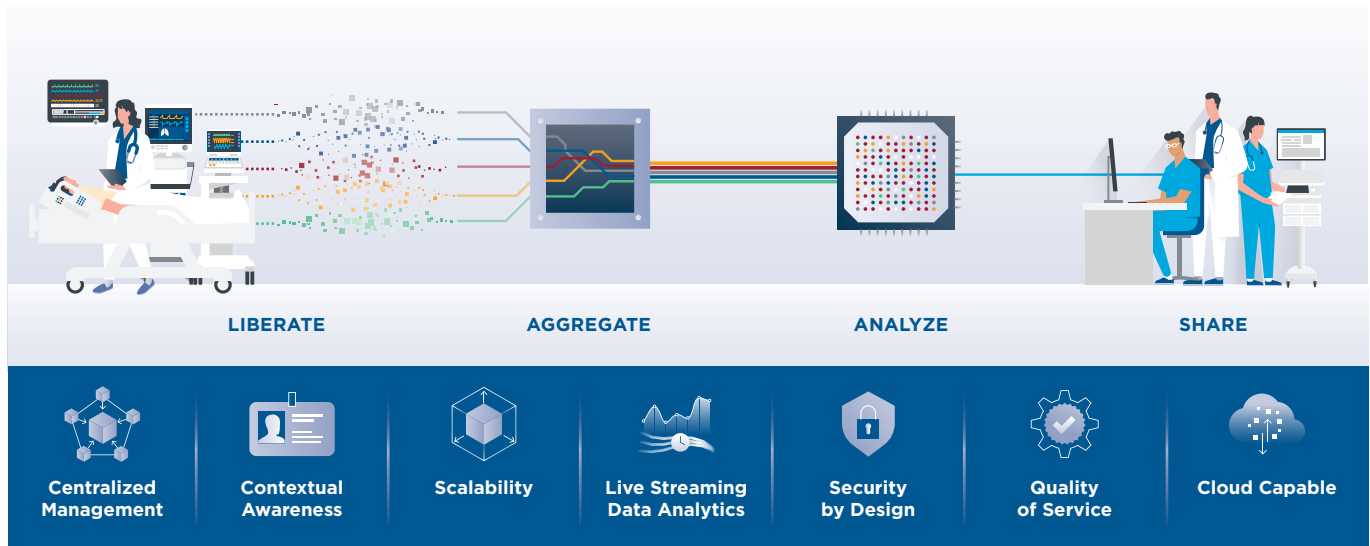
SHARE

Insights can be recorded or annunciated through Capsule solutions or a hospital's clinical communication system, facilitating care coordination.

INFORMED DECISION

MEDICAL DEVICE INFORMATION PLATFORM (MDIP)

The Capsule MDIP is the single unified foundation to Capsule's solutions – integration, monitoring, and surveillance. These solutions leverage the capabilities of the platform to create and use live-streaming medical device information for proactive, informed decision making. Within the MDIP are configurable, cross-functional capabilities that handle core system requirements to provide a consistent, reliable, and seamless user experience.

| LIBERATE | AGGREGATE | ANALYZE | SHARE |

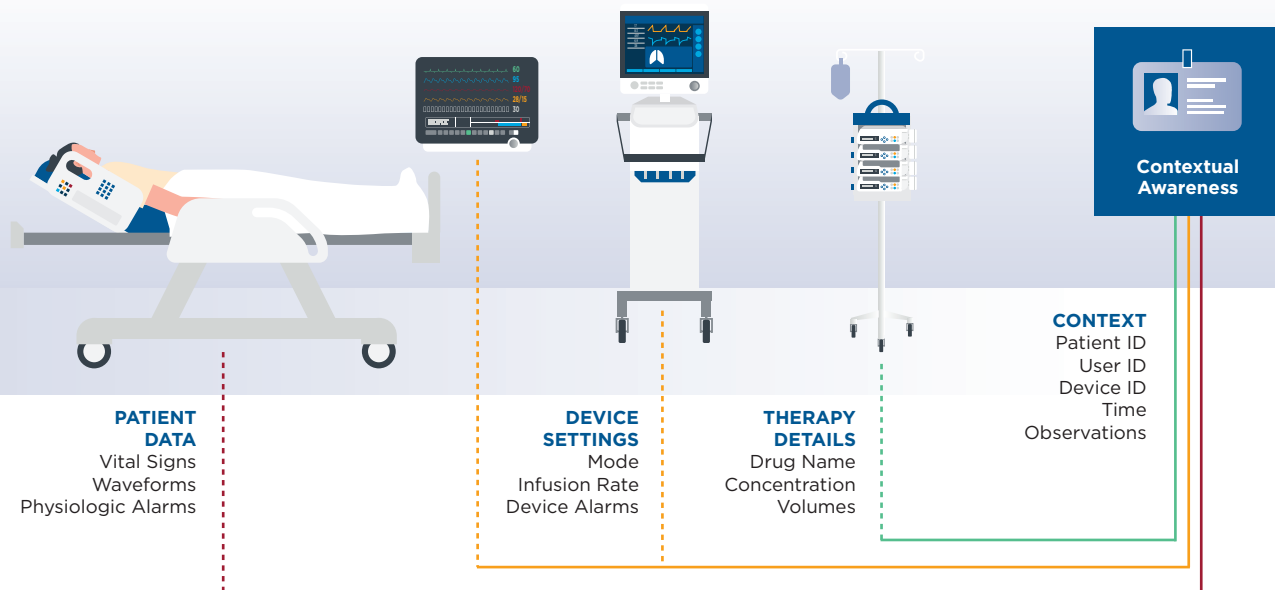| Centralized Management | Contextual Awareness | Scalability | Live Streaming Data Analytics | Security by Design | Quality of Service | Cloud Capable |

CENTRALIZED MANAGEMENT

Provides single visibility and management of the Capsule MDIP, hubs, connections, and application configurations securely from anywhere through a web-based application. Enhanced controls and live remote views ease deployment and management by providing searching and filtering of connected hubs and access to hub details and status.
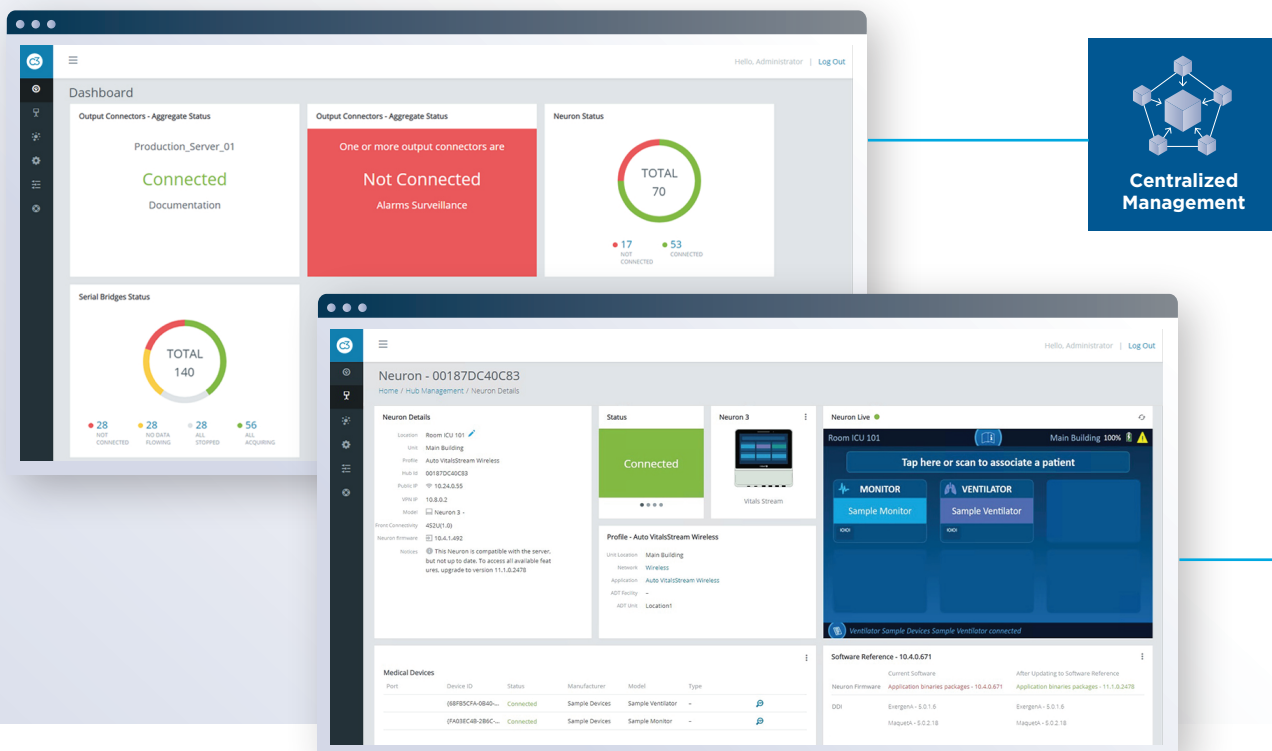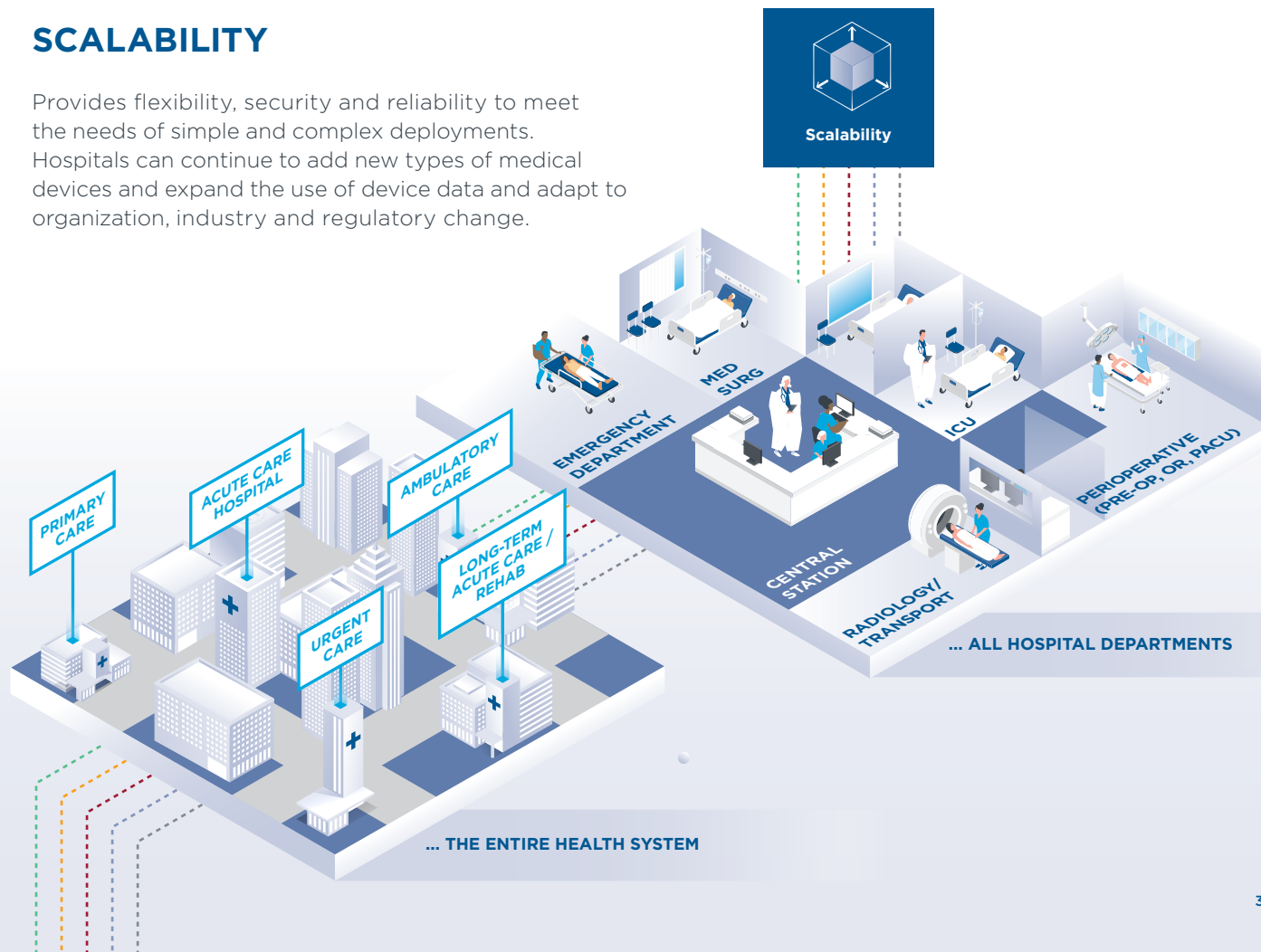
CONTEXTUAL AWARENESS

Provides critical contextual data elements that consuming systems require such as patient identification and association, multi-visit encounter selection, time synchronization, user access, asset location. The MDIP provides the tools and processes to correctly identify, associate and disassociate the patient.

Contextual Awareness

CONTEXT
Patient ID
User ID
Device ID
Time
Observations

PATIENT DATA
Vital Signs
Waveforms
Physiologic Alarms

DEVICE SETTINGS
Mode
Infusion Rate
Device Alarms

THERAPY DETAILS
Drug Name
Concentration
Volumes

SCALABILITY

Provides flexibility, security and reliability to meet the needs of simple and complex deployments. Hospitals can continue to add new types of medical devices and expand the use of device data and adapt to organization, industry and regulatory change.

Scalability

PRIMARY CARE

ACUTE CARE HOSPITAL

AMBULATORY CARE

URGENT CARE

LONG-TERM ACUTE CARE / REHAB

EMERGENCY DEPARTMENT

MED SURG

CENTRAL STATION

RADIOLOGY/ TRANSPORT

ICU

PERIOPERATIVE (PRE-OP, OR, PACU)

... ALL HOSPITAL DEPARTMENTS

... THE ENTIRE HEALTH SYSTEM

LIVE STREAM DATA ANALYTICS

Provides data management capabilities to transform streaming medical device data and transmit context rich information to receiving systems. Capsule Surveillance uses this data, including waveforms, to provide continuous visibility and to alert on actionable emergent events. It enables reporting and analytics such as alarm summary visualization.
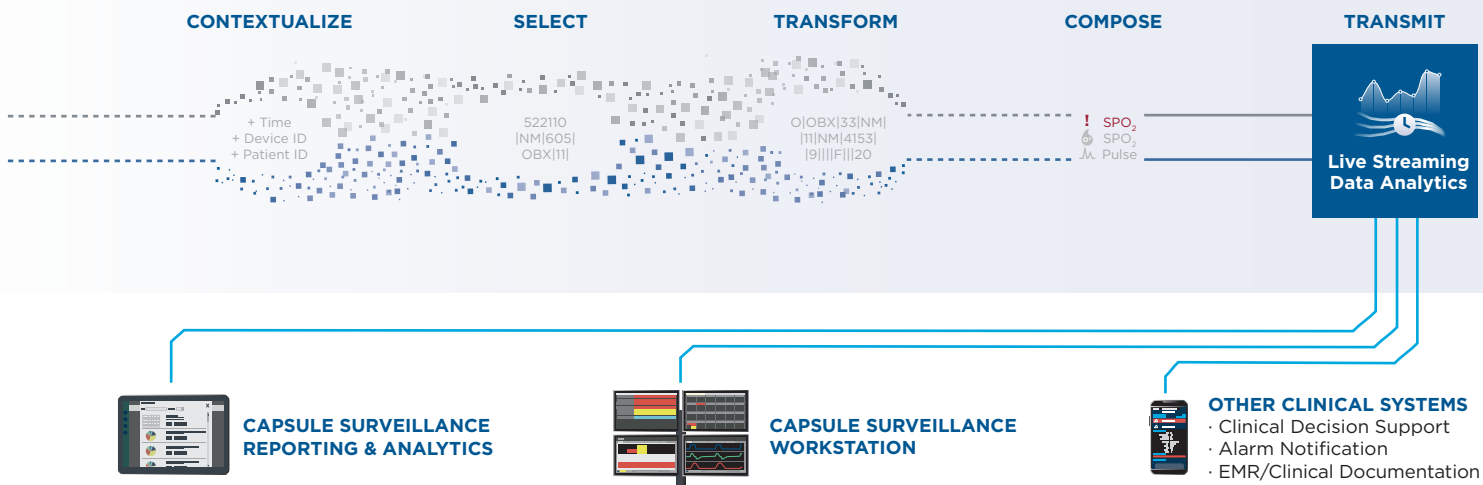
SECURITY BY DESIGN

Provides confidence that even when the system is under attack the platform can enforce authentication, authorization, confidentiality, data integrity, privacy, accountability, safety and non-repudiation requirements.
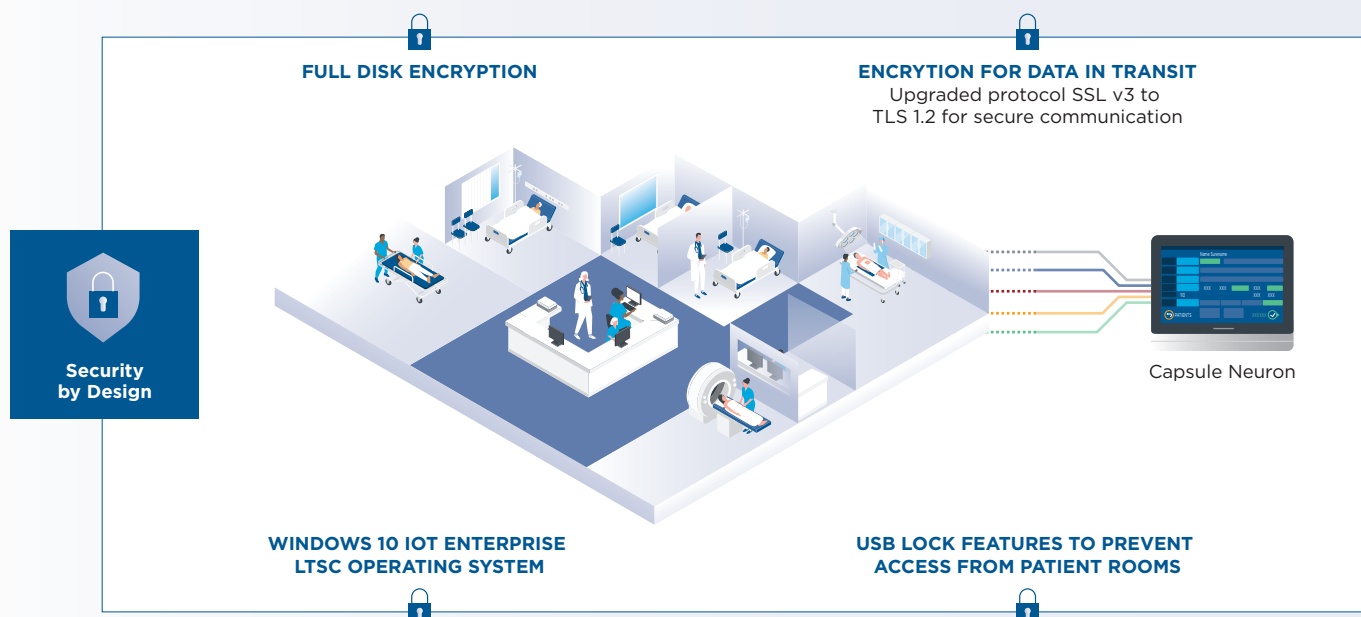
QUALITY OF SERVICE

Provides reliable and timely access to the delivery of device data through services that are highly available and resilient. Configurable logging and troubleshooting tools help support the spectrum of deployments.

CAPSULE MDIP SHARED CONFIGURATION

Node1.domain

Node2.domain

Node3.domain

CONFIGURATION

REPLICATION

Capsule Neuron

Connection

Quality of Service

CLOUD CAPABLE

Provides the option to deploy remote servers in the cloud, reducing hardware and support requirements while enabling rapid deployment. Data is encrypted at rest and in transit and is stored to meet HIPAA standards. Ensures a transition path from on-premise to cloud hosted.

Existing
On premises

Cloud Capable
Cloud infrastructure

Cloud Optimized
Containerized and managed
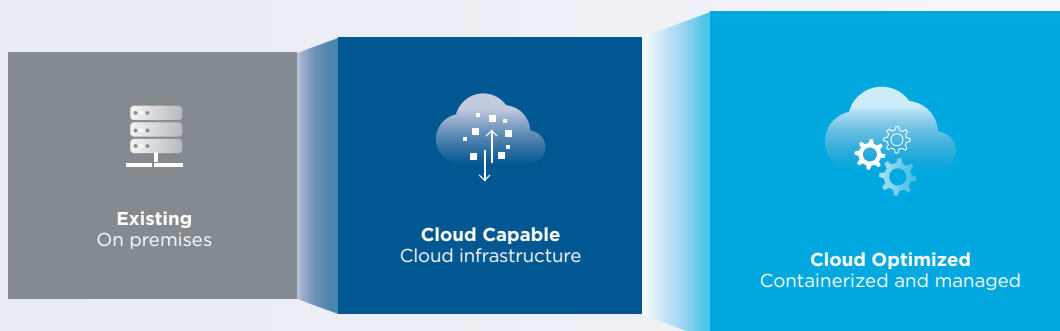
THE MDIP IN ACTION

Each of the three Capsule solutions leverages the capabilities of the single MDIP platform to create countless benefits across all hospital departments and the entire health system.

MEDICAL DEVICE INTEGRATION
Powers IT system of your choosing with streaming medical device data

- Unlocks data from any medical device and provides user configurable tools to select and transform (filter, tailor, contextualize) from all available data parameters to send to one, or multiple systems via industry standard output profiles.

- Handles the auto-detection of connections, device drivers, centralized management, and provides insights into the operational analytics of the connectivity infrastructure.

- Provides powerful data management capabilities including the ability to tailor format, and sampling rates for simultaneous outbound data feeds.

PATIENT MONITORING
Simplifies patient vitals acquisition and maximizes utilization in non-critical care departments

- Provides scalable plug-and-play bedside connectivity and streamlined vitals capture with bedside observations sent directly to the EMR to advance efficiency, documentation accuracy, and care team communication in patient monitoring across care settings.

- Offers a flexible upgrade path to turn existing spot monitors into connected monitors using Chart Xpress, and then transition to an all-in-one smart connected monitor, Vitals Plus.

- Centralized, remote management of Vitals Plus monitoring fleet eases software updates, connectivity and maintenance.

- Detects potential patient deterioration at the bedside and seamlessly transmits critical patient information to the intelligent algorithms of Capsule Surveillance.

CLINICAL SURVEILLANCE
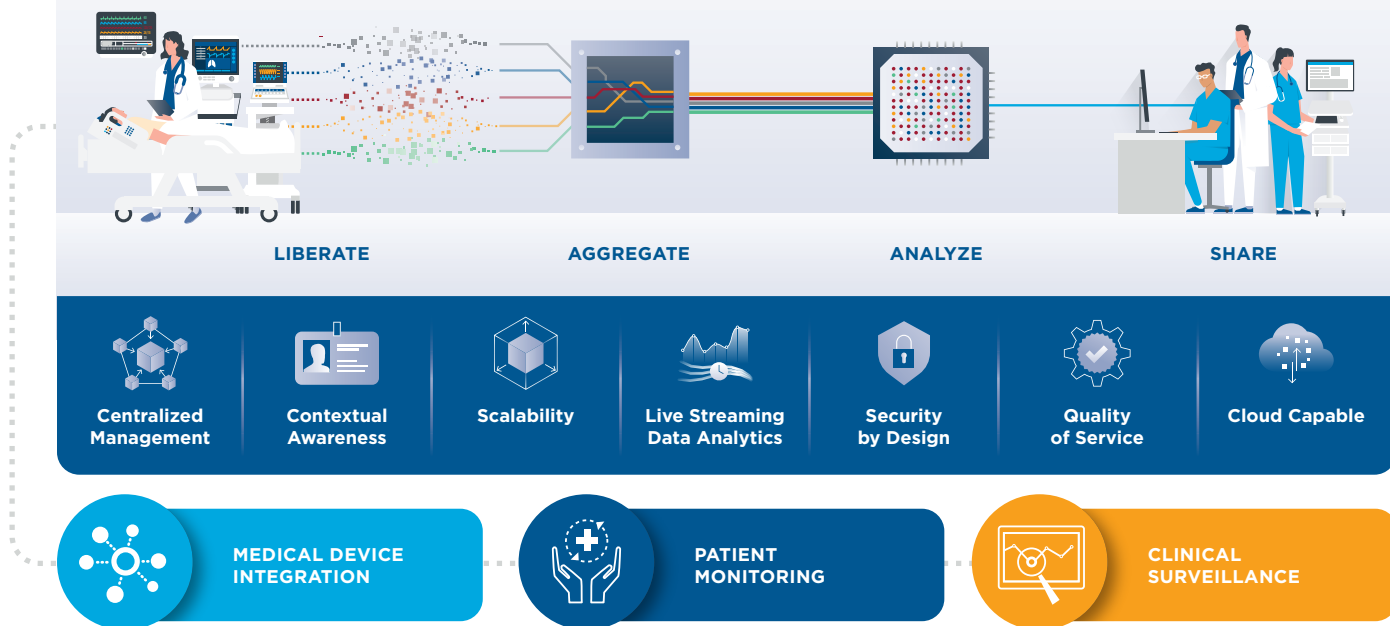### Helps identify at-risk patients earlier

- Connected medical device data is continuously available to be viewed remotely at the workstation and notifications are routed to care team members.

- Smart Rules analyze live, streaming data from medical devices to alert upon detecting emergent, clinically actionable patient events based on the hospital's clinical practice and policy.

THE PLATFORM THAT BEST SUPPORTS HEALTHCARE INNOVATION

Innovation requires high quality, high fidelity, reliable data from devices and systems and Capsule's MDIP gives organizations immediate access to this data for all your data initiatives. By powering the Capsule portfolio of solutions, the MDIP provides configurable, coordinated and comprehensive value that will continue to expand and evolve across medical device integration, patient monitoring, clinical surveillance, and the creation of timely insights for healthcare providers.

MEDICAL DEVICE INFORMATION PLATFORM

LIBERATE **AGGREGATE** **ANALYZE** **SHARE**

Centralized Management | Contextual Awareness | Scalability | Live Streaming Data Analytics | Security by Design | Quality of Service | Cloud Capable

MEDICAL DEVICE INTEGRATION

PATIENT MONITORING

CLINICAL SURVEILLANCE

SELECTED SPECIFICATIONS

MDIP SERVER SOFTWARE

Cloud/Hybrid Compatible Option*
Operating System: Windows Server
Microsoft .NET Core 3.1 with ASP.NET Hosting
Microsoft .NET Framework
Internet Information Services (IIS) Web Server
MSMQ message queueing
Active Directory Authentication
A maximum of 256 Neurons per server

SECURITY/AUTHENTICATION

Active Directory Authentication
Wireless authentication:
• WPA-Personal (PSK) – TKIP
• WPA2-Personal (PSK) - AES (CCMP)
• WPA2-Enterprise (PEAP-MSCHAPv2) - AES (CCMP)
  (Capsule Neuron or SmartLinx Axon only)

SUPPORTED BROWSERS

Edge 40 and higher
Chrome 45 and higher
Firefox 35 and higher

MDIP DATABASE SERVER

SQL Server

INTEGRATION STANDARDS

HL7 2.3
IHE PCD-01, PCD-04, WCM
Capsule Data Standard (Rosetta Terminology Mapping)

*Private preview only

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Capsule Medical Device Information Platform is an Intel® IoT Market Ready Solution (Intel® IMRS). Proven market ready solutions from Intel's partner ecosystem including Capsule can reduce the time, cost, and risk of IoT deployments—so that data can start to enhance healthcare now. Intel® technologies for healthcare IoT provide high performance for medical imaging, a foundation for connected and remote care, and optimized edge computing systems.