PHILIPS

capsule

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, care providers can prioritize and coordinate interventions and activities more effectively and efficiently.

In today's healthcare environment, there is no shortage of data. However, that data is often siloed in different device manufacturer-specific solutions, unstructured, and coming at the bedside caregivers from a number of directions. By consolidating to a single-vendor, enterprise platform solution, hospitals have the opportunity to create efficiencies, increase data availability, and 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, aggregated, and shared so that applications can analyze and provide insights across the care team.

Philips Capsule Medical Device Information Platform (MDIP) is the single unified foundation to Philips Capsule integrated solutions.

These solutions leverage the capabilities of the platform to tailor and use live-streaming medical device information for proactive, potentially better informed decision making. Within the MDIP are configurable, cross-functional capabilities that manage core system requirements to provide a consistent, reliable, and seamless user experience. MDIP is the product backbone of the Philips Medical Device Integration solution and helps simplify complex workflows by making live-streaming medical data available to destination systems for documenting, reporting, analyzing, and making critical decisions.

Liberate
Every medical device is unique in its approach to providing data for use. Philips Capsule provides multiple ways to connect medical devices and collaborates with device manufacturers to develop and maintain device drivers — creating a plug-and-play platform to capture live streaming data.
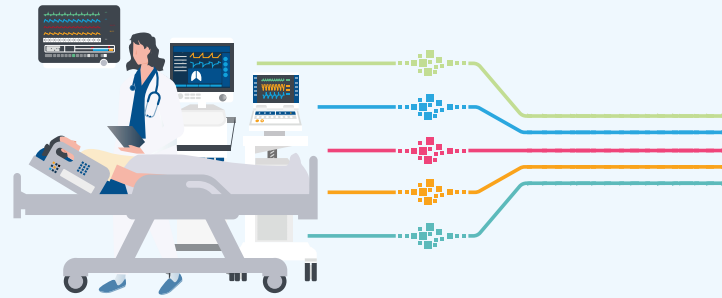
Core capabilities

Centralized management

Contextual awareness

Key advantages

Enhanced data model
Standardize and enrich medical device data for output by providing contextualized data and a unified list of variables to support customer needs. This allows for simplified configuration and deployments with advanced clinical consumers.

Remote management of connectivity hubs
The Capsule Command Console (C3) is a centralized management tool for all administrative activities in the platform, providing visibility and management of the MDIP, hubs, connections, and application configurations securely from virtually anywhere through a modern, web-based application.

Aggregate
Once data is collected, it is normalized so it presents uniformly regardless of the type of medical device or device manufacturer it comes from.

Analyze
Live-streaming device data can be analyzed to detect subtle changes in patient conditions to provide proactive and potentially meaningful insights to care providers.

Share
Data is sent to virtually any downstream system (*i.e.,* EMR or other CIS, clinical research database, alarm and alert management solutions, clinical decision support tools, etc.) across the entire care continuum.

Informed decision

Scalability

Live streaming data analytics

Security by design

Quality of service

Cloud capable

MDIP High Availability and Shared Configuration

The Capsule MDIP High Availability deployment offers resilience and aims to ensure a level of operational performance, including uptime. The goal of High Availability is to minimize the downtime of the Capsule platform to ensure minimal interruption in the data flow. When a server goes down, Capsule hubs and the medical devices that were assigned to it (depending on their connection type) reconnect to one of the available servers in the cluster, resuming their normal function.

Capsule MDIP Shared Configuration is a clustered server environment which allows for automatic configuration sharing across all MDIP servers. This avoids the need to manually copy the configuration from server to server, which eases deployments and system maintenance.

Advanced Integration

Advanced Integration is designed to provide contextual, tailored medical device data to multiple third-party HL7 consuming downstream systems. This provides the ability to send different sets of medical device data to various downstream consuming systems at the rate of speed required by that system.

Rapid patient identification interface

Provides patient demographics to certain network-connected medical devices that require patient identification for integration.

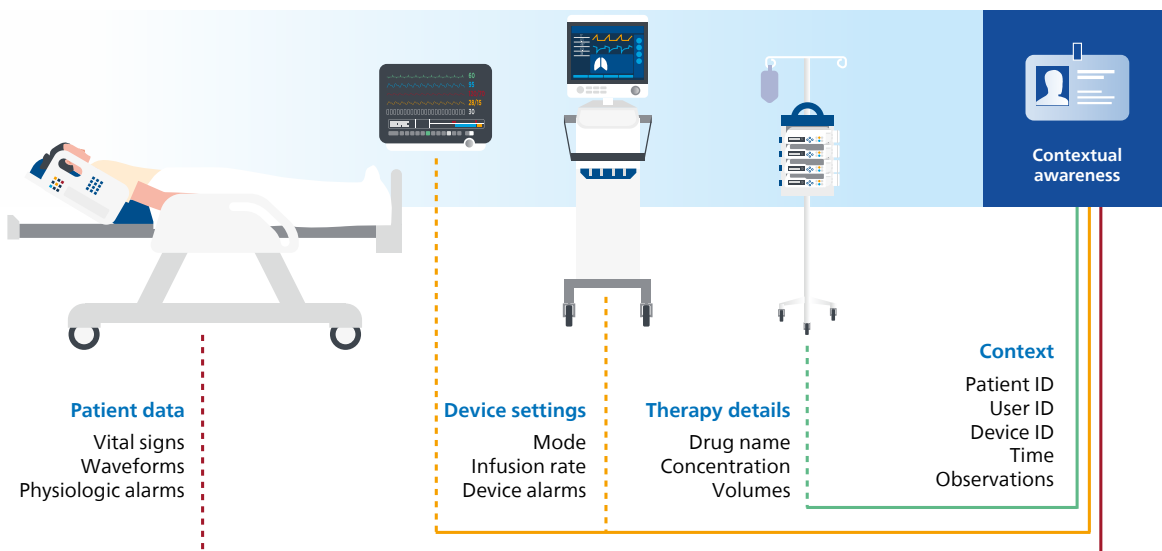# Medical Device Information Platform core capabilities

Centralized management

Provides single visibility and management of the Philips Capsule MDIP, connectivity hubs, connections, and application configurations securely 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.
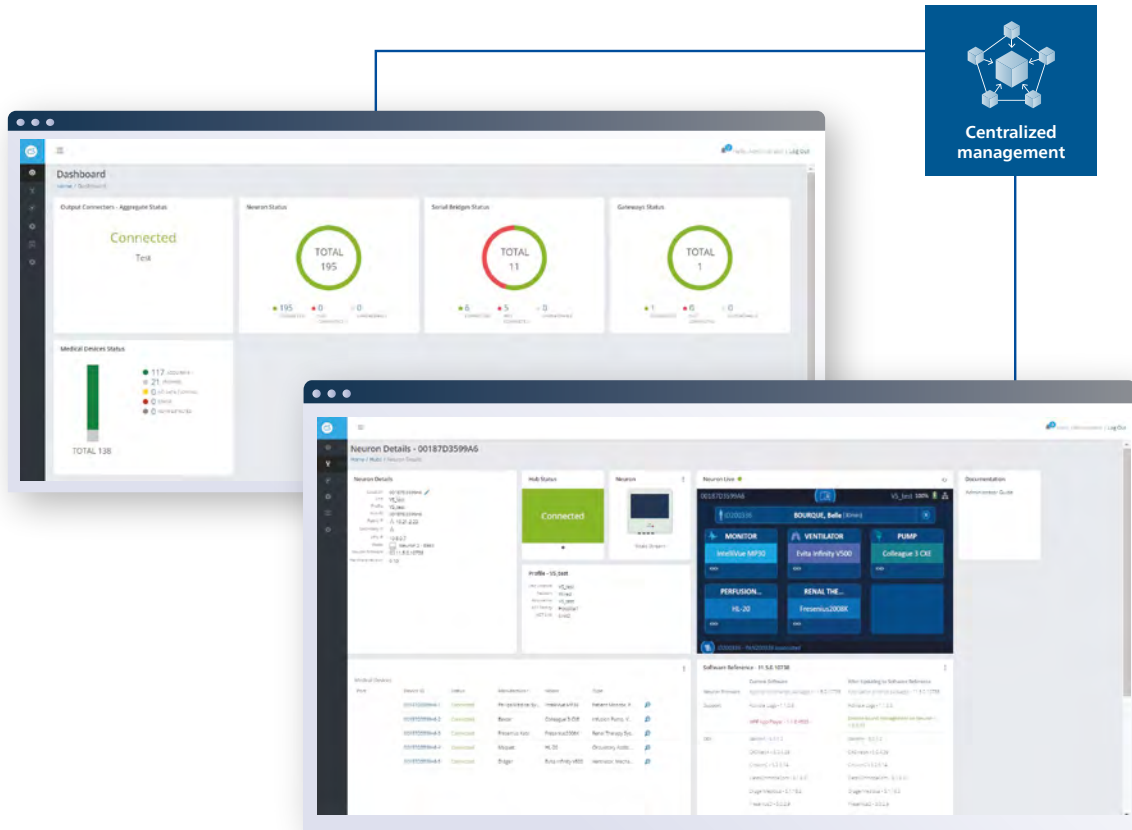
Contextual awareness

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

Patient data
Vital signs
Waveforms
Physiologic alarms

Device settings
Mode
Infusion rate
Device alarms

Therapy details
Drug name
Concentration
Volumes

Context
Patient ID
User ID
Device ID
Time
Observations

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

... all hospital departments

PRIMARY CARE

ACUTE CARE HOSPITAL

AMBULATORY CARE
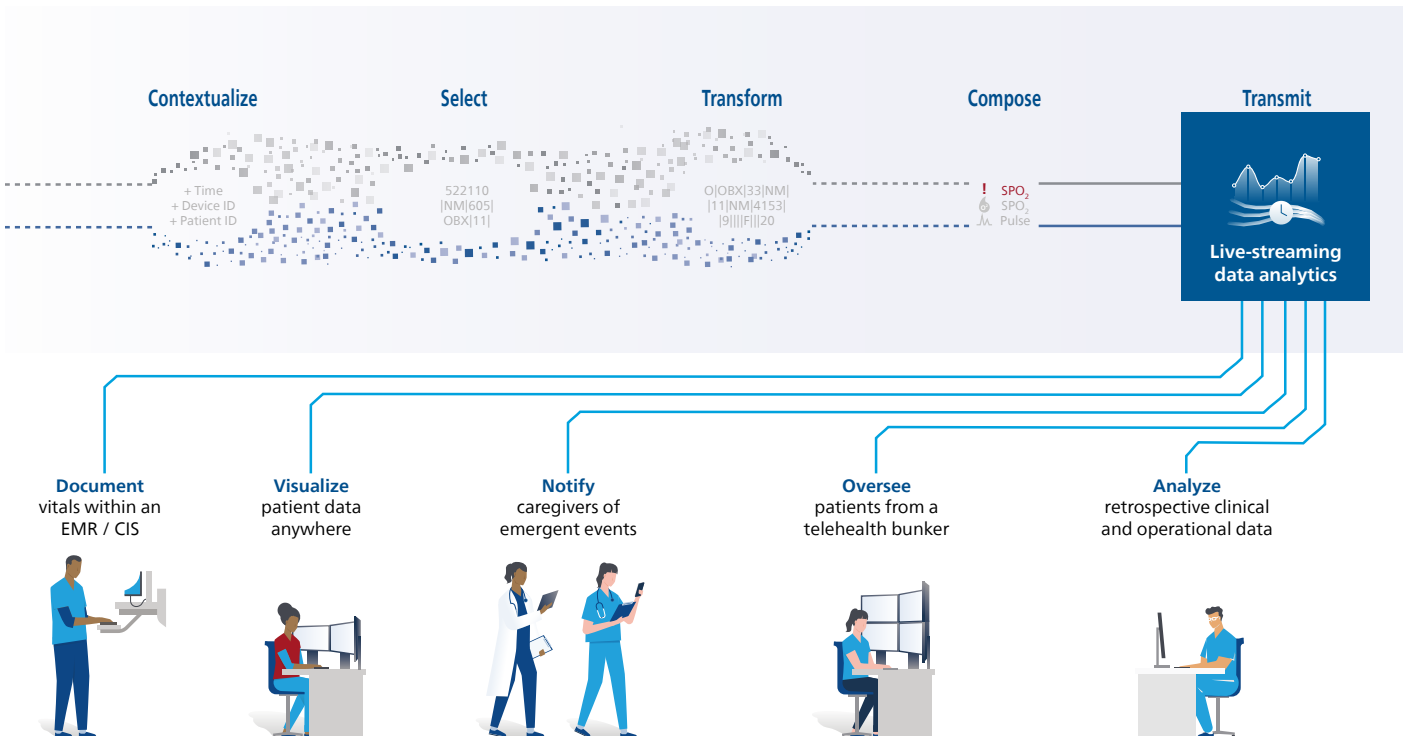
LONG-TERM ACUTE CARE / REHAB

URGENT CARE

EMERGENCY DEPARTMENT

MED SURG

ICU

CENTRAL STATION

RADIOLOGY / TRANSPORT

PERIOPERATIVE (PRE-OP, OR, PACU)

... the entire health system
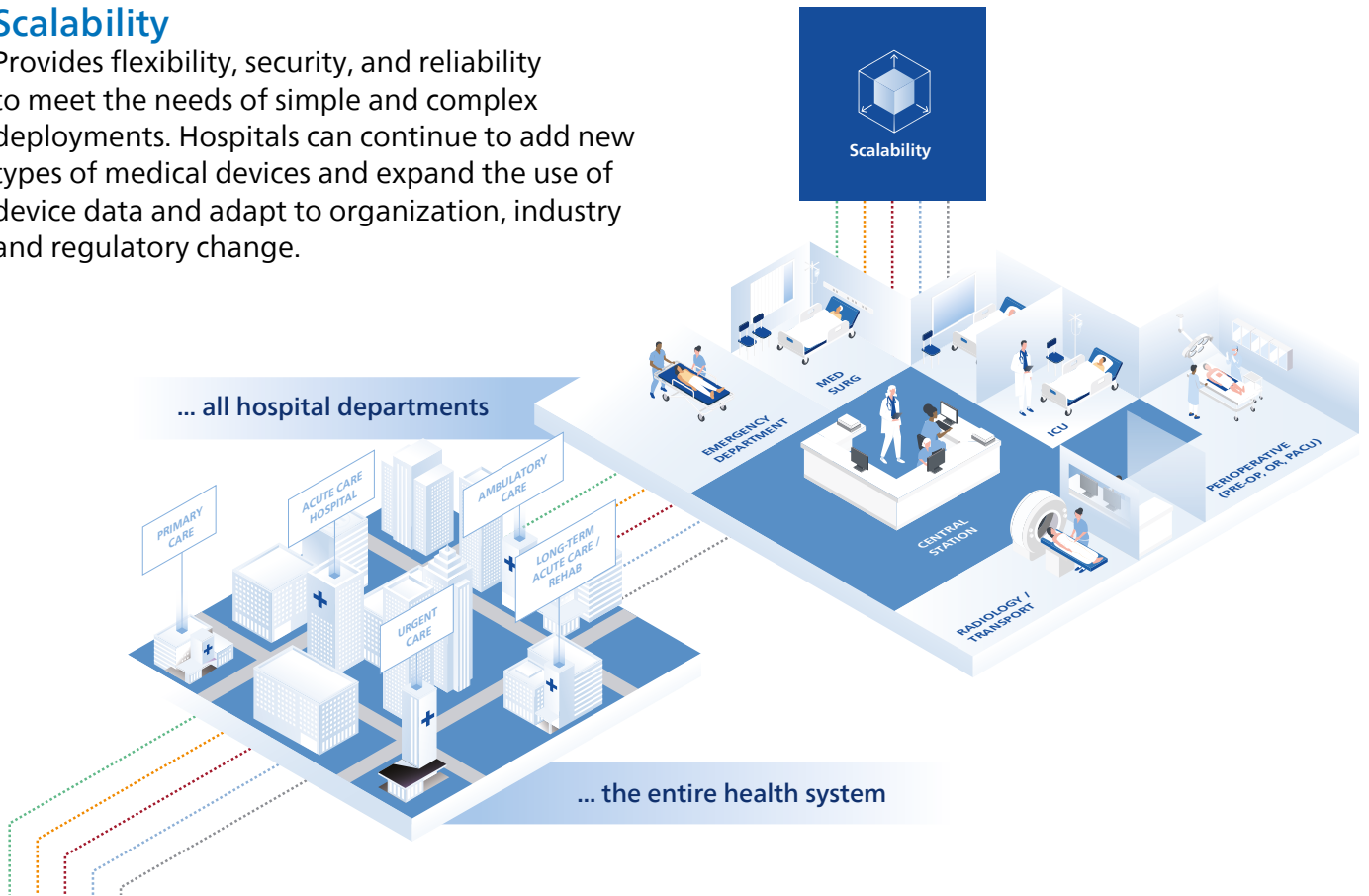
Live-streaming data analytics

Provides data management capabilities to transform streaming medical device data and transmit context rich information to receiving systems.

Contextualize	Select	Transform	Compose	Transmit
+ Time + Device ID + Patient ID	522110 |NM|605| OBX|11|	O|OBX|33|NM| |11|NM|4153| |9||||F|||20	! SPO$_2$ ⌀ SPO$_2$ ⩗ Pulse	**Live-streaming data analytics**

Document
vitals within an EMR / CIS

Visualize
patient data anywhere

Notify
caregivers of emergent events

Oversee
patients from a telehealth bunker

Analyze
retrospective clinical and operational data

Security by design

Provides authentication, authorization, confidentiality, data integrity, privacy, and accountability within the platform. With MDIP Secure Communications, the platform supports end-to-end encryption for data in transit from the bedside to the HL7 downstream consumer.

Active Directory

Neuron

Medical device

Gateway server(s)

Network connected medical devices

Liberate   **Aggregate**   **Analyze**   **Share**

Centralized management | Contextual awareness | Scalability | Live streaming data analytics | Security by design | Quality of service | Cloud capable

Security by design

Other hospital systems
Use advanced integration to feed data to other hospital systems:
• clinical decision support
• clinical research
• alarm management

Data types:
• vital signs
• waveforms
• alarms
• device settings

EMR/clinical documentation
Critical care: streaming data available in the patient record for validation

General care: bedside data validation available within Chart Xpress and Vitals Plus solutions

Secure connection to medical devices*
Authentication and encryption of medical device data in transit between network connected medical devices and gateways with MDIP.

Secure outbound connection to HL7 consumers*
System authentication and encryption of medical device data in-transit between MDIP and receiving HL7 consumers.

*HL7 consumers and medical devices must support node authentication and encryption.
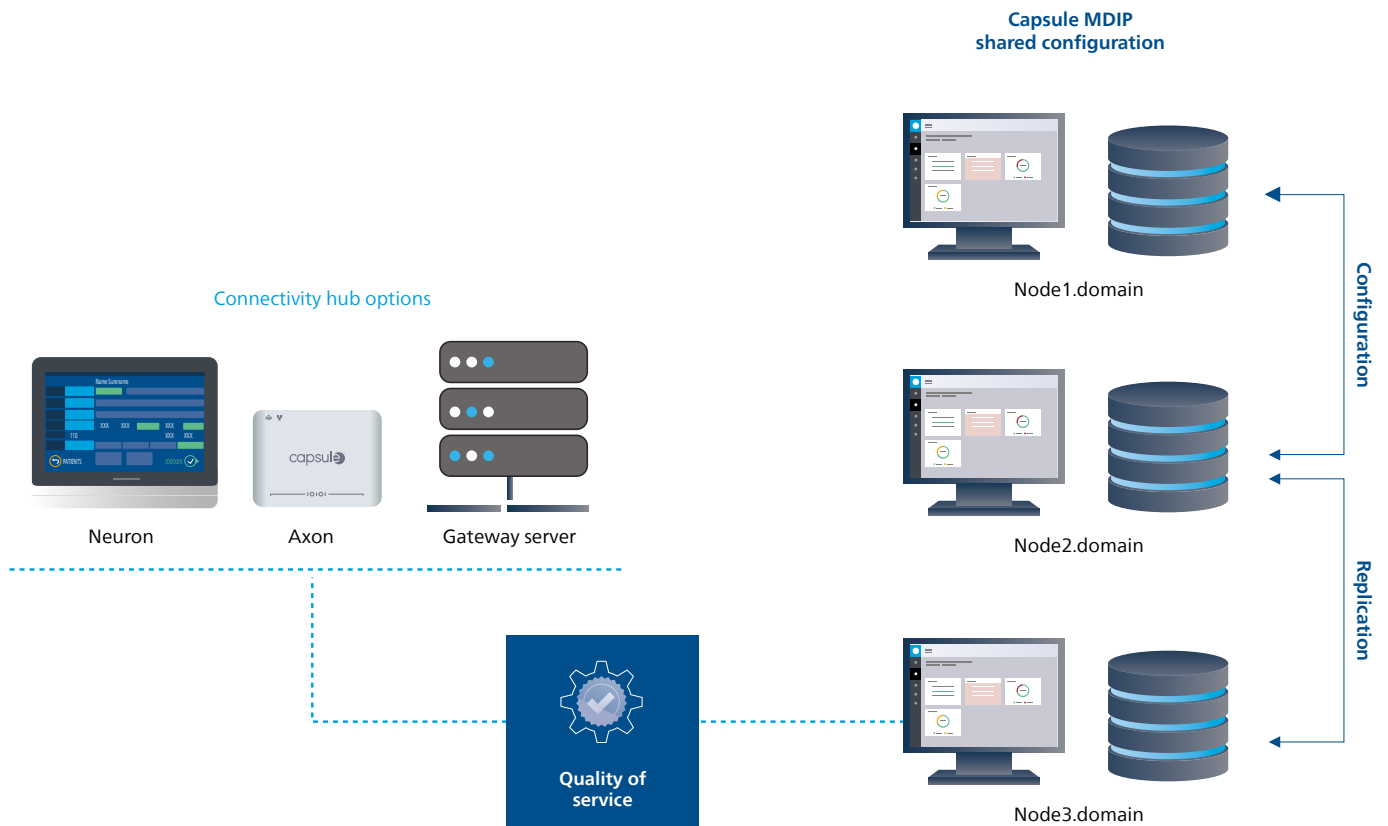
Secure connection with Active Directory
Secure data in-transit with Lightweight Directory Access Protocol Secure (LDAPS) between MDIP and Active Directory for user authentication. LDAPS is a protocol used over a network to authenticate users against Active Directory with data encryption.

Quality of service

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

Capsule MDIP shared configuration

Connectivity hub options

Neuron

Axon

Gateway server

Quality of service

Node1.domain

Node2.domain

Node3.domain

Configuration

Replication

Cloud capable

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

On-premise deployment options

On-premise

Cloud capable

Customer hosted cloud deployment options
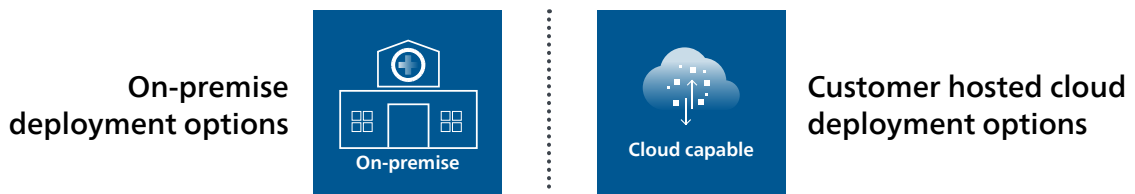
Transform the management of your medical device data today with Philips Capsule Medical Device Information Platform (MDIP). Liberate, aggregate and share data from each unique device, enabling seamless connections with other systems.

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