

Capsule™ Advanced Integration

Unlock the Power of
Medical Device Data



Workflows supported by clinical alarm management, data warehouse, decision support, and asset management systems can all be made more actionable with data from medical devices. The advanced integration capabilities of Capsule™ Medical Device Information System enhance decision making by providing tailored streams of device data, with appropriate context, at the right frequency simultaneously to multiple downstream systems.

Not all Data is Alike

The data generated by the array of medical devices in a typical hospital offers a wealth of information including patient data, therapy details and device settings. Unfortunately, there is little standardization across medical devices with how data is output or how it is labeled. Device data often lacks context that identifies location, associated patient, correct time, and other corollary elements. Without context, data is not actionable.

And Not all Systems are Alike

Much like the medical devices themselves, each destination system needs different data from different devices, the type of data and the frequency of collection. For example, the electronic medical record (EMR) requires patient vitals every minute so that current data is always available for clinical documentation. Alarm management systems, however, need alarm and contextual information as soon as it is communicated by the device. Timeliness is essential for these systems.

Capsule Manages the Complexities

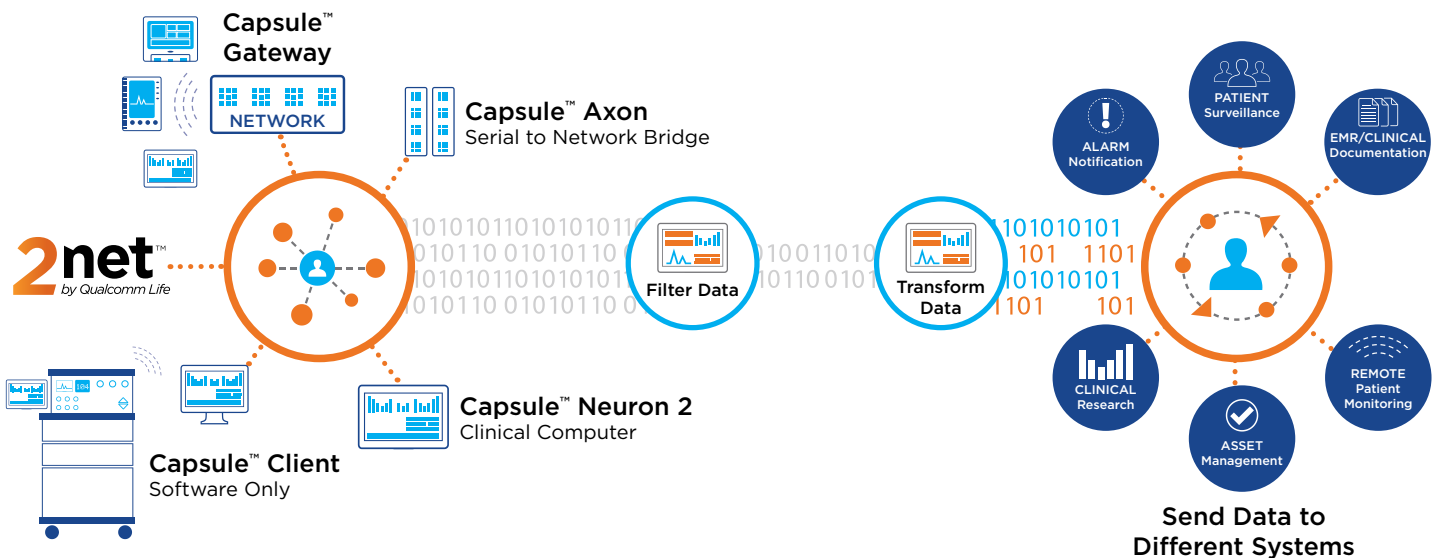
Capsule is designed to manage these complexities and support a hospital's need to leverage device data in a variety of downstream systems. The system's advanced integration capabilities facilitate intelligent decision-making by providing actionable data where, when, and how it's needed. The solution homogenizes a complete set of device data—including patient vitals, clinical alarms, therapy details, and devices settings—then delivers it to systems such as the EMR and alarm management in tailored streams with appropriate context, and at the right frequency.

Here's how the data preparation process works:

- **Data Sampling Rate:** Integrating data at the needed pace. For example, Capsule can support the delivery of clinical alarms as soon as they are produced by the medical device, while throttling back the frequency of patient vitals to every minute for clinical documentation.
- **Data Selection:** Allows the selection of all, or only the parameters needed for the receiving system(s). Data unnecessary to a receiving system can be filtered out prior to sending it.
- **Data Transformation:** Receiving systems often require data in a specific format, such as a exact parameter label, unit, or code. Capsule can be configured to transform data to each receiving system's requirements. For example, 1-2-3 can become low-mid-high.
- **Data Contextualization:** Receiving systems can require additional context to accompany the data such as location or patient ID. Most medical devices have no contextual awareness and cannot provide this data directly. Capsule is able to append relevant attributes such as patient, user, and device identifiers, location information, time, and observations—making this data much more meaningful.

Once the data is prepared, Capsule reliably delivers it at the rate required by each consuming system.

Capsule Medical Device Information System



Spotlight on Alarm Management Systems

Vital signs are essential to the patient record. But there is much more data available, such as clinical alarms, device settings (e.g. mode, infusion rate, health status) and therapy details (e.g. drug name, concentration and volumes infused) that can benefit workflows in downstream systems. Capsule can contextualize this data with relevant attributes such as patient, user, device identifiers, location information, time, and observations—making it more meaningful to systems including EMRs, clinical decision support, patient surveillance and alarm management.

When it comes to clinical device alarms, the frequency and number of alarms can cause a sensory overload condition described as “alarm fatigue”: a desensitization to alarms and missed alarms. Patient deaths have been attributed to alarm fatigue, according to the Joint Commission. This condition has consistently been cited as a critical hazard for patients including a 2014 ECRI report that named it the #1 health technology hazard.

To address alarm fatigue, many hospitals are implementing Alarm Management Systems (AMS). An AMS is a perfect example of the power of Capsule’s advanced integration capabilities. Capsule receives alarms generated by the medical device and routes the alarm, along with other relevant data, to the AMS for clinical action.

Capsule normalizes data to ensure consistency in labeling of alarm conditions across devices and manufacturers. In addition, the system ensures proper context is associated with the alarm, such as device type, patient/location information.

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