Next generation eHealth technology to improve home healthcare worldwide from Thales, trusted eHealth pioneer
Today’s IoMT. What’s needed for future growth?

The worldwide pandemic put the Internet of Medical Things (IoMT) front and center with patients quarantined at home for months and healthcare providers relying on telehealth for treatment. Remote Patient Monitoring (RPM) and Treatment (RPT) are becoming the preferred health plan in some countries, while Patient Emergency Response Systems (PERS) devices also become a must-have, especially for seniors. Global virtual clinical trials (VCT) are helpful in gathering data to help understand patient behaviors and treatment results. Data tracking from various apps and monitoring solutions, combined with demographic and psychographic information, help to identify general patient trends and fight the spread of infectious diseases.

Today, a growing number of home health devices including glucose, blood pressure and heart rate monitors help treat everything from congestive heart failure to diabetes and sleep apnea. We estimate an average of five health and wellness monitoring devices are currently used by individual patients at home. All of this is expanding the IoMT, which is expected to grow at a CAGR of 21% by 2025.

Innovation often comes with growing pains, and in the case of the IoMT, security and privacy concerns are growing along with the number of devices and smartphone apps monitoring sensitive patient data.

IoT pioneer Thales has a whole new approach to eHealth. Consolidate collected health data through a single eHealth groundbreaking platform that combines leading edge digital security and IoT technology to aggregate and send patient data securely to both caregivers and health clouds.

We have entered the age of the digital patient and Thales is leading the way to an eHealth future we all can trust.

Meet the Next Generation in eHealth

Thales has leveraged its market leading technologies in IoT, biometrics, eSIM connectivity activation, and cyber security to create a new, medical-grade cellular Home Gateway and complementary eHealth cloud, optimised as an IoMT bundle or stand-alone solutions. The fully secured Home Gateway collects data from various remote patient monitoring (RPM) devices in a patient’s home via Wi-Fi, Bluetooth® or ZigBee and transmits that data securely to hospitals and caregivers, as directed. It features robust patient authentication through biometrics, while the secure cloud connector solution leverages state-of-the-art data encryption to protect electronic health information in compliance with regulatory eHealth cyber security requirements such as FDA/HIPAA/NIST-800-53 and the MDR/GDPR.

Thales eHealth Home Gateway – A secure, state-of-the-art central hub

Instant, secure connection to the eHealth cloud

The Gateway is powered by an innovative Cinterion® System-On-Module (SOM) that provides multiple options for instant global 4G or 5G IoT connectivity, multimedia capabilities, and powerful smart edge computing providing data analytics before data is sent to the cloud. The SOM enables high-speed transmission of data, smartphone-like computing performance and essential video features that help ensure crucial details aren’t missed in emergencies.

A built-in IoT eSIM enables easy connectivity activation to virtually any global mobile network operator. It simplifies and optimises connectivity subscription provisioning and MNO selection with a no-touch solution that works from
factory to the field. This service uses the power and flexibility of the Thales IoT eSIM deeply integrated into the latest Cinterion IoT Modules to get connected, stay connected and pivot swiftly and seamlessly to update service providers worldwide to eliminate network disruption, boost ROI and meet demanding SLAs.

The IoT eSIM also provides a root-of-trust for the data exchanged between a patient’s home, the cloud or electronic health records (EHR) to ensure compliancy with cyber regulations.

The Gateway is powered by PikeOS, a Thales proprietary operating system for critical embedded applications used in cars, trains, planes, and medical systems. In full compliance with IEC 62304, the global standard for medical device software lifecycles, PikeOS provides a market leading cyber security foundation for remote patient data and healthcare records that received common criteria EAL3+ certification. Using the Thales medical grade PikeOS can greatly reduce the time to market with FDA (U.S.) and MDR (E.U.) approvals for device manufacturers.

**Secure patient authentication with Biometrics**

The System-on-Module provides the processing power to ensure secure home patient and caregiver authentication by leveraging Thales’ advanced biometric technology, which has been proven at border control stations around the globe. Thales’ leading biometric technology uses multi-factor authentication to ensure patient identity with live facial recognition and precise fingerprint/iris identification. Patients simply plug their health card into the Home Gateway’s user-friendly interface to authenticate and match their biometric identity to government, insurance or private healthcare systems before sharing their health data.

**Thales secure eHealth Cloud**

As a complement to the Home Gateway, the Thales eHealth cloud solution protects sensitive patient data. It provides an advanced end-to-end cyber security solution for automated and secure onboarding of medical devices or home gateways to private and public clouds and health record systems. Remote patients, caregivers, healthcare professionals and/or insurance companies can all feel confident in the secure encrypted data transmission of patients’ sensitive medical information to the eHealth cloud.

**Trusted identities with automated device onboarding**

The solution secures the device-to-cloud journey, leveraging unique digital IDs and security attributes embedded into the roots of medical connected devices or gateways. Thanks to an advanced Public Key Infrastructure (PKI), the solution enables the automated and secure enrollment of medical devices or gateways into any healthcare cloud platform.
**Encryption** — The eHealth cloud encrypts and digitally signs sensitive patient data to ensure confidentiality and integrity, protecting against unauthorized access or manipulation when transferred to the cloud.

**Remote and secure updates** — Secure software and security updates can also be done remotely, crucial for the long life of medical devices or gateways.

**Access credential management** — Thales manages keys and credentials, including key rotation, transfer or revocation of credentials, through a single pane of glass to secure large fleets of medical devices and gateways spread over the world.

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**Trusted, secure IoMT solutions from Thales:**

**eHealth Home Gateway & eHealth Cloud**

**Bundled or Stand-Alone Options**

Thales’ agnostic eHealth solutions ensure always-on, reliable connectivity 24/7, which is crucial to the success of any eHealth solution. Sensitive patient data is encrypted and transferred securely ensuring data integrity and complete privacy.

Secure, reliable eHealth solutions ensure patient privacy while giving healthcare providers a more holistic view of patients’ health leveraging a variety of data collected over weeks rather than a moment in time during an office visit.

The next generation of secure, private eHealth solutions from Thales enable healthcare providers to do what they do best — improve patient health and wellbeing. Anywhere, anytime.

**Thales is creating an innovative approach to connected healthcare offering technology components formed from proven and trusted Thales solutions. To further develop our approach, Thales is keen to discuss specific requirements with healthcare professionals in order to deliver optimal connected solutions.**

**Together, let’s put our Thales approach into action to enable your successful eHealth deployments!**

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