# CyMedge

# ACCELERATING DEVELOPMENT OF SMART CONNECTED HEALTHCARE PRODUCTS

## Overview

- The healthcare industry has had to adapt to technology changes and is increasingly software-defined. Software is an industry game-changer, disrupting almost every aspect of the industry

- Designing software solutions independent of the hardware device is thus becoming the norm. Prime examples are single board computers (SBCs) with the latest silicon chip sets, ready to use with standard certification. SBCs are being widely leveraged to meet changing customer needs

The CyMedge platform addresses the problem of long design cycles and certification of such software solutions by leveraging its ready-to-use platforms.

## The Challenge

A medtech device company involved in research and life sciences needed to develop a software platform to revamp its entire product portfolio. The platform had to be scalable, modular, independent of underlying hardware, and capable of supporting their legacy devices with new-gen support. The company's hardware ranged from a small to mid-size form factor to which the platform could be ported.

Another leading healthcare company needed the capability to update their firmware over the cloud including monitoring the device vitals. The platform with the support of FOTA capability enabled the firmware update of legacy controller based devices over cloud. Added a custom cloud connector module to store the data and stream sensor data securely in custom JSON format per customer's specs once the device is online.

## The Cyient Solution

Cyient partnered with Advantech for ready-to-use hardware SBC boards with production sales support, and identified multiple SBC boards with different form factors.

On the software side, we developed a micro service platform based on Linux that offers top-end features of major healthcare products:

- Containerized applications offering flexibility to choose between different technologies and languages

- Firmware over the air

- Headless UI

- Connectivity to child device (enabling connect to legacy or real-time controller device)

- Device security

- Unified protocol mechanism

- Remote monitoring and controlling over cloud

The CyMedge solution worked as a technology platform for one of the customers and was used for their product portfolio. The platform was tested on an ARM- and AMD-based platform thus covering a vast segment of hardware.
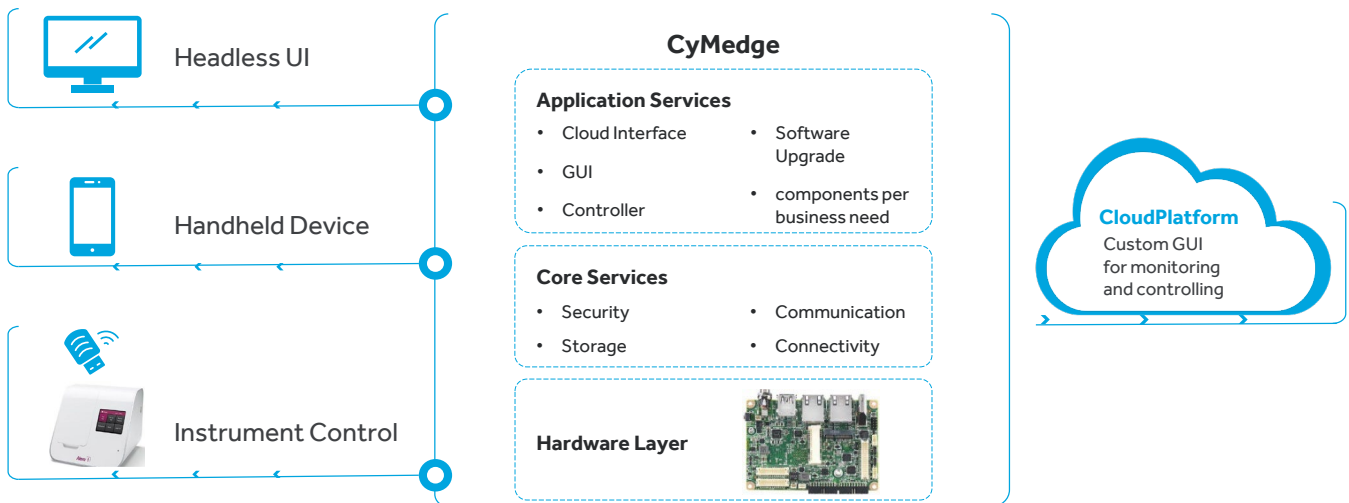
Another customer used parts of the technology stack such as FOTA and headless UI as they bring the flexibility of using .NET core and Linux on the same platform.

## The Results

- The CyMedge platform acts as an accelerator that expedites development work by more than 70% if similar features are to be used in a product

- It provides security on the device and communication levels addressing around 30% of security vulnerabilities, resulting in robust and secure environment for medical devices

- By implementing FOTA, the platform reduced downtime by 75% ensuring continuous availability of resources

- CyMedge also reduced integration time with an average of 30% faster onboarding of new medical devices in certain segments such as research-based instruments involving workflow control and patient monitoring system

## CYMEDGE - AN EMBEDDED PLATFORM

**A flexible, scalable and re-usable pre-validated Middleware platform enabling rapid application development & verification for smart connected health care devices**

Headless UI

Handheld Device

Instrument Control

### CyMedge

**Application Services**
- Cloud Interface
- GUI
- Controller
- Software Upgrade
- components per business need

**Core Services**
- Security
- Storage
- Communication
- Connectivity

**Hardware Layer**

**CloudPlatform**
Custom GUI for monitoring and controlling

## DESIGNING TOMORROW TOGETHER

Aligning with our organization for healthcare applications offers a myriad of present and future advantages. Our Linux-based containerized solutions form the bedrock for seamless deployment, ensuring both current flexibility and scalability for evolving needs. Our aim is to keep extending the solution based on the customers ongoing business needs.

cyient.com

Cyient (Estd: 1991, NSE: CYIENT) is a global Engineering and Technology solutions company. We collaborate with our customers to design digital enterprises, build intelligent products and platforms and solve sustainability challenges. We are committed to designing tomorrow together with our stakeholders and being a culturally inclusive, socially responsible, and environmentally sustainable organization.

| North America Headquarters | Europe, Middle East, and Africa Headquarters | Asia Pacific Headquarters | Global Headquarters |
|---|---|---|---|
| USA | UK | Australia | Hyderabad |
| T: +1 860 528 5430 | T: +44 118 3043720 | T: +61 3 8605 4815 | T: +91 40 6764 1000 |

#DesigningTomorrowTogether

facebook.com/cyient

@cyientnews

linkedin.com/company/cyient