GBCS Stack for Embedded Devices

Addressing Future Smart Device Needs

01 THE CHALLENGE

The UK smart metering environment is evolving rapidly alongside the country's green energy agenda.

All devices connected to the Data Communications Company (DCC) network are required to communicate using the standard known as the Great Britain Companion Specification (GBCS). Every device manufacturer needs to ensure compliance with this specification in order to release their device to market.

GBCS is a complex protocol which frequently changes and is commonly misinterpreted. This often leads to costly software engineering overspend and, consequently, a delay to devices reaching the market.

Critical Software has been central to the evolution of GBCS since 2014, providing verification and reference implementations for the DCC. This gives us a unique, definitive understanding of how the protocol should be interpreted and implemented, placing us in a strong position to deal with GBCS stacks.

02 THE SOLUTION

We developed a GBCS stack optimised for the rapid creation of new embedded devices, offering manufacturers a low-risk and rapid development-to-market path which will benefit from synchronised GBCS updates. It has been developed specifically for ease of integration into smart devices.

The GBCS stack addresses requirements for new devices such as Standalone Auxiliary Proportional Controllers (SAPC), a device used to control the authorised load for activities like EV charging.

03 THE RESULTS

The GBCS Stack enables users to develop new devices in a rapid and low risk manner whilst ensuring compliance with the demands of GBCS.

We also offer a wide variety of tools and support to smart device manufacturers requiring independent testing and niche software development services.

The GBCS stack is fully compliant with the GIT for Industry (GFI) test reference tool, allowing users to test the functionality of their code without having hardware devices in the test loop. This has delivered reduced testing complexity, timescales and costs to users.

04 THE TECHNOLOGY

The GBCS stack consists of:

- DLMS COSEM
- ZigBee SEP
- ASN.1
- Cryptography
- All functional devices (GSME, ESME, CH, IHD, SAPC, HHT, PPMID, HCALCS)

The GBCS stack is developed using C/C++ following robust coding conventions and standards such as MISRA and AUTOSAR, making it CPA friendly.

Critical software

ABOUT CRITICAL SOFTWARE

Critical Software provides systems and software services for safety, mission and business-critical applications. We work closely with our clients, helping them to meet the most demanding standards for performance and reliability.

We were founded in 1998, with NASA our very first client. Today, we work across many international industries and have offices across the globe.

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We are CMMI Maturity Level 5 rated.
For a list of our certifications & standards visit our website.