CROSS-PLATFORM OPEN SECURITY STACK FOR CONNECTED DEVICES

Project Overview

Motivation

The world's population is currently estimated to be around 7.62 billion, while the number of IoT devices is projected to exceed 25 billion very soon. The diverse range of technologies and security capabilities in the IoT ecosystem exposes such devices to potential security breaches.

CROSSCON Stack

CROSSCON aims to address secure Chain of Trust (CoT) issues by designing a new **open, modular, highly portable, and vendor-independent IoT security stack** that can run on a wide range of devices. Furthermore, as IoT devices may use heterogeneous hardware architectures, CROSSCON is also enhancing the traditional trusted services offered by existing Trusted Execution Environments (TEEs).

Secure and Trusted Services

CROSSCON's stack will guarantee trusted services with a high level of assurance across an entire IoT system. These services will rely on CoT that spans from chip design, through open-source instruction set architectures, to the application layer, wherever trusted services are required.

Use Cases

- Device Multi-Factor Authentication.
- Firmware Updates of IoT Devices.
- Commissioning and Decommissioning of IoT devices.
- Remote Attestation for Identification and Integrity Validation of Agricultural UAVs.
- Intellectual Property Protection.

Main Goals

Support IoT stakeholders with the design and implementation of an innovative IoT open-source security stack.

Strengthen memory protection and isolation in new and existing TEEs, mitigating the impact of side-channel attacks.

Provide methodology, techniques, and related tools to formally verify "correct by design" secure open-source software and firmware for connected devices.

Offer IoT stakeholders with a set of novel and high assurance trusted services.

Provide a toolchain that integrates and validates lightweight techniques for security assurance.

Provide IoT stakeholders with a validation and testing methodology, a replicable testbed, and testing and validation results for CROSSCON innovations.

Enable the valorisation and adoption of CROSSCON flagship results.

Consortium

Atos

UNIVERSITÀ DI TRENTO

Universidade do Minho

SEARCH-LAB
SECURITY EVALUATION ANALYSIS AND RESEARCH LABORATORY

barbara

Julius-Maximilians-
UNIVERSITÄT WÜRZBURG

TECHNISCHE UNIVERSITÄT DARMSTADT

BEYOND SEMICONDUCTOR

3MDEB

CYSEC

CROSSCON has received funding from the European Union's Horizon Europe research and innovation programme under grant agreement No 101070537.

@crosscon_eu in/crosscon www.crosscon.eu contact@crosscon.eu