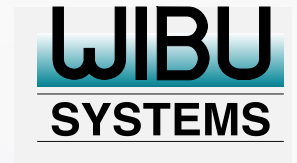
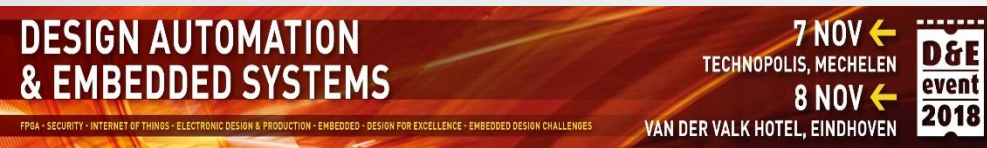


Best Practices in Embedded Security

'Baas in eigen Board'



Introduction Wibu-Systems

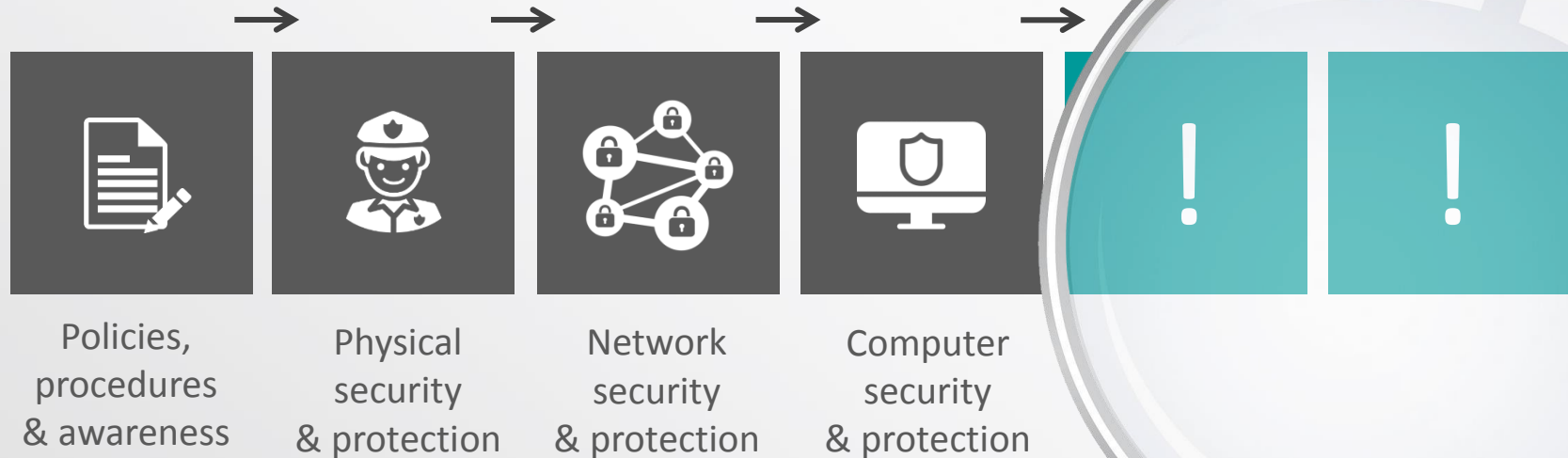
- Founded in 1989
- Headquarters in Karlsruhe, Germany
- Team of more than 120 professionals
- Strong international presence

Ton van den Berg



Security measures

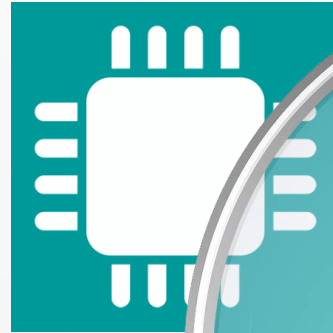
What happens if someone physically breaks in at your company tonight?



Application and device security



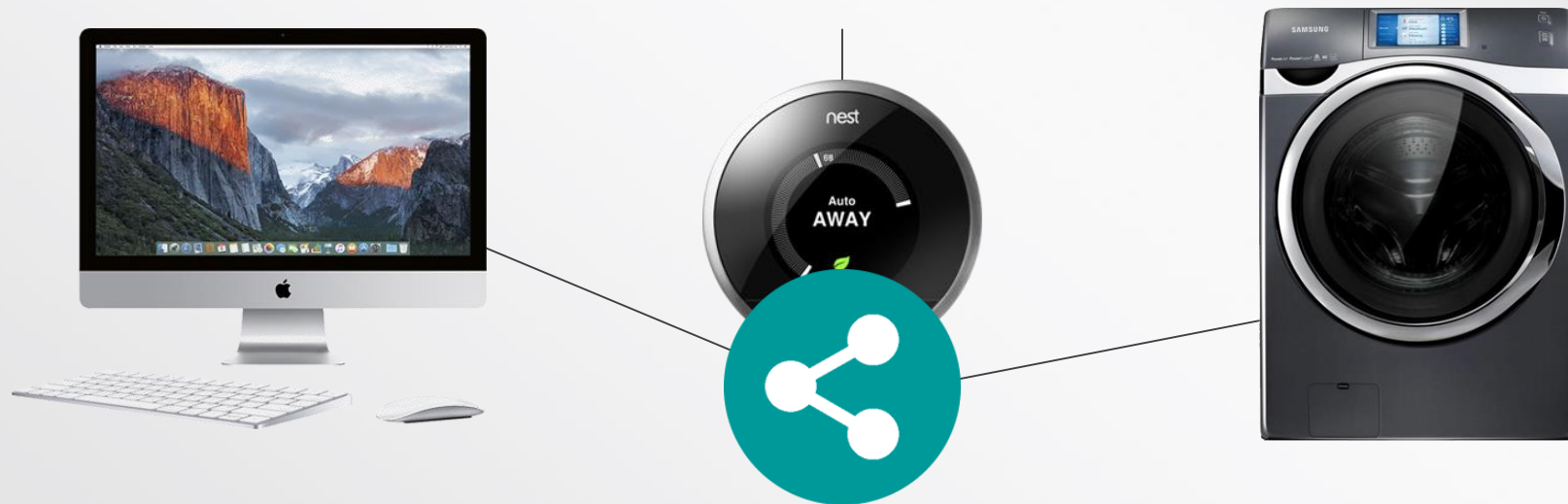
**APPLICATION SECURITY
& PROTECTION**



**DEVICE SECURITY
& PROTECTION**



Software is everywhere



It's all connected!

Software is everywhere

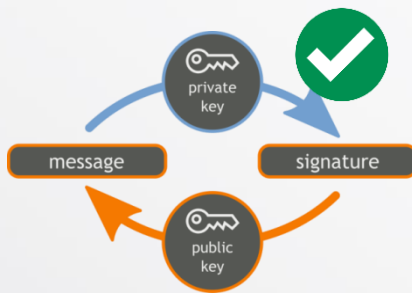


set temperature to 90 °C

Chain of trust



Encryption



Signatures



Certificates

Device security



- Integrity checks from pre-bootloader to operating system
- Secure Elements with CC EAL5+ and FIPS 140-2 evaluated smart card chips designed for cryptography
- Remote firmware updates

Available technologies



- Encryption of C, C++, C#, Java & other applications
- Crypto libraries & API for standard and embedded platforms
- 128-bit AES, 224-bit ECC, 2048-bit RSA encryption algorithms
- Public and private key management

Software security Trends

Extracting



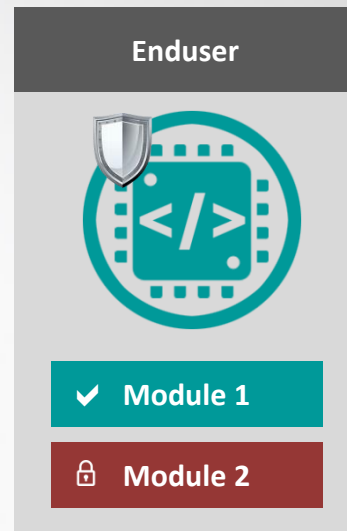
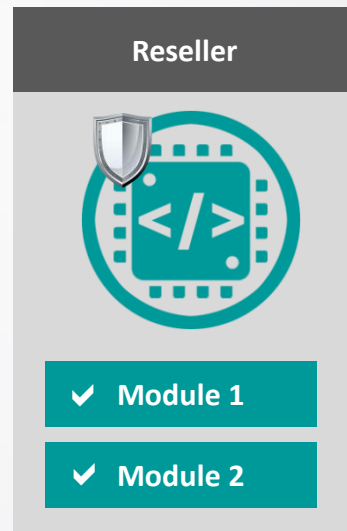
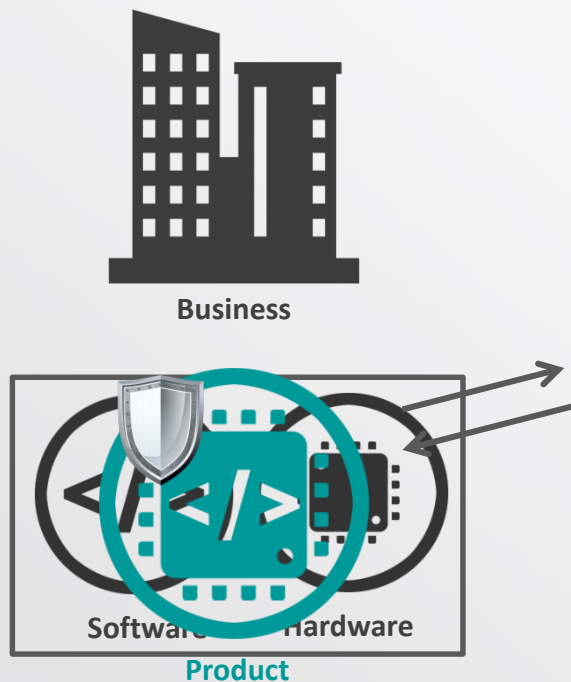
Always develop your product with
'Security by Design'

The diagram features two lightbulbs. The left lightbulb contains a grey brain and a black circle with a white exclamation mark. The right lightbulb contains an orange brain. An orange arrow points from the left lightbulb to the right lightbulb. The text 'Always develop your product with' is in white, and 'Security by Design' is in white and underlined. The background is a dark red rectangle.

Re-producing

Protecting your Intellectual Property is a requirement!

How it works





BASIC

€399,-

60kWh
Airco



PERFORMANCE

€599,-

75kWh
Airco
Navigation
Fast Charging



ULTIMATE

€799,-

75kWh
Airco
Navigation
Adaptive lighting
Fast charging
Heated seats
Auto-Pilot
Selfparking



Additional modules:

- ☒ Airco
- ☒ More power (+15 kWh)
- ☐ Auto-pilot
- ☐ Selfparking
- ☒ Navigation
- ☐ Heated seats
- ☐ Adaptive lightning
- ☒ Fast charging

Total amount p/m:

€599,-

CONFIRM ►

Examples of Maintenance period

- Cold & hot-standby licenses

- Pay-per-use

- Named-user licenses

- Time-based licensing

- Network-based licensing & terminal Server

- Maintenance contracts

& many more



v1.0

01-01-2017



v1.5

30-06-2017



v2.0

31-12-2017



Customer A



v1.0

01-01-2017



v1.5

30-06-2017



v2.0



Customer B

Case Study: VxWorks



- CodeMeter encryption utilities integrated in Wind River Workbench
- CodeMeter embedded driver for VxWorks

WIND RIVER

Partnerships & Customers



Best practices



- Design your solutions with security in mind
- Protect your software by encryption
- License your products smart
- The technology is available

Thank you

Questions?

FHI FEDERATIE VAN
TECHNOLOGIEBRANCHES

WIBU
SYSTEMS

Jan-Willem
van de Blaak

**DESIGN AUTOMATION
& EMBEDDED SYSTEMS**

FPGA - SECURITY - INTERNET OF THINGS - ELECTRONIC DESIGN & PRODUCTION - EMBEDDED - DESIGN FOR EXCELLENCE - EMBEDDED DESIGN CHALLENGES

7 NOV ←
TECHNOPOLIS, MECHELEN

8 NOV ←
VAN DER VALK HOTEL, EINDHOVEN

D&E
event
2018