

# Best Practices in Embedded Security

'Baas in eigen Board'

**FHI** FEDERATIE VAN  
TECHNOLOGIEBRANCHES

**WIBU**  
SYSTEMS

# Introduction Wibu-Systems

- Founded in 1989
- Headquarters in Karlsruhe, Germany
- Team of more than 100 professionals
- Strong international presence

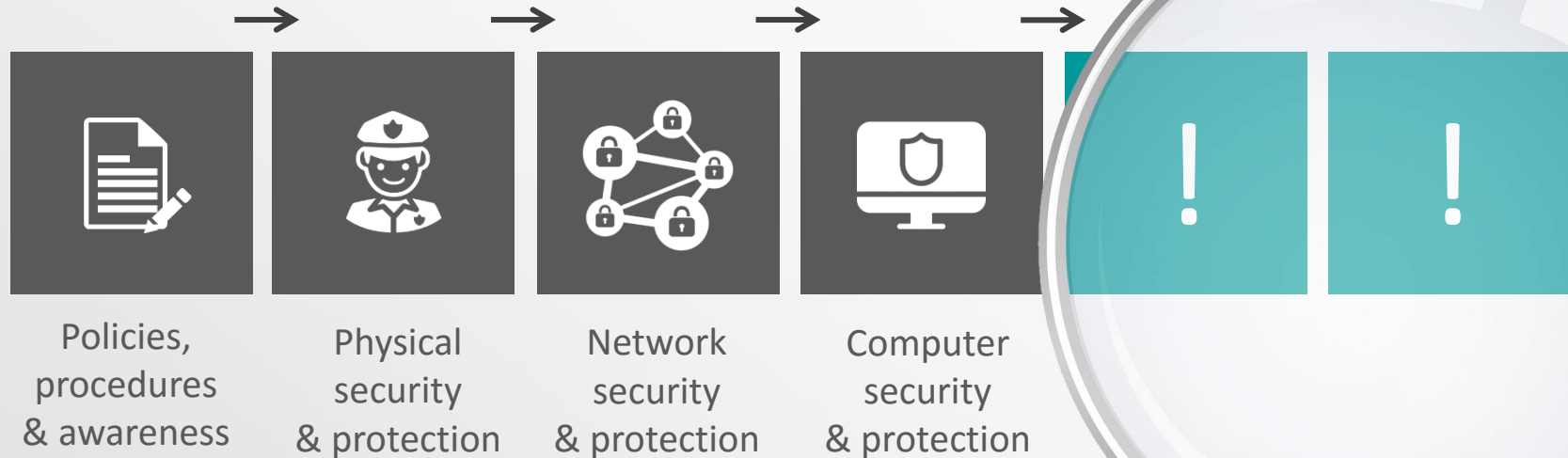


J-W van de Blaak  
Regional manager The Netherlands



# Security measures

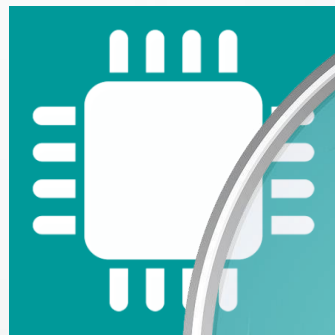
What happens if someone physically breaks in at your company tonight?



# Application and device security



**APPLICATION SECURITY  
& PROTECTION**



**DEVICE SECURITY  
& PROTECTION**



# Software is everywhere



It's all connected!

# Software is everywhere

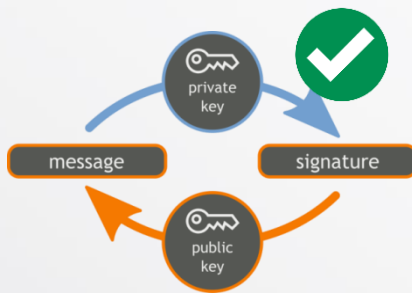


set temperature to 90 °C

# 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



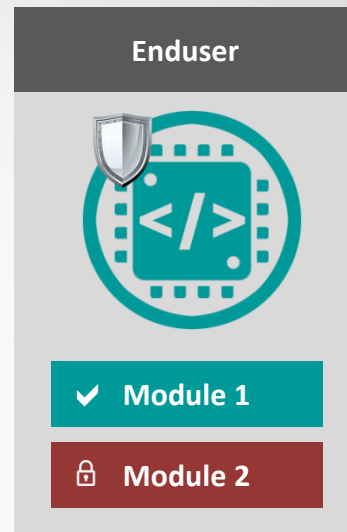
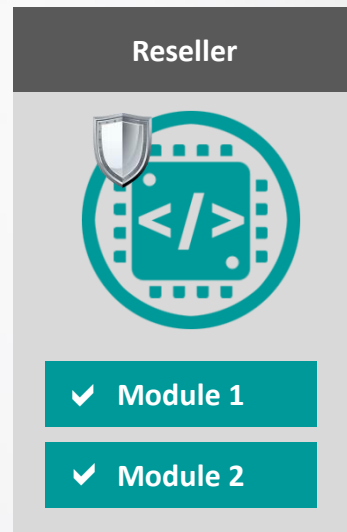
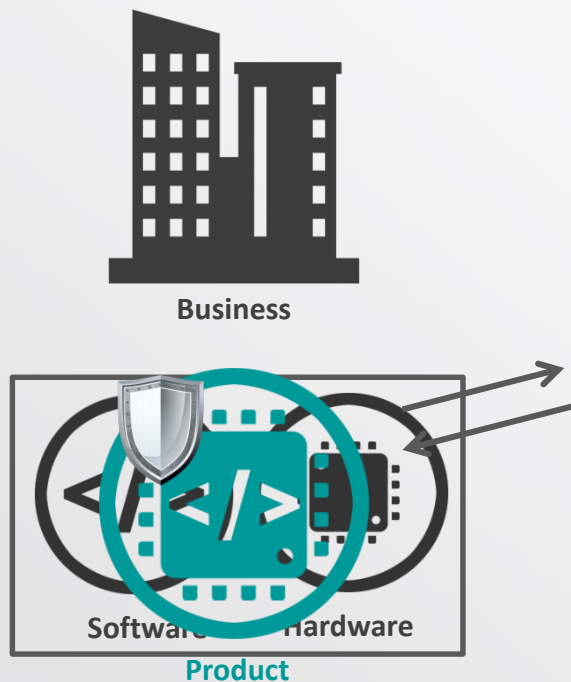
Always develop your product with  
‘Security by Design’

The diagram features two lightbulbs. The left lightbulb contains a grey brain icon and a black circle with a white exclamation mark. The right lightbulb contains an orange brain icon. 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?

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