

INTERNET OF THINGS



SECURITY @ KONTRON

EMBEDDED COMPUTING CONFERENCE 2017 ECC
WINTERTHUR
SEPTEMBER 5TH, 2017

AGENDA



01

INTRODUCTION

02

SECURITY LAYERS

03

KONTRON & S&T

WHAT IS IN IT FOR YOU THROUGH THIS SESSION



- Explain market development: from history to today's requirements
- What are the main requirements – big data, analytics, smart applications
- Why should I protect my systems – now it is becoming interesting – authentication, trusted computing
- What are the security layers – not a single program, which protects the world
- What makes a security solution complete – several layers
- How to engage with Kontron / Kontron capabilities

INTRO – TECHNOLOGICAL EVOLUTION



Continuous evolution

1930



- ▶ Manual operations required to fulfill services

Today



- ▶ Hardware is commodity (servers)
- ▶ Software is replacing manual labor

New demand drivers ...

Smart applications



Data needs



Connectivity needs



Security needs



... lead to new IoT solutions, related infrastructure, and business models

- ▶ Smart applications that use connected devices and cloud software to build IoT solutions

- ▶ Device software/middleware is key to enable the needed infrastructure and function

INTRO – OT & IT ENVIRONMENT

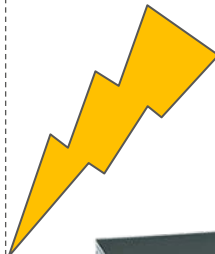


Manufacturing



- ▶ PLCs and Gateways
- ▶ Communicate by wired and wireless communication
- ▶ Control & Data aggregation

Fog Computing



- ▶ Rackservers
- ▶ Wired communication
- ▶ Data pre-production / analysis

Cloud Computing



- ▶ Server farms
- ▶ Internet communication
- ▶ Big data, Smart application

Factory Floor / On Premise

Internet

INTRO – ONE SERVER – VARIOUS CUSTOMERS/INSTALLATIONS



Cloud Computing

- ▶ Protected access to server
- ▶ Access to **trusted devices**
- ▶ Analytics of **trusted data**



Manufacturing

- ▶ Various decentralized installations
- ▶ Be a **trusted device** / group
- ▶ Provide **trusted data**



MAKE SURE YOU HAVE RELIABLE INFORMATION

INTRO - SUMMARY



Is the computer really trustful?

- ▶ Trusted hardware / BIOS
- ▶ Trusted OS
- ▶ Trusted Application

AGENDA



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INTRODUCTION

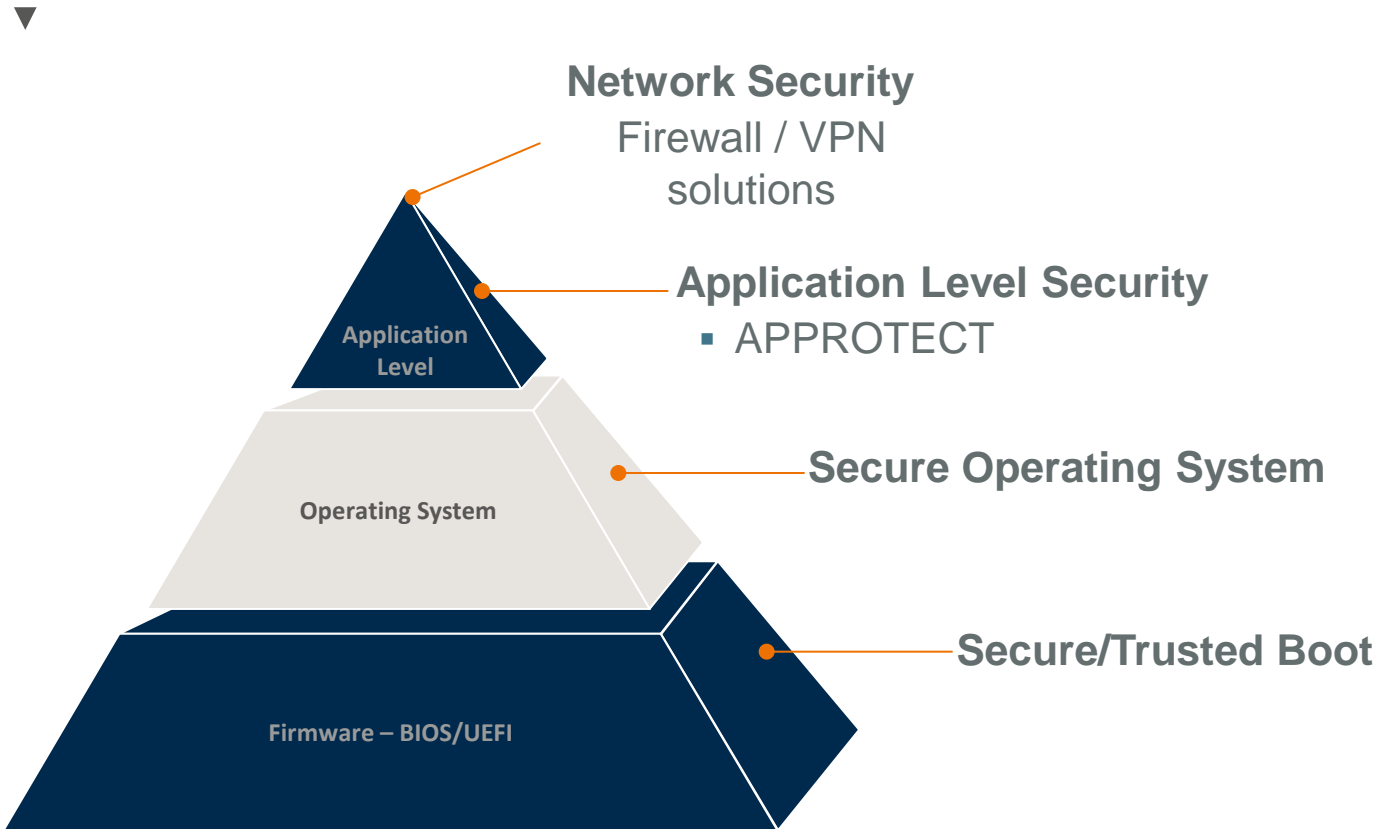
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SECURITY LAYERS

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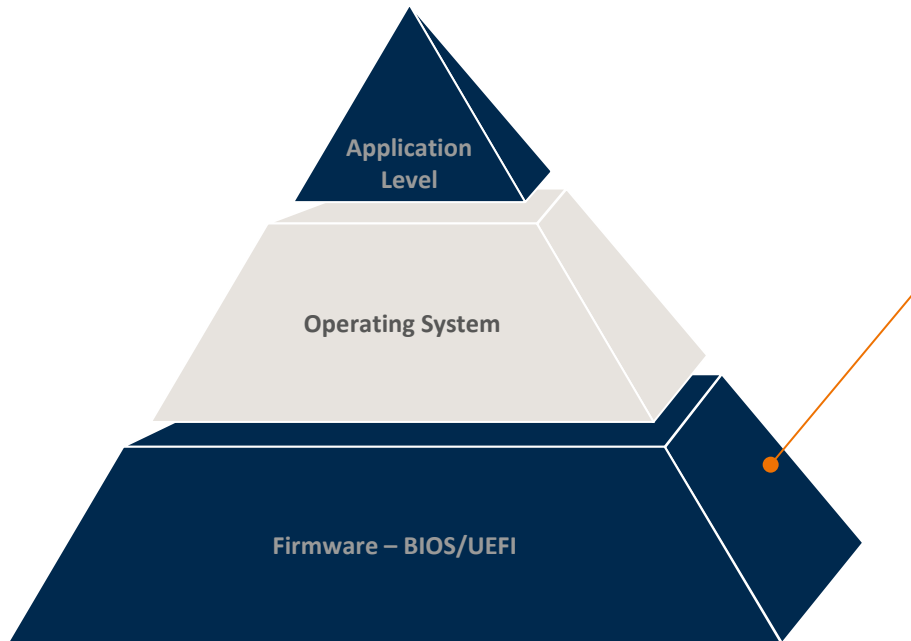
KONTRON & S&T

SECURITY LAYERS



3 LEVELS OF SECURITY ENSURE HIGHEST LEVEL OF SECURITY FOR EMBEDDED SYSTEMS
NETWORK SECURITY ON A PROJECT BASE

SECURITY LAYERS – SECURE & TRUSTED BOOT

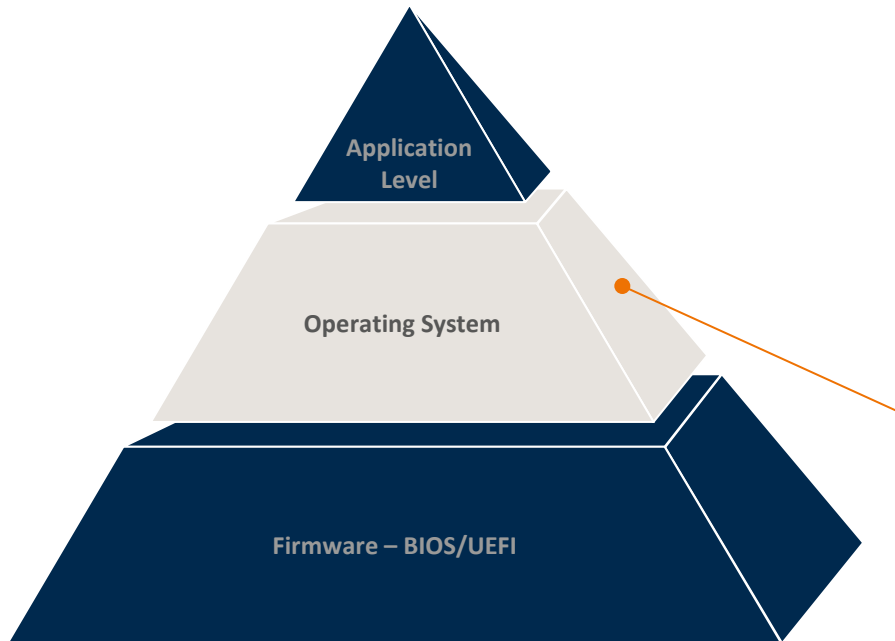


- Built into the BIOS
 - BIOS Flash is protected
 - OS loader is verified
 - Software based
-
- Make sure the correct BIOS is executed



EVERYTHING STARTS WITH THE BIOS AND PROTECTED STORAGE DEVICE

SECURITY LAYERS – SECURE & TRUSTED OPERATING SYSTEMS

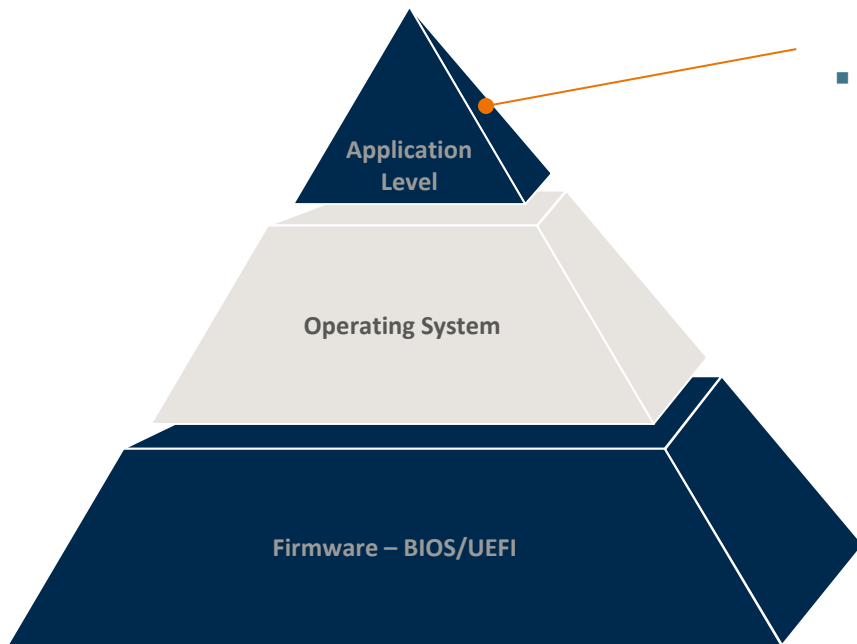


- Windows 10 IoT featuring with TPM 2.0:
 - Trusted Boot Loader
 - Verification of executables
 - Measured boot stores boot history
 - BitLocker
 - Device Guard
- Alternatively Linux
- Remote attestation (external or internal)



MODERN OPERATING SYSTEMS PROVIDE ENCRYPTION, AUTHENTICATION, KEY HANDLING

SECURITY LAYERS – SECURE APPLICATION



- APPROTECT – IP protection, copy/reverse engineering protection
- APPROTECT Licensing – Enabling new business models



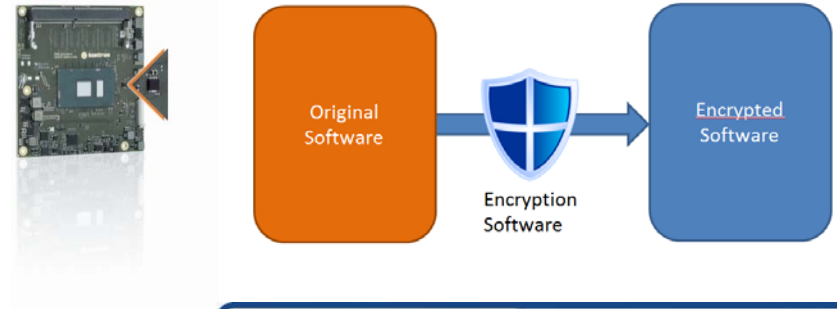
HARDWARE SUPPORT TO PROTECT YOUR INTELLECTUAL PROPERTY

SECURITY SOLUTION KONTRON APPROTECT / APPROTECT LICENSING

HW enabled on all new Kontron embedded designs plus SW framework

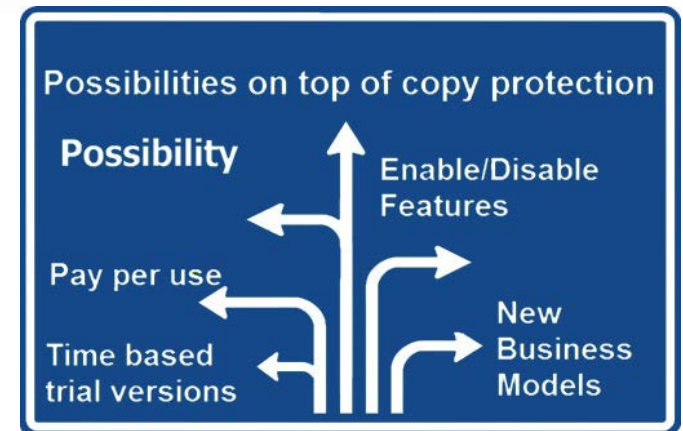
Kontron APPROTECT

- ▶ IP protection
- ▶ Copy/reverse engineering protection



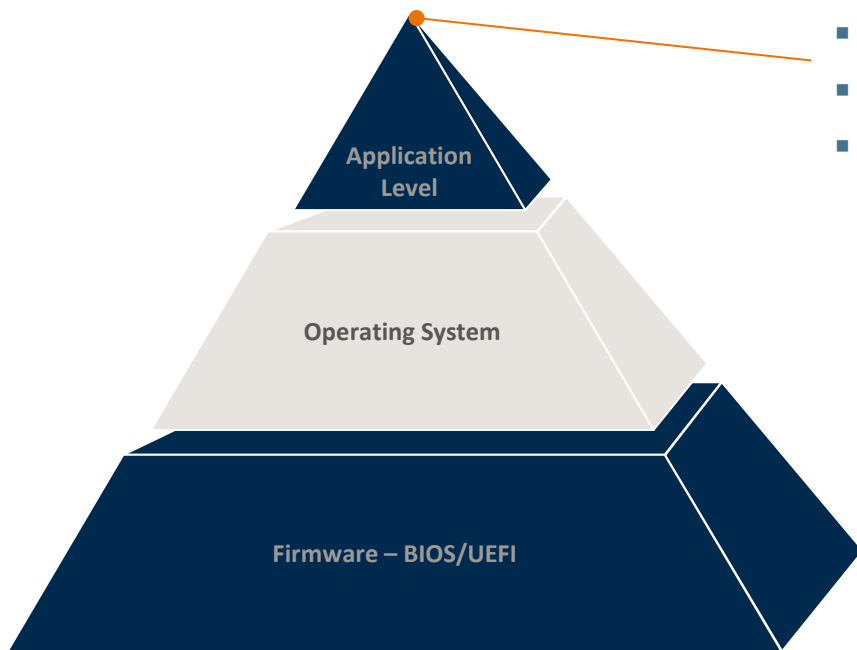
Kontron APPROTECT Licensing

- ▶ Enabling new business models



ALL NEW DESIGNS OF MODULES/BOARDS/SYSTEMS INCLUDE APPROTECT HARDWARE

SECURITY LAYERS – SECURE CONNECTION



- Static Firewalls
- Routing firewalls
- Packet inspection
- ...



FIREWALL PROTECT THE INFRASTRUCTURE AND REQUIRE CONTINUOUS MAINTENANCE

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KONTRON & S&T

FACTS & FIGURES: KONTRON - AN S&T COMPANY

A global
leader

in embedded
technology

Founded:

1959

by Dr. Branco Weiss

Employees worldwide:

About 3,700

Kontron and S&T Group

Represented in

**all major regions
and countries**

with multiple sales offices & partners

Kontron Headquarters:

Augsburg

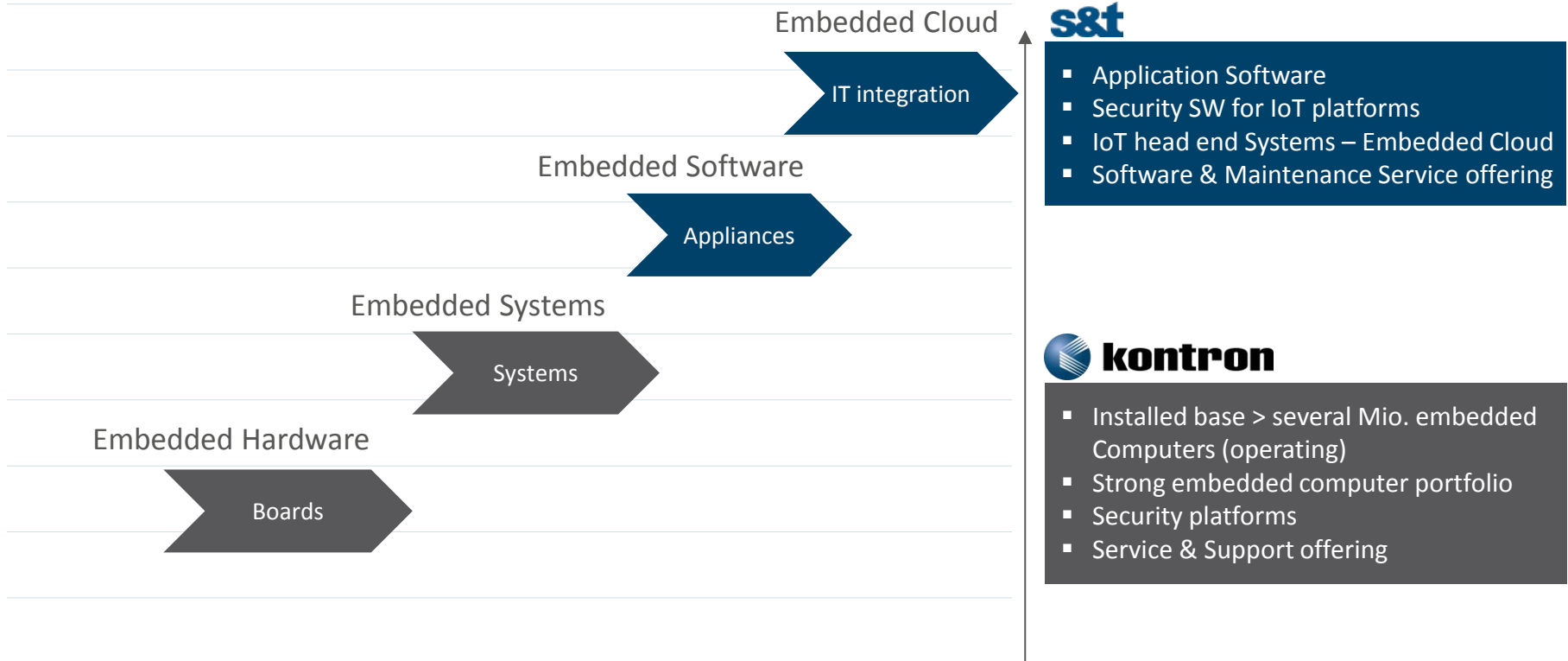
Germany

Engineers worldwide:

About 2,300

Kontron and S&T Group

BEYOND THE STANDARD: KONTRON & S&T EXPERIENCE



NEW INNOVATION POWER WITH MORE THAN 2,300 EXPERIENCED OT AND IT ENGINEERS

BEYOND THE STANDARD: BOARD, SYSTEMS, PLATFORMS, SERVICES



- ▶ Computer-on-Modules
- ▶ SBC/Motherboards
- ▶ Passive Backplane Blades
- ▶ Mezzanines
- ▶ Switching Boards
1/10/40 GbE

- ▶ Embedded Box IPC
- ▶ Touch Panel IPC / HMI
- ▶ 19" Rack Mount IPC
- ▶ CPCI / VME / VPX
- ▶ Switches 1/10/40 GbE
- ▶ Firewalls

- ▶ Market specific middleware
- ▶ Market specific certifications
- ▶ Market specific protocol stacks
- ▶ Cloud solutions
- ▶ Security solutions

- ▶ Technical support
- ▶ Professional services
- ▶ Extended warranty

Modules & Boards



Integrated Systems



Application-Ready
Platforms



Services



WIND RIVER



UNLEASHING THE FULL POTENTIAL

BEYOND THE STANDARD: PROFESSIONAL SERVICES



OPEN BOUNDLESS OPPORTUNITIES TO INCREASE THE OVERALL VALUE OF YOUR APPLICATION WITH KONTRON AS YOUR TRUSTED PARTNER AND ADVISOR



DESIGN-IN

CUSTOMER
PRODUCT
SPECIFICATION
SUPPORT

SMALL
CUSTOMIZATION

APPLICATION
VERIFICATION

PROTOTYPING

BOARD
BRING-UP
SUPPORT

SOFTWARE
SUPPORT

TESTING

DEDICATED
ON-SITE
SUPPORT

TRAINING



FULL SERVICE PROGRAM

END

