

Status of the Field Test „Security and PROIsafe for PROFINET over APL“

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The shifting landscape of OT



Yesterday we had islands of communication.

Today everything is connected and the risks are growing.

Increased connectivity and automation bring new security challenges

- As automation systems become more connected, the **attack surface expands**
- Security measures and features need to **keep pace with this trend**

Source: International PROFINET Security Class 2/3 Webinar

But how will this look like in practice?

I have heard about PN Security for years now

- What is the impact on my engineering workflow?
- Do I need additional infrastructure?
- Is additional know-how or training required?
- Are my operative use cases covered?
- Is it interoperable across different vendors?
- ...



Source: freepik.com (dijstock)



Source: BASF

“The proof of the pudding is in the eating...”

Why these are serious concerns

- Users are more likely to bypass difficult to use security features leading to vulnerabilities.
- Usability challenges can have physical safety implications in OT environments.
- NIST and others have long advocated for usability in security, as encapsulated in the mantra:

“Make it easy to do the right thing, hard to do the wrong thing, and easy to recover when the wrong things happen.”

Source: International PROFINET Security Class 2/3 Webinar

Topics linked to usability

Secure logging functionality
Integration with SIEM

Usability tests of APL as
new physical layer

Secure firmware updates

Modern identity and access management
Better integration with IT

Usability tests of PN Security
Class 2/3 communication

How could this be put into practice?

Investigate functionality and usability of workflows and use cases

- Manual and automated credentialing
- PN Security communication setup
- Device replacement
- Firmware update
- Identity and access management
- APL as physical layer

Pool experts from related working groups

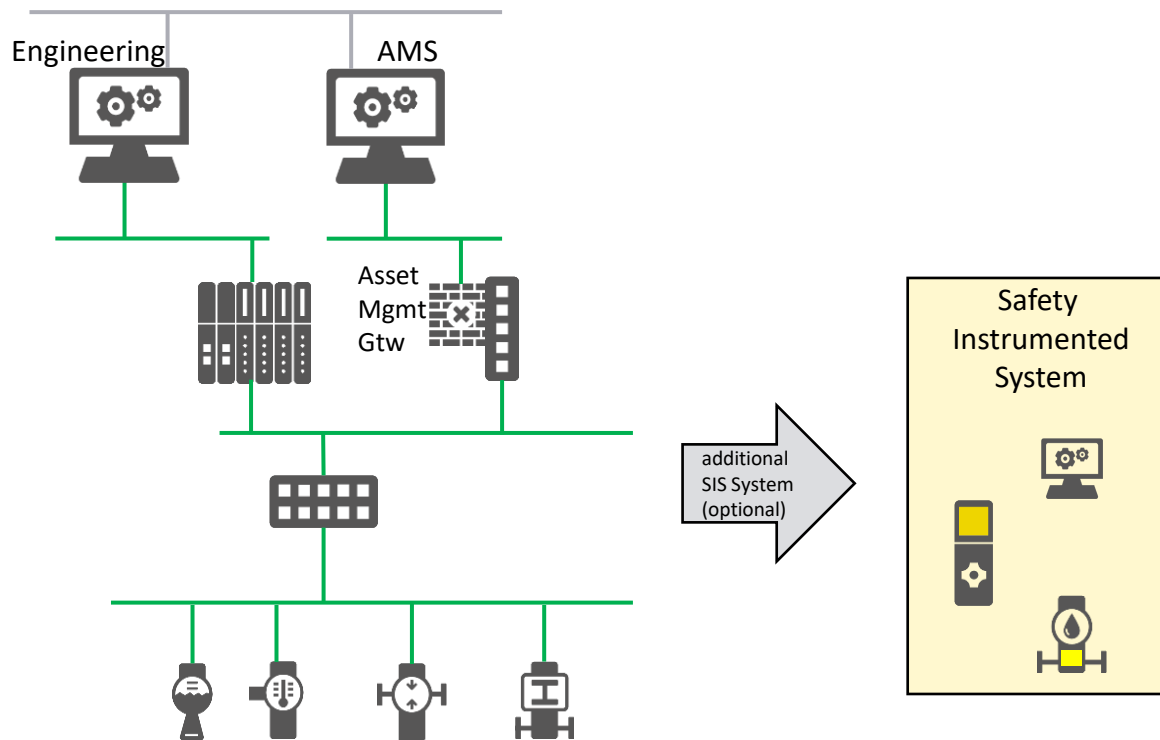
- PI:
 - CB/PG10: PROFINET Security
 - C1/WG1 PA Marketing
- NAMUR:
 - AK 2.6 „Digitale Prozesskommunikation“
 - AK 4.18.3 „Security for APL“
 - AK 4.18.4 „Identity and Access Management“
- Cross-SDO:
 - JWG „Device / Tool security for Ethernet-based communication protocols“
- and more



Overarching goal: Interoperability field test

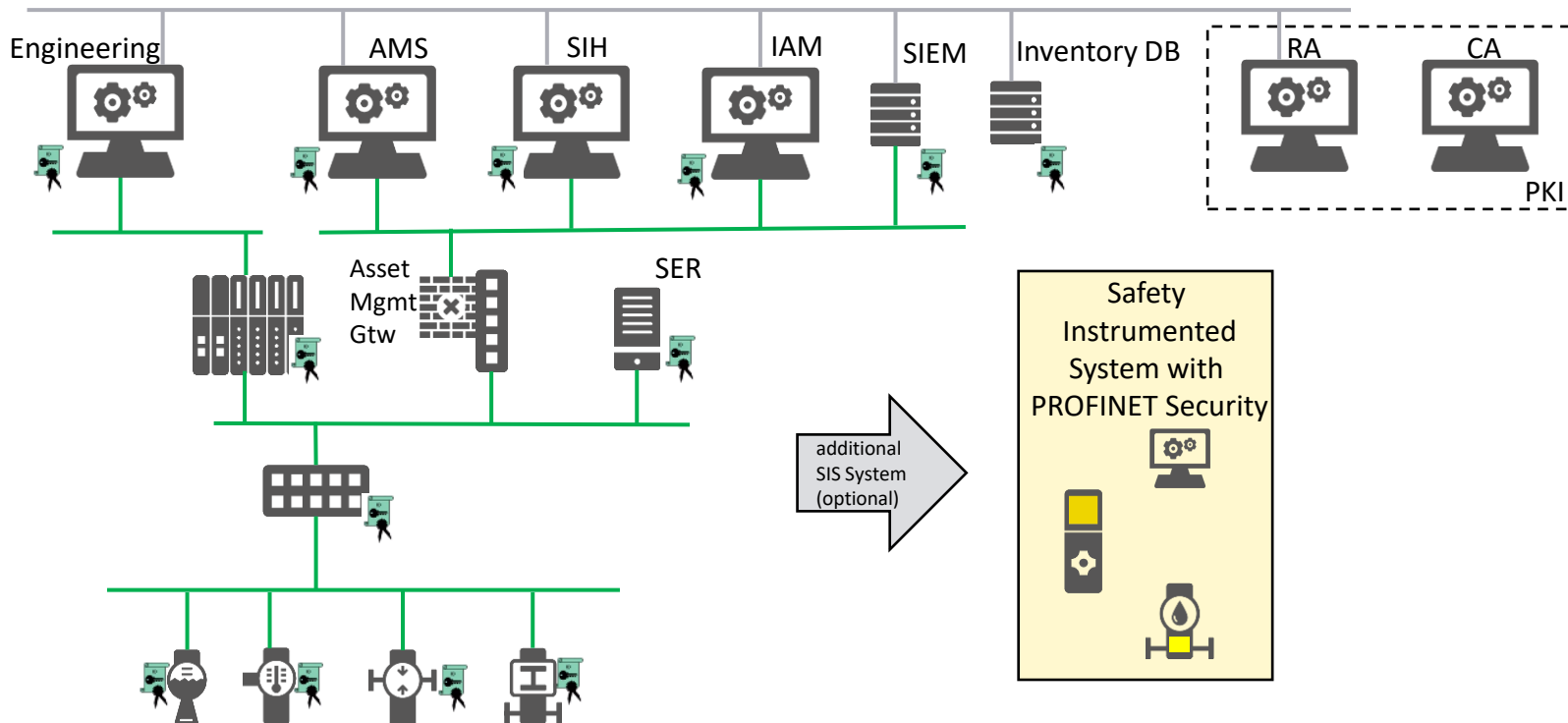
- for PN-Security enabled Ethernet-APL field devices, switch, controller and DCS vendors (incl. software)
- Coexistence with the PROFI-safe feature set
- Workflows and usability features

Overview: Current Test System @ BASF



AMS..Asset Management System / SIS..Safety Instrumented System

Overview: System to be Setup @ BASF



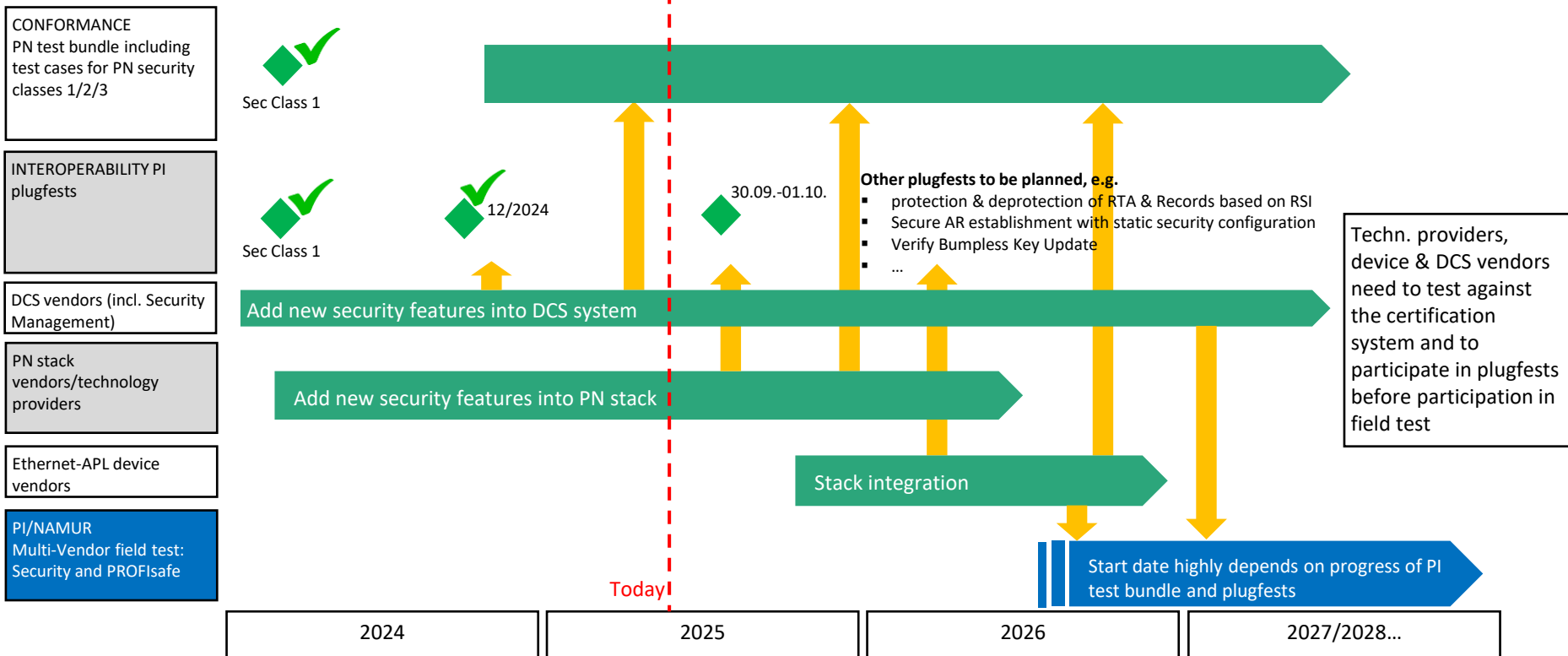
SIH...Security Infrastructure Handler / SER...Security Event Relay / RA...Registration Authority / CA...Certificate Authority / PKI...Public Key Infrastructure / AMS...Asset Management System
IAM...Identity and Access Management / SIEM...Security Information and Event Management / SIS...Safety Instrumented System



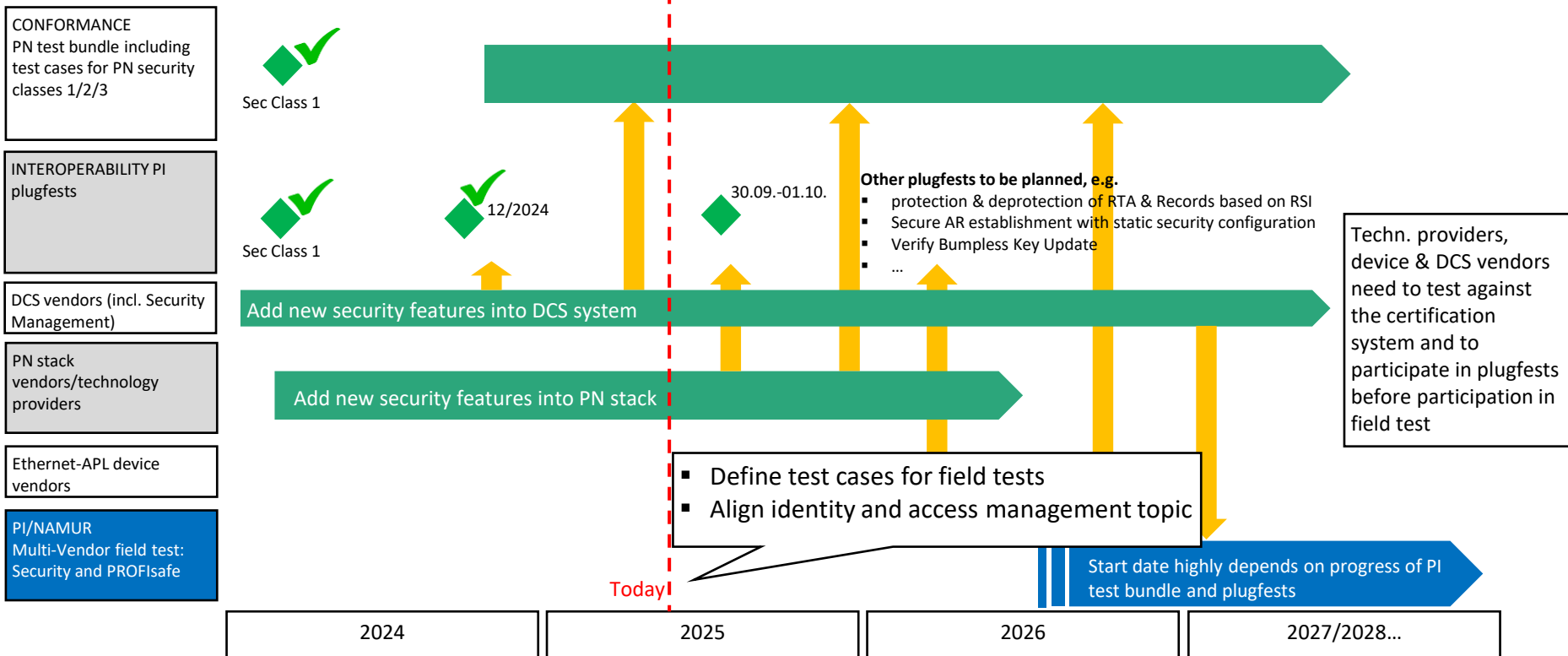
Source: BASF

Upgrade existing field test facility with
PROFINET Security

Timeline (current expectation)



Timeline (current expectation)





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