PROFINET
The **Backbone** of **Industrie 4.0**

Integrated Security
For Increased Integrity & Availability

PROFINET
Communication
with **Security**

IO Controller

Standard
PROFINET
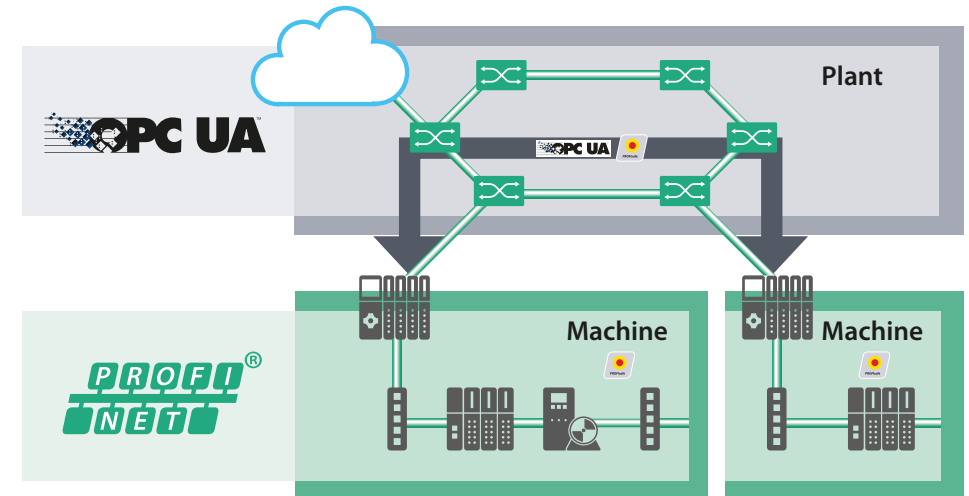Communication
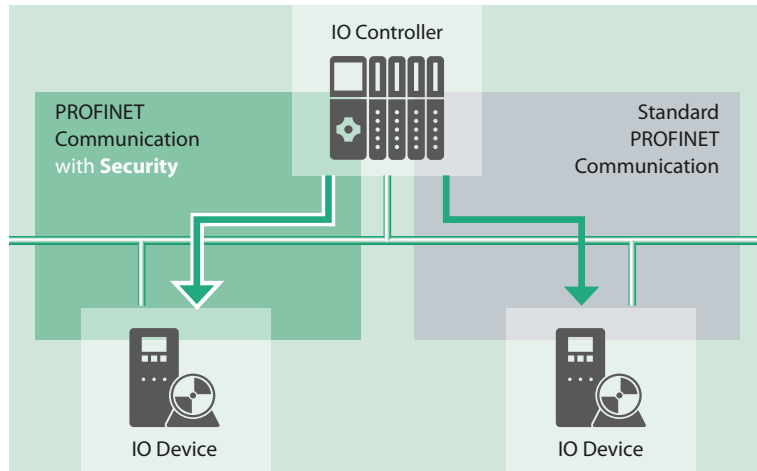
IO Device

IO Device

Mechanism

❱ End-to-End Communication
Protection
❱ Device Authentication
❱ Message Integrity/Authenticity

Your Benefits

❱ Cell Protection Concept
Is and Remains the Basis
❱ Scalable
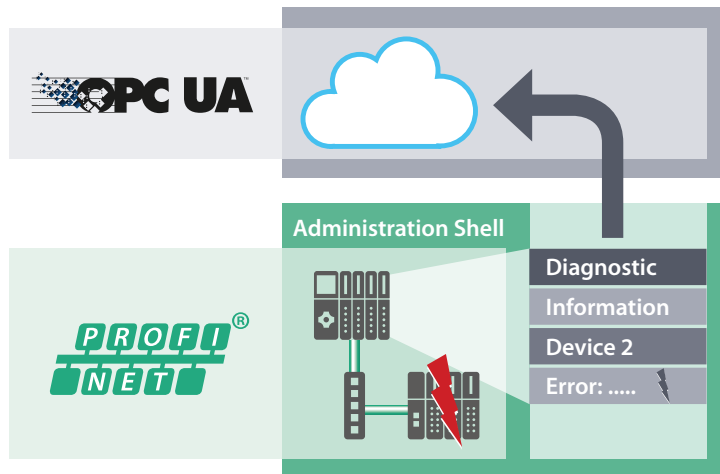❱ Easy Use

Plant

OPC UA

Machine

Machine

PROFINET and OPC UA
The Optimal Combination for Industrie 4.0

❱ PROFINET for Cyclic I/O Communication
❱ OPC UA for Controller to Controller and Vertical Communication
❱ Failsafe Communication with PROFIsafe at All Levels

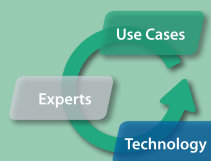*Industrie 4.0 is not solved by a single protocol.
PI has the experience and network with many other
organizations and manufacturers to generate valuable
information from data through the correct use of
suitable technologies.*

PROFIBUS • PROFINET

PROFINET and OPC UA
From Data to Information

Administration Shell

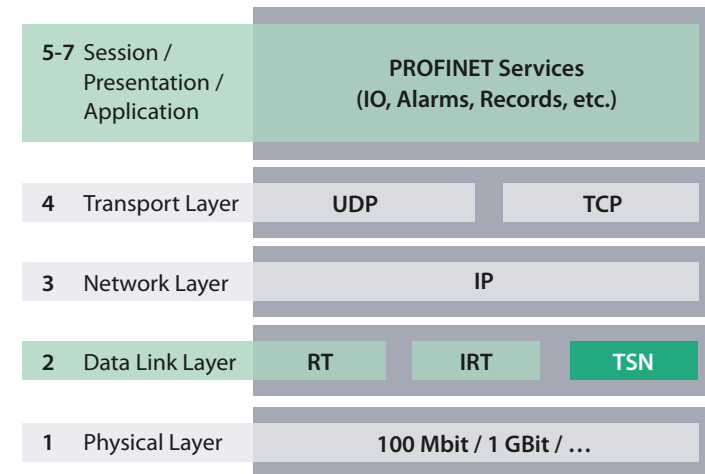| Diagnostic |
| Information |
| Device 2 |
| Error: ..... |

Our Approach

❯ Providing Information for Industrie 4.0 by OPC UA Companion Specs
❯ Use Cases Asset Management and Diagnostics
❯ Joint Working Group with OPC Foundation

❯ **PROFINET and OPC UA Can Share the Same Network**

TSN Integration into PROFINET
Uses Future-Proof IEEE-Technology

| Layer	Name			
5-7	Session / Presentation / Application	PROFINET Services (IO, Alarms, Records, etc.)		
4	Transport Layer	UDP		TCP
3	Network Layer	IP		
2	Data Link Layer	RT	IRT	TSN
1	Physical Layer	100 Mbit / 1 GBit / …		

Integration

❯ Application Layer Remains Unchanged
❯ Convergence of PROFINET and other Protocols
❯ TSN Extends the Layer 2

Your Benefits

❯ A Mechanism for Real-Time and Robustness
❯ Future-Proof Technology incl. Gbit
❯ Scalable Integration

Starting point for all standardization activities in PI are use cases from real applications. Many experts in the PI working groups derive the necessary technologies from these. Good cooperation with users and many years of experience are the guarantee for success.

Use Cases

Experts

Technology

The proven application view of PROFINET including the profiles is unchanged with TSN; Existing devices can be integrated into a TSN network.
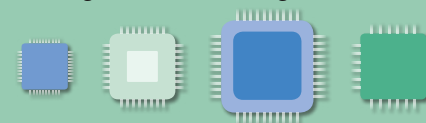
The modular architecture of PROFINET allows manufacturers to scale the device implementation to provide exactly the functions that users need.