Verticale integratie eenvoudiger dan ooit

2016, March 15
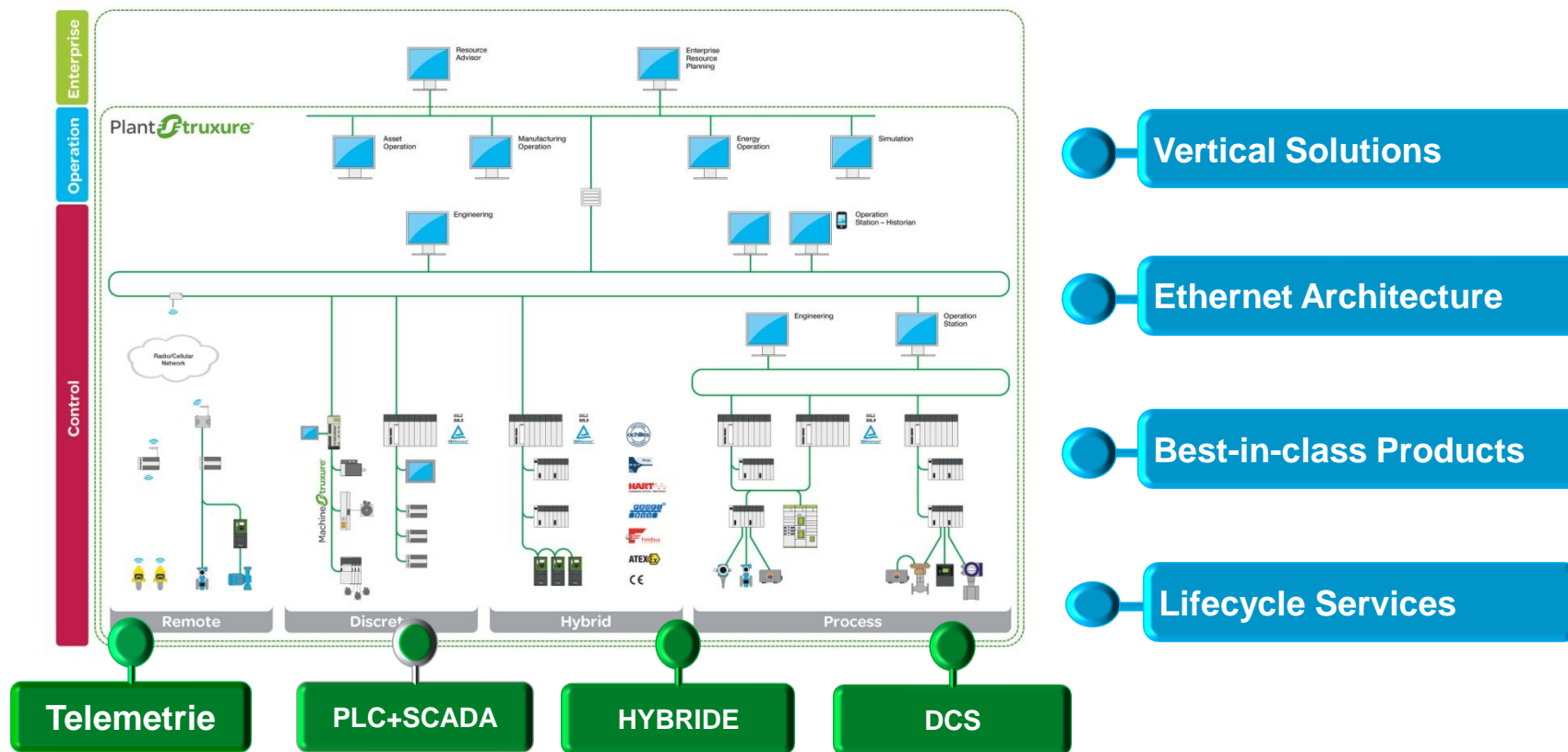Rob van den Bos, Product Manager Automation

Life Is On | Schneider Electric

Connected Architecture for your "Transparent Factory"

An Automation architecture should bring solutions for Telemetry, PLC+SCADA, Hybride and DCS together making a complete offering of lifecycle services to serve you make your business more efficient. From initial design until modernization.

- **Vertical Solutions**
- **Ethernet Architecture**
- **Best-in-class Products**
- **Lifecycle Services**

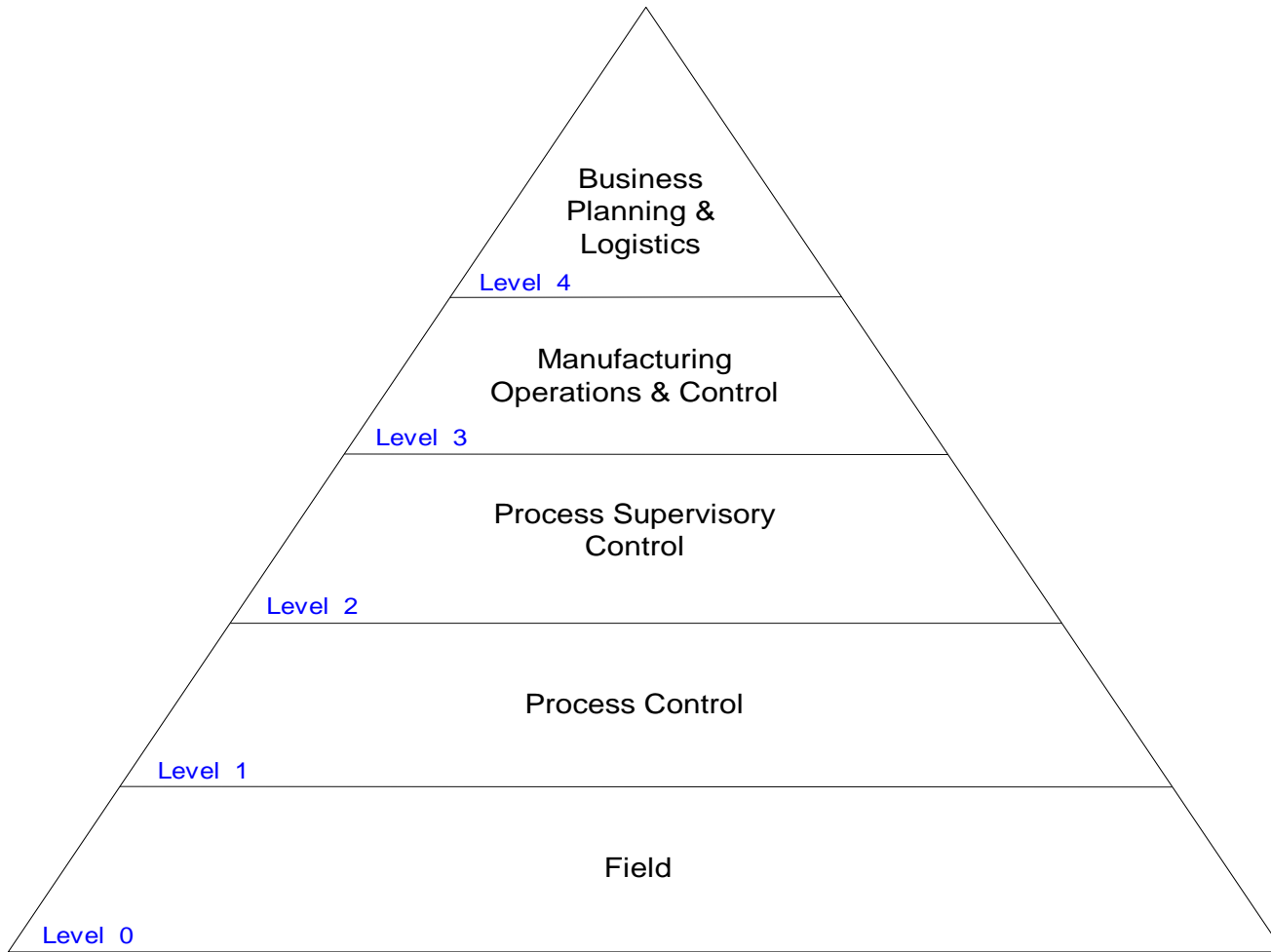**Telemetrie** | **PLC+SCADA** | **HYBRIDE** | **DCS**

Connected architecture

Industry 4.0, Smart Factories, Industrial Internet of Things (IIOT), hyperconnectivity…

All these concepts are **already** fully addressed with the **ePAC,** within an open **Ethernet** Automation **architecture**
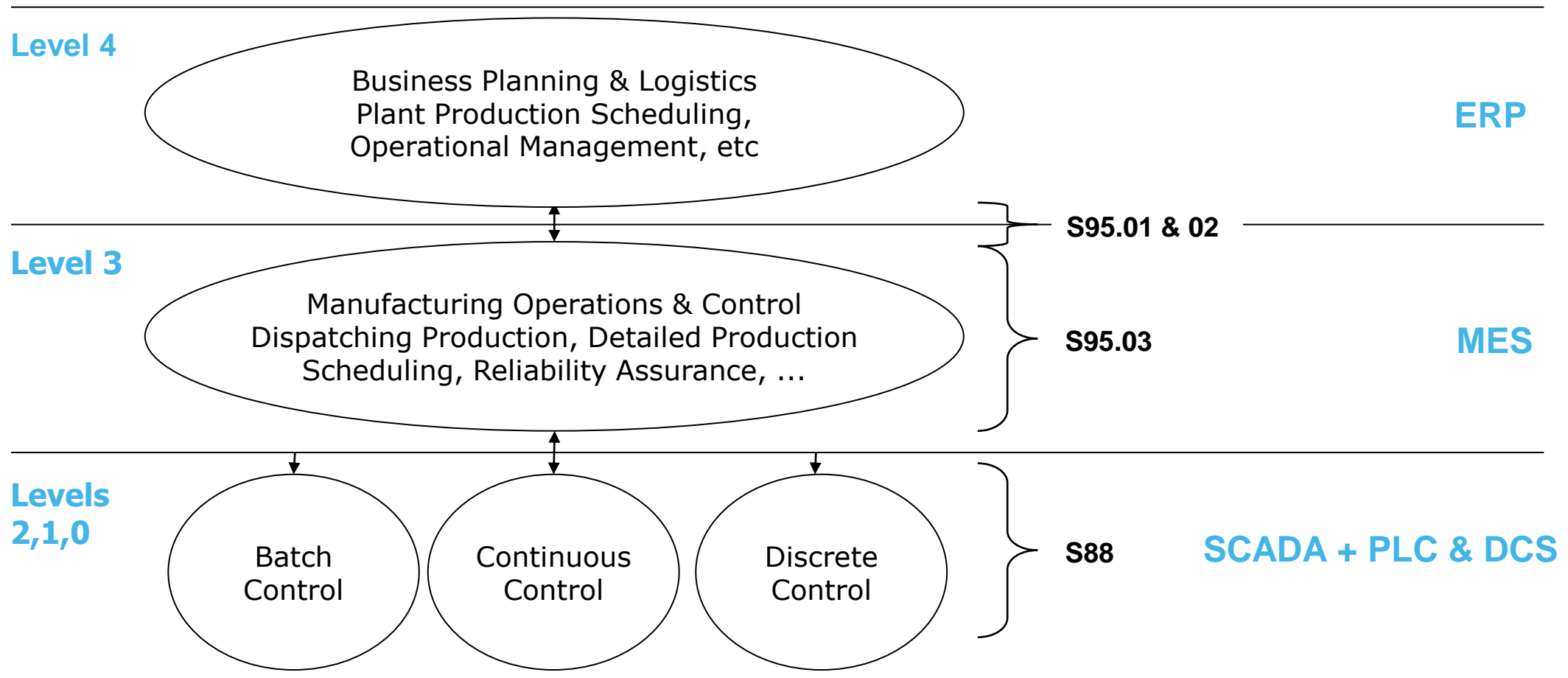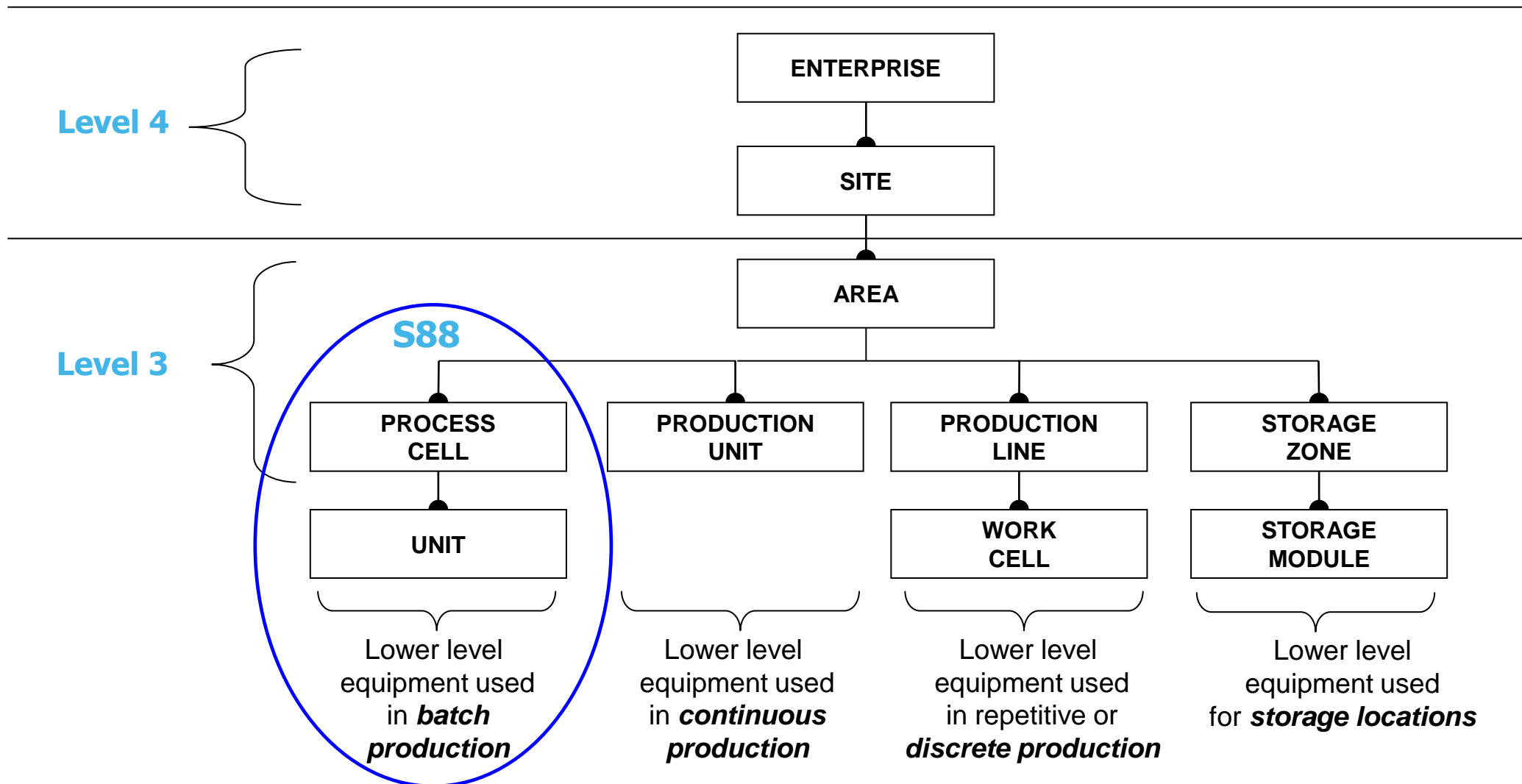
17 maart 2016 ••• De Kuip in Rotterdam

Industrial Ethernet

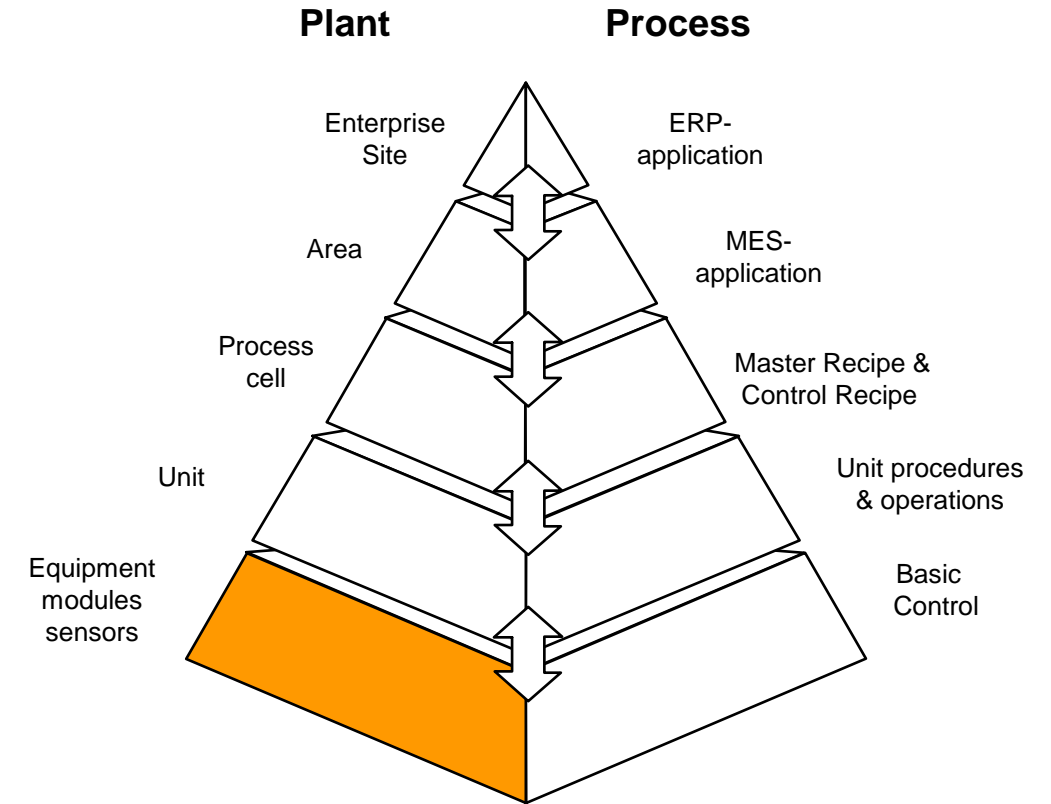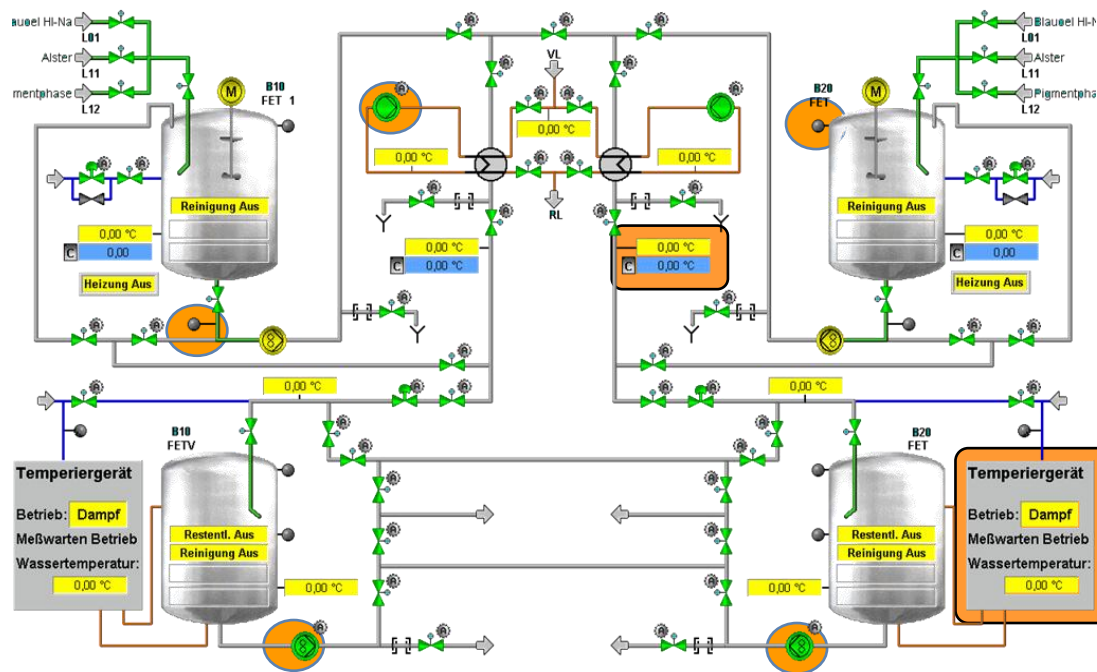# The Transparent/Smart Factory asks for a structured definition of information sources & user-requirements

Business
Planning &
Logistics

Level 4

Manufacturing
Operations & Control

Level 3

Process Supervisory
Control

Level 2

Process Control

Level 1

Field

Level 0

Use the ISA95 structure / Hierarchical Activity Model

Level 4

Business Planning & Logistics
Plant Production Scheduling,
Operational Management, etc

ERP

S95.01 & 02

Level 3

Manufacturing Operations & Control
Dispatching Production, Detailed Production
Scheduling, Reliability Assurance, …

S95.03

MES

Levels 2,1,0

Batch Control

Continuous Control
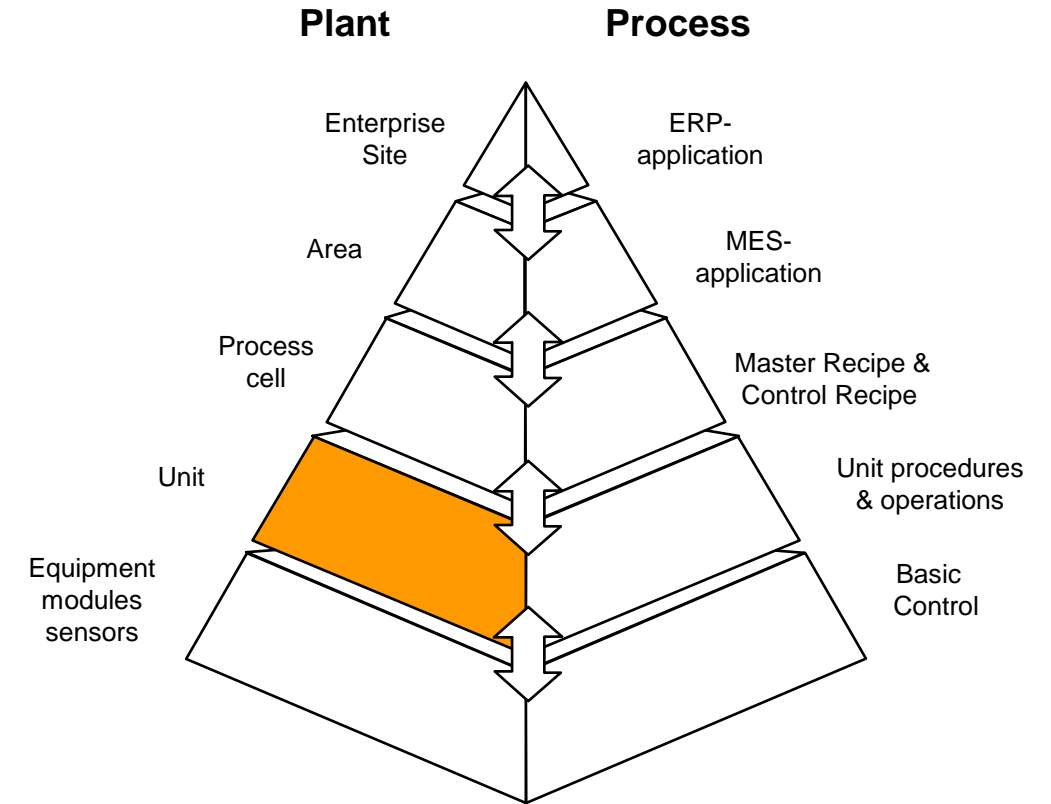
Discrete Control

S88

SCADA + PLC & DCS

Use the ISA95 structure / Hierarchical Equipment Model

Use the S88 structure for FLEXIBLE Batch Processing

Plant

Process

- Enterprise Site — ERP-application
- Area — MES-application
- Process cell — Master Recipe & Control Recipe
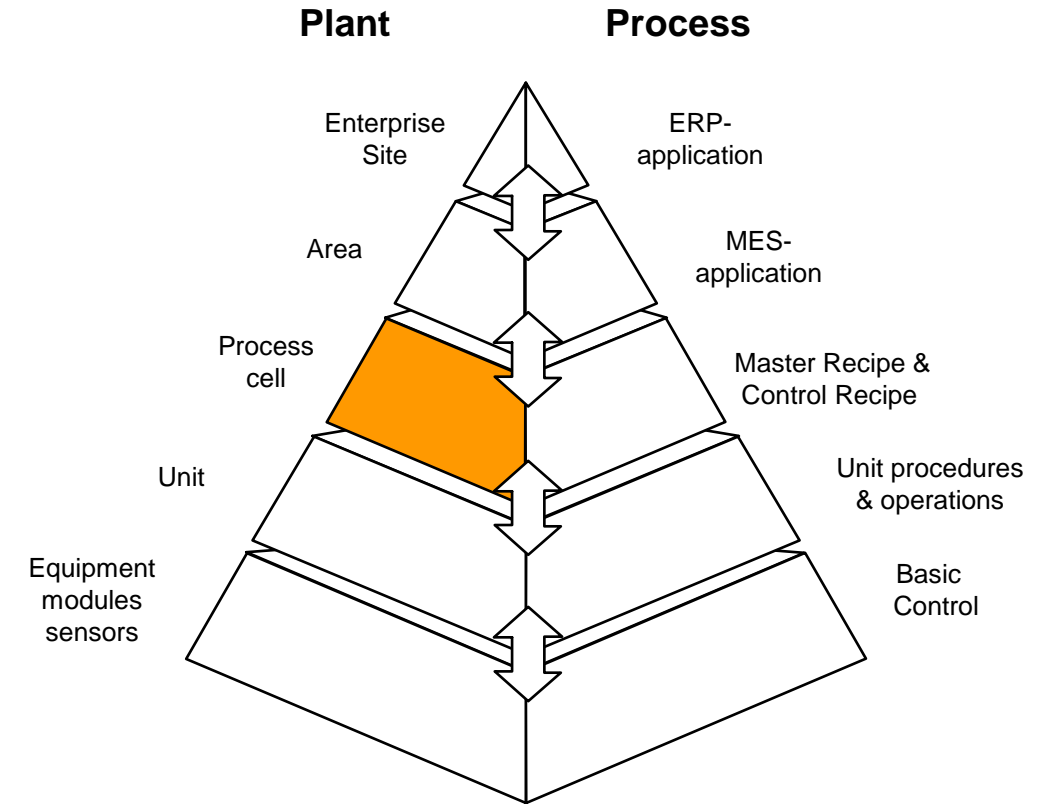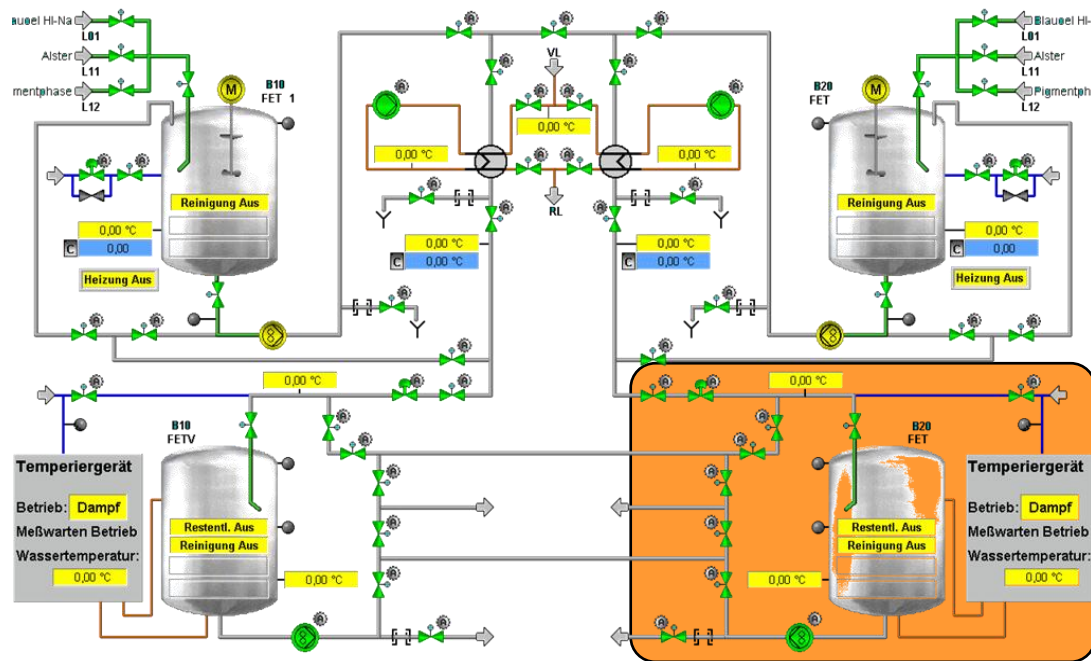- Unit — Unit procedures & operations
- Equipment modules sensors — Basic Control

Use the S88 structure for FLEXIBLE Batch Processing

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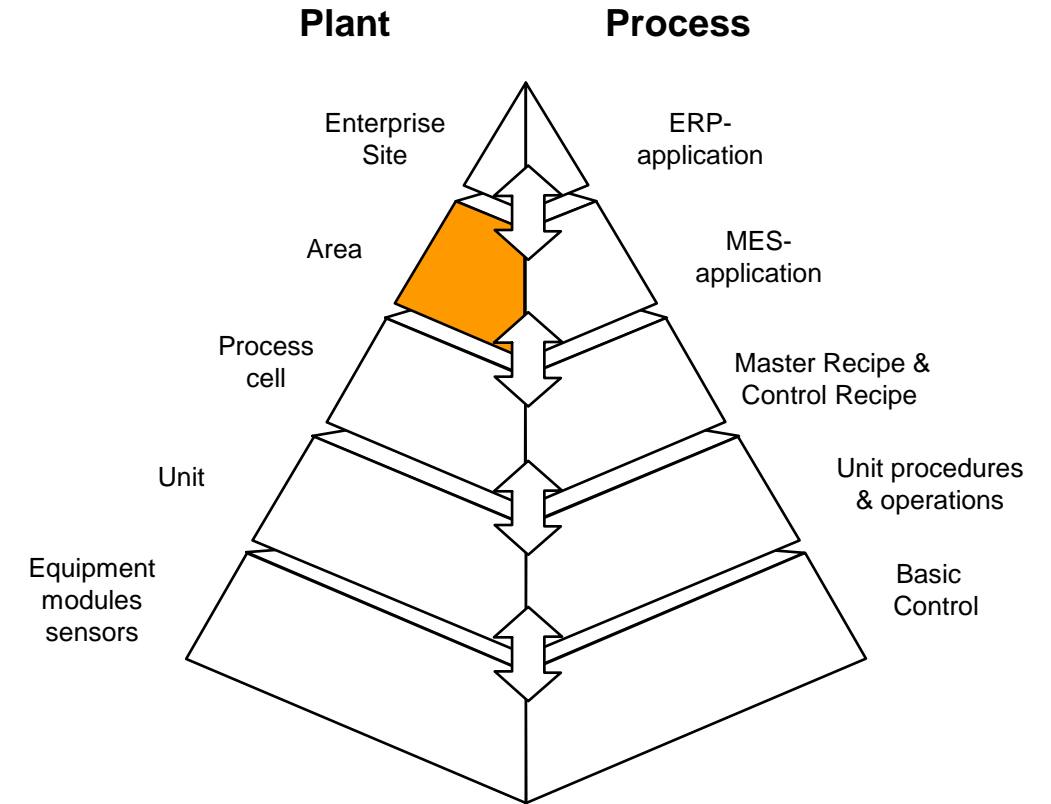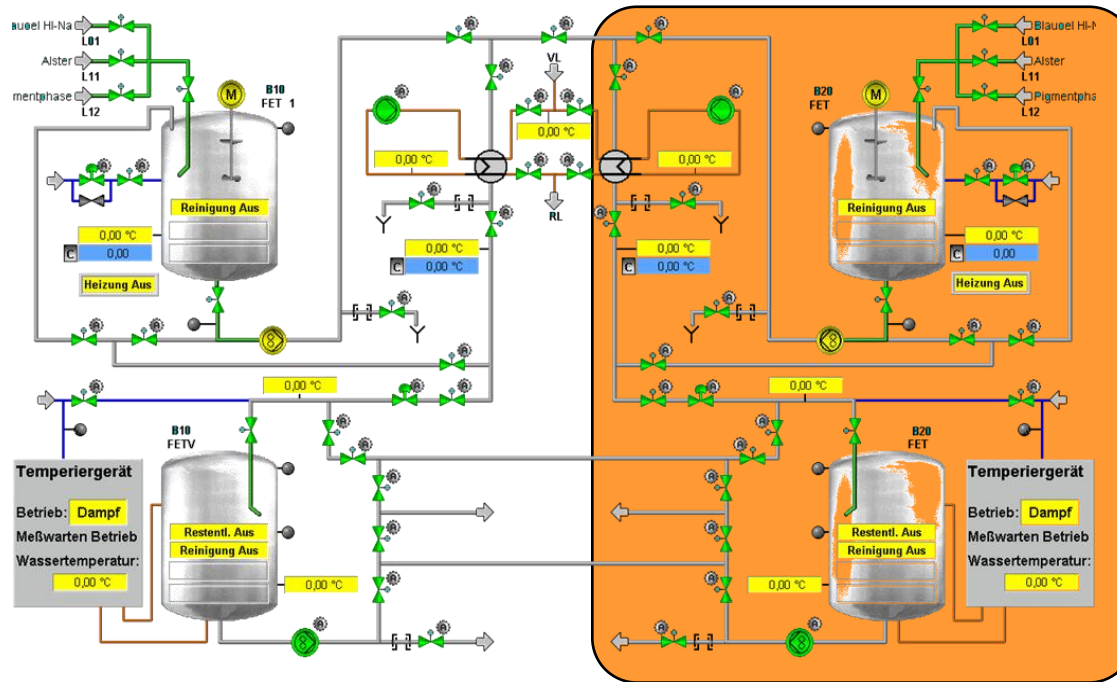- Unit — Unit procedures & operations
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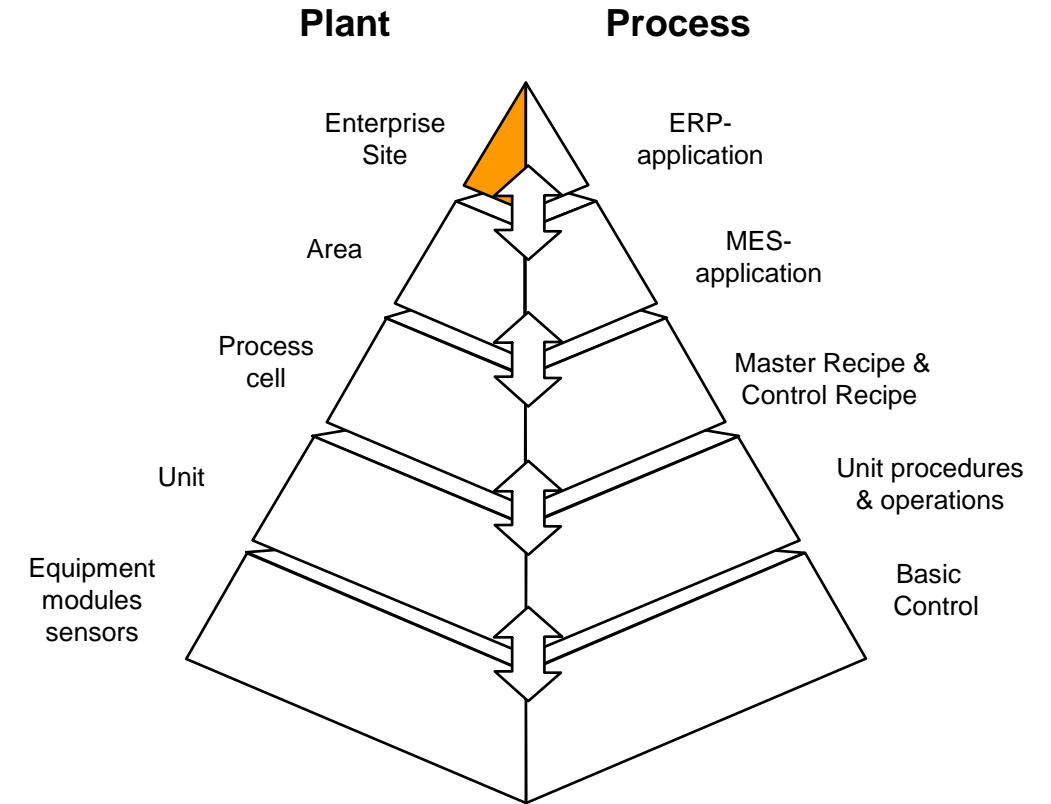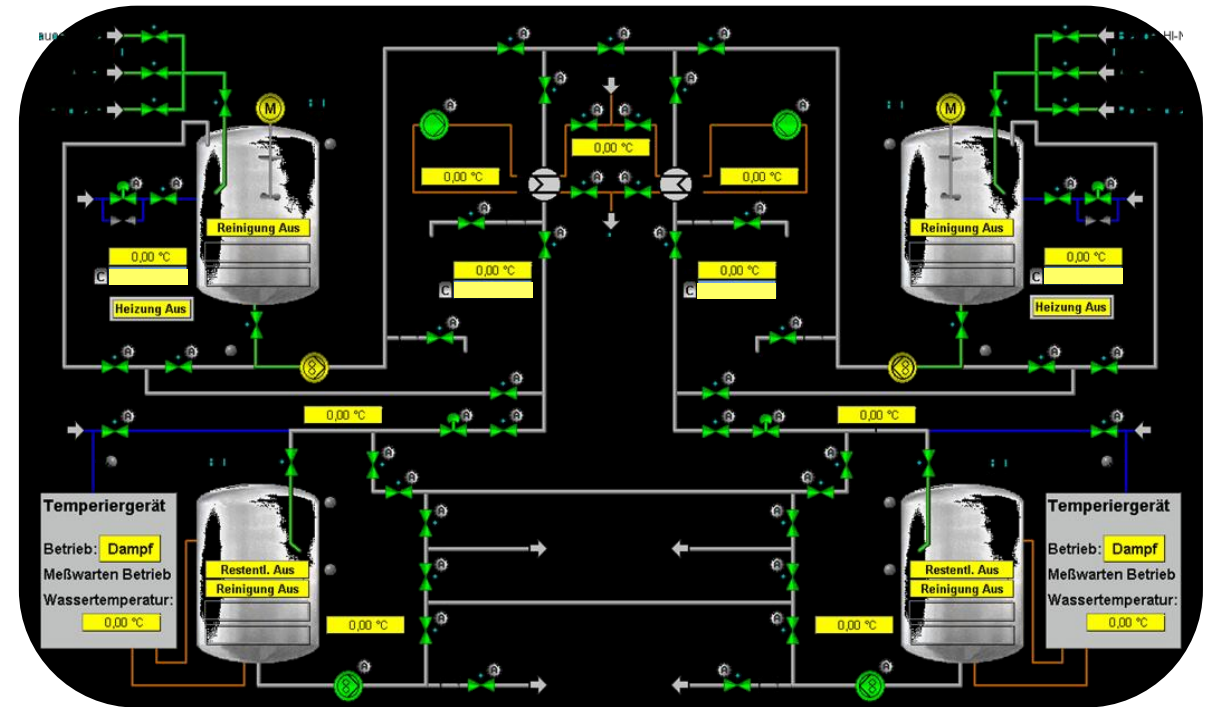- Equipment modules sensors — Basic Control

Use the S88 structure for FLEXIBLE Batch Processing

Use the S88 structure for FLEXIBLE Batch Processing

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Use the S88 structure for FLEXIBLE Batch Processing

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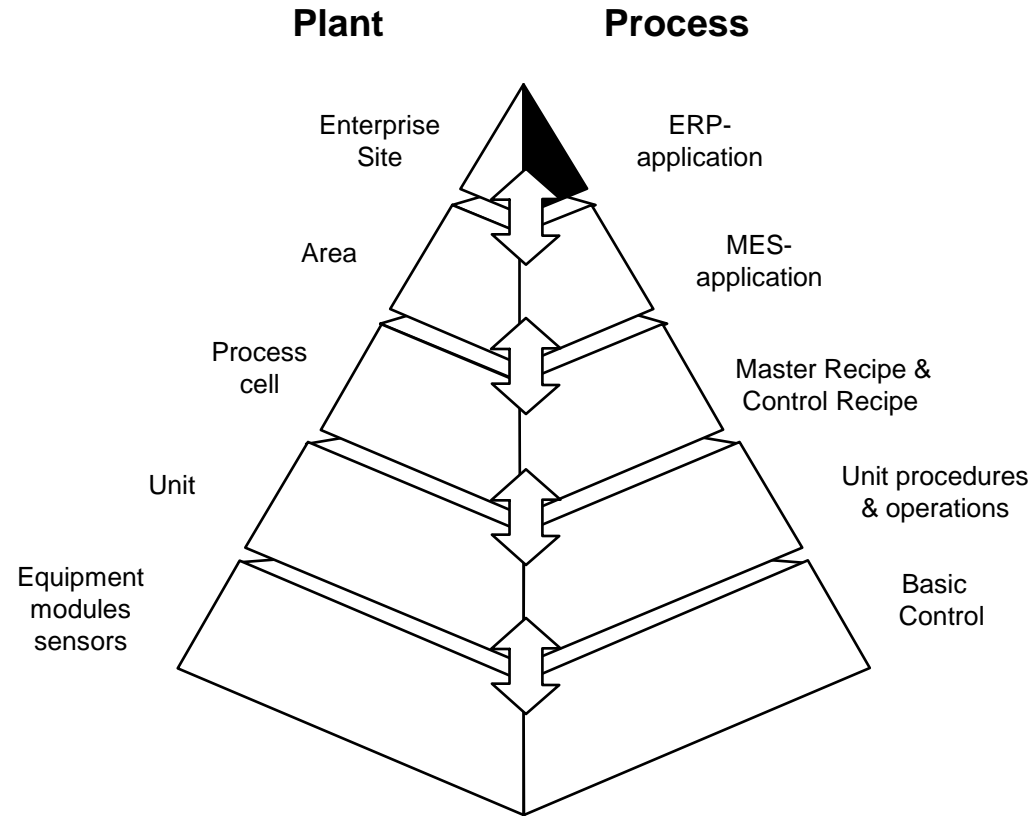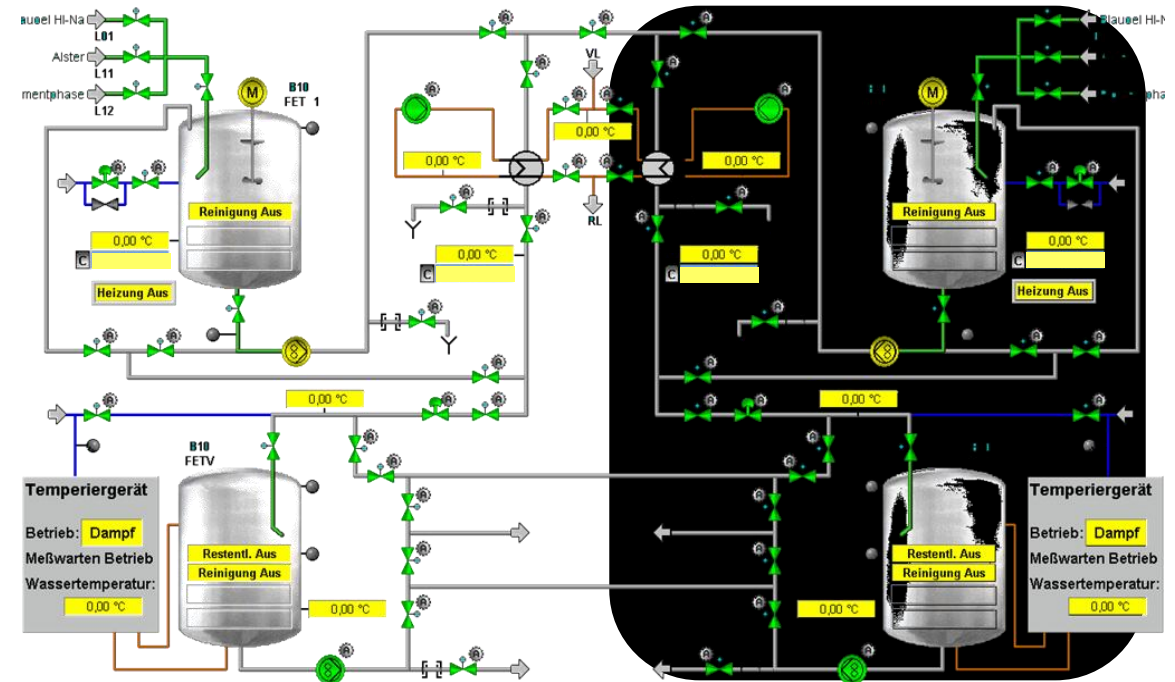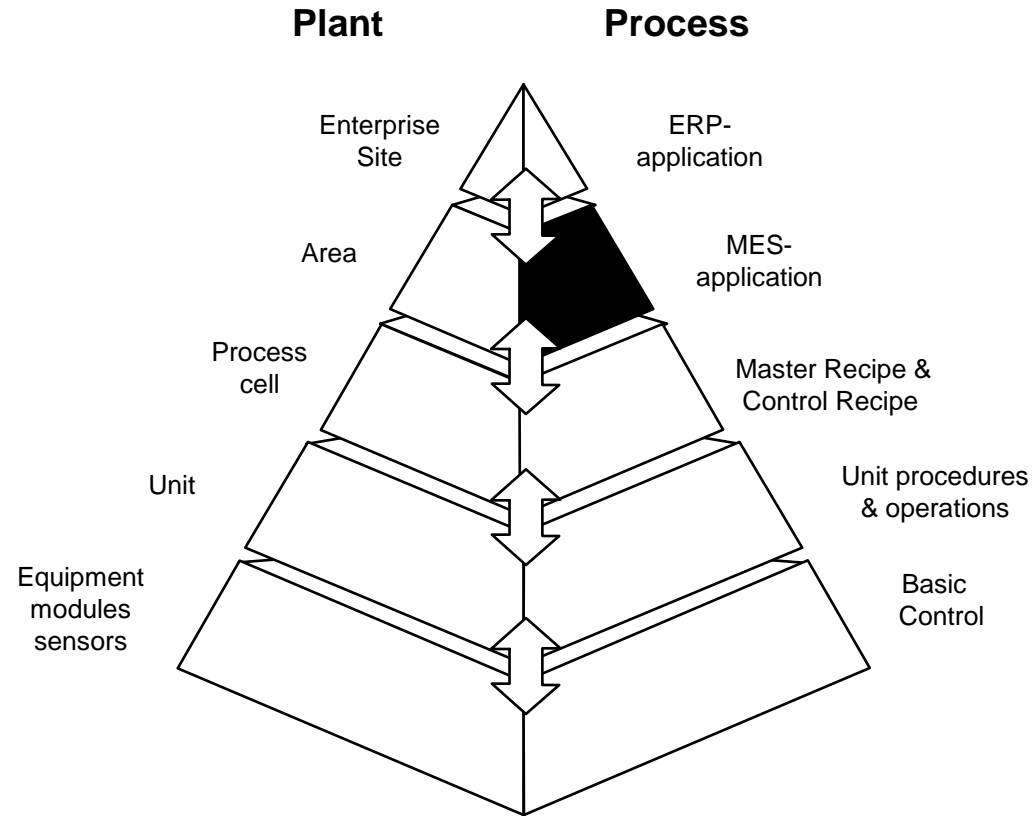- Equipment modules sensors — Basic Control

Use the S88 structure for FLEXIBLE Batch Processing

Use the S88 structure for FLEXIBLE Batch Processing

Use the S88 structure for FLEXIBLE Batch Processing

Plant   **Process**

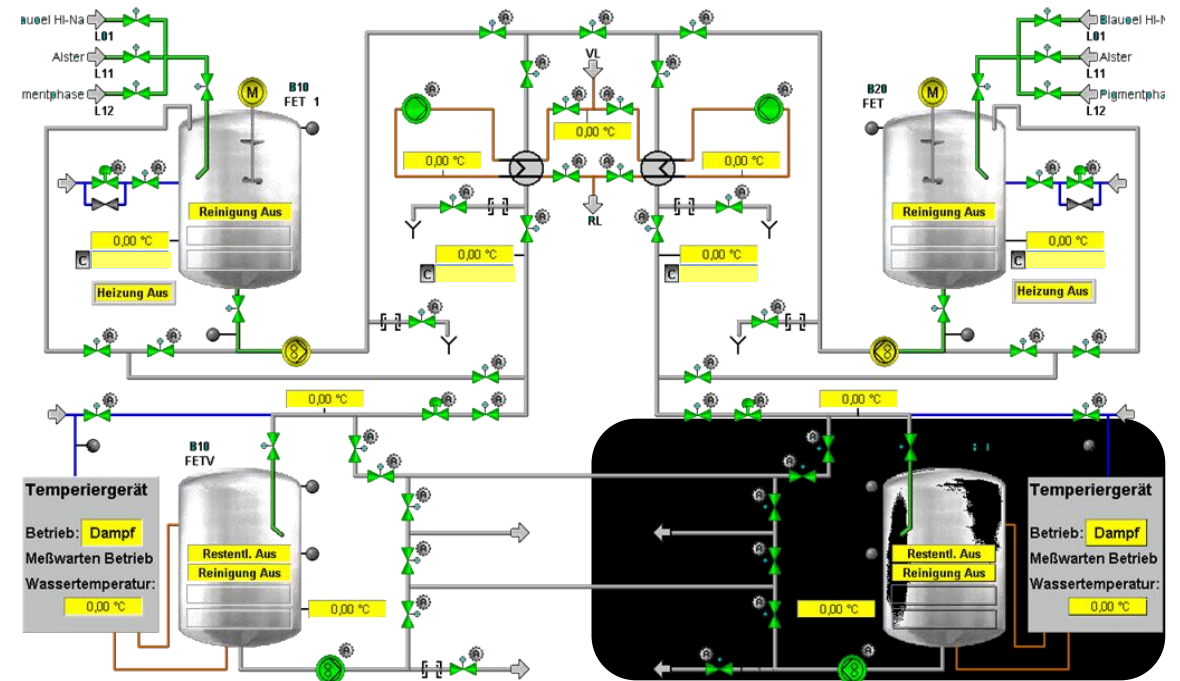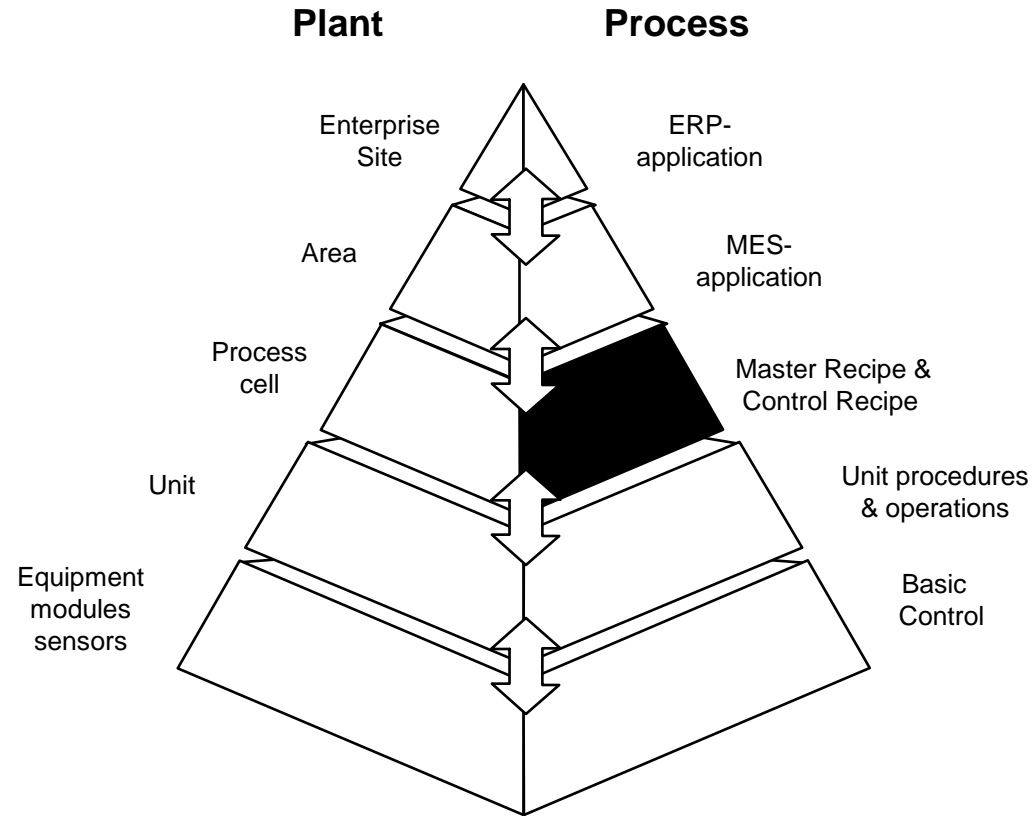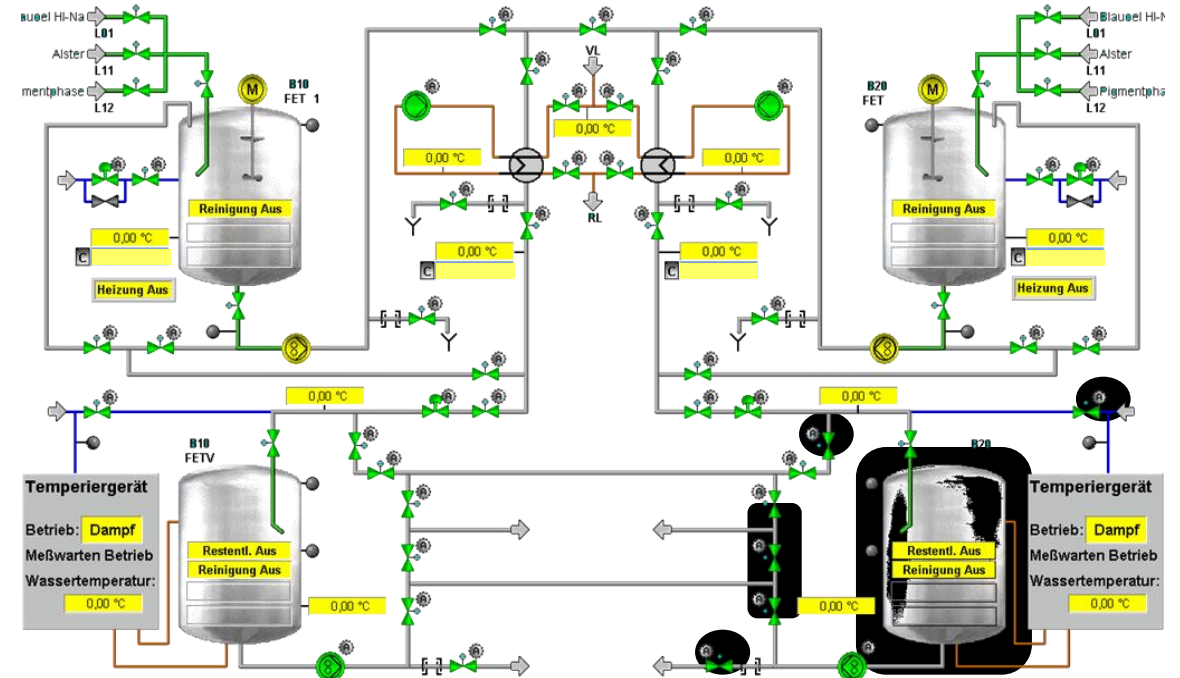| Plant	Process
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Industrial Ethernet

Use the S88 structure for FLEXIBLE Batch Processing

Plant　　　**Process**

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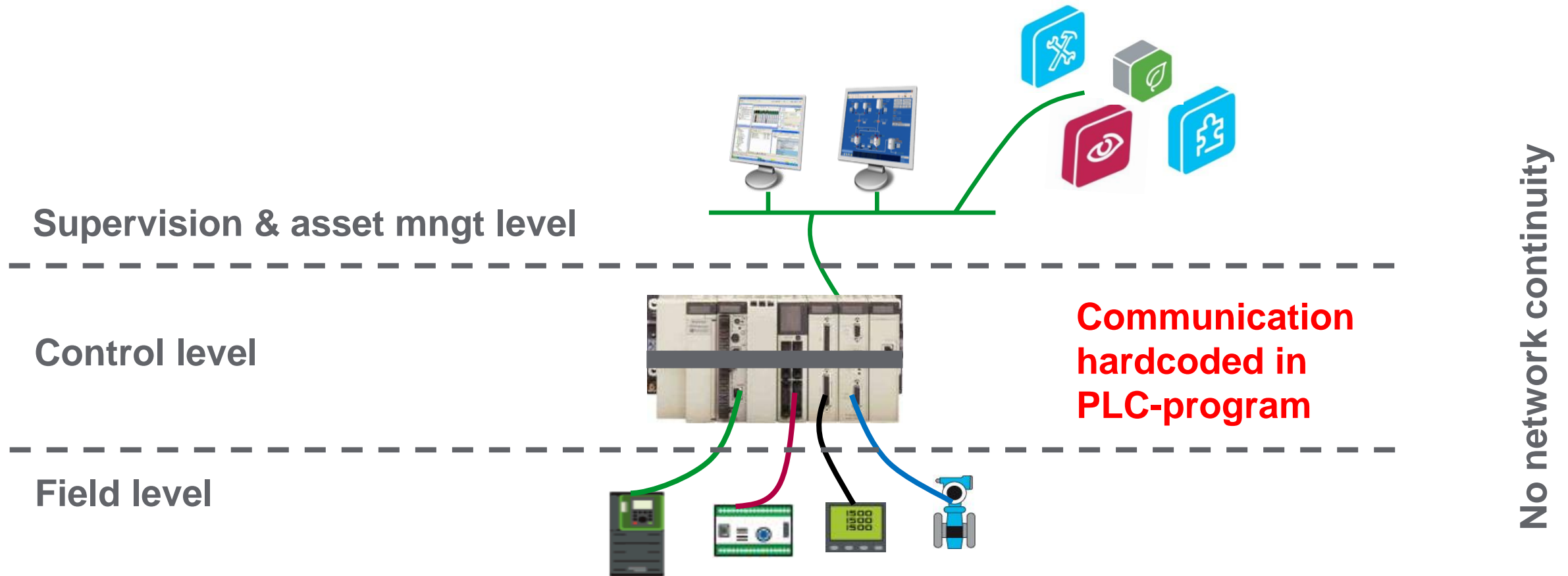
Equipment modules sensors — Basic Control

Fully **transparent & open** architecture
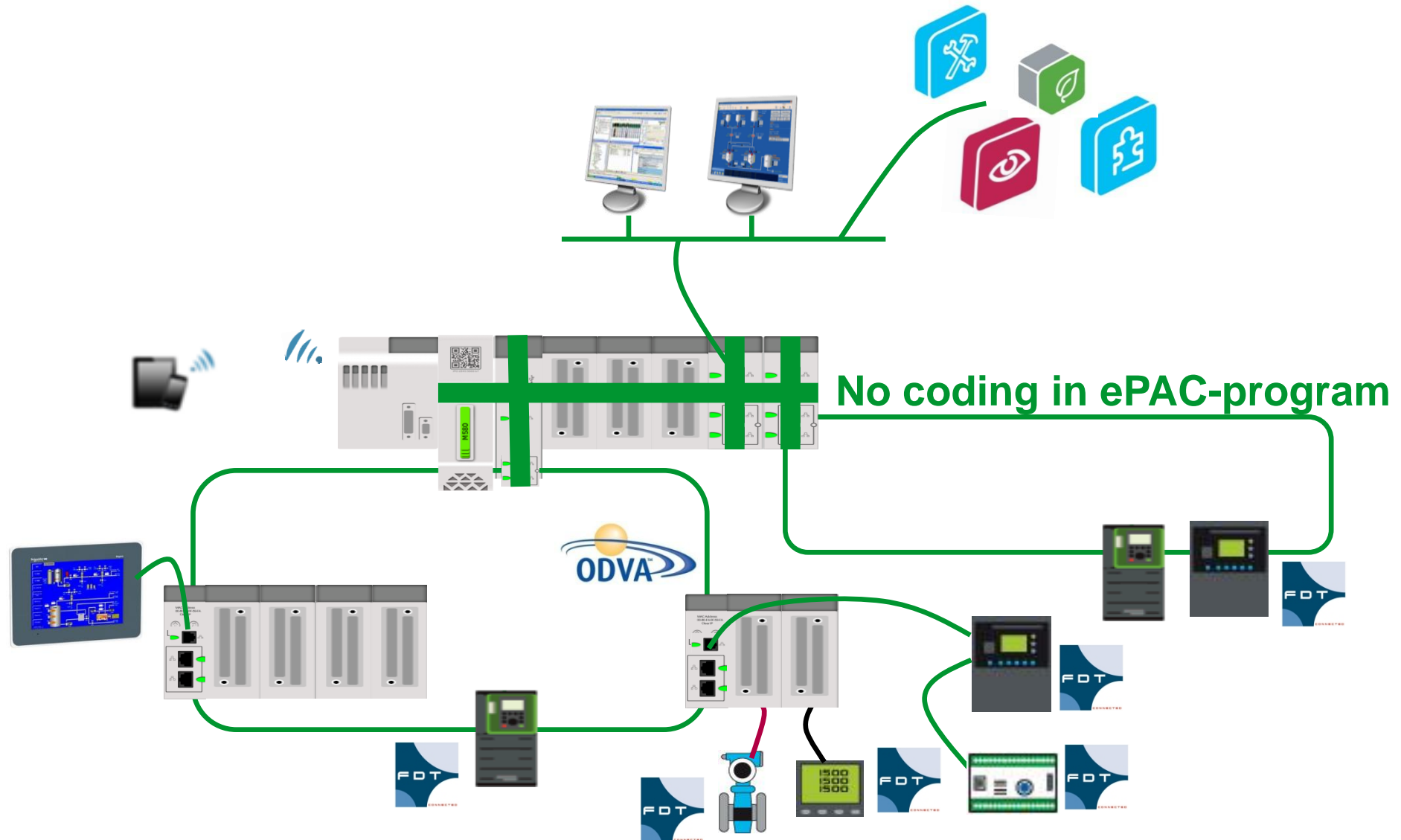
Now we provide a totally transparent and open architecture **from bottom to top**. since Ethernet communication is also integrated as the **backbone** of the **ePAC system bus**.

From slow Data Processing via heterogeneous networks...

Supervision & asset mngt level

Control level

Field level

Communication hardcoded in PLC-program

No network continuity

...to very FAST Data Processing via a single Ethernet backbone

No coding in ePAC-program

Open network continuity

Industrial Ethernet

Bottom-to-top FLEXIBLE & TRANSPARANT Data Processing

Open network continuity
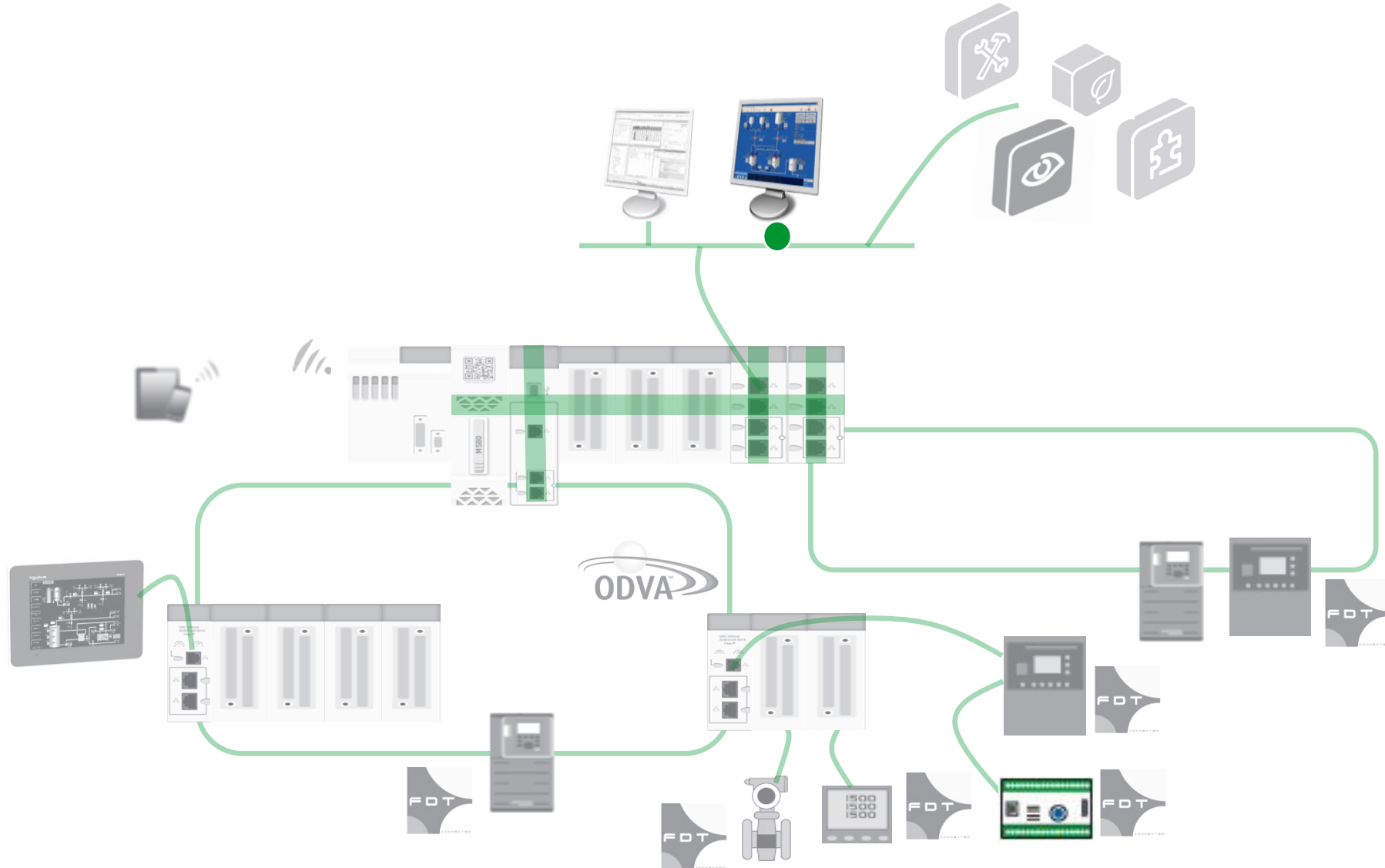
The right data at the right time in the right location

Open network continuity

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Industrial Ethernet
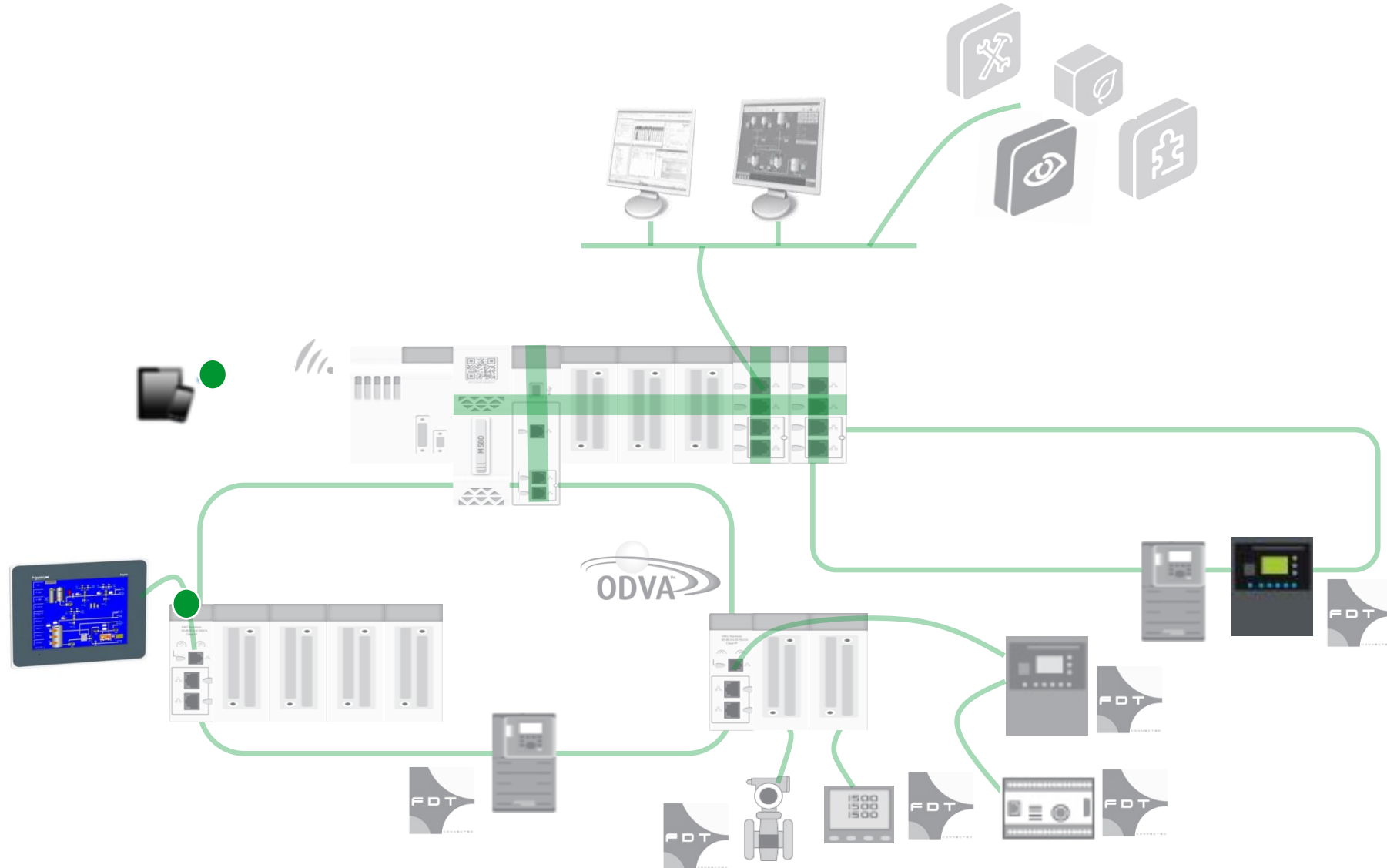
Modicon M580 ➜ *FDT DTM Strategie*

Asset Management
Diagnose
Calibratie
Onderhoud
Vervanging

SCADA
Bediening
Monitoring
Alarmering
Rapportage

Engineering Station
Configuratie
Opstart
Process variabelen

Protocol & leverancier onafhankelijk

HART
COMMUNICATION PROTOCOL

EtherNet/IP

PROFIBUS

CANopen

Industrial Ethernet
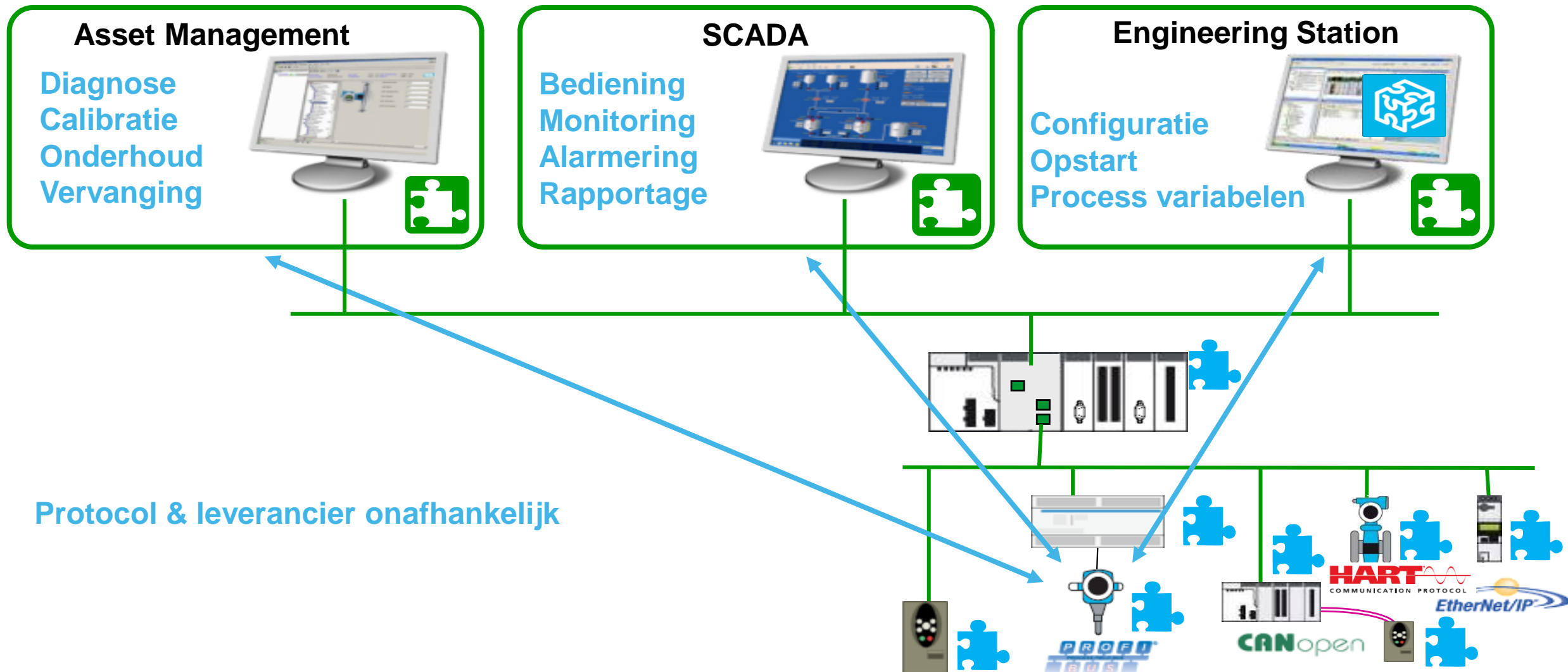
Discover what an Agile ePAC means
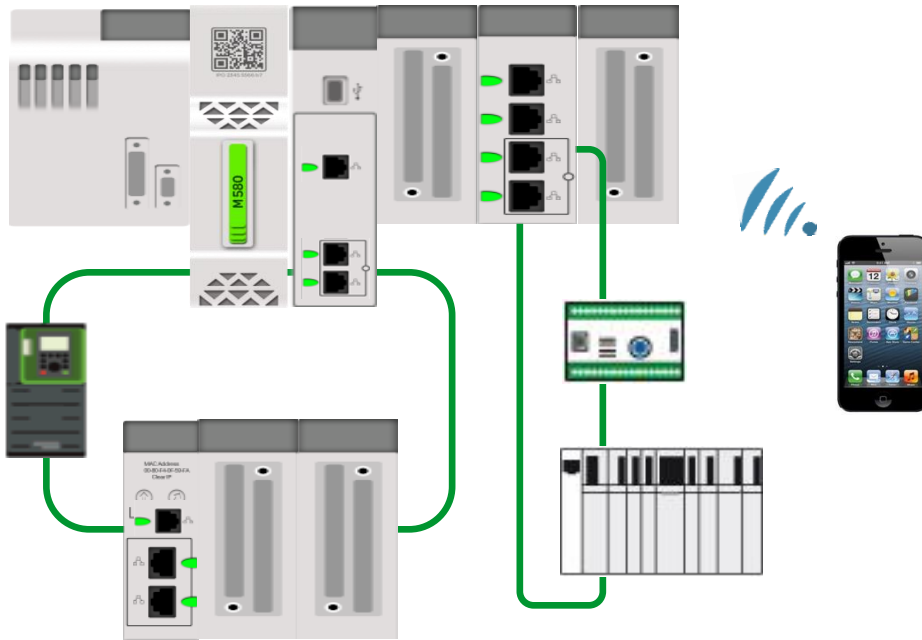
Flexible in Design & Architecture
- Ethernet integrated in the controller
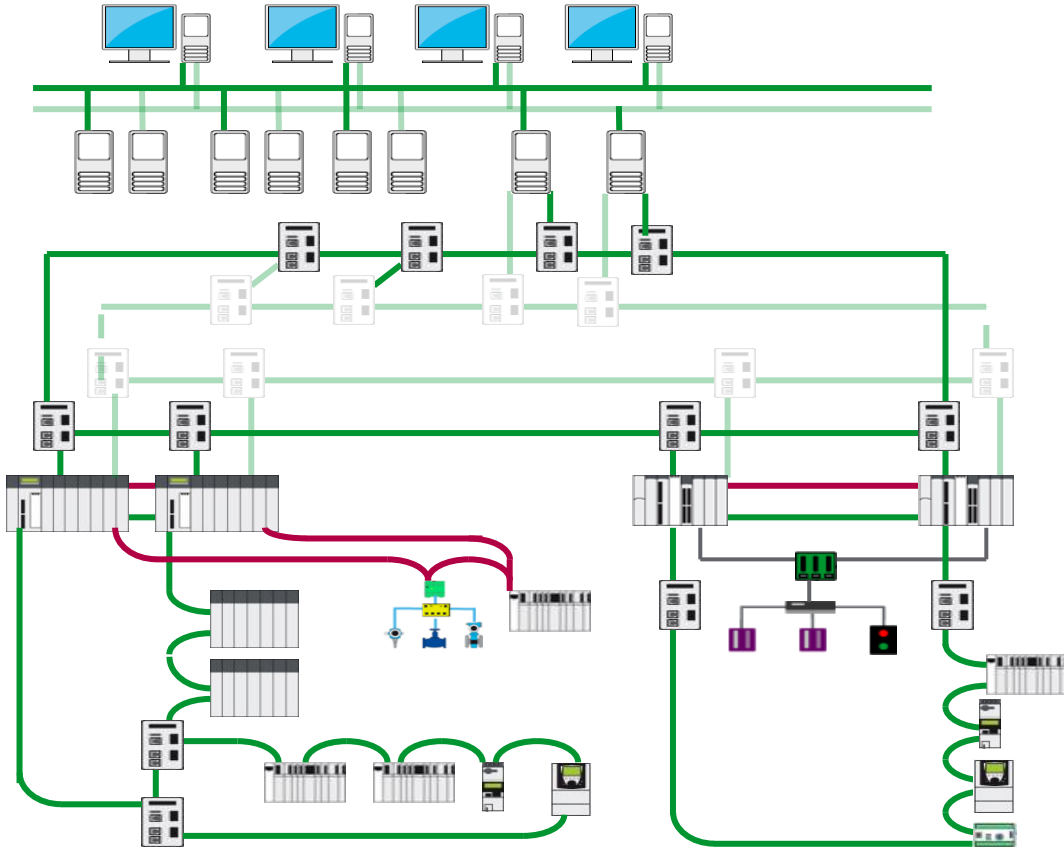- Simple integration of core devices (FDT/DTM)
- Flexible & scalable topologies

Flexible in Operations
- Change Configuration On The Fly (CCOTF)
- System Time Stamping (no programming)

Flexible in Maintenance
- Full system diagnostic from your smart phone

High Availability

No stoppage of the proces when:
- An I/O drop is added to the system
- An I/O module is added and configurated
- An I/O channel is configurated

Automatic update of all variables
- from PAC to SCADA via Speedlink Dynamic.

Hot swap for all X80 modules
- Availability 99.9996%

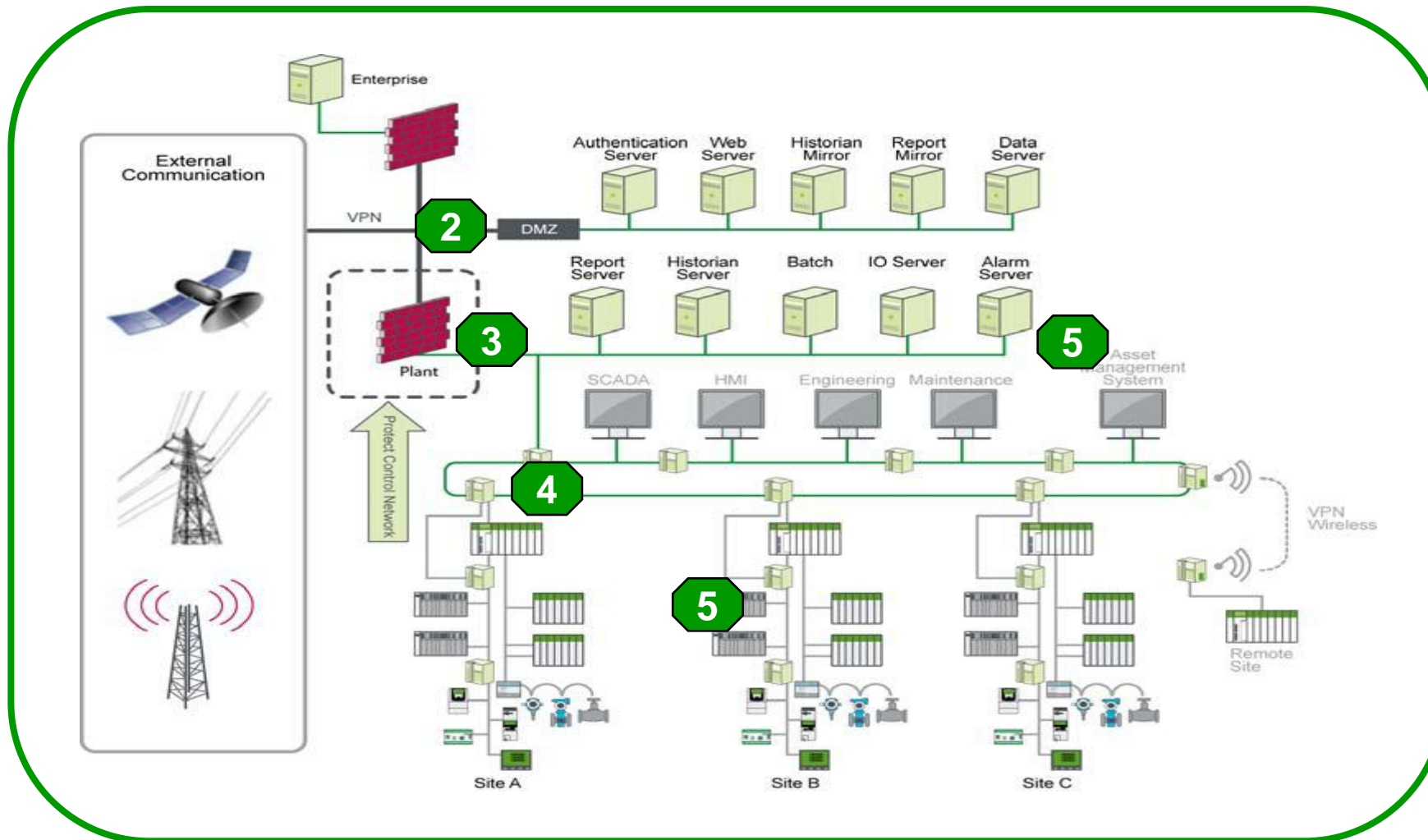**CCOTF = Change Configuration On the Fly!!**

PlantStruxure™

Smart Data & Cyber Security

Smart Data, direct from the source requires strong functionality in **Cyber Security**. Doing this both on system level as well as product level
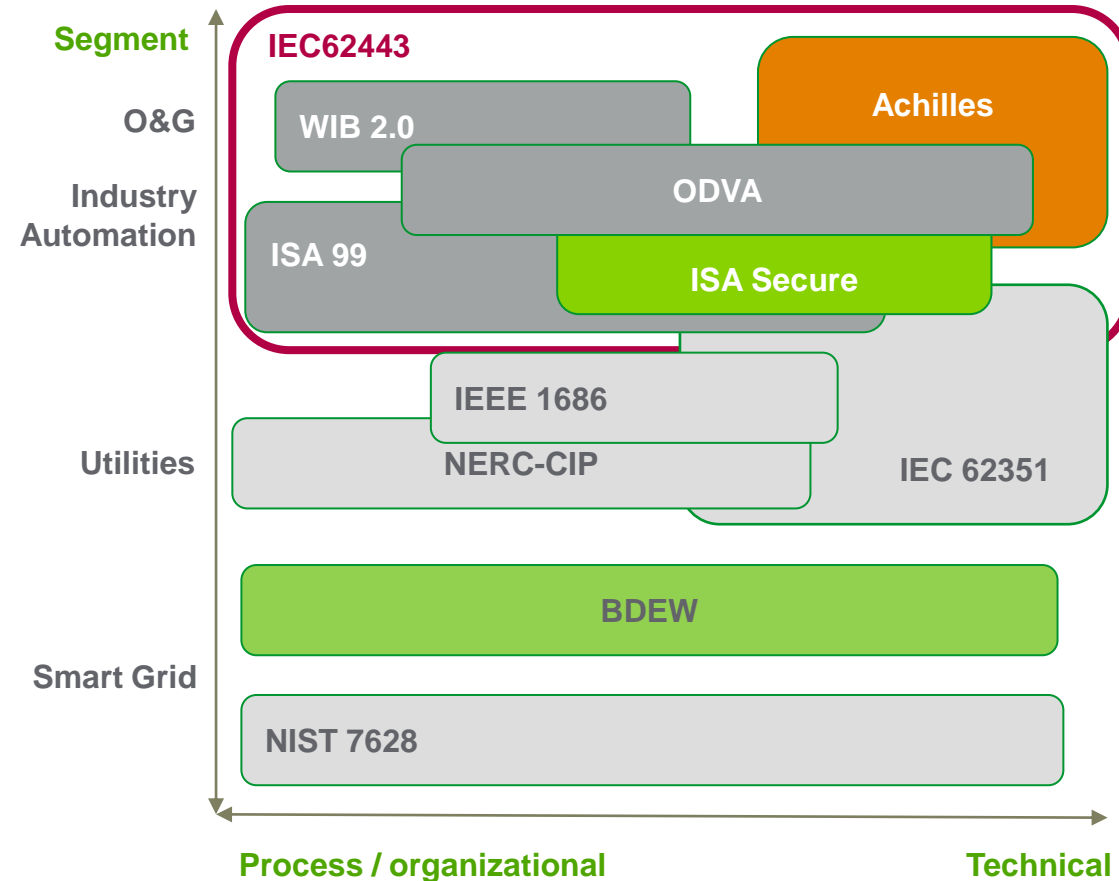
Defense-in-Depth Approach

6 key steps :

1. **Security Plan**

2. **Network Separation**

3. **Perimeter Protection**

4. **Network Segmentation**

5. **Device Hardening**

6. **Monitoring & Update**

Cybersecurity Ready

voldoet aan cybersecurity standaarden

Segment

IEC62443

O&G

WIB 2.0

Achilles

Industry
Automation

ODVA

ISA 99

ISA Secure

Utilities

IEEE 1686

NERC-CIP

IEC 62351

Smart Grid

BDEW

NIST 7628

Process / organizational   Technical

Geïntegreerde Security functies zoals gedefinieerd door de standaarden:

IEC62443

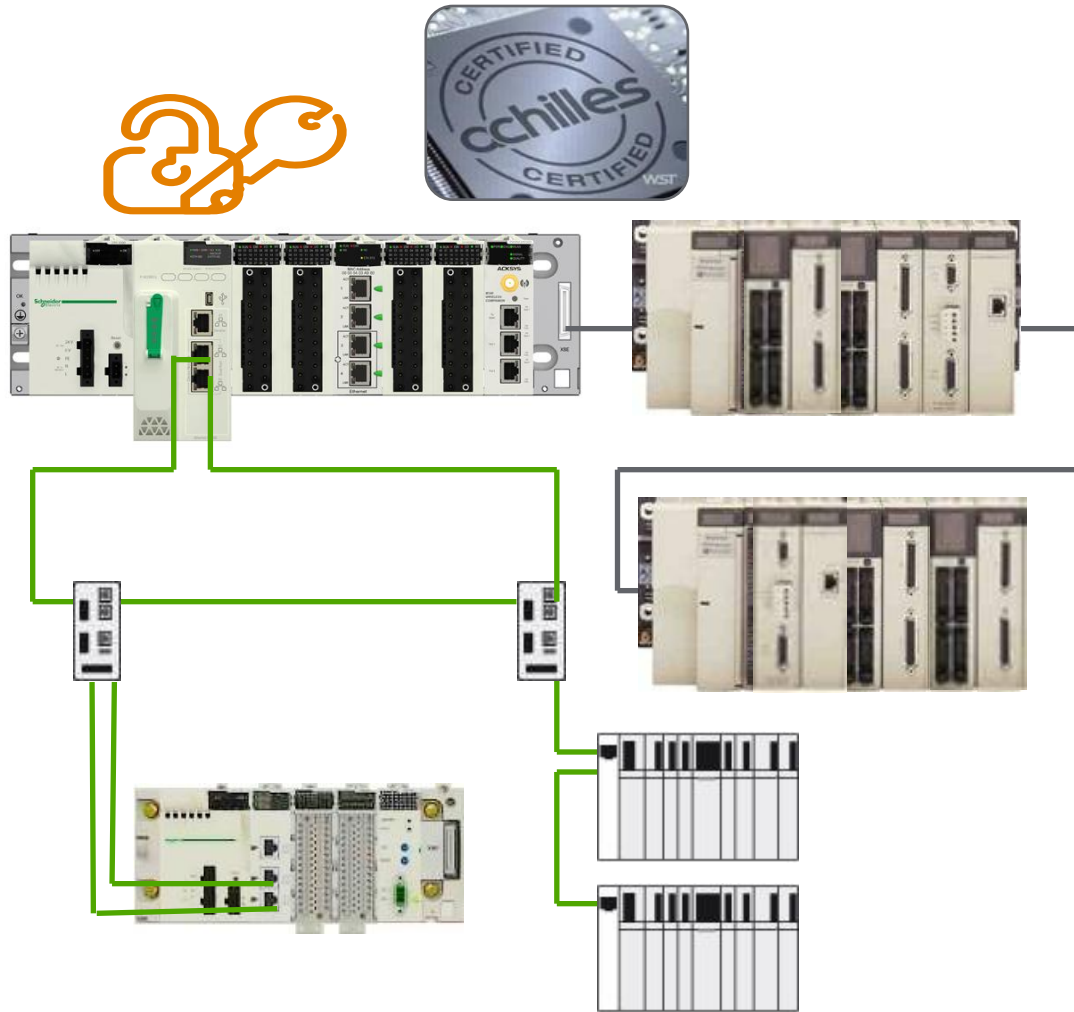- Evolutie van ISA99. Dekt apparaten systemen en gebruik van systemen af

Achilles Level 2

- Gedetailleerde inspectie van TCP/IP verkeer
- Omvat Ethernet, ARP, IP, ICMP, TCP en UDP
- Toont de robuustheid aan tegen een gedefinieerde set van testen

The most secure investment

Our most secure PAC
- Cybersecurity & know-how protection
- Robustness according Achilles Level 2
- Identification controller / application
- IPSec
- Event logging

Robust, certified & proven
- Robustness above IEC standards
- Fully certified
- More than 200 000 X80 configurations sold

Smart migration
- Unity Pro as common engineering tool
- X80 as common I/O system
- Premium I/O & wiring re-use
- Smooth migration paths

VRAGEN OVER

Verticale integratie eenvoudiger dan ooit

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