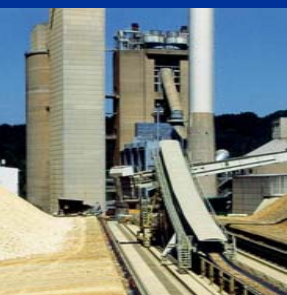


OSEA - 2008

SIEMENS

Totally Integrated Automation





Siemens – your DCS supplier

Process Automation

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SIEMENS

Reliability of a major enterprise

- More than 150 successful years of **SIEMENS**
- One of worldwide leading companies in electro-technology and electronics

Complete solution from a single source

- Optimal solution for all industries based on a single platform (one stop shopping)
in-house development and production of all components (field devices, I/O, Controller, Operator & Engineering Station, Batch, MES,...)

The DCS in Totally Integrated Automation

- Homogenous system, full integration of Remote-I/O, transducer, drives, motor starter & protection, positioner, weighing systems, ...
- Seamless integration of production level and enterprise resource planning level
- Integration of primary & secondary processes and inbound and outbound logistics as well



Siemens – your reliable DCS supplier

SIMATIC PCS 7 – Minimum solution cost with no compromise on Quality

SIMATIC PCS 7 – The process control system in Totally Integrated Automation

SIMATIC PCS 7 - the DCS in Totally Integrated Automation

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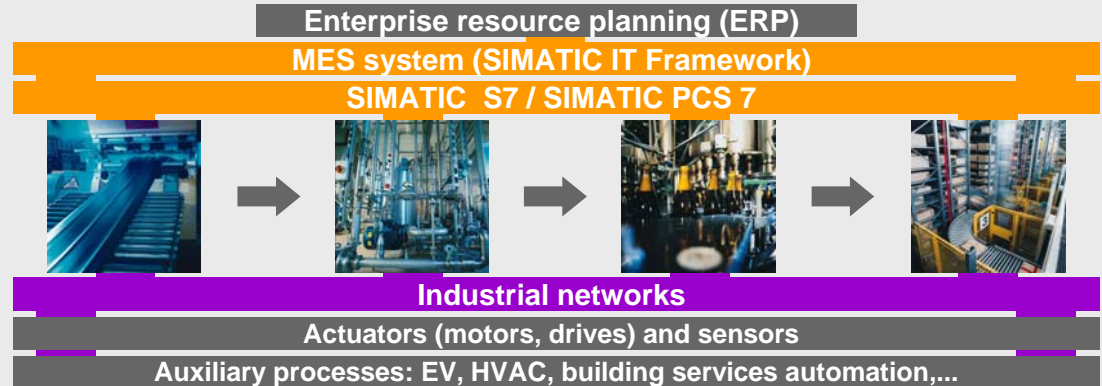
Security

Highlights

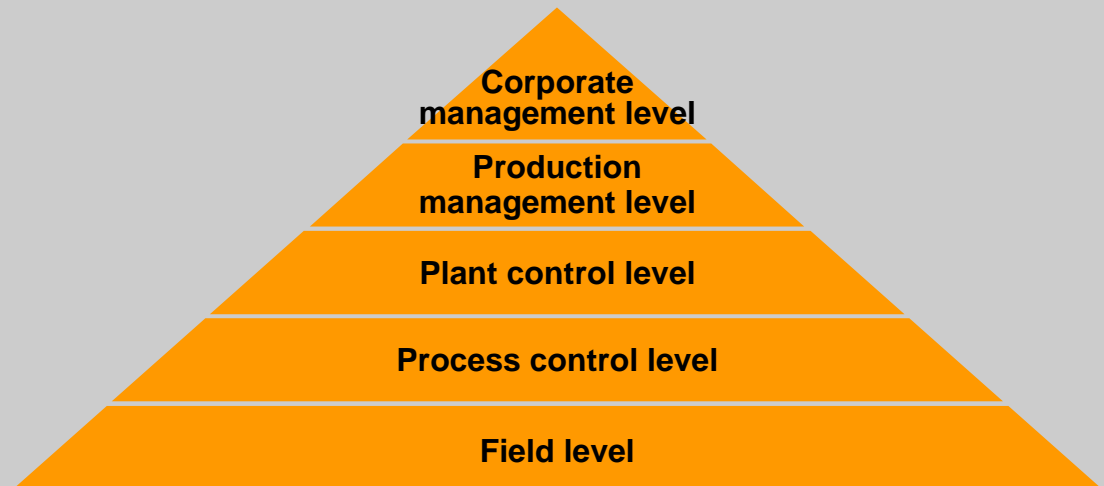
References

SIEMENS

Horizontal integration

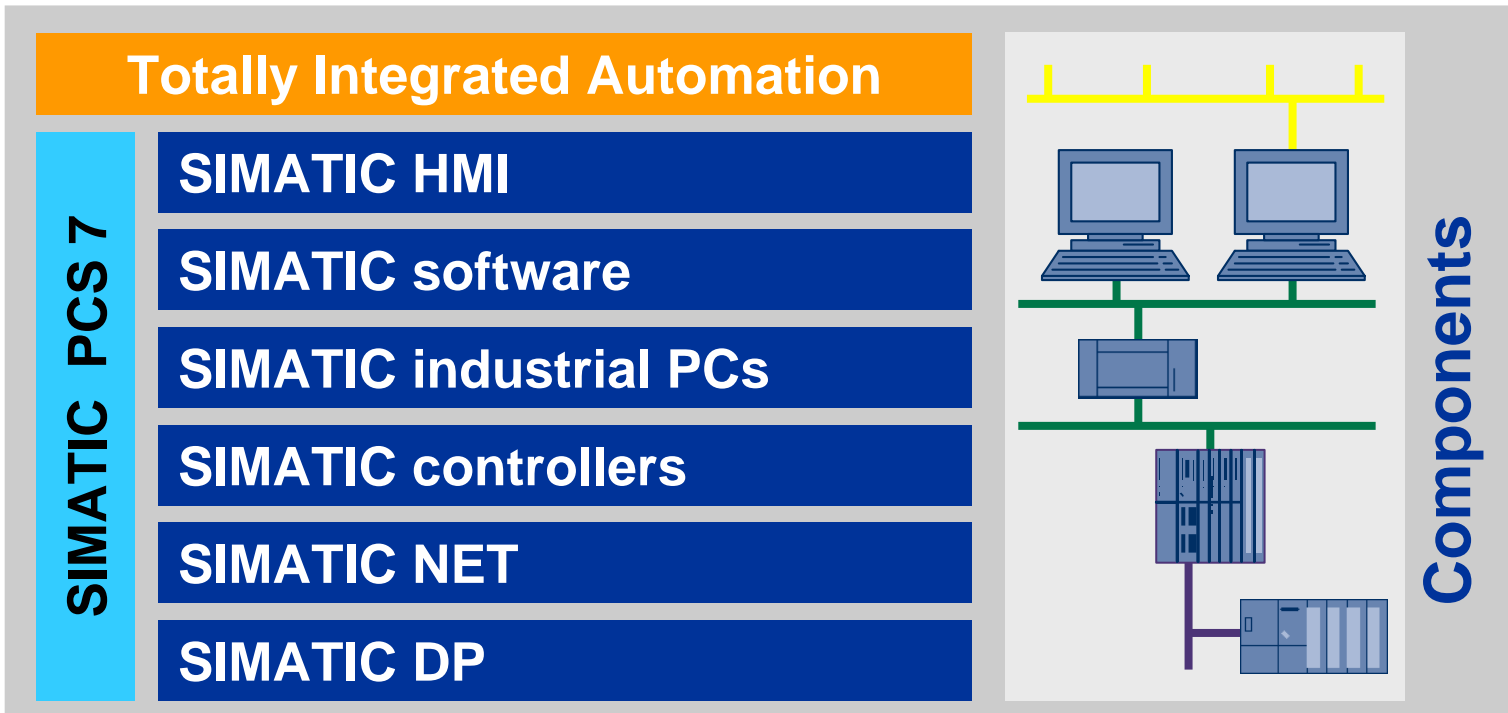


Vertical integration



SIMATIC PCS 7 is based on components from Totally Integrated Automation

SIMATIC PCS 7 comprises:



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SIEMENS

One stop shopping - all from a single source

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One stop shopping - all from a single source

- All PCS 7 system components (I/O, controller, network, HMI, engineering, batch)
- Standard PLCs and text displays
- Field devices, analyzers, compact controllers
- Drives, drive controls
- Low-voltage switchgear
- MIS / MES components
- Services
- and much more ...

One contact partner

- Products are perfectly compatible with each other and were extensively system tested
- Siemens as world market leader in automation has experience and expertise
- Worldwide service and support for all components



SIEMENS

SIMATIC PCS 7 - system architecture

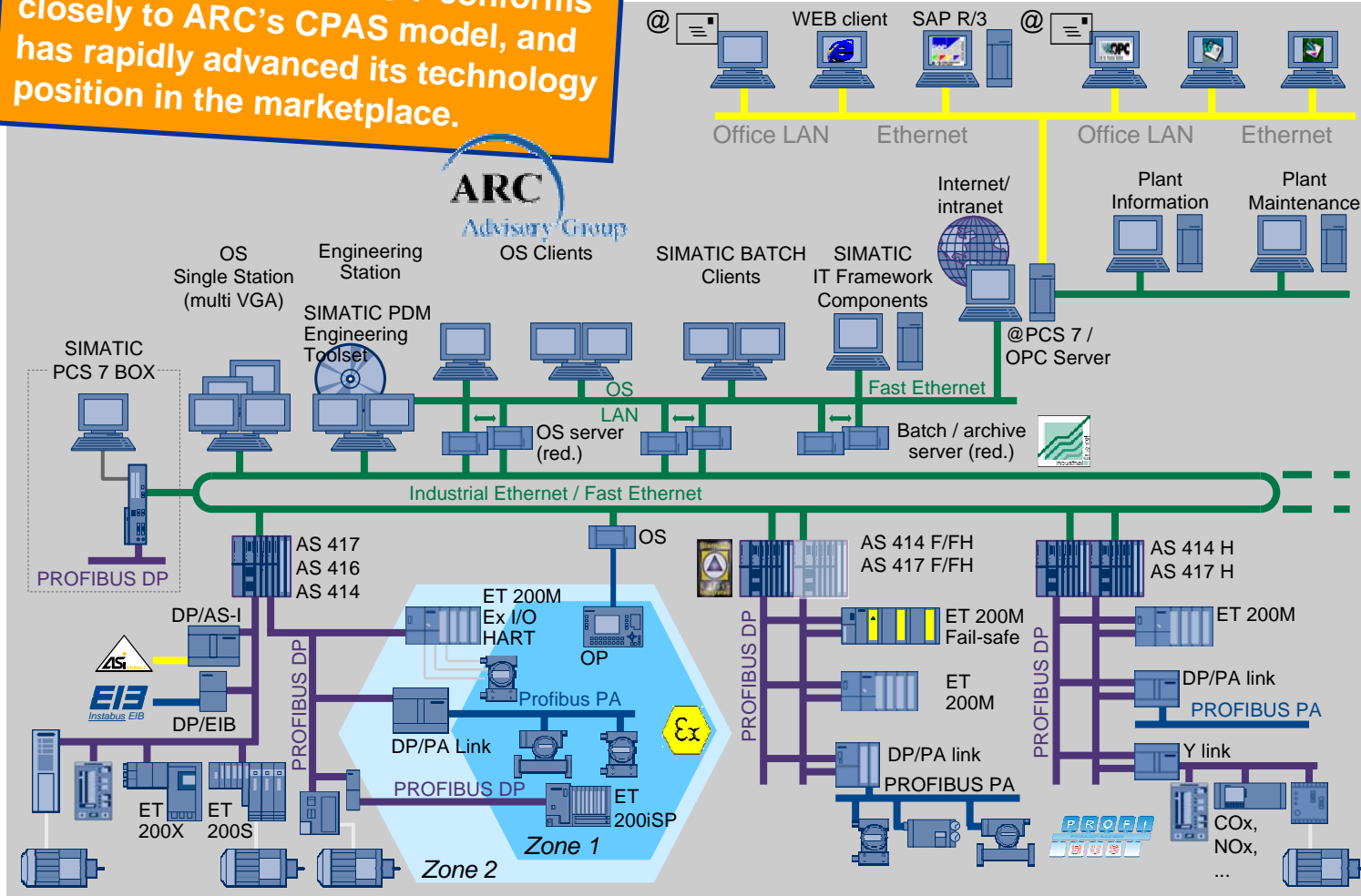
January 2005

From the perspective of technology direction, SIMATIC PCS 7 conforms closely to ARC's CPAS model, and has rapidly advanced its technology position in the marketplace.

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Redundancy at all levels

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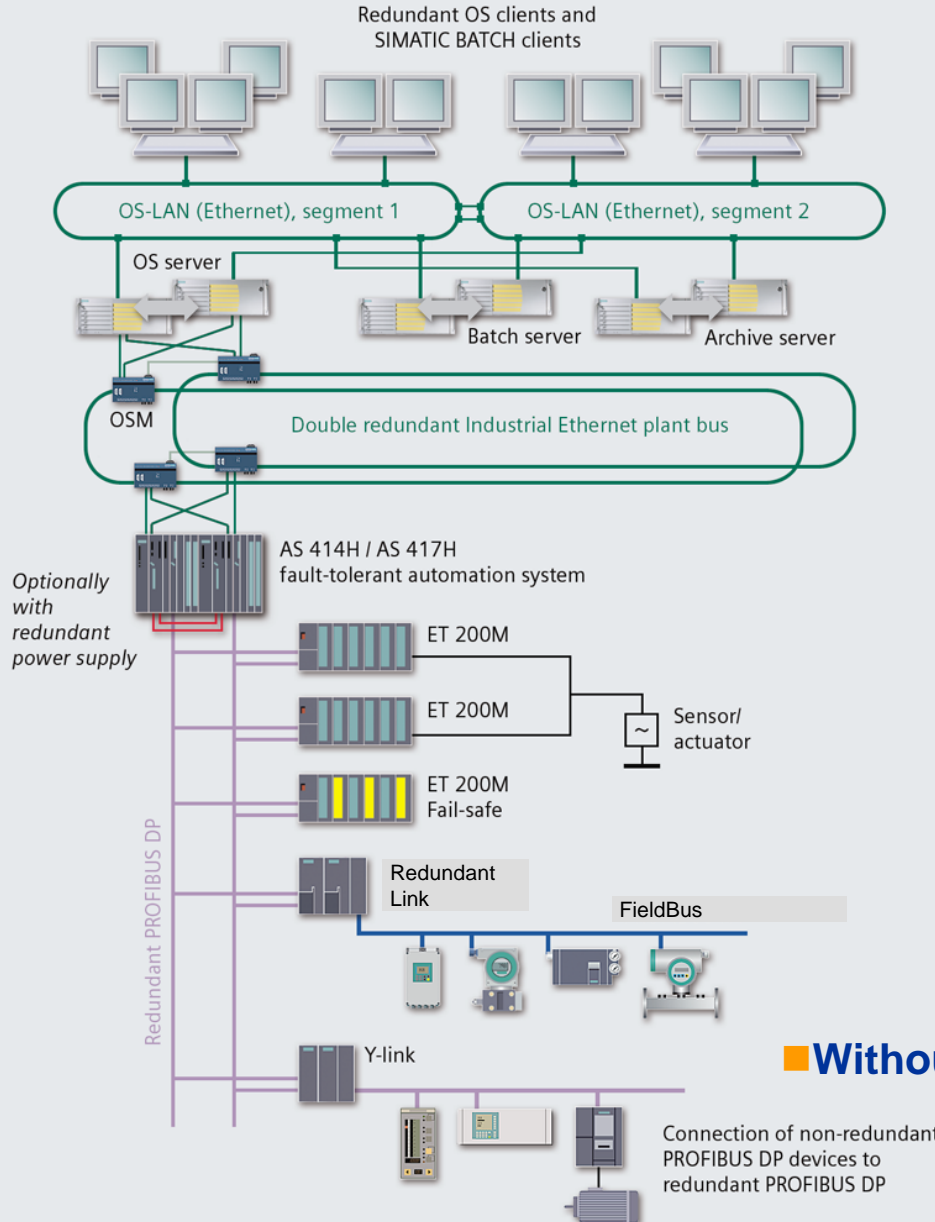
Engineering

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Redundant OS

Redundant Servers

Redundant communication

Redundant controller

Redundant I/O

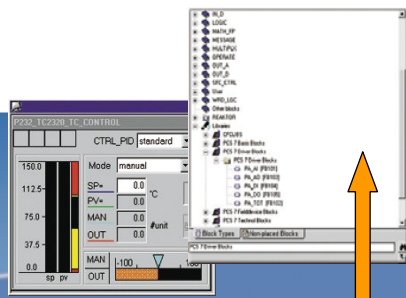
Redundant PROFIBUS

Redundant IM

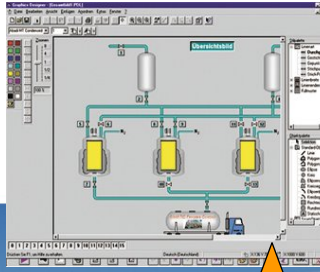
Without additional Engineering

SIMATIC PCS 7 Engineering System (ES) – centrally integrated...

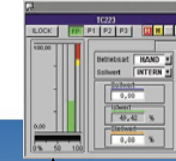
Predefined I&C function blocks with standard OS faceplates and symbols (e.g. Motor, Valve, Control PID)



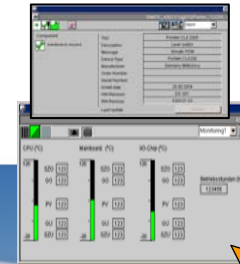
OS Engineering



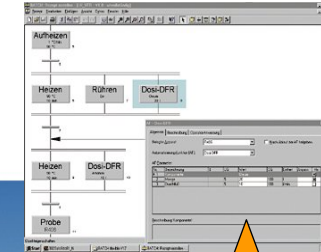
User OS-faceplates



Asset Management



BATCH flexible recipe editor



PCS 7 Engineering



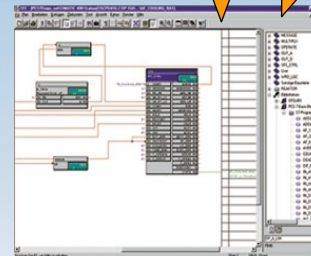
SIMATIC Manager uniform database



Engineering for process safety systems



Engineering for network/communication/hardware



Engineering of automation function



Engineering of user function blocks



SIMATIC PDM for field device parametrization

SIMATIC PCS 7 - central, system-wide engineering system

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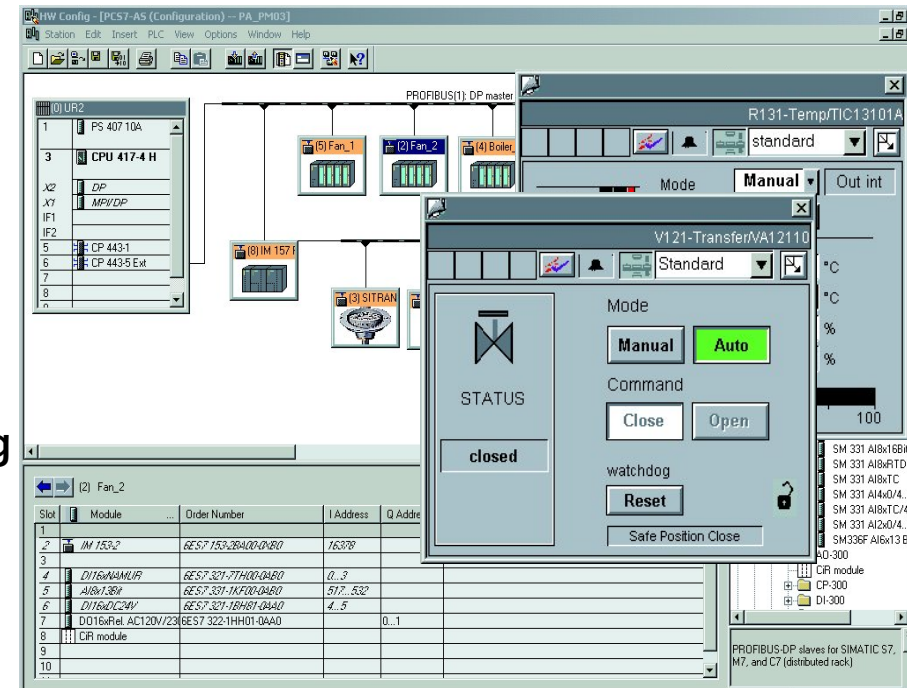
Security

Highlights

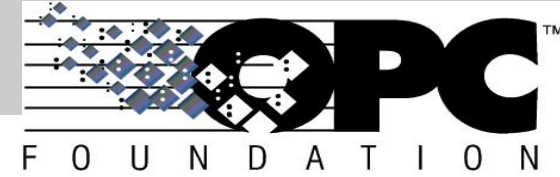
References

SIEMENS

- Central, system-wide integrated hardware and software configuration with one engineering system
- Common database and optimally matched graphic tools
- Multi-project engineering for separating large plants into multiple subprojects (with branch & merge support)
- Transfer of plant data from higher-order CAE tools
- Working with process-related objects such as motors, valves, PID controllers
- Central dialog for translating and loading all AS, OS and batch modifications



Simatic PCS 7 V 7.0 OpenPCS 7



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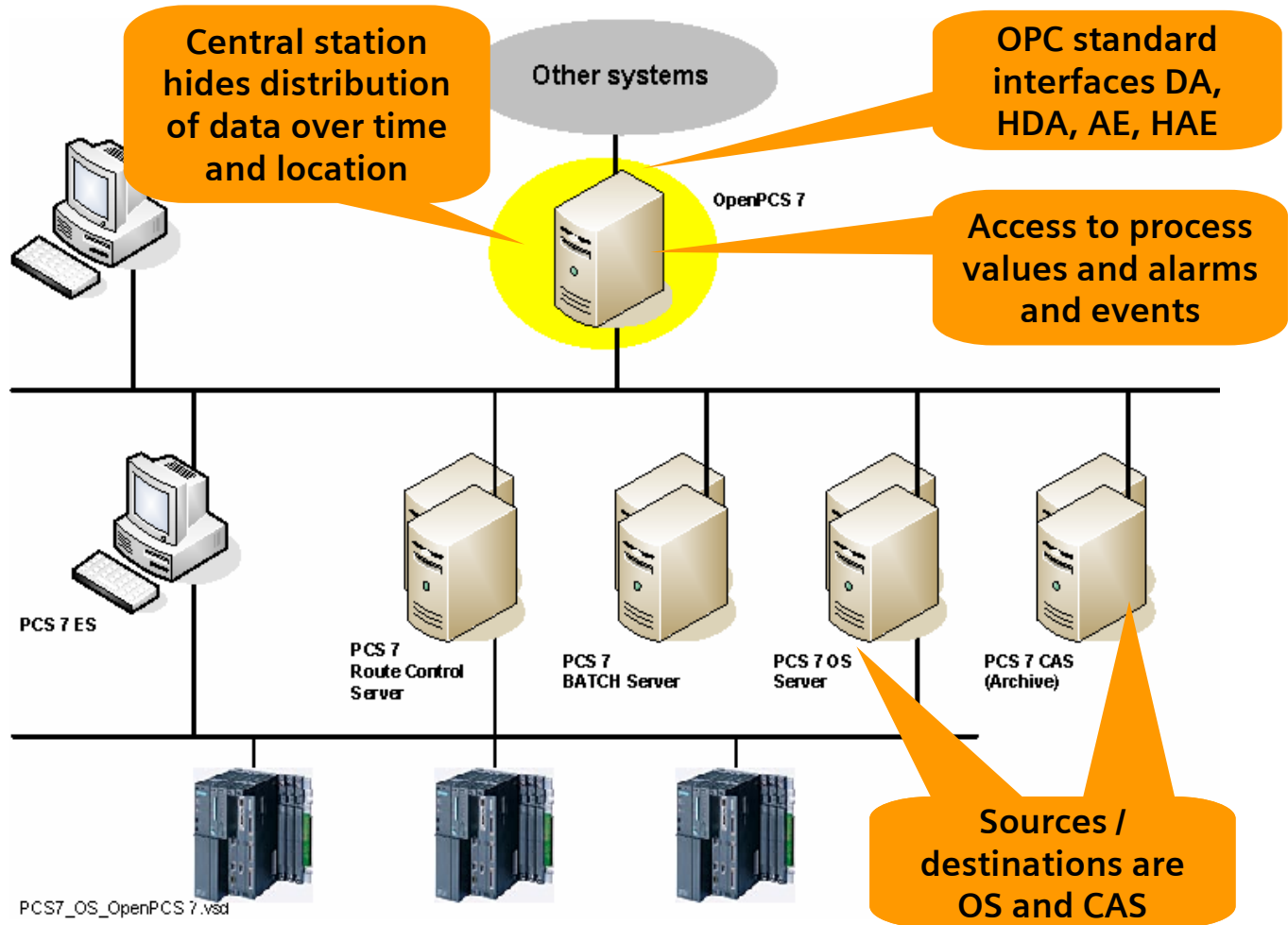
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SIMATIC PCS 7 V7.0

Integrated Plant Asset Management

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SIEMENS

Monitoring

Diagnostics

Maintenance Request

Maintenance, Task


Plant Asset Management


Online, real time functions of the integrated Plant Asset Management Systems of PCS 7:

- 1.) Monitoring of the components
- 2.) Message generated on status change
- 3.) Display of diagnostic information
- 4.) Creation of maintenance request
- 5.) Tracking of the maintenance activities

Implementation per International Standards (NAMUR recommendations NA 64 and NE 91)

SIMATIC PCS 7 V7.0

Integrated Plant Asset Management

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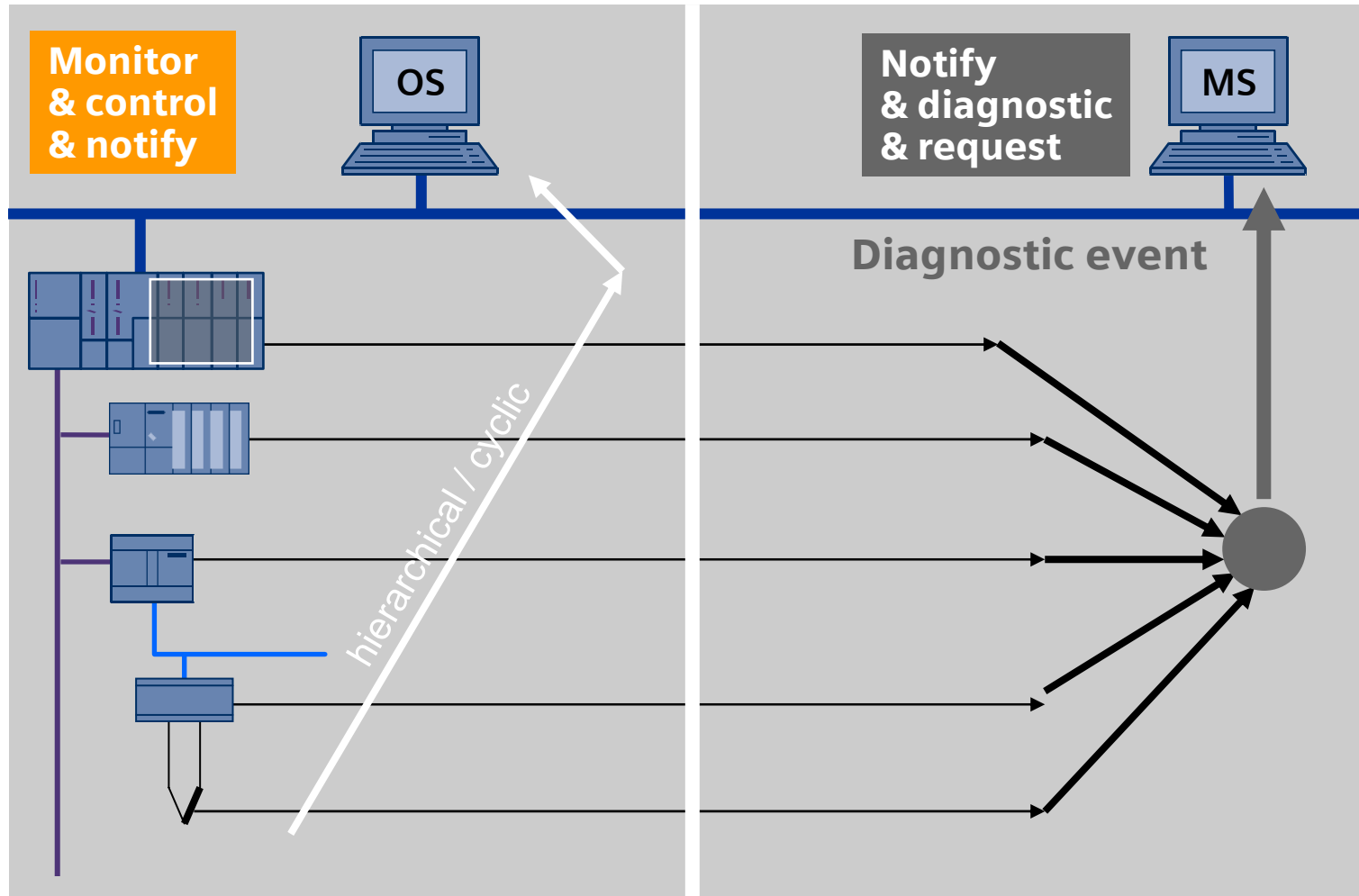
Security

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SIEMENS

Separation of Process and Maintenance Information



SIMATIC PCS 7 V7.0

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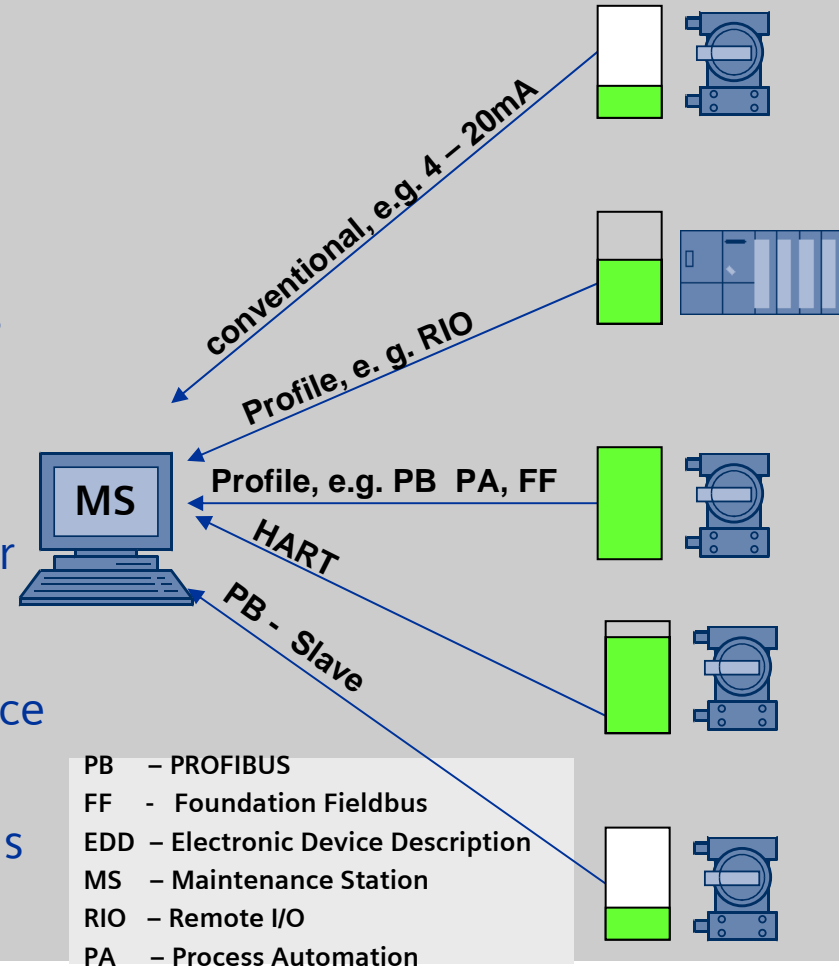
Highlights

References

Free choice of field devices (all suppliers)

Asset Management System depends on „intelligence“ of the device

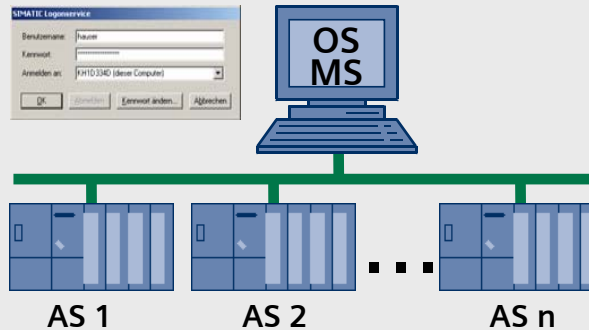
- The manufacturer of the device determines the amount of information for his device
- Only the manufacturer knows the asset management capabilities of his device
- Compliance with international standards and specs determines the integration effort



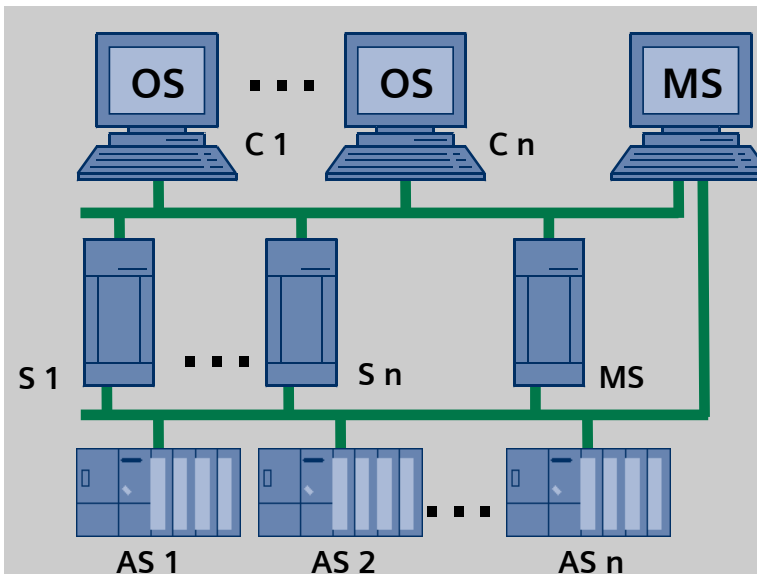
SIMATIC PCS 7 V7.0

Integrated Plant Asset Management

Asset Management functionality can be integrated into the OS or stand-alone – The Maintenance Station



- Maintenance Station integrated in Operator station



- OS Clients with access to maintenance area (pictures, messages, faceplates)
- Maintenance Station has additional functionality - direct online access to PDM and hardware configuration tool

AS – Automation System
 C – Client
 MS – Maintenance Station
 OS – Operator Station

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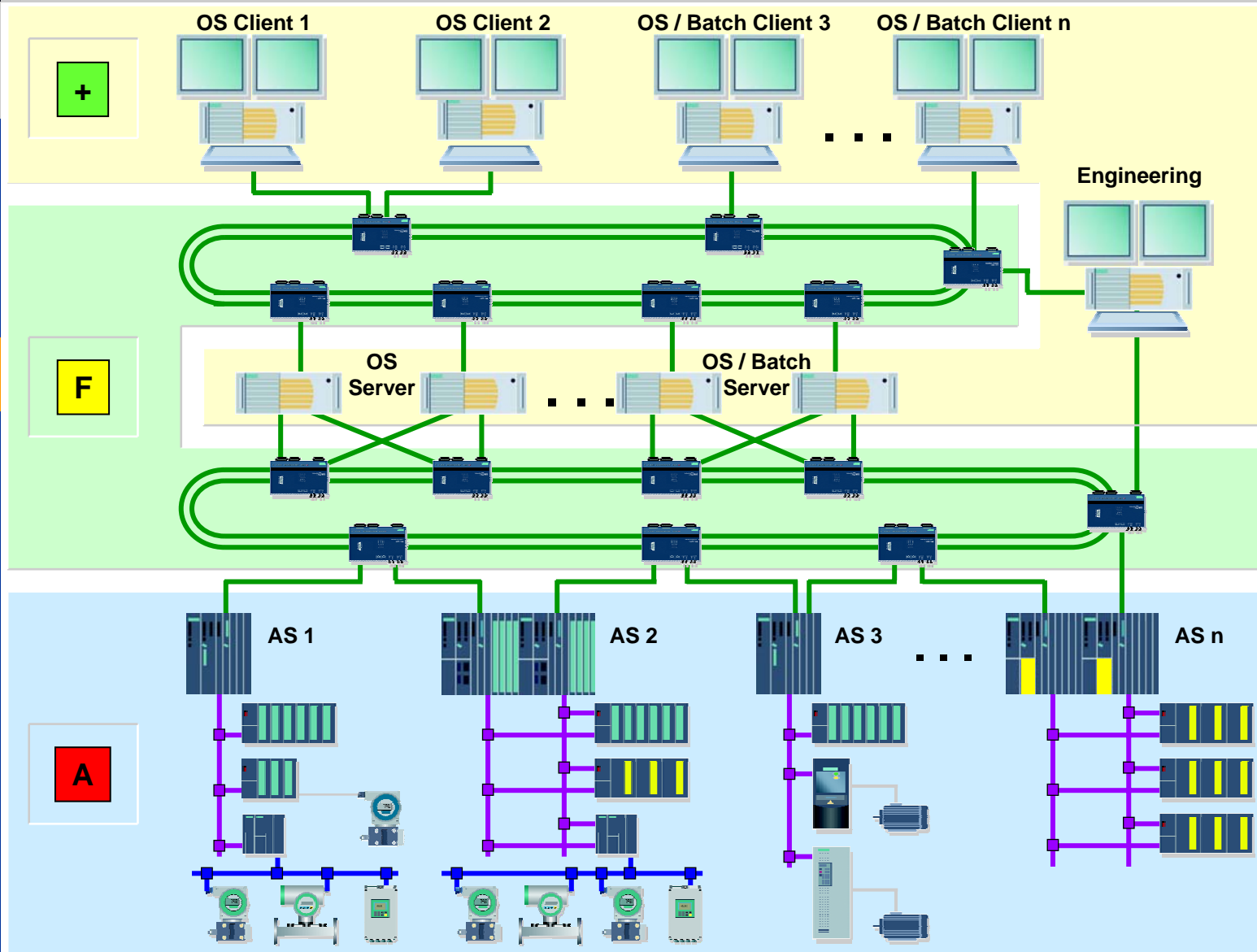
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Integrated Plant Asset Management Overview

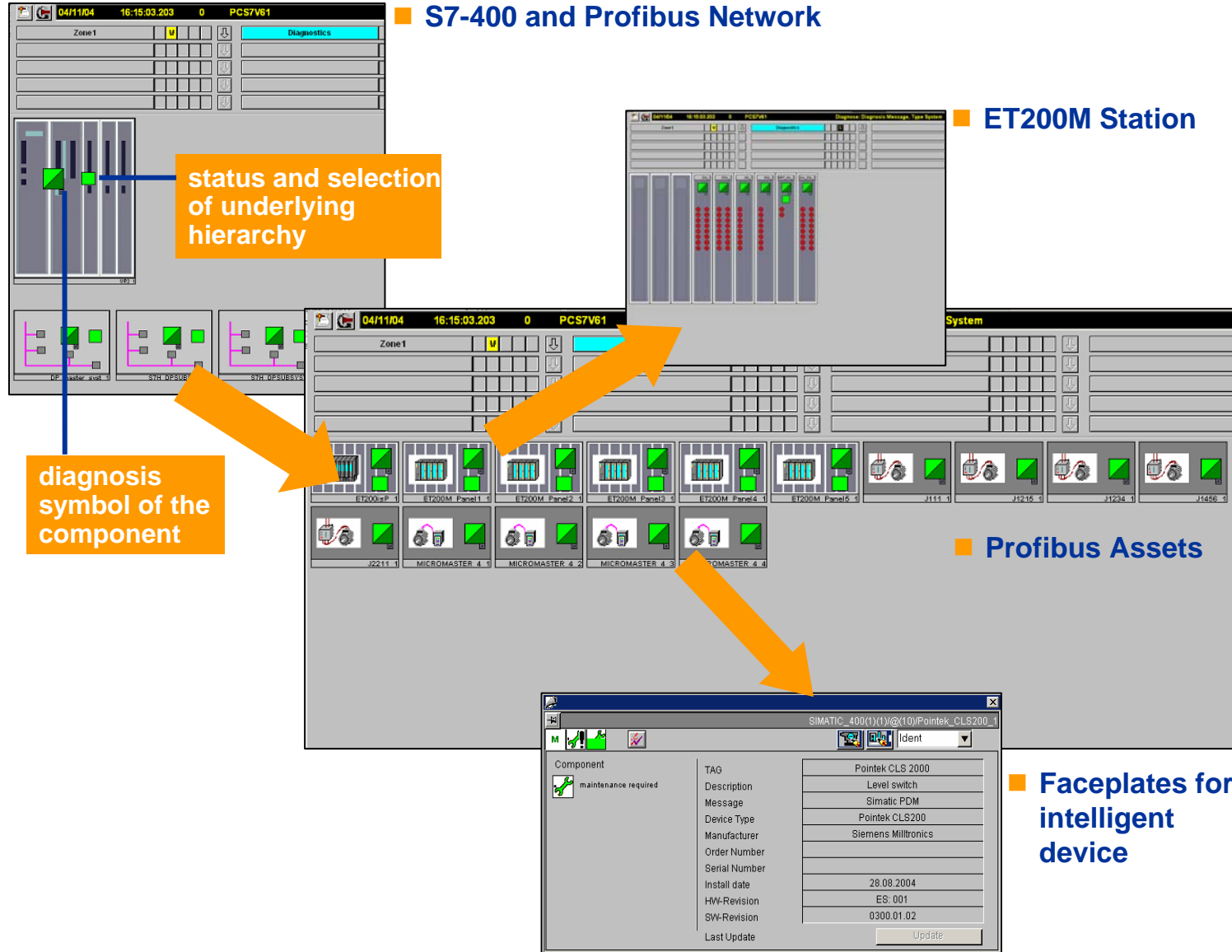
- Process Automation
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Integrated „Plant Asset Management“ Hierarchical Structure

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Highlights V6.1



Interface to supervisory systems

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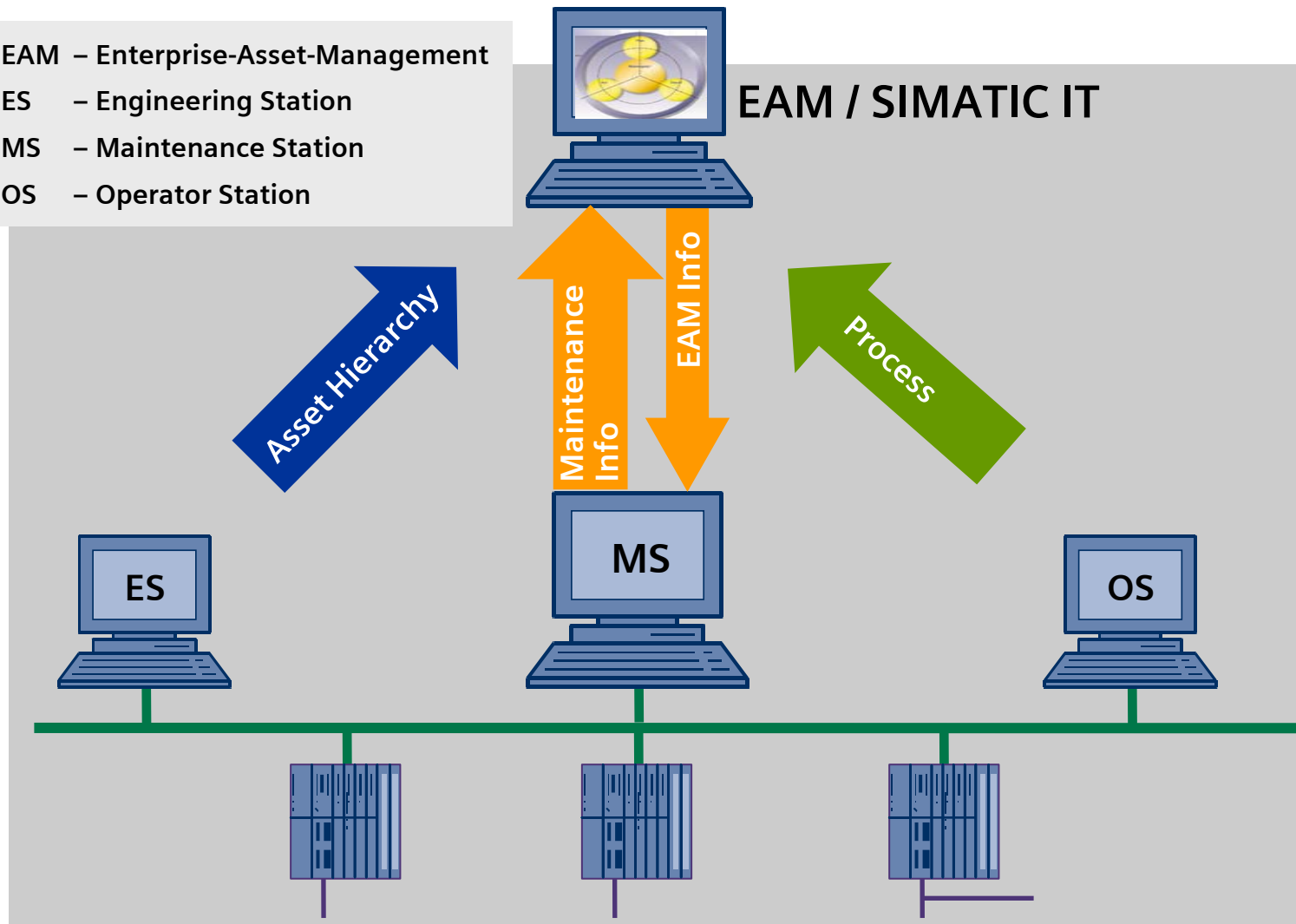
SIEMENS

EAM – Enterprise-Asset-Management

ES – Engineering Station

MS – Maintenance Station

OS – Operator Station



Levels of Integrated Control & Safety

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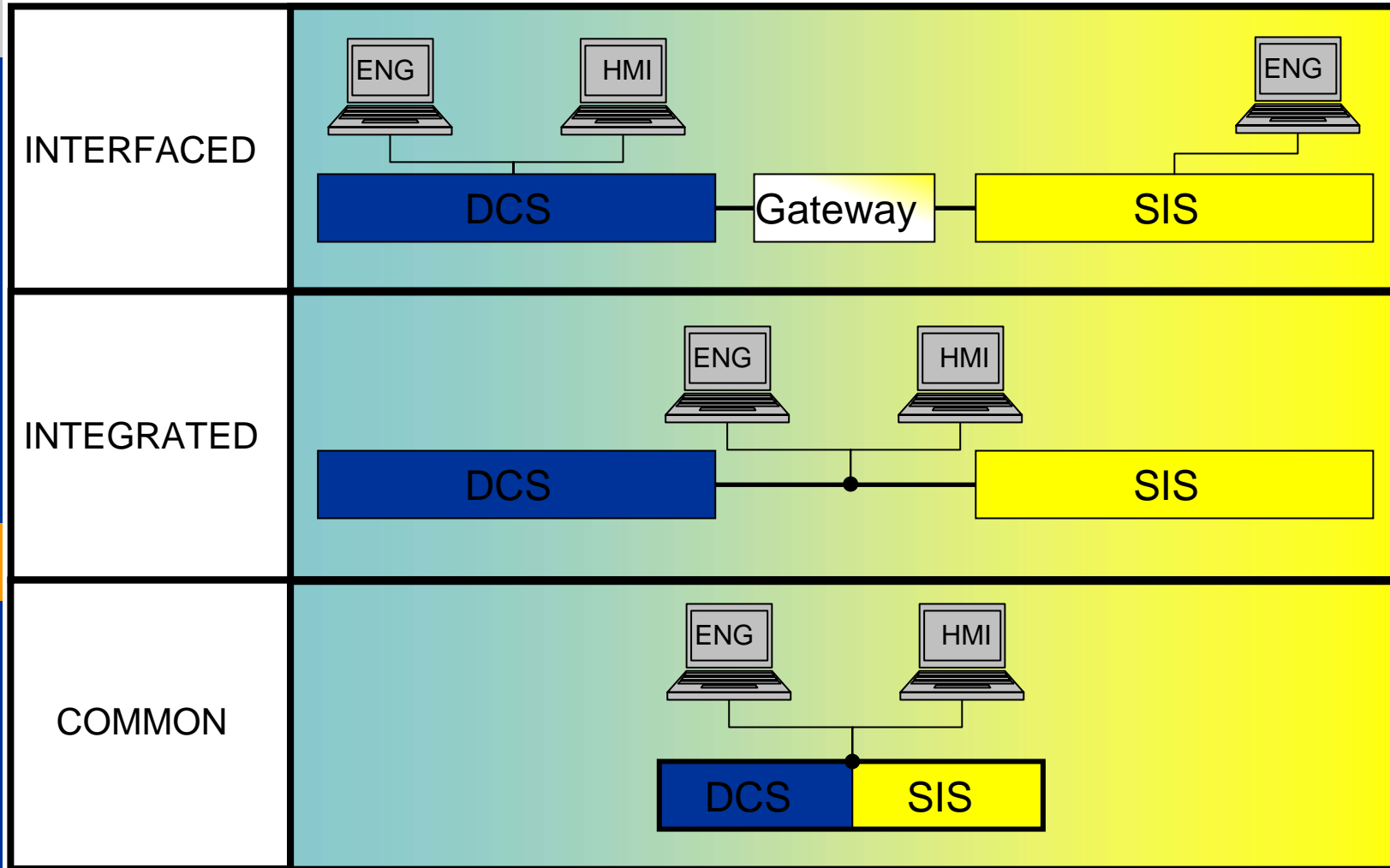
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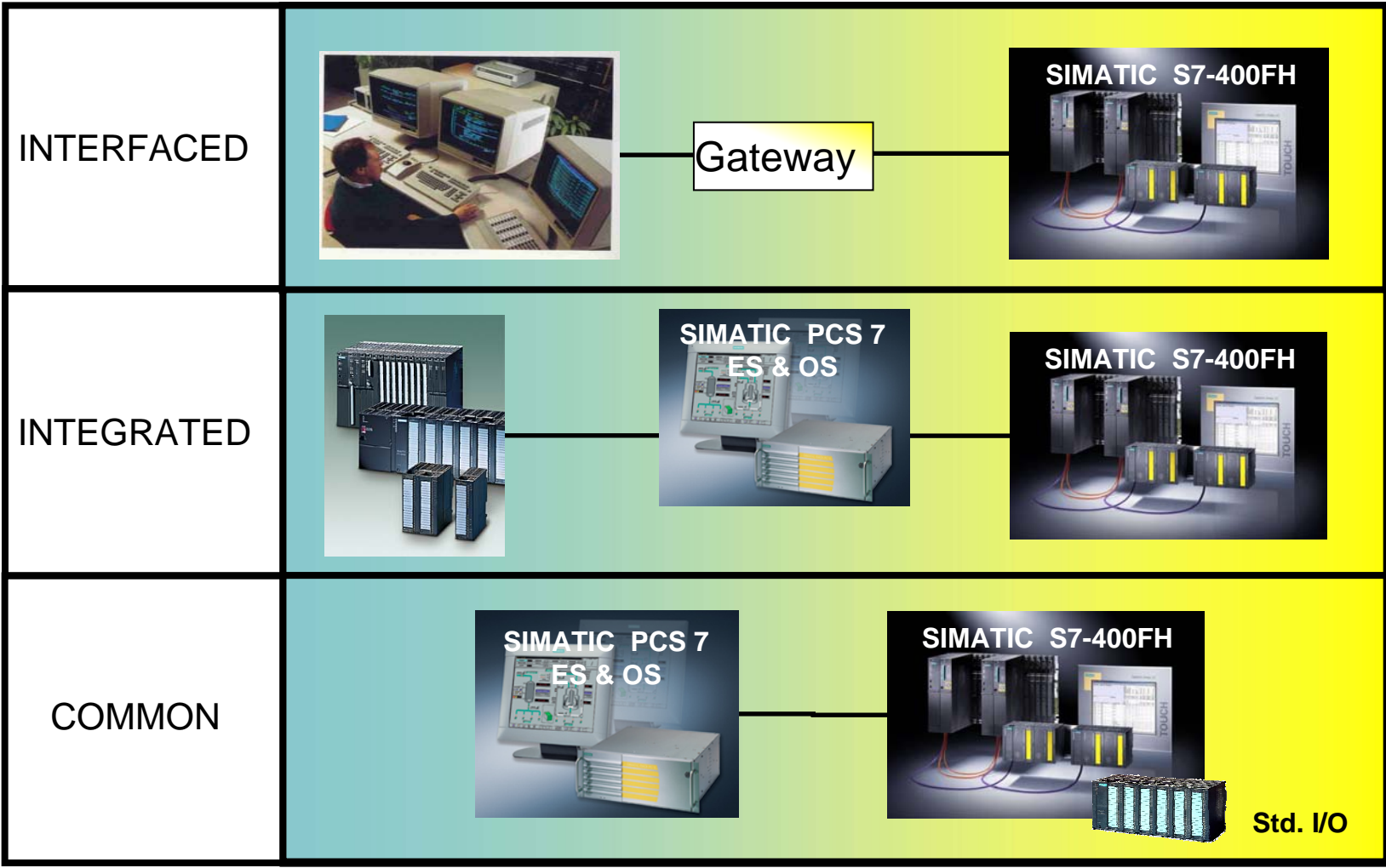
References



Levels of Integrated Control & Safety

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Fail-safe automation embedded in the DCS

Process Automation

SIEMENS: Over 20 Years experience in failsafe-technology

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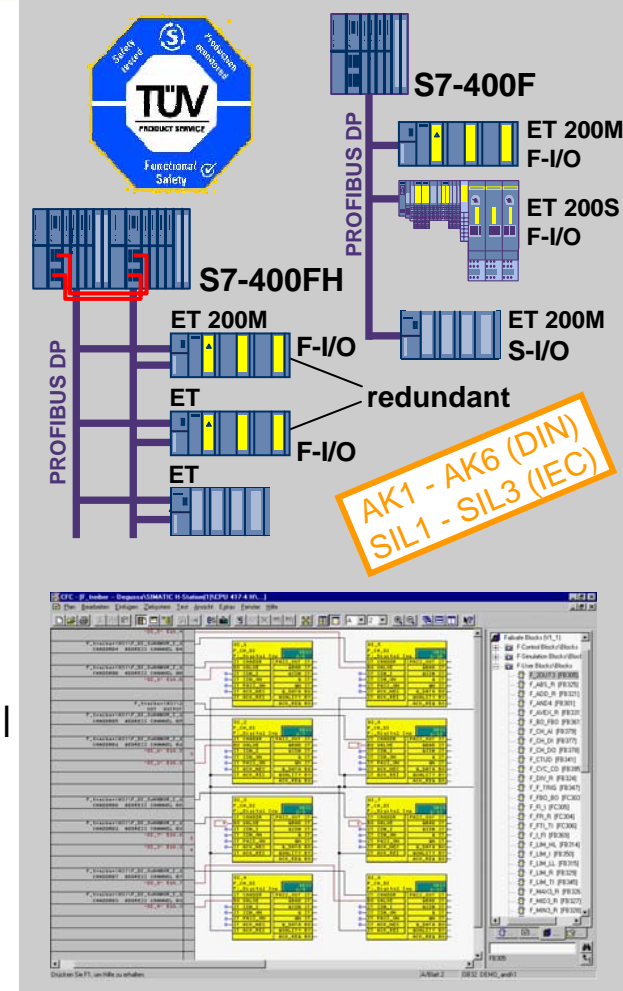
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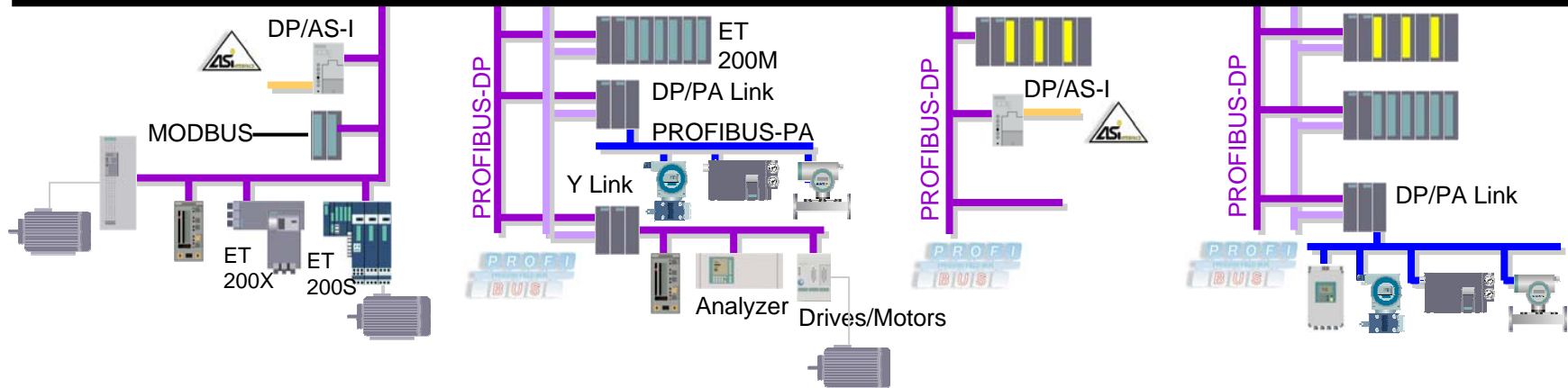
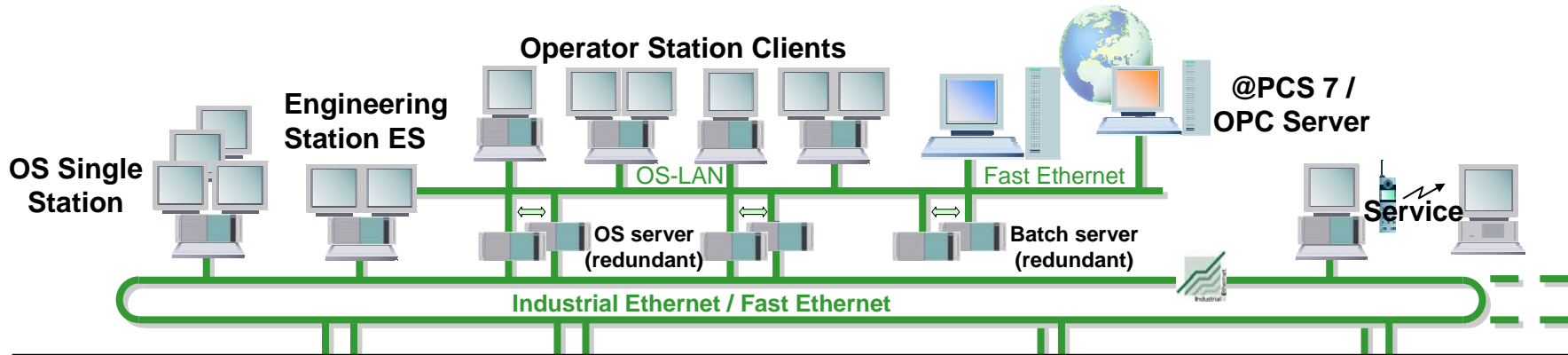
Integrated Control & Safety System (ICSS) Solution

- Use of SIMATIC S7 standard components for fail-safe application
- Flexibility for different availability and safety levels per safety function
- Standard and fail-safe functions can be mixed in the same controller and on the same PROFIBUS-DP
- Configuration of standard and fail-safe functions with the same engineering tool
- F tool provides support for approval by (TÜV*) (compare function, checksum, access protection, F signature to OS)



*German Technical Inspectorate

Plantwide Integration



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SIMATIC PCS 7 Integrated Safety Applications

Process Automation

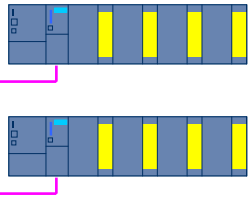
Engineering



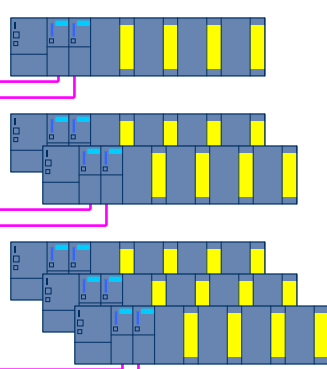
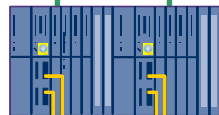
Operator Station



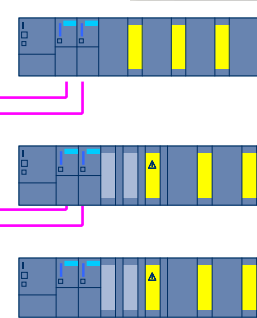
Radio or WLAN



Power
Management



Emergency
Shutdown / Process
Control System



Fire &
Gas



Wellhead



Flexible Modular Redundancy™

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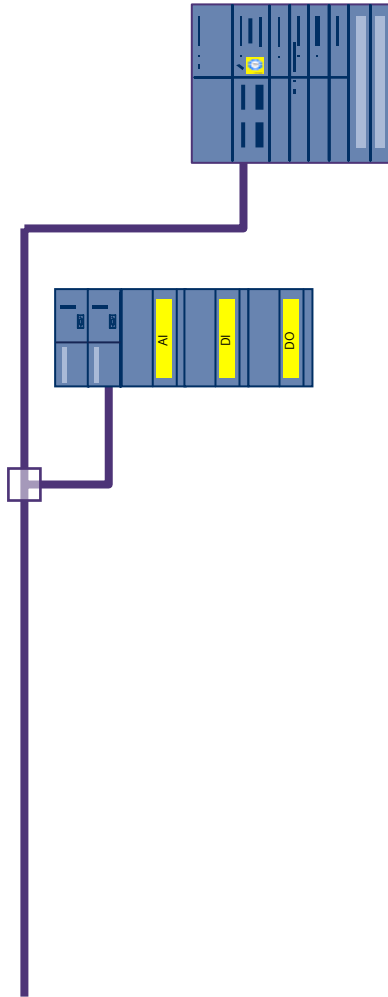
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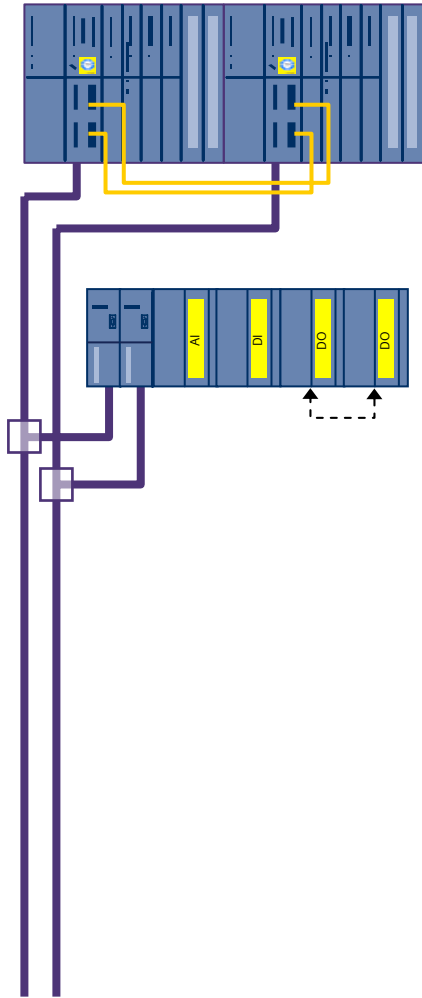
References





Flexible Modular Redundancy™

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Make any component redundant

- Security
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Flexible Modular Redundancy™

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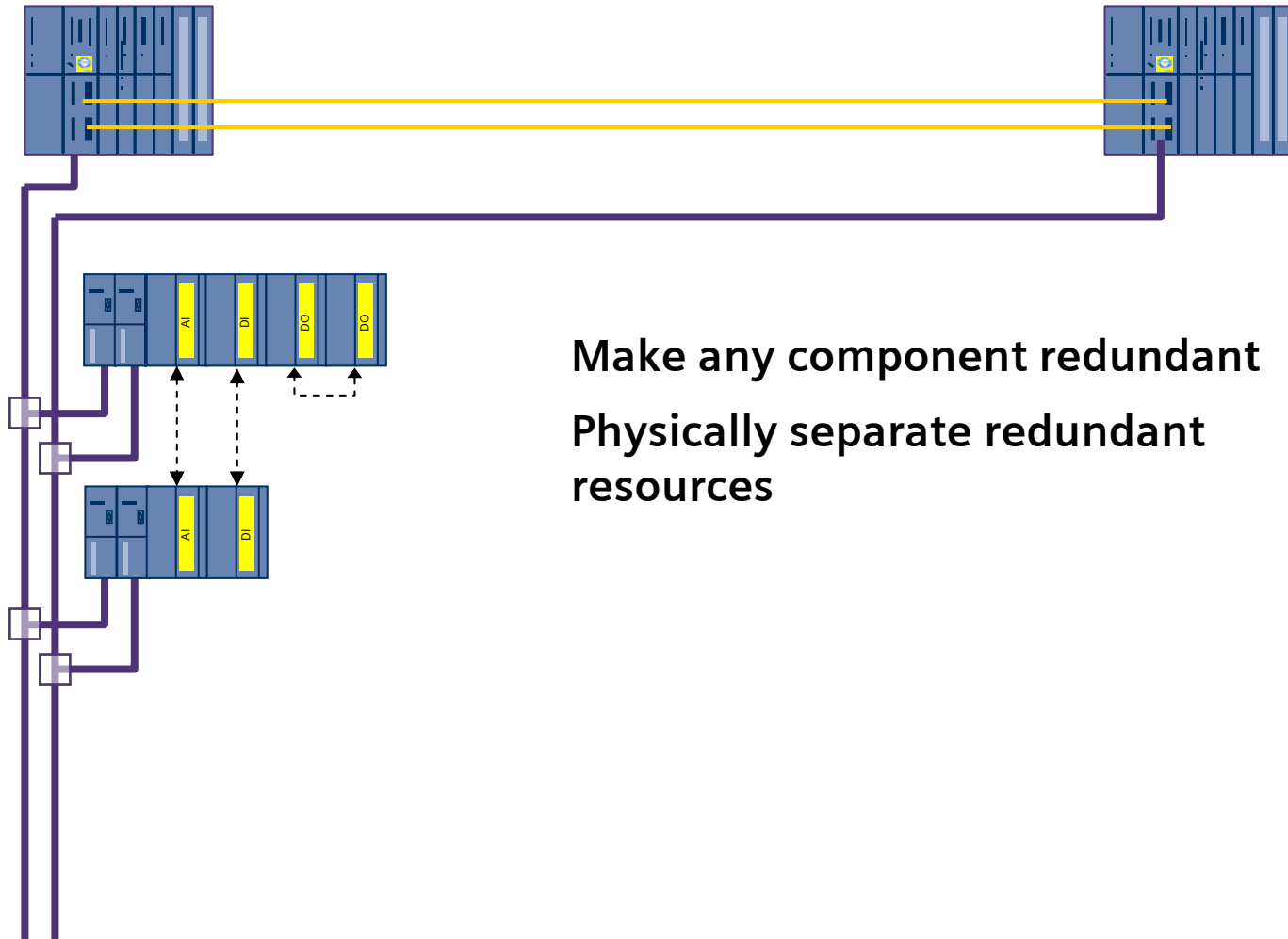
Engineering

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Make any component redundant
Physically separate redundant resources

Flexible Modular Redundancy™

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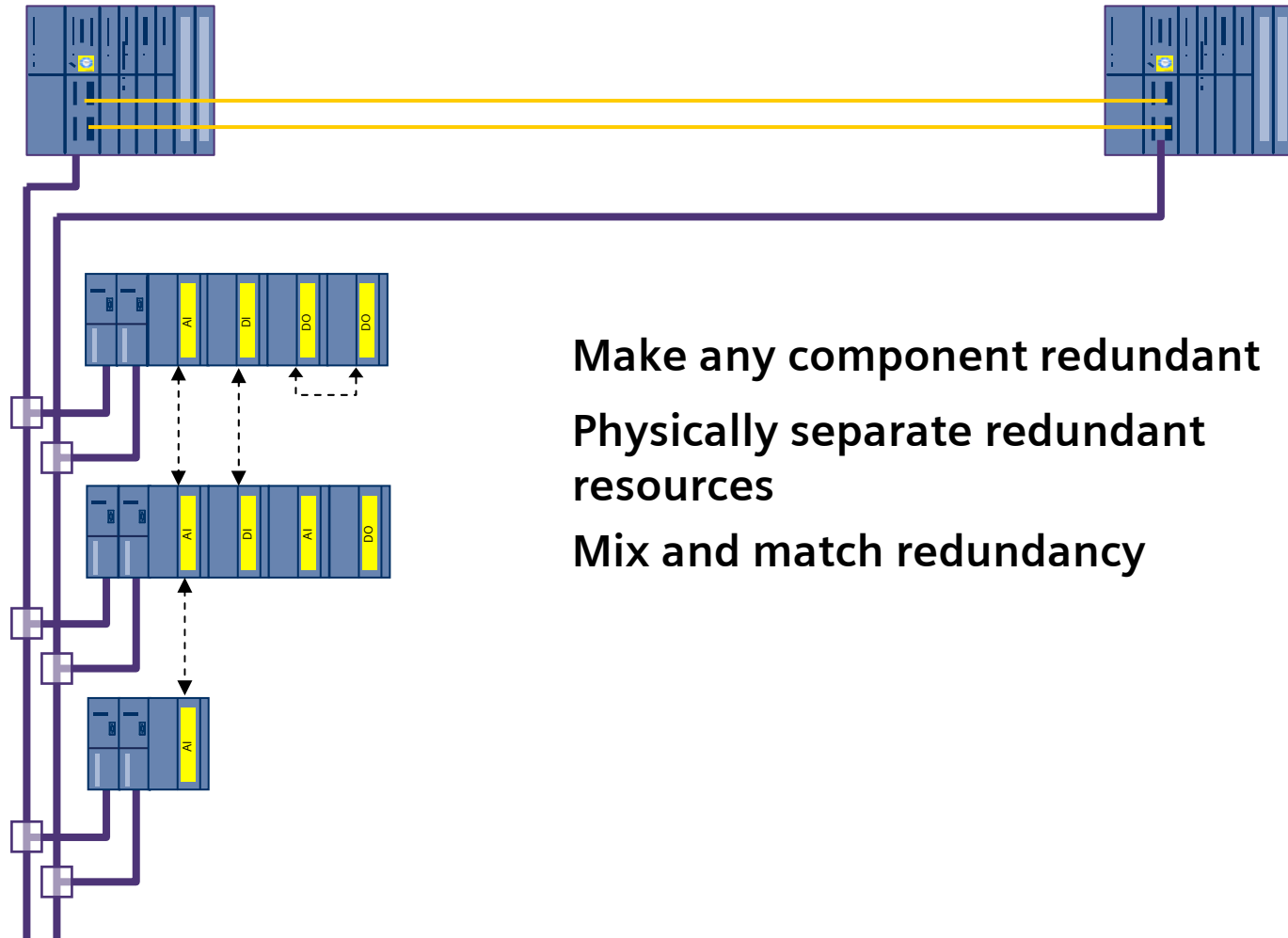
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Make any component redundant

Physically separate redundant resources

Mix and match redundancy

Flexible Modular Redundancy™

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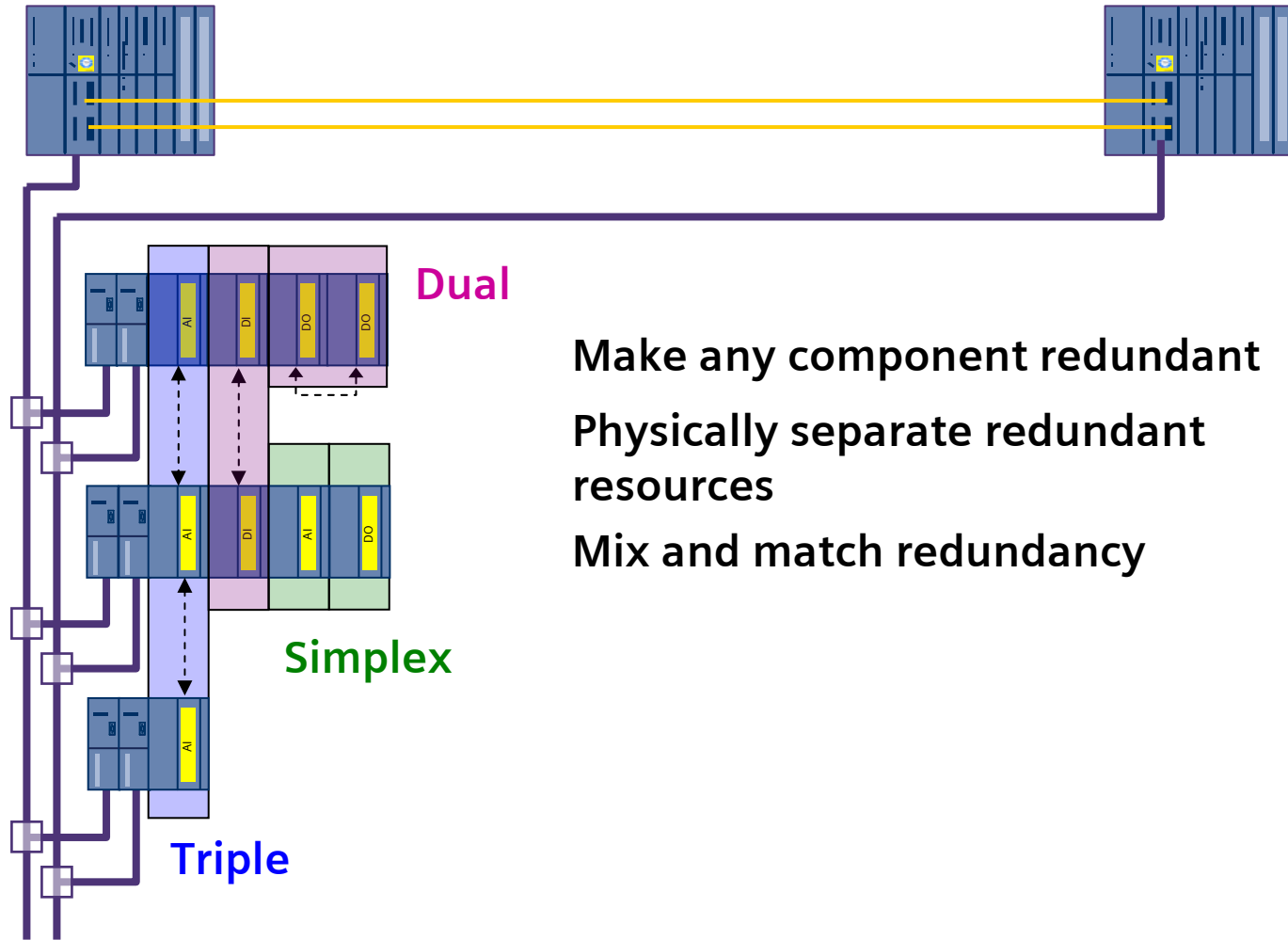
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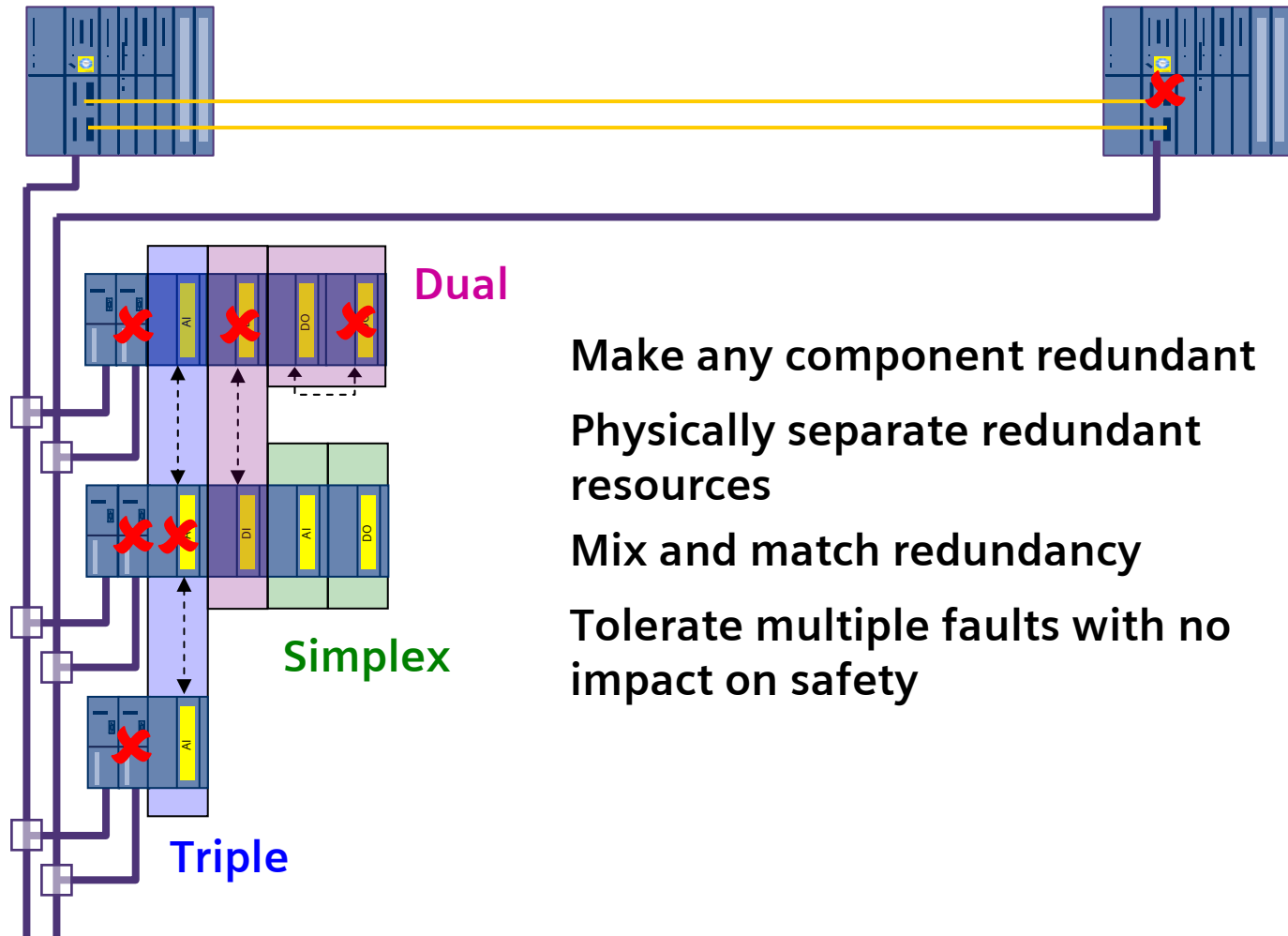
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Make any component redundant

Physically separate redundant resources

Mix and match redundancy

Tolerate multiple faults with no impact on safety



Flexible Modular Redundancy™

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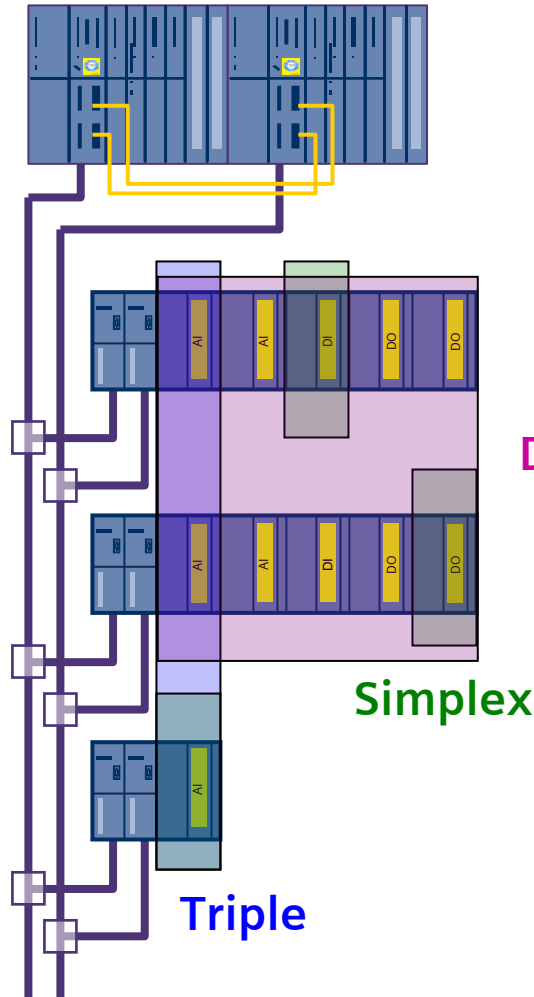
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Ultimate flexibility to choose the redundancy levels to fit the Safety Instrumented Function (SIF)

Mix and Match to meet the goals of the application

Dual

CPU/IO safety is not dependant on redundancy

- All components are SIL3-capable
- Redundancy only for availability

IO and Field Device redundancy can be matched to:

- Target Safety Performance
- Maximize availability
- Minimize cost

SIMATIC PCS 7

TOP 10 Points

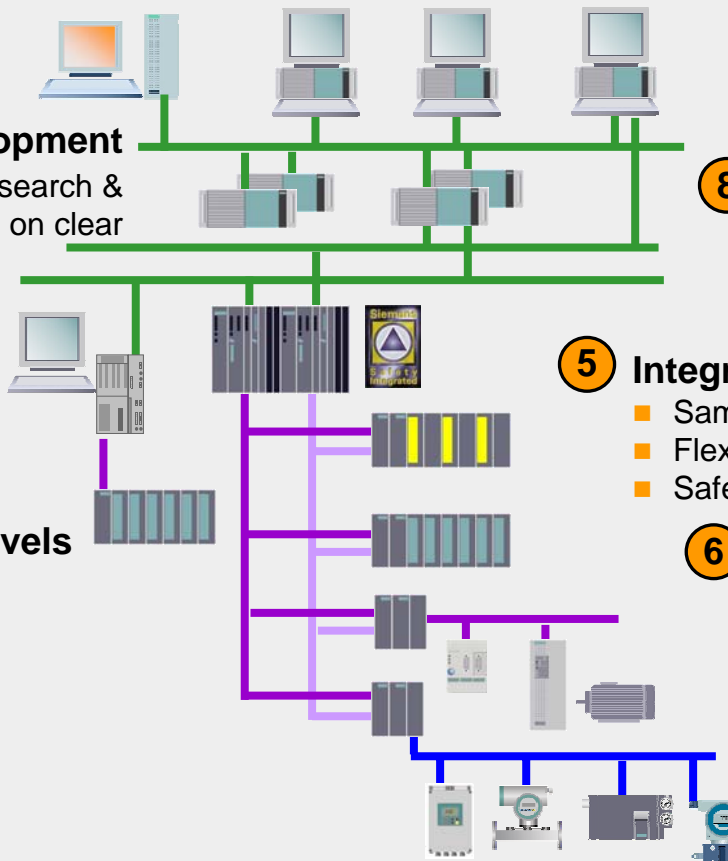
- 1 **SIMATIC Platform** World Market Leader – high quality standard, worldwide logistics and support
- 2 **One Stop Shop** all components developed and manufactured by Siemens
- 3 **TIA Concept** covering all automation tasks – from raw material to packing, from field to ERP level
- 4 **Scalability** from 100 to 100.000 I/O's – from PCS 7 Box to large client-server plants with 100's of controllers

10 Continuous Development

- PCS7 continuous research & development, based on clear roadmap/strategy

7 Redundancy at all levels

- Operation System
- IE Communication
- Automation System
- I/O Systembus
- I/O modules



9 High-performance engineering

- Single point of entry (Process Object View)
- Integration of customer specific libraries

8 Integrated Asset management

- Automatic generation of diagnostic screens
- Easy fault analysis and repair tracking

5 Integrated Fail Safe Technology

- Same hardware S7-400
- Flexible Modular Redundancy (FMR)
- Safety Matrix

6 True decentralized architecture with Systembus Profibus

- World No.1 fieldbus
- Integration of Remote I/O's, motors, drives, analyzers, intelligent field devices etc.
- HART, FF, PA

SIMATIC PCS 7 has all features of a modern Distributed Control System

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Engineering

- ✓ Plant engineering with central overview of all relevant project data (Process object view)
- ✓ Integrated Asset Management
- ✓ **Bulk** engineering with import/export functions
- ✓ Configuration of intelligent field devices
- ✓ Software simulation and testing
- ✓ Modification tracking
- ✓ Distributed, concurrent engineering ...

HMI components

- ✓ Windows-based intuitive GUI
- ✓ High capacity
- ✓ Client server architecture
- ✓ Central archive server
- ✓ Redundancy
- ✓ Online reconfiguration ...

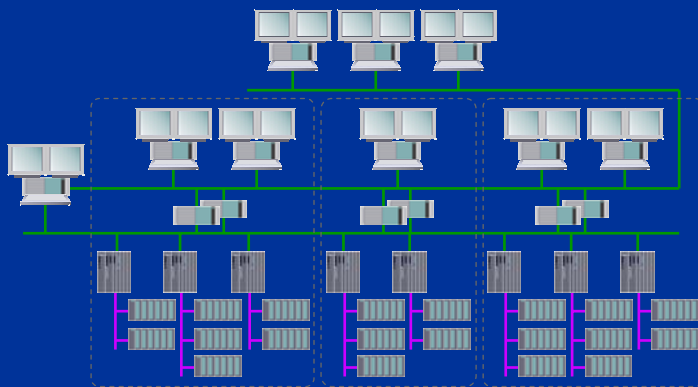
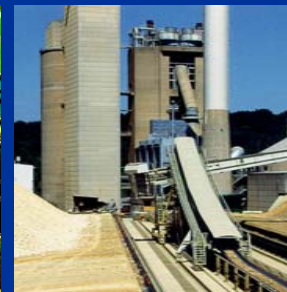
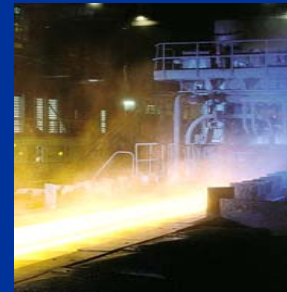
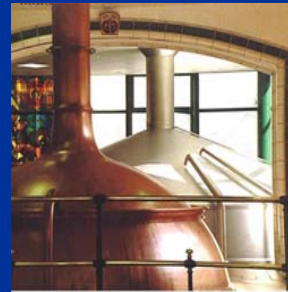
Communication

- ✓ Fast Ethernet
- ✓ Fiber optic switching technology
- ✓ Redundancy (system and field bus)
- ✓ Online expansion ...

AS, I/O modules, I/O

- ✓ Online reconfiguration and expansion
- ✓ Redundancy (controller, modules and Profibus)
- ✓ Integrated Safety Engineering
- ✓ Integration of intelligent field devices / drives
- ✓ Large range of I/O modules ...

SIMATIC PCS 7 TIA



Thank you ...

SIEMENS