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SIMATIC PCS neo sætter nye standarder inden for procesautomation

Værter

Jens Norling mathiassen
Technology Specialist

Per Krogh Christiansen
Technology Specialist

Agenda

- SIMATIC PCS neo Koncept & Motivation
- Evolutionsstrategi
- SIMATIC PCS neo Highlights
- Industrial Security i SIMATIC PCS neo
- Bonusinfo
- Q&A
- Næste webinar

Koncept & Motivation

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SIMATIC PCS neo

Enter a new world of process control

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siemens.com/simatic-pcs-neo

Process Industries

The future of process industries in the context of digitalization

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Industry requirements for Distributed Control Systems

in the context of digitalization

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Process Industries

Global Collaboration

Life Cycle compatibility

Intuitive user guidance

Modular Automation

Scalability from small units to large plants

Lifecycle integration

Combining the real and the virtual world

How to find the perfect way between innovation and continuation

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Incremental or Disruptive?

New perspectives with fully web-based approach?

Openness vs. Industrial Security?

Acceleration of engineering turnaround in operational systems?

One DCS approach for all process automation challenges?

THINK neo.

Front end on all types of computing periphery?

HW independent application engineering?

Comprehen-sive user interface for engineering and operation?

Global community of experts on a single project?

Agenda

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The journey begins with SIMATIC PCS 7

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SIMATIC PCS 7 Version 9 opens up new opportunities with its new hardware platform based on PROFINET standard:

With SIMATIC PCS 7 Version 9 Siemens has recently introduced such an **innovative hardware** …

… that we can build the most innovative system software on it. **The Process Control Innovation in 2019/20: SIMATIC PCS neo.**

With PCS 7 Version 9 users are very well prepared for a Digital Future.

The Process Control Innovation that saves your Know-How and protects your invest!

Riding the wave of innovation in Process Automation

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SIMATIC PCS neo
New System Software

SIMATIC PCS 7 Version 9.x
Hardware Innovations

SIMATIC PCS 7
Hardware Innovations

SIMATIC PCS 7 System
Software Innovation

2011-2016

2017

2019

Software Evolution: Application Architecture
Control Module Types, Advanced Process Library, …

Saves your know-how!

Hardware Evolution
PROFINET for Process Industry, SIMATIC ET 200SP HA, SIMATIC CFU, …

Protects your HW invest!

Motivation for a new Software Architecture

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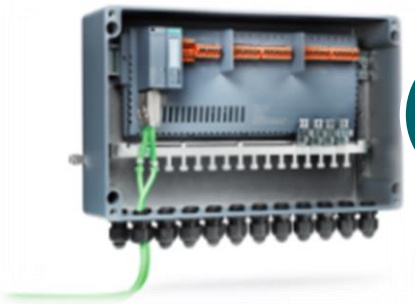
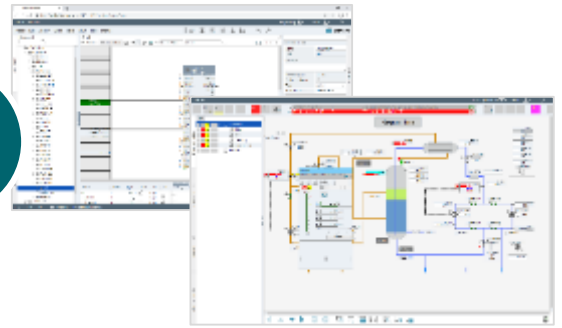
SIMATIC PCS 7 Version 9 Hardware

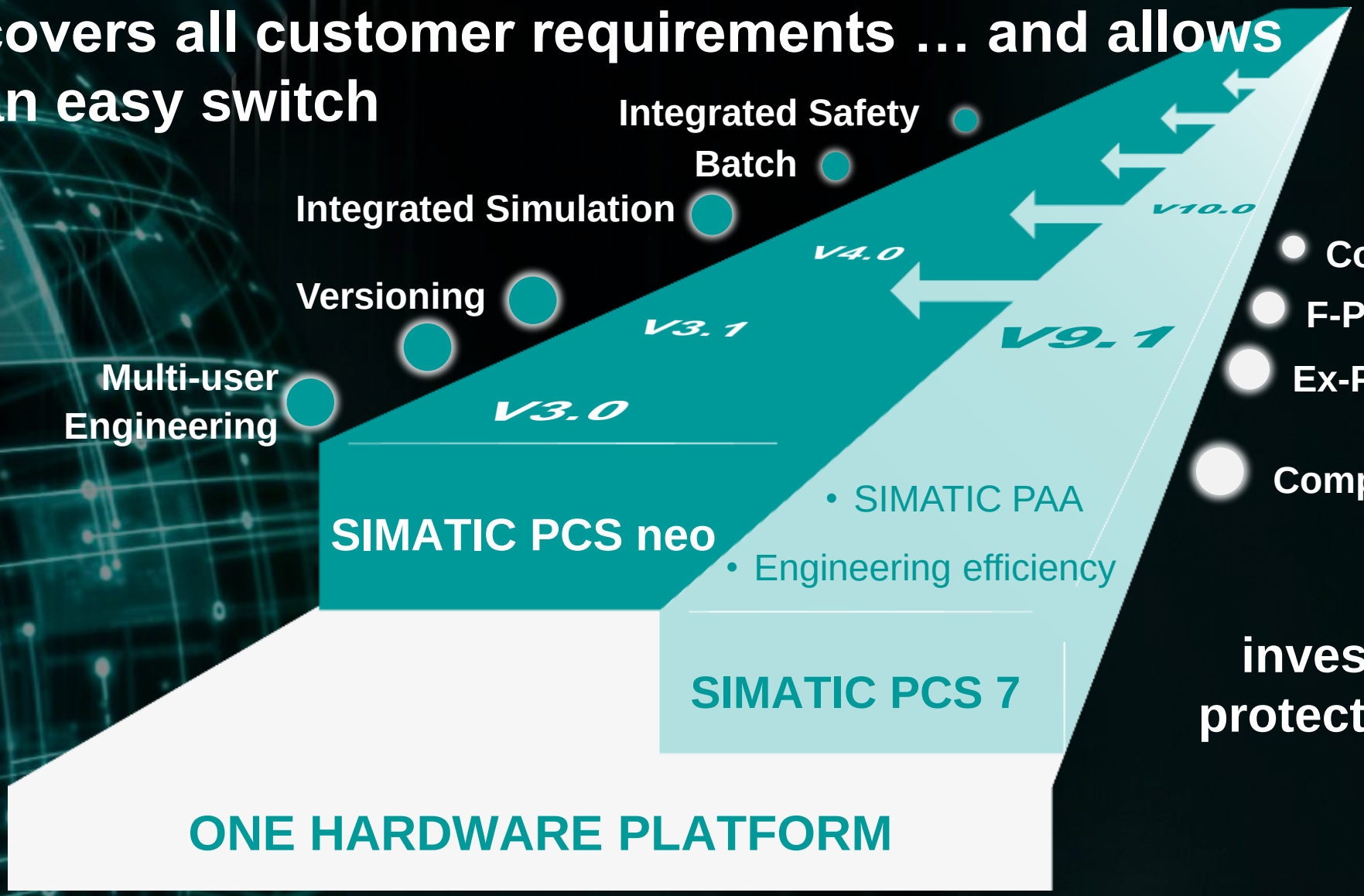


New System Software



… using the same application architecture as SIMATIC PCS 7…

Siemens DCS portfolio with PCS 7 and PCS neo covers all customer requirements … and allows an easy switch



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Customers can define the time to switch.

Maximum investment and know-how protection through common HW and application architecture!

Industry focus for starting phase of V3

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Water

- Possible: all applications without desalination
- Limitations: tele control

F&B

- Conti processes (e.g. sugar)

Pharma

- Possible: auxiliary plants (water treatment, HVAC), energy data management, pilot plants / test plant
- Limitations: Main process, GMP, Audit-trail, Batch

Chemicals

- Possible: non critical conti plants (e.g. bio fuels), auxiliary plants (e.g. water treatment), pilot plants / test plant
- Limitations: batch, integrated failsafe

SIMATIC PCS neo addresses the broad market as it is later aiming at all industries!

Any concrete opportunity needs individual evaluation!

Technical focus for starting phase of V3 (SP1)

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Technical Focus

- 6,000 PO/project
- 2 redundant M&C or 4 non-redundant M&C/project
- 3.000 PO/M&C
- 4 redundant AS or 8 non-redundant AS/M&C
- 1,500 PO/AS
- 15000 archive tags in Process Historian
- Focus on AS 410, ET 200SP HA, CFU, PROFINET
- APL, CMT
- System language EN/DE

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Take a closer look …
From Engineering to Monitoring & Control

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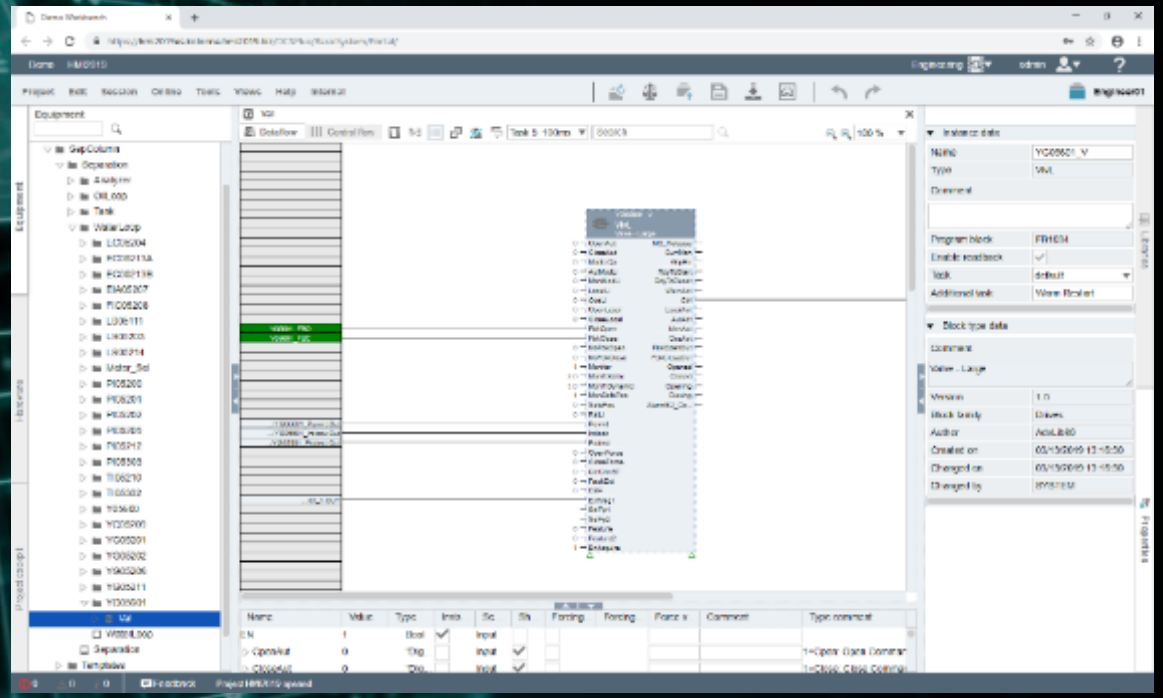

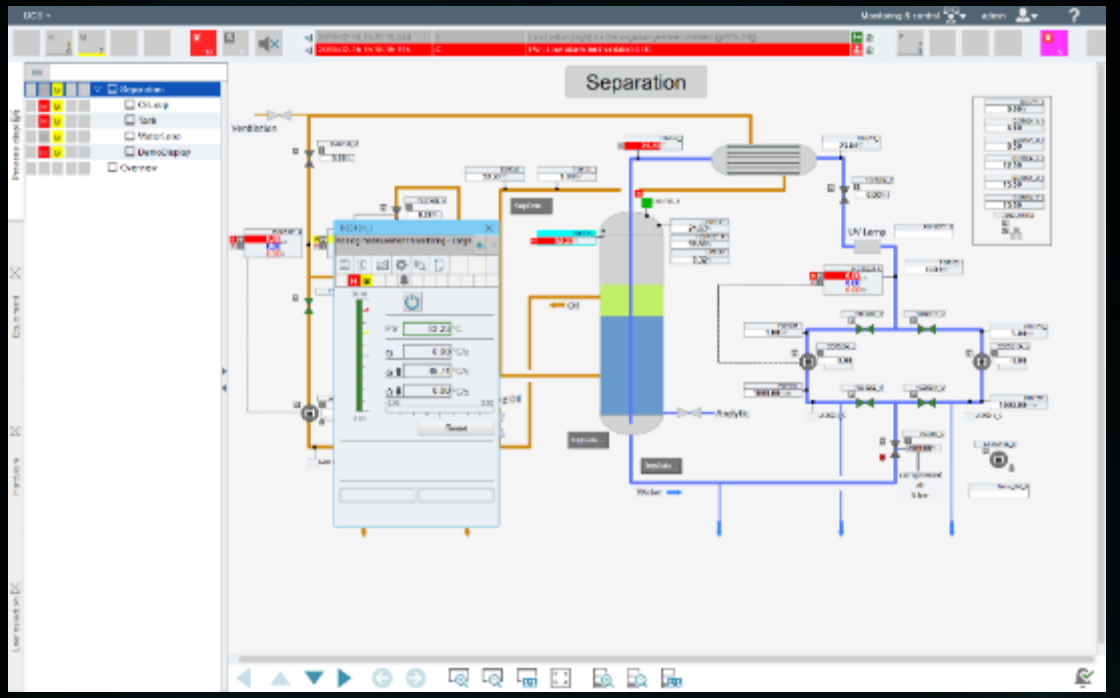

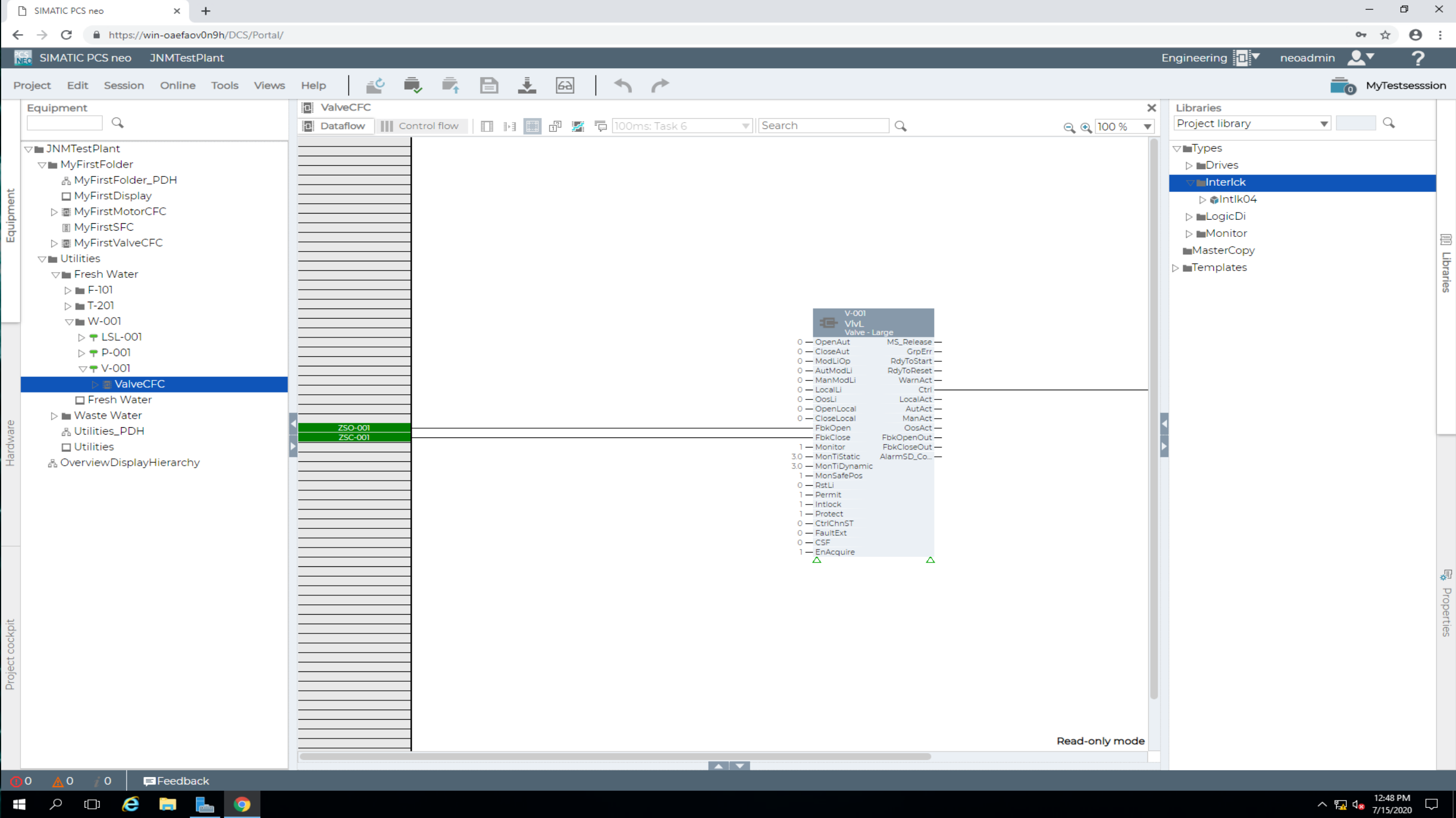
SIMATIC PCS neo
https://win-oaefaov0n9h/DCS/Portal/
SIMATIC PCS neo JNMTestPlant
Engineering
neoadmin
Project Edit Session Online Tools Views Help
MyTestsesssion
Equipment
JNMTestPlant
MyFirstFolder
MyFirstFolder_PDH
MyFirstDisplay
MyFirstMotorCFC
MyFirstSFC
MyFirstValveCFC
Utilities
Fresh Water
F-101
T-201
W-001
LSL-001
P-001
V-001
ValveCFC
Fresh Water
Waste Water
Utilities_PDH
Utilities
OverviewDisplayHierarchy
ValveCFC
Dataflow
Control flow
100ms: Task 6
Search
100 %
ZSO-001
ZSC-001
V-001
VlvL
Valve - Large
OpenAut
CloseAut
ModLiOp
AutModLi
ManModLi
LocalLi
OosLi
OpenLocal
CloseLocal
FbkOpen
FbkClose
Monitor
MonTiStatic
MonTiDynamic
MonSafePos
RstLi
Permit
Intlock
Protect
CtrlChnST
FaultExt
CSF
EnAcquire
MS_Release
GrpErr
RdyToStart
RdyToReset
WarnAct
Ctrl
LocalAct
AutAct
ManAct
OosAct
FbkOpenOut
FbkCloseOut
AlarmSD_Co...
Read-only mode
Libraries
Project library
Types
Drives
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Monitor
MasterCopy
Templates
Hardware
Project cockpit
Properties
Feedback
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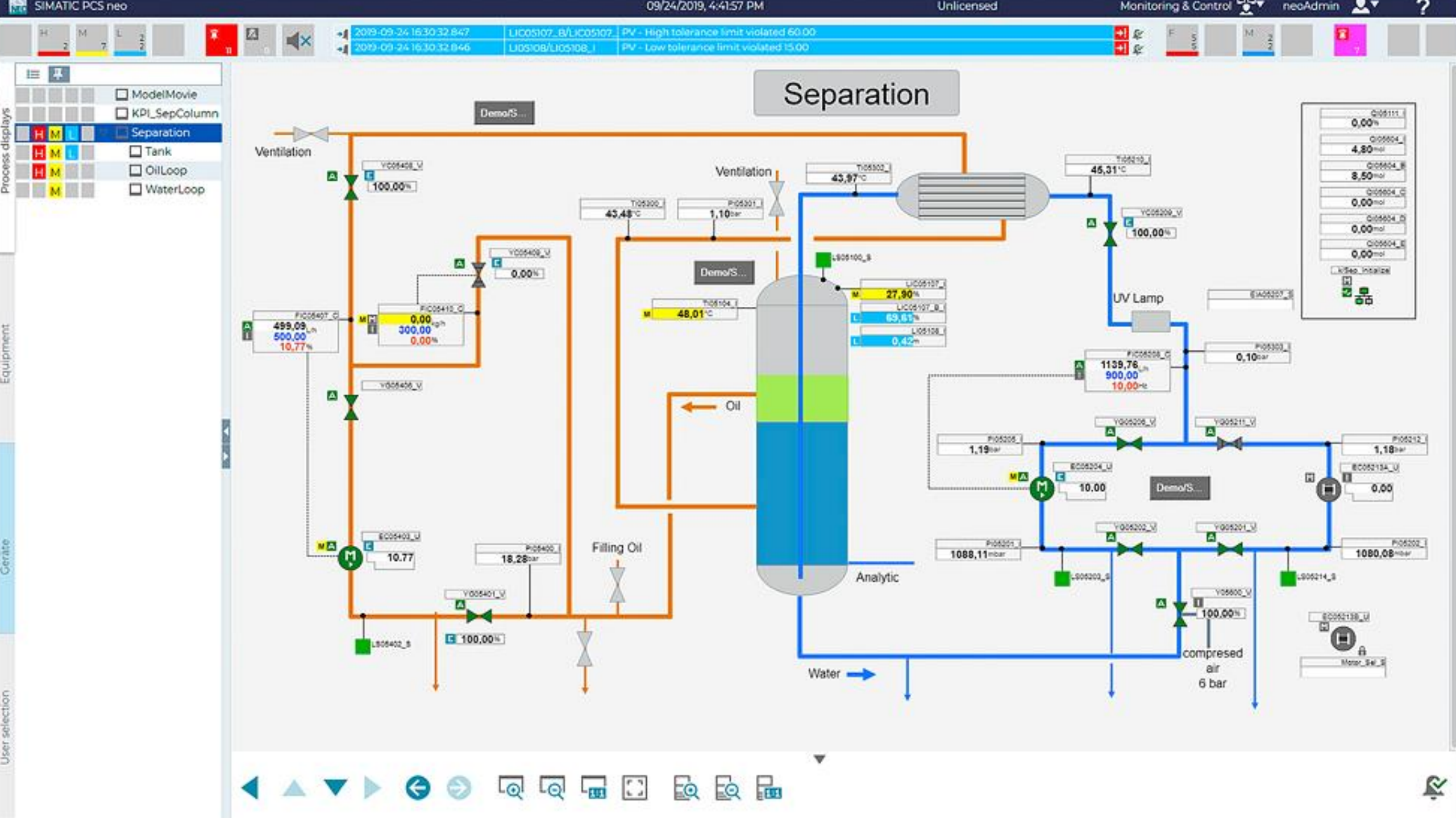
SIMATIC PCS neo
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Monitoring & Control
neoAdmin
2019-09-24 16:30:32.847
LIC05107_B/LIC05107_I
PV - High tolerance limit violated 60.00
2019-09-24 16:30:32.846
LIC05108/LIC05108_I
PV - Low tolerance limit violated 15.00
Process displays
Equipment
Gerate
User selection
ModelMovie
KPI_SepColumn
Separation
Tank
OilLoop
WaterLoop
Separation
Demo/S...
Ventilation
Ventilation
Oil
Filling Oil
Analytic
Water
UV Lamp
compresed
air
6 bar
100,00%
0,00%
43,97°C
45,31°C
43,48°C
1,10bar
48,01°C
27,90%
69,61%
0,42m
499,09
500,00
10,77%
0,00
300,00
0,00%
10.77
18,28bar
100,00%
1139,76
900,00
10,00Hz
0,10bar
1,19bar
10.00
1,18bar
0,00
1088,11mbar
1080,08mbar
100,00%
4,80mol
8,50mol
0,00mol
0,00mol
0,00mol

Process Automation – THINK neo.

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neo
System Access

neo
Scalability

neo
Usability

neo
Collaboration

neo
Cyber Security

Process Automation – THINK neo.

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neo
Scalability

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Usability

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Collaboration

neo
Cyber Security

neo Usability
The new Workbench Concept

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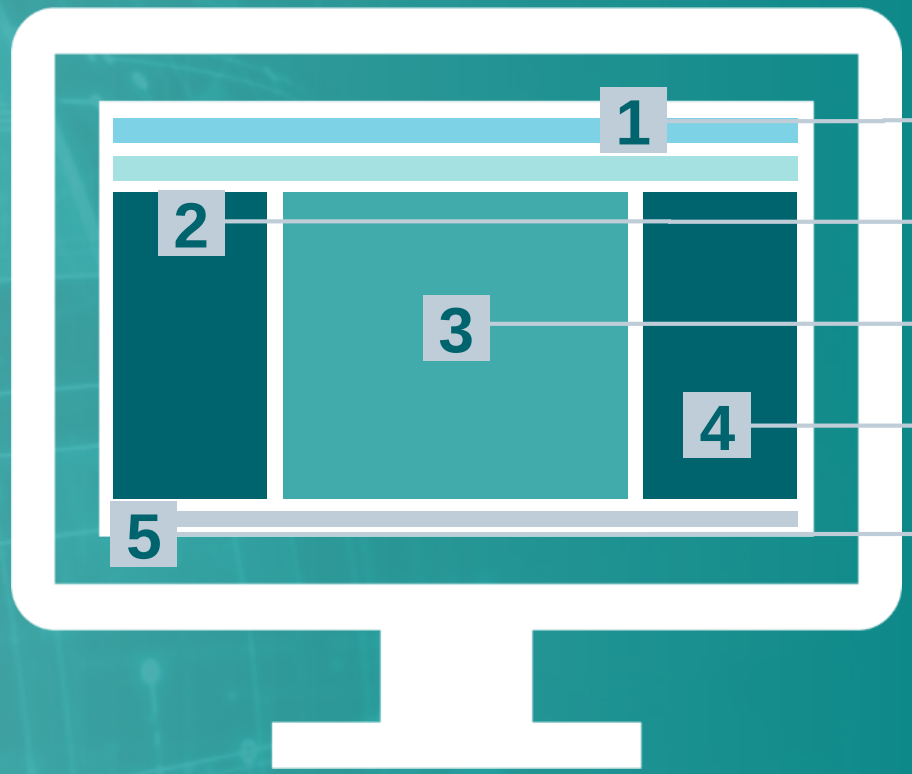

1. **Header**
2. **Navigation**
3. **Content**
4. **Sidebar**
5. **Feedback bar**

- Highly intuitive User Interface
- One workbench for all applications and tasks
- Reduced workflows, steps and complexity
- Guides new users
- Maximum efficient engineering

One easy to use workbench for all tasks and users!

neo Usability
One object-oriented system platform

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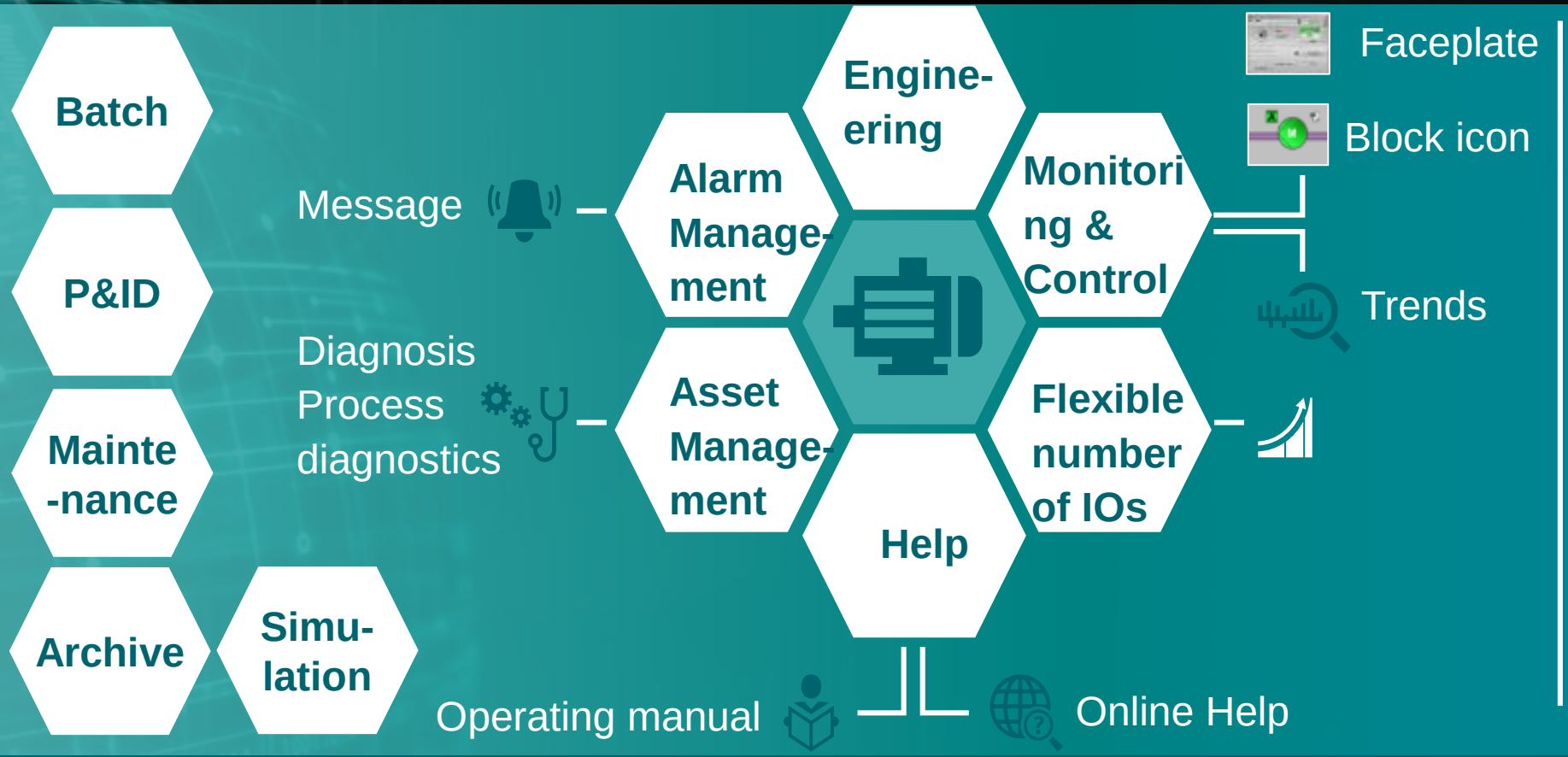

- Consistent data management thanks to object-oriented data model
- A change in the process object is immediately updated in all its other facets

Easy handling and change of objects – with a few clicks to any information!

USABILITY

Imagine the situation…

A new international engineering project, with a mixed team of experienced and new staff.

How can the new staff easily and quickly get familiar with the new DCS system?

The answer

- A clearly structured and highly intuitive user interface
- One common workbench for all engineering tasks
- Within two clicks to any information

The benefits

- New users become familiar with the system faster than ever before
- Save training costs and engineering time through workflow guidance and advanced engineering tools

USABILITY

Imagine the situation…

Daily plant operation working in several shifts in one control room with different tasks.

How can we improve operations to shorten reaction times when interacting with the system(s)?

The answer

- Intuitive and guided navigation through process pictures and alarms
- Personal settings can be stored easily and shared with other operators
- Efficient and mobile system access for plant personnel - using tablets and other mobile devices

The benefits

- Individual set-up to minimize workload
- Action can be taken quickly, faster and more secure than ever before
- Clear and intuitive operation helps new staff to shorten the learning curve

Process Automation – THINK neo.

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neo
System Access

neo
Scalability

neo
Usability

neo
Collaboration

neo
Cyber Security

neo System Access
Zero Installation Client

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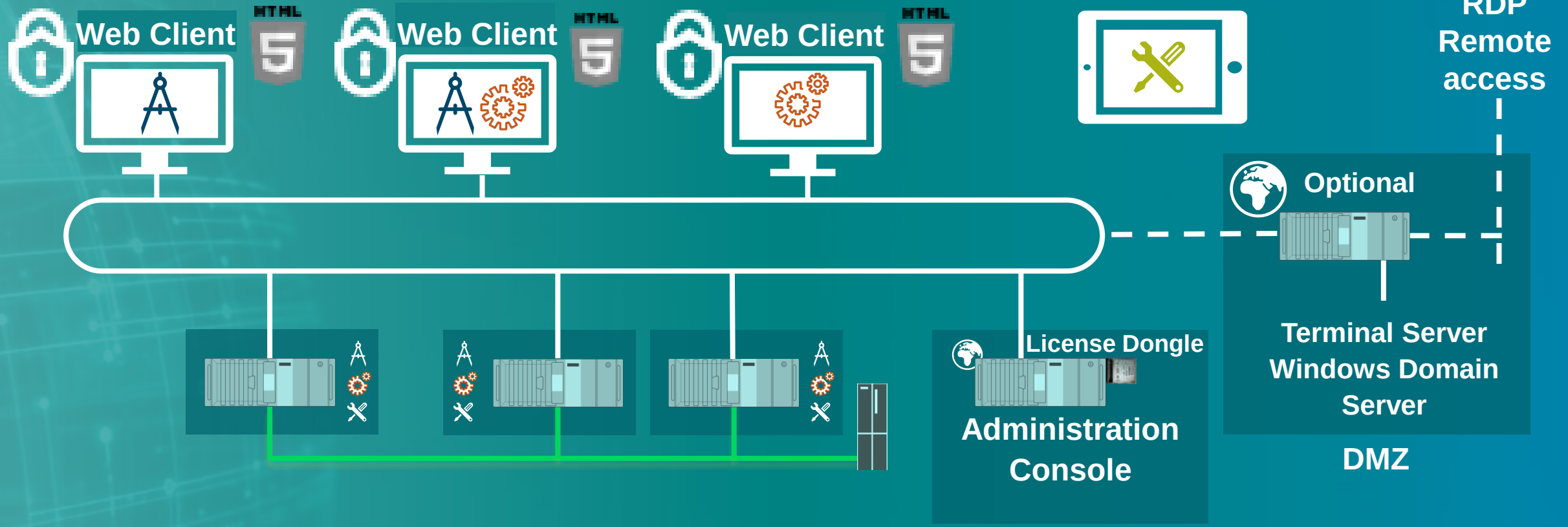


The possibilites of system access allows new ways of cooperations and business models between all partners in plant engineering and operation like Solution Partners, End Users, EPCs and Siemens. An important ability also in the future of modular plants.

„Immediate system access at any time, from any location and any end device!“

Imagine the situation…

A special turbine problem in a plant in Asia, a local solution attempt fails and the only process specialist who could help is located in Denmark.

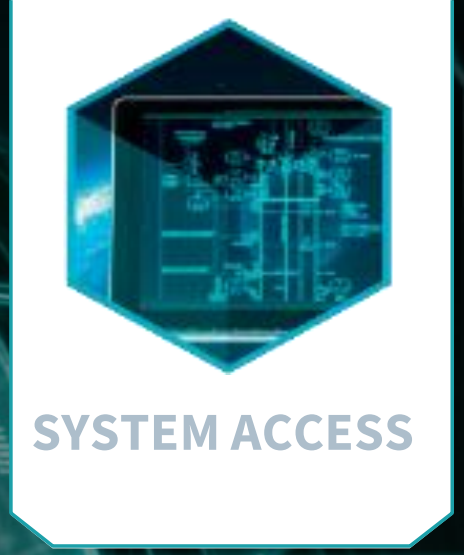
How can the specialist contribute to solve the problem immediately and securely?

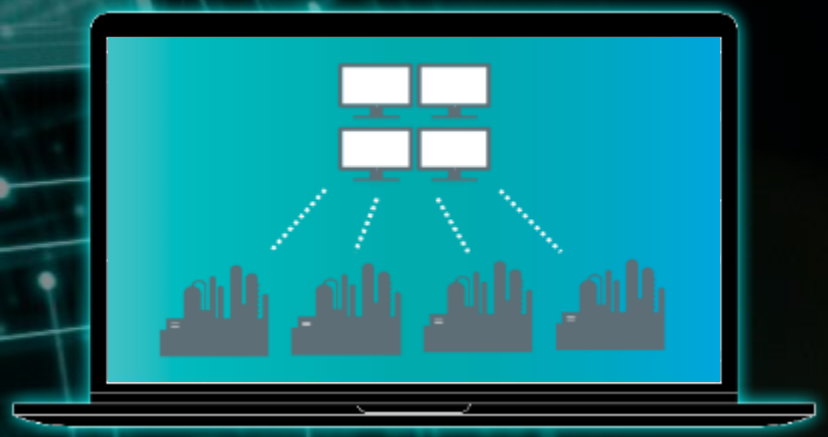
The answer

- Immediate remote support through experts without local installation effort
- Completely web-based system (HTML5) enabling access to all project and plant information
- Secure system access via web-browser and certificates

The benefits

- Expert knowledge is available anywhere and anytime
- Time and cost savings through immediate support
- Information consistency – “speak about the same topic”
- Avoid plant shutdowns – due to missing expert knowledge





„One central control room with access to all plants for better cross site collaboration and improved plant performance!"

Imagine the situation…

A chemical company with different operating plants in a connected production line with several control rooms for each plant.

How can we optimize the production line with a central control room and a common user interface ?

The answer

- Secure web-based access to all plants from a central control room with a remote capable system
- Common user interface for all operators with quick overviews through dashboards and alarm visualization

The benefits

- Reduced lifecycle costs due to the web-based system and a central IT infrastructure
- Higher operator flexibility through better cross site collaboration taking advantage of new working structures
- Maximize specialist utilization and flexibility, yielding higher productivity across multiple plants

Process Automation – THINK neo.

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System Access

neo
Scalability

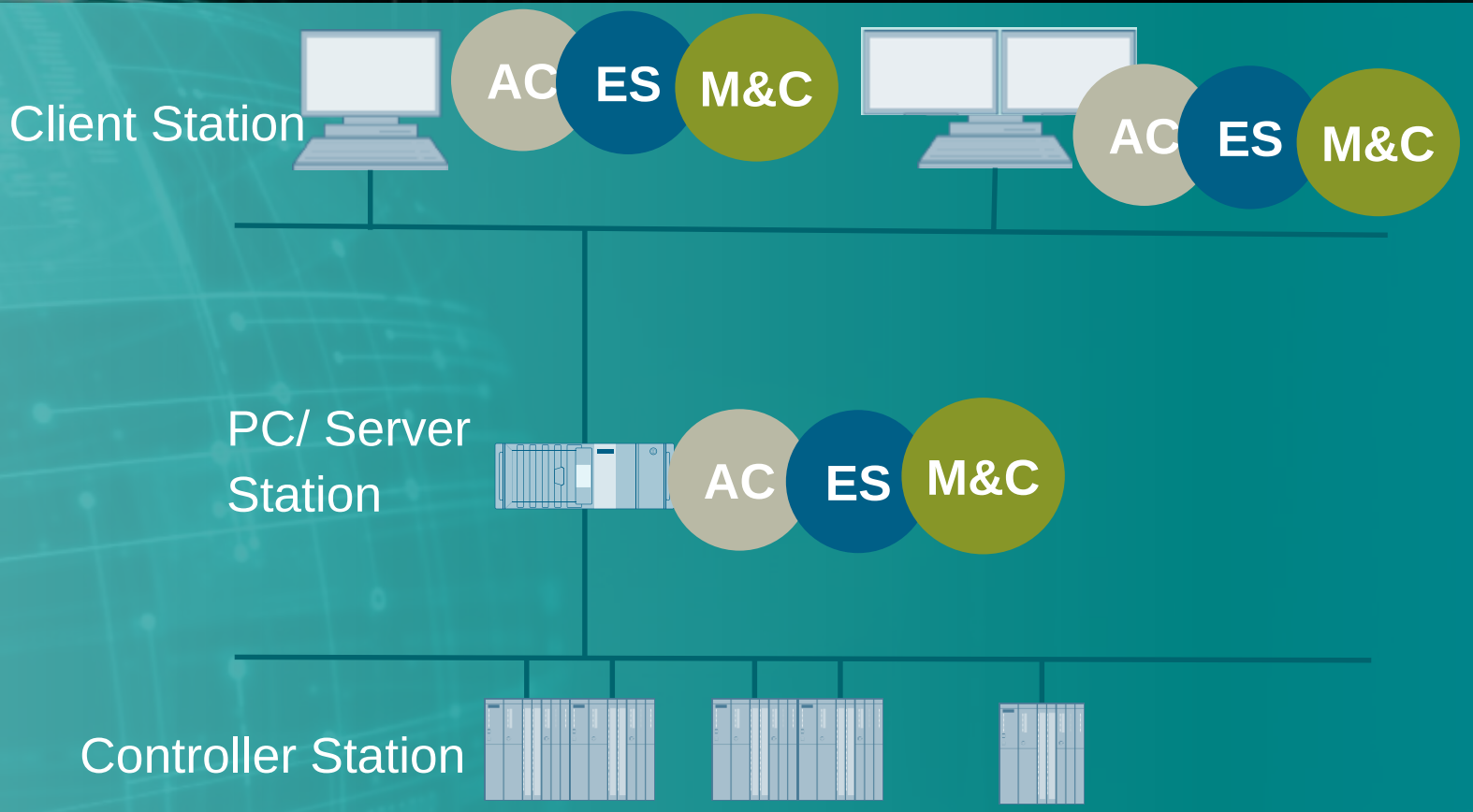
neo
Usability

neo
Collaboration

neo
Cyber Security

neo Scalability

Highly flexible plant architecture – one example of many possible



The user selects client function in the web browser.

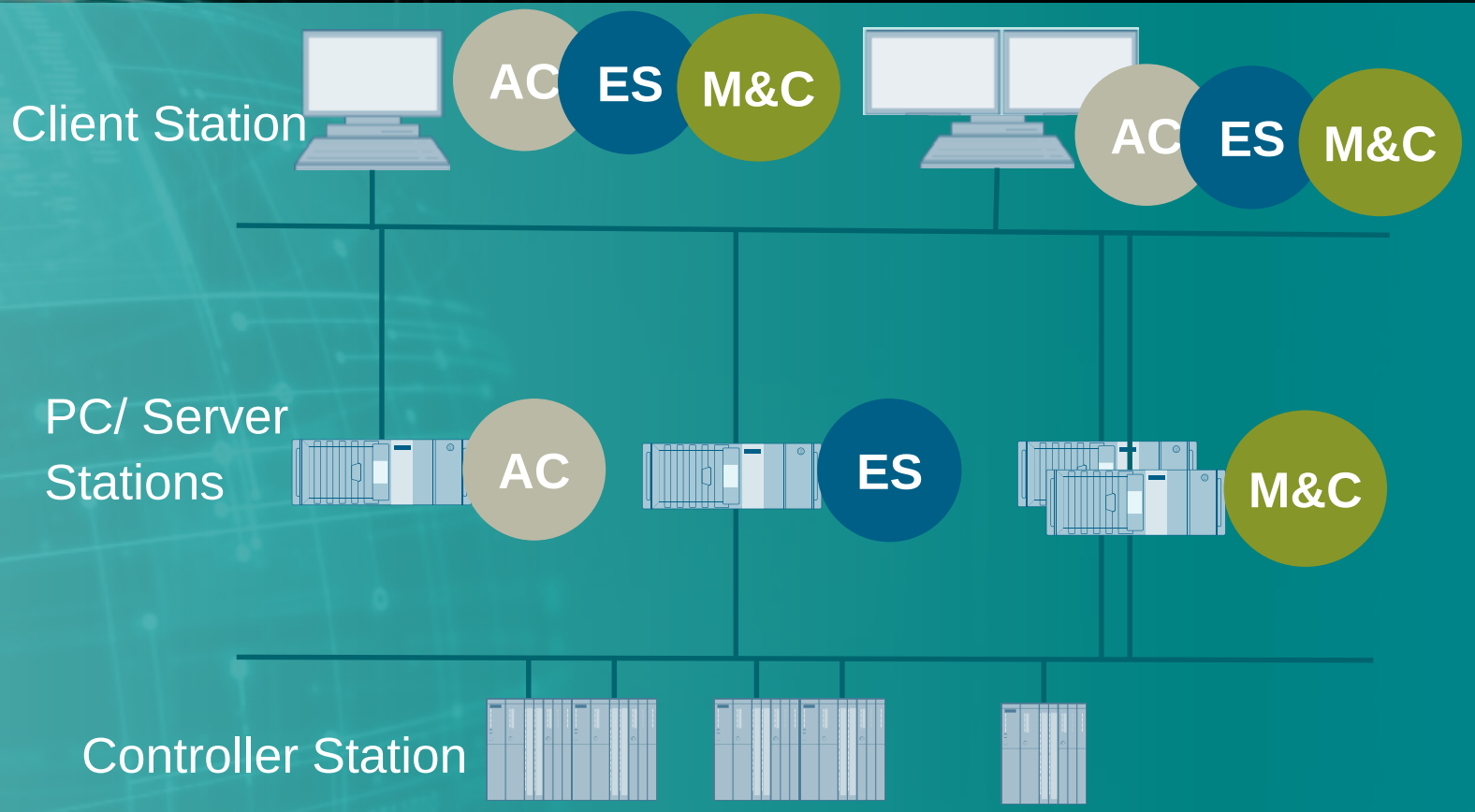
Available Software Modules

- Administration Console
- Engineering
- Monitoring & Control
- Process Device Manager
- Process Historian
- Information Server

SIMATIC PCS neo architecture adaptable to all requirements - from smallest lean systems with one single station up to huge redundant systems.

neo Scalability

Highly flexible plant architecture – one example of many possible



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neo Scalability

Global standardization from single Process Object to Unit

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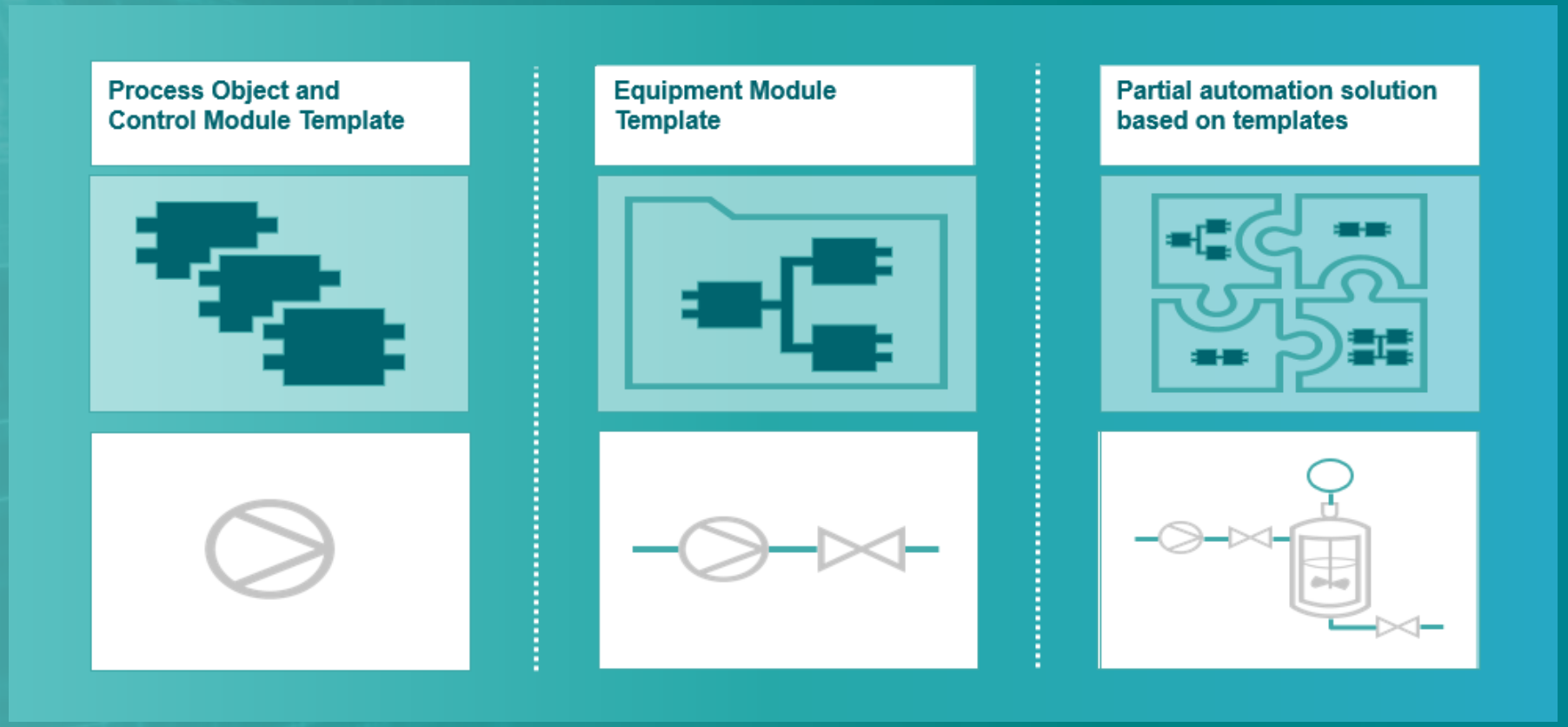

- Scalable engineering templates, from devices to equipment to process units
- Seamless system expansion
- Time and cost savings by re-using pre-tested engineering templates in different projects
- Risk minimizing during engineering, commissioning and operation

Re-usage of pre-tested templates increases efficiency in engineering, maintenance and scale-up.

neo Scalability: Modular Automation*

A major lever to boost engineering efficiency

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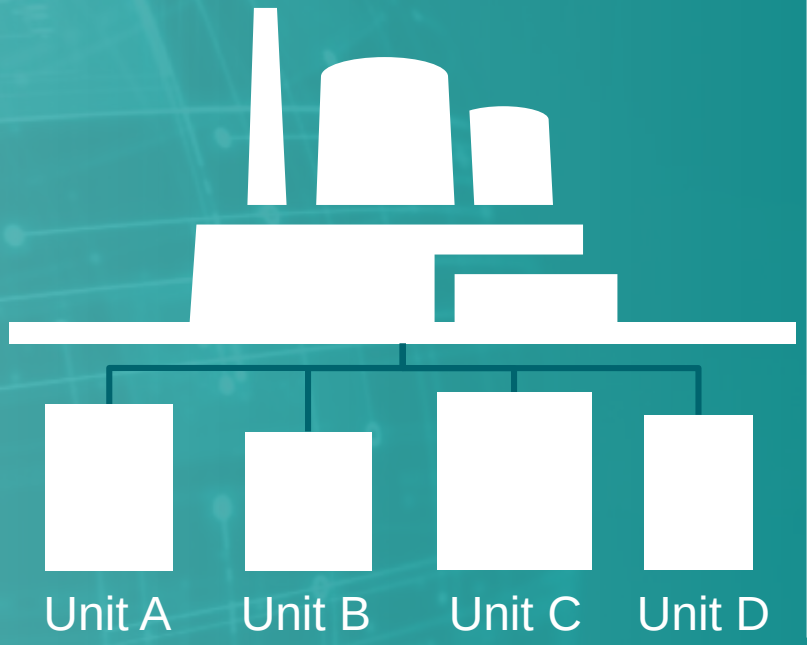
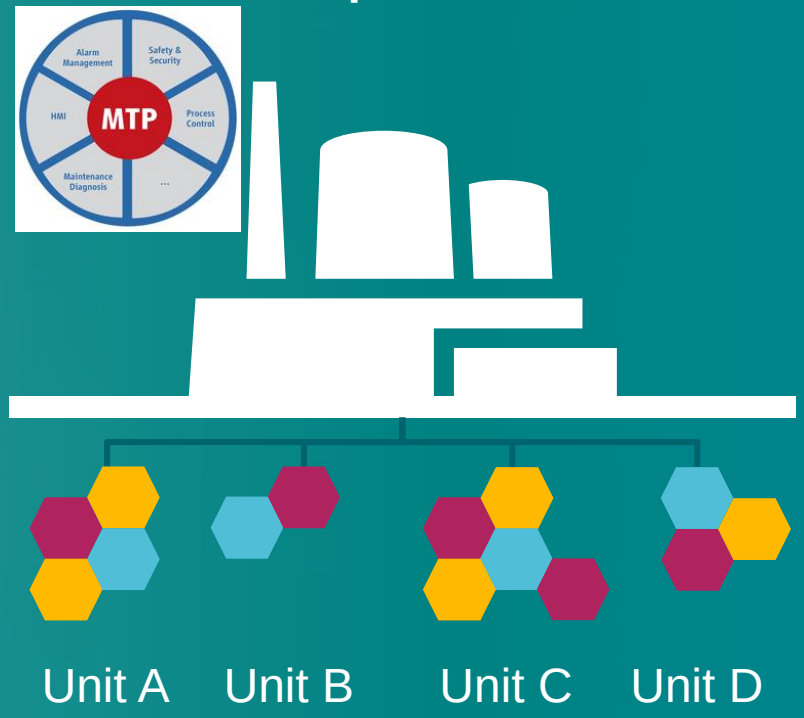
From modularization of a plant …



… to modular production



- Modules/ Package units with an own automation interoperate with an orchestration DCS System via the open Industry Standard MTP defined in working groups at ZVEI, NAMUR and ProcessNet.
- Better interoperability with easy and flexible integration of manufacturer independent process modules.
- Plug-and-Produce on the technological level.

SIMATIC PCS neo realizes the modular plant approach and MTP in it's complete engineering philosophy!

*Limited MTP scope with SIMATIC PCS neo V3.0

neo Scalability: Modular Automation

Integration based on open standards: Module Type Packages

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Module Automation Engineering

TIA Portal

S7-1200
S7-1500

SIMATIC PCS neo

Future, not available in PCS neo V3.0

S7-410(E)

Visualization & Orchestration

SIMATIC PCS neo

4 Operate
3 Download
2 Address set up
1 MTP import

Module Type Package (MTP)

SCALABILITY

„Easy adaption to changing plant and production requirements, with a seamlessly scalable system!“

Imagine the situation…

A pharmaceutical start-up automates its small production. They are looking for a long term solution that allows them to expand in future.

Is there a system that grows together with their production demands and requirements?

The answer

- Add new functions or complete plant sections during ongoing operation
- Template concept for duplicating the automation of equipment modules or units simply by drag-and-drop
- Object-oriented data management in combination with a session concept ensures information consistency

The benefits

- Faster system expansion through reuse of pre-tested engineering templates
- Investment protection – be sure that the automation system can be adapted flexibly in the future
- Fast response to changing market requirements
- Expansion of an additional monitoring and control station, standard hardware with browser, within one minute

SCALABILITY

„Highest flexibility in plant expansion through easy package unit integration (MTP)!“

Imagine the situation…

A chemical company wants to set up a production plant with small units, easily and without big effort of engineering.

How can we reduce the engineering effort to integrate package units?

The answer

- Direct integration of automation modules and complete package units – according to the MTP-standard
- Pre-tested and pre-configured packages are orchestrated through one user interface

The benefits

- Fast adaption of production capacity according to changing market demands
- High level of standardization reduces operational costs
- Significantly reduced engineering effort
- Modules or units can be used immediately for operations

Process Automation – THINK neo.

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Usability

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Collaboration

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Cyber Security

SIMATIC PCS neo

Multi-user Engineering builts on 3 major pillars*

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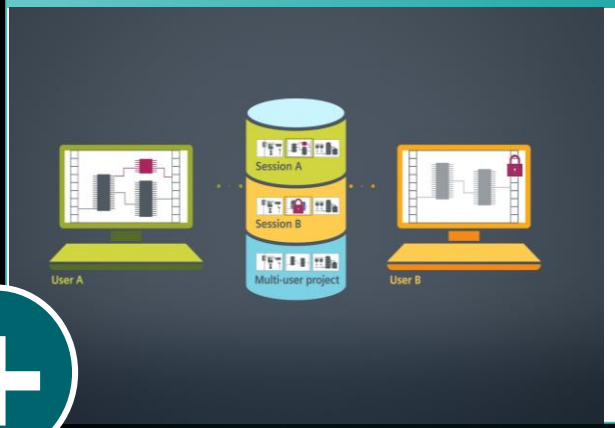
Secure Access to Engineering Project

- Easily give access to the experts who need it.

Intelligent Session Management



- Real co-working in one file
- Lock parts for you (transparently shown to all project members)
- Afterwards publish changes to the team

HW Independence

- Using any device at any time
- For modern working structures in the process industries (Future of Work)

neo Collaboration

Flexible multi-user projects on one central data basis

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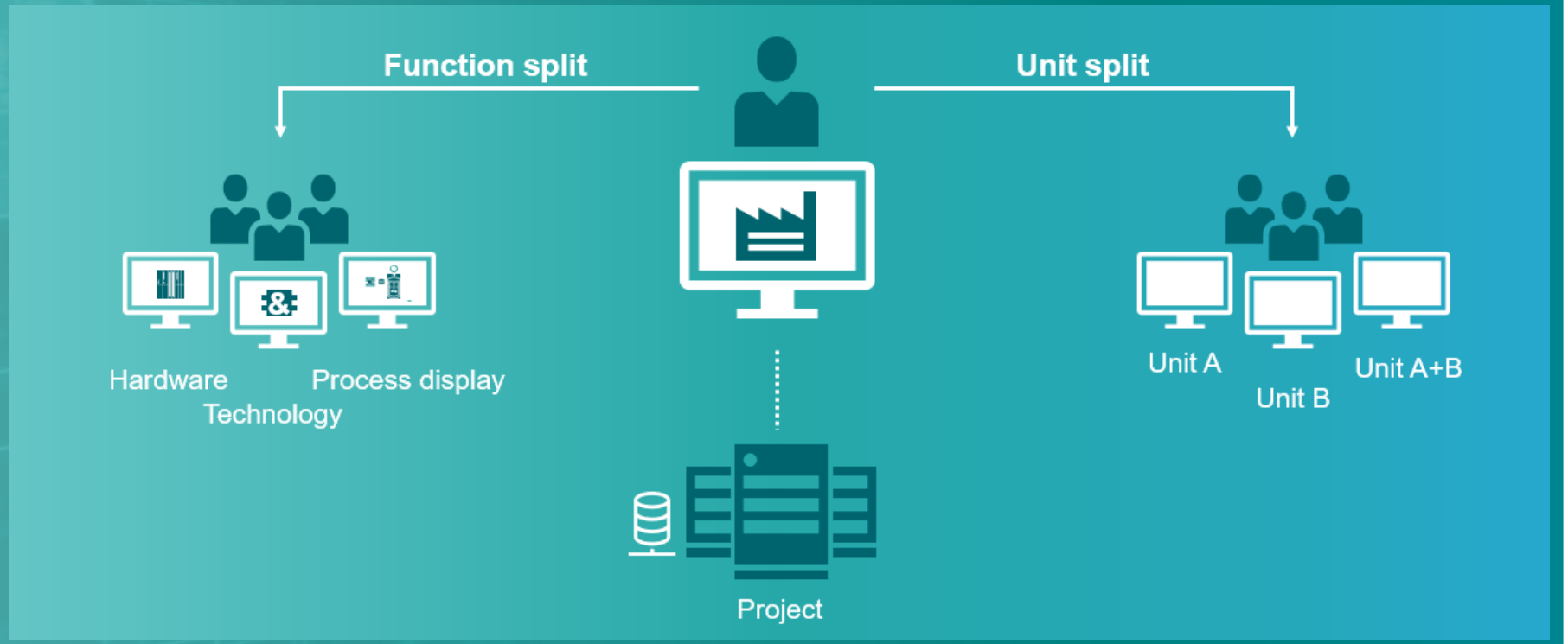
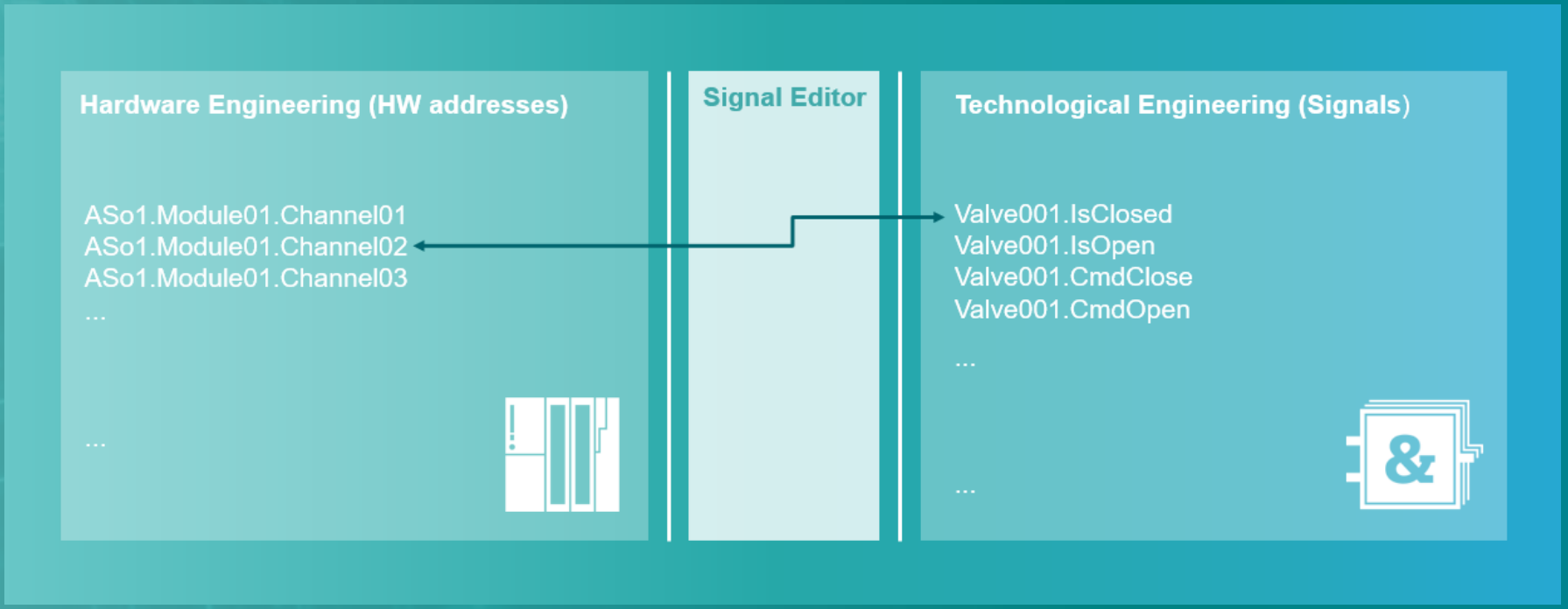


- Multi users can work on the same project at the same time from any location
- Flexible engineering (split by process area or engineering task)
- Always consistent information ensure high engineering quality
- Supports highly efficient commissioning
- Reduced time to market due to parallelization of workflows

New cooperation models and working structures for international teams -
Highly attractive for the best employees! Increasing engineering quality and efficiency!

neo Collaboration

Flexible, late hardware binding



- Possibility of parallel Hardware and Technological Engineering
- Change hardware at any time
- Flexible project engineering
- Complete projects faster and more flexible
- Ensure highest project

Realizing tasks in the order that fits best to the project – independent from any system restrictions!

COLLABORATION

„Project tasks can be executed globally in parallel – which means a faster time-to-market!“

Imagine the situation…

An engineering project is under a very high time pressure, but the commissioning date cannot be moved.

How can we ensure efficient collaboration across different locations and roles?

The answer

- Session concept and object-oriented data management enables parallel engineering
- Secure web-access ensures global distribution of engineering tasks
- Built-in change management allows highest project consistency

The benefits

- Reduced engineering times through parallel engineering
- Project tasks with different responsibilities can be flexibly assigned across locations and disciplines

COLLABORATION

„Simultaneous and independent work enables efficient management of global loop-checks!“

Imagine the situation…

A plant is in preparation for commissioning, but with limited time and resources. The project manager must maximize the plant schedule for start-up.

How can we optimize loop-checks when resources are limited?

The answer

- Access engineering and monitoring & control through one common workbench
- Support mobile workers with tablets and even if hardware engineering is locally different, signals can be assigned easily during loop-check
- Virtual commissioning with integrated simulation tools for flawless engineering
- Thanks to integrated simulation the loop check is well-prepared and the application software is fully tested

The benefits

- Time and resource savings through loop-checks independent of control room support directly in the field
- If necessary, the experts can easily collaborate with other personnel
- Efficient preparation of commissioning without bottlenecks

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Process Automation – THINK neo.

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neo
Usability

neo
Collaboration

neo
Cyber Security

SIMATIC PCS neo Security as a top priority today and tomorrow

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Security by Default

- SIMATIC PCS neo provides Security - right from the Installation
- Security-measures are pre-selected by default

Secure Access

- All functions require Authentication and Authorization (single sign-on)
- 2-factor Authentication

Central Administration

- Transparency on configured Security settings
- Ease of Administration to maintain Protection-Level over the plant lifecyle

Security by Design

- Communication security based on certificates
- IEC 62443-conform development process

Defense in Depth

- Proven security portfolio, e.g. Firewalls, Network Components, Virus Scanners, Whitelisting

Defense-in-Depth Security Architecture

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Ingenuity for life

Plant security
- Physical access protection
- Process and guidelines
- Holistic security monitoring

Security threats demand action

Network security
- Cell protection
- Firewalls and VPN

System integrity
- System hardening
- Process and guidelines
- Patch Management
- Detection of attacks
- Authentication and access protection

System integrity
Patch Management

AC

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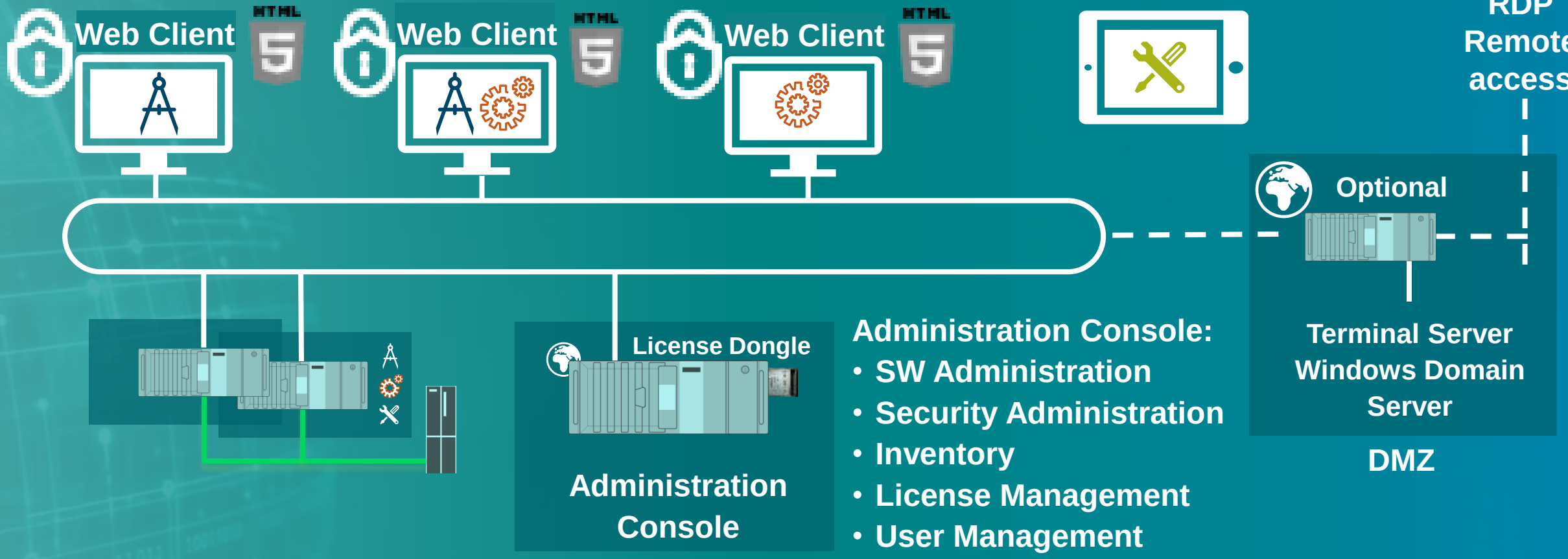

Administration Console:

- SW Administration
- Security Administration
- Inventory
- License Management
- User Management

- SIMATIC PCS neo integrated central patch management with Administration Console allows to fix security vulnerabilities „quickly and without effort“

Agenda

- SIMATIC PCS neo Koncept & Motivation
- Evolutionsstrategi
- SIMATIC PCS neo Highlights
- Industrial Security i SIMATIC PCS neo
- Bonusinfo
- Q&A
- Næste webinar

Bonusinfo

- SIMATIC PCS neo hjemmeside: siemens.com/simatic-pcs-neo
- Delivery Release SIMATIC PCS neo V3.0: SIOS ID: 109772289

Kontakt os

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Gense webinar og download relevant materiale på www.siemens.dk/di-webinarer

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