

Simatic Industrial Edge & S7 1500V PLC

IChemE

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[siemens.com/industrial-edge](https://www.siemens.com/industrial-edge)

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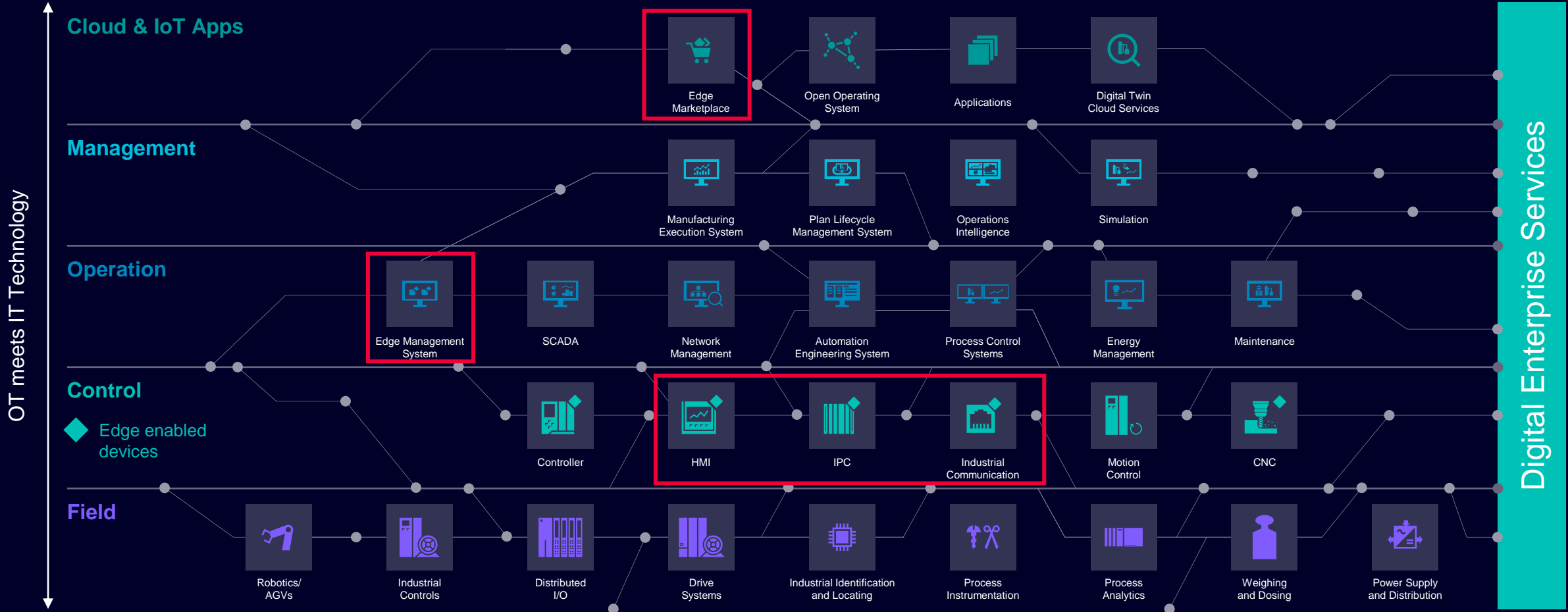
Introducing

Industrial Edge

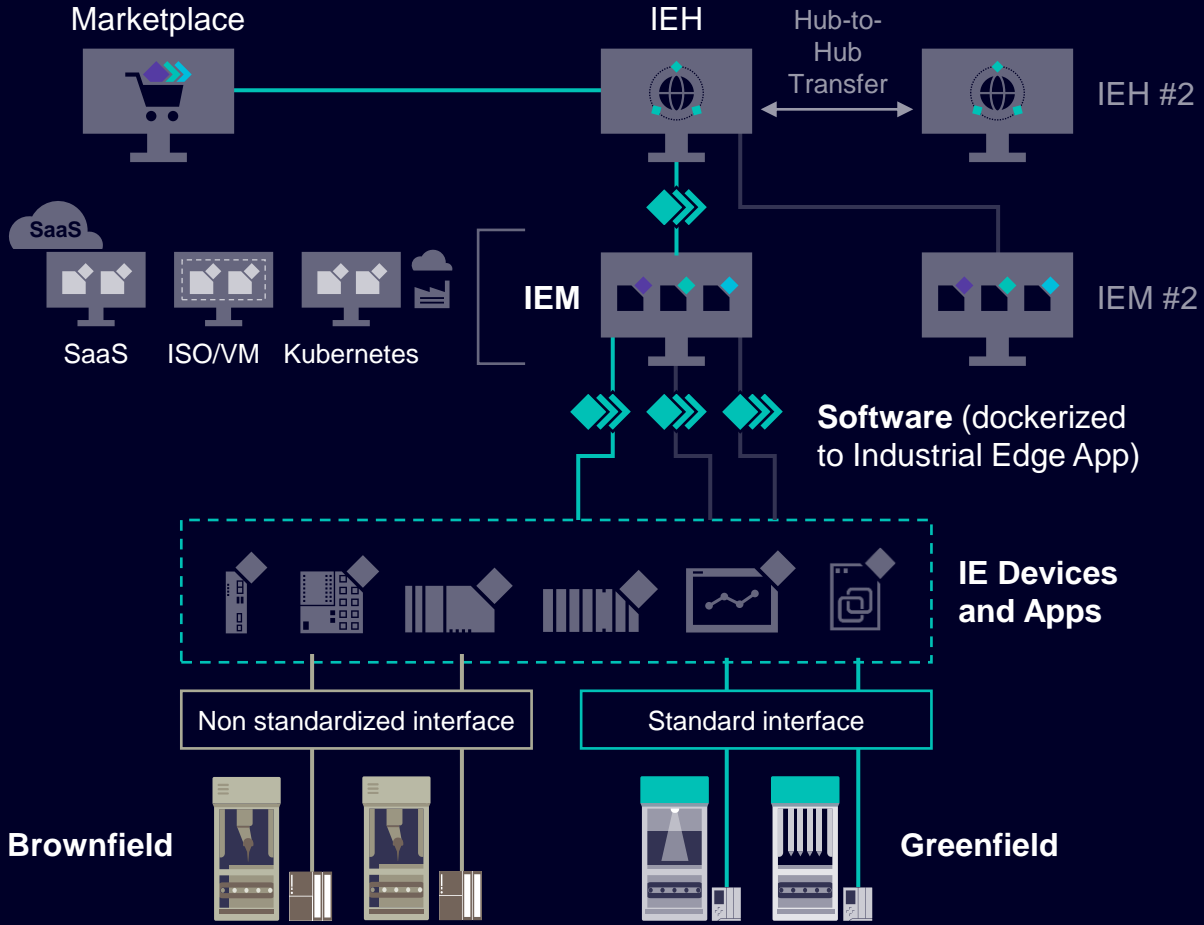
An open platform to integrate IT systems into the shopfloor in a way software- & data handling becomes scalable, reliable and easy to use.



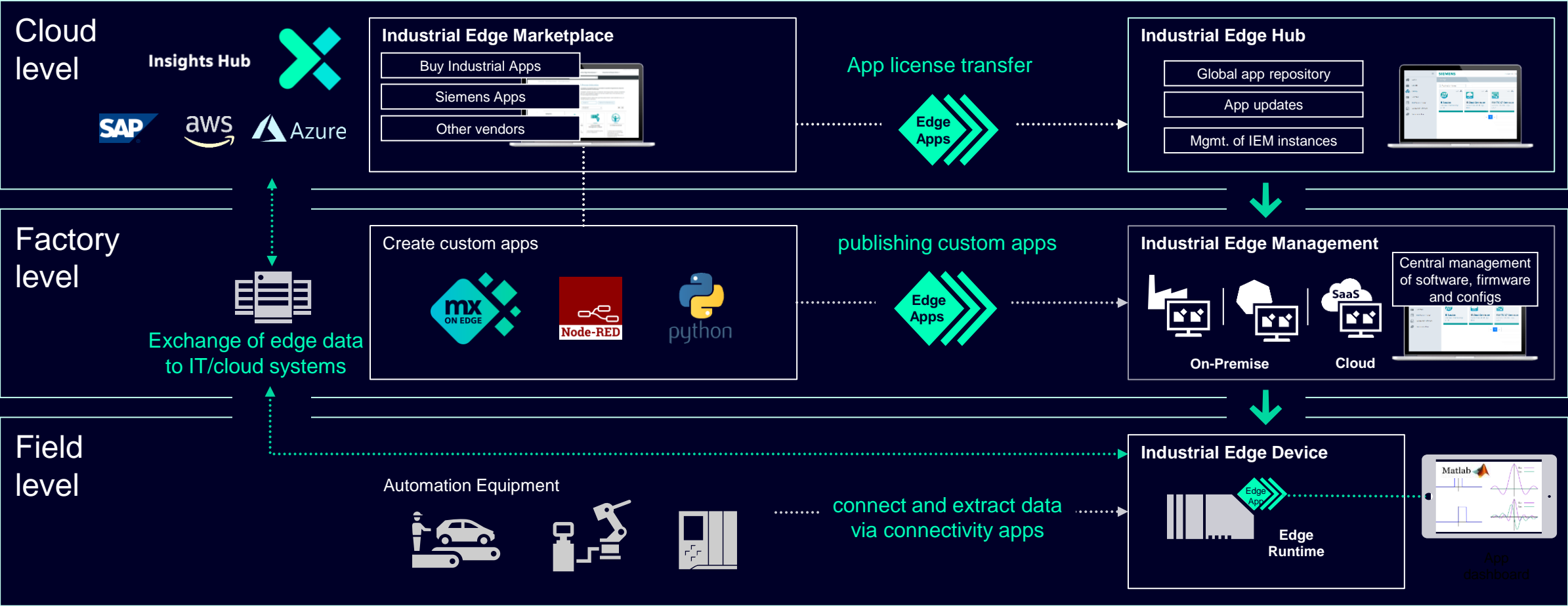
Totally Integrated Automation from Siemens



Industrial Edge Architecture



Industrial Edge Blueprint Architecture




The Industrial Edge Devices – August 2024

Devices from internal and 3rd party Device Builders – Flexible and scalable for any customer scenario




IPC for small scenarios

- SIMATIC IOT2050
- SIMATIC IPC127E

IPC for mid-size scenarios

- SIMATIC IPC227E/G
- SIMATIC IPC427E
- SIMATIC BX-39A




IPC for demanding scenarios

SIMATIC IPC847E




GPU enabled Industrial Edge Devices

- SIMATIC IPC BX-59A (with Nvidia L4 GPU)
- SIMATIC IPC BX-35A (with Jetson Orin GPU) 2

Third party Device Builders








HMI – Your Intelligent IIoT Gateway Solutions







Software-based Devices

- Industrial Edge Virtual Device (IEVD)
- Industrial Edge Own Device (IEOD) 1

Human-Machine Interface

SIMATIC HMI Unified Comfort Panel 7-22" 1

Rugged Network Infrastructure

- SCALANCE LPE9413
- RUGGEDCOM APE1808 2



Weidmüller



Weidmüller u-control

- UC20-M3000
- UC20-M4000



NOVAKON

HMI – Your Intelligent IIoT Gateway Solutions



Novakon Panel PCs

- NPP-156P01 15,6"
- NPP-215P01 21,5"
- Additional display sizes on demand



DYNICS



Dynamics IPC 2 XiA2

Architecture:  x86-64  arm64

 Planned

1 limited released

2 in onboarding

Connectivity¹ is the foundation for all Industrial Edge Apps

Extensive app portfolio that can combine to valuable end to end use cases



¹ Estimations based on available connectivity to all major vendors in the automation market, Slide shows just a selection of possibilities

² Note: Some portfolio is still in Limited Sales Release

The app Industrial Information Hub (IIH) is the new central data management hub on the bridging data from automation to IT



Collect Data from OT

Flexible integration of own, 3rd Party and Siemens: >90% of all devices in the industry



Configure Easy

One Configurator for everything



Integrate Data

Data pre-processing, historic capture, live access and cloud sync.



Access Data

State of the art access via GraphQL, REST, OPC UA



Map OT and IT

Use any OPC UA companion spec to upgrade a brown field machine to the latest standard



Scalability

Scale-out by distributing Model between Nodes or **Scale-up** from constrained Devices to Cloud



Selected industrial-grade applications from Industrial Edge Ecosystem

Everything centrally manageable for highest scalability

Shopfloor to cloud **connectivity**,
local **data acquisition** and **pre-
processing**



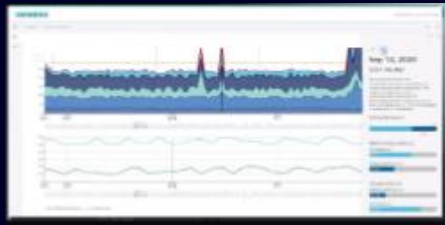
Central **App & Device Management**;
Bring your own Apps to shopfloor
(e.g., with Mendix)



Production performance and
resource/energy consumption
analytics



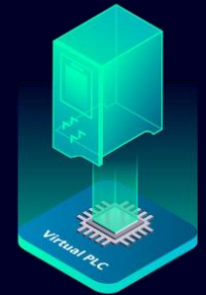
Detect anomalies based on data
patterns (torques, currents and
voltages, temperature, ...)



**AI supported quality prediction or
process optimization** (Predictive
Services)

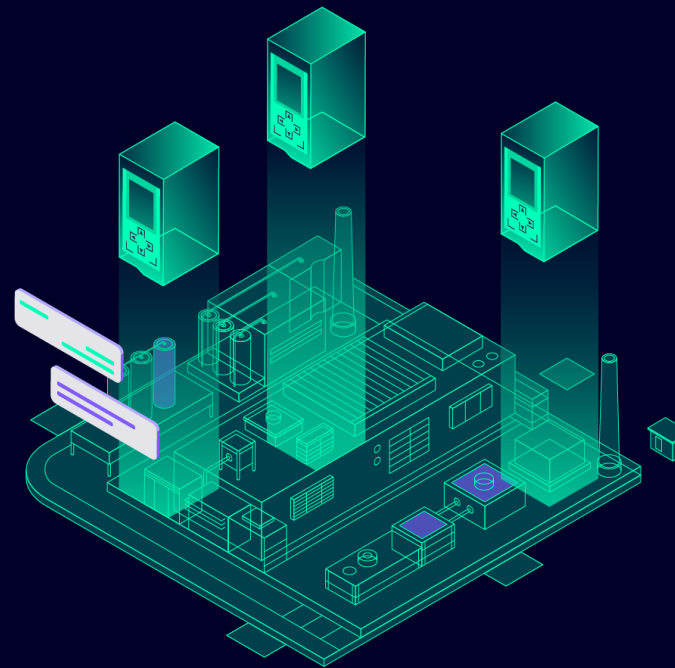


Virtualized automation landscapes
HMI and PLC software
(limited sales release)



SIMATIC S7-1500V Virtual PLC

Deep Dive



Why virtual PLC?

Technology Trends



Virtualization



Edge Computing/Containerization



IT Centralization

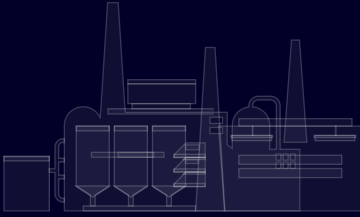
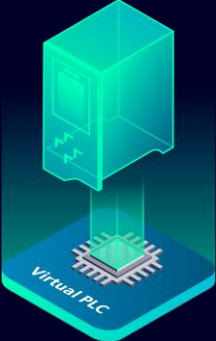
SIMATIC S7 1500V – Virtual PLC Controller Overview

Hardware Controller

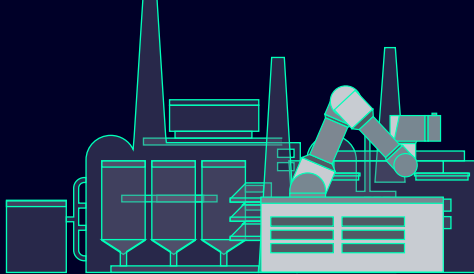
- High reliability and robustness
- TIA Ecosystem
- High performance and deterministic
- Low maintenance effort

Software Controller Open Controller

- High Performance with Motion on high end IPCs
- IT Openness
- High End Motion
- IT-ready with Linux



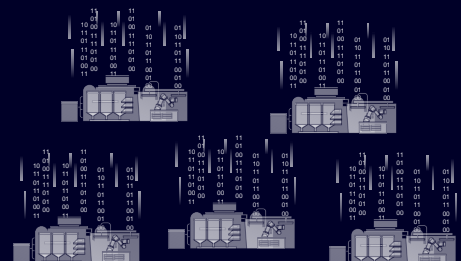
Manual production



Automated production



SW/IT-defined production



Autonomous production

Industrial Operations X

Building on integrated automation ...

... expanding to holistic industrial operations

SIMATIC S7 1500V – Virtual PLC

Flexibility on demand

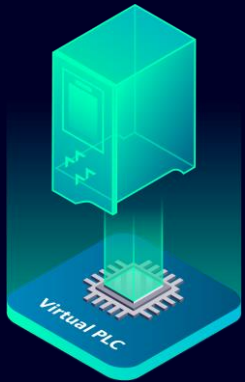


Combine the best of both worlds – with flexibility on demand

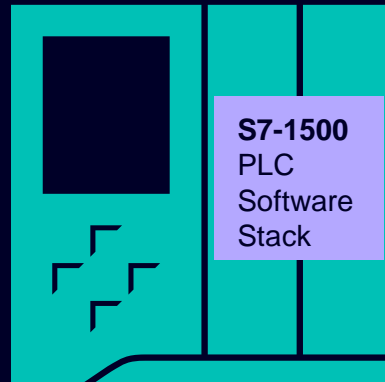
SIMATIC S7 1500V – Virtual PLC Virtual Controller

S7-1500V

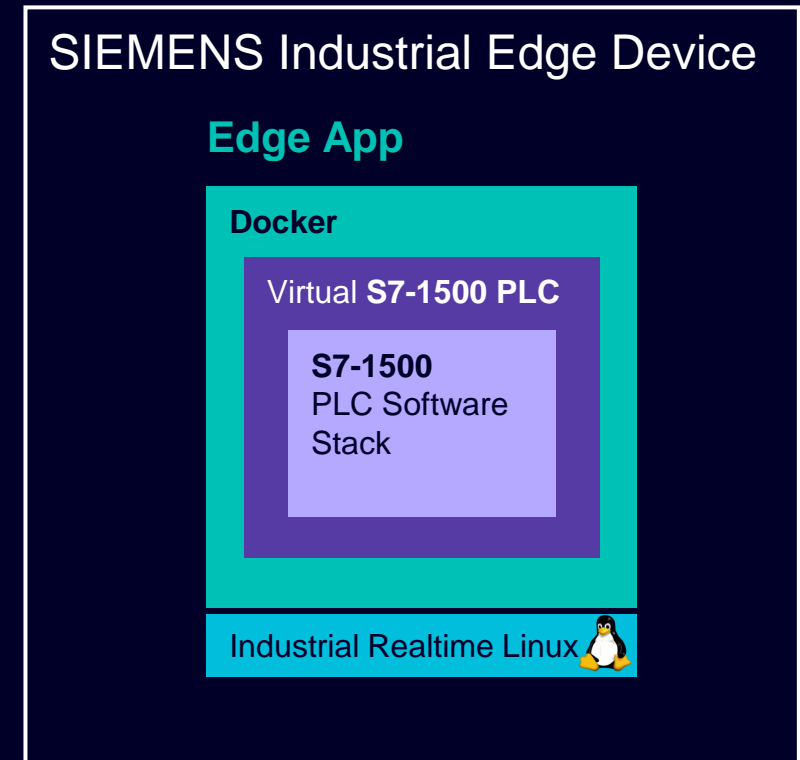
- **Virtual PLC SIMATIC S7-1500V**
- App management using Industrial Edge management mechanism
- Hardware independence for Virtual Edge / Industrial Edge Own Device
- TIA Portal compatible



S7-1500 PLC



Virtual SIMATIC PLC



The basic idea ... we bring
SIMATIC on the Industrial Edge!

SIMATIC S7 1500V – Virtual PLC Highlights

Scalability

- Different versions: small, medium, large
- Performance scalable based on x86 architecture

Safety Integrated

- Controller for standard- and failsafe control tasks
- Safety controls up to PLe/SIL 3

Hardware independent

- Based on standard Hypervisor technology like VMware the vPLC runs with the virtual Edge Device on the hardware of your choice

Execution Robustness

- Realtime capable down to 1ms cycle times
- Support of PROFINET RT with decentral IOs

Compatibility

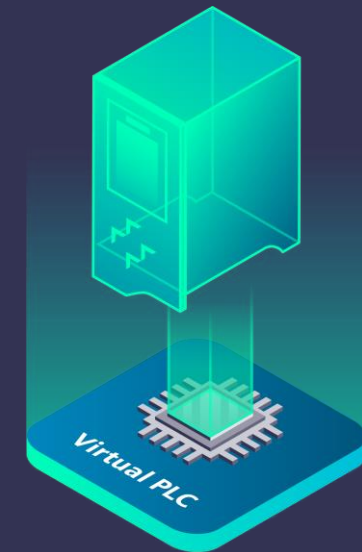
- Code compatibility to S7-1500 and TIA Portal/AX engineering systems
- OPC UA integrated
- Diagnostic and Trace

Usability

- WebUI over the edge app
- Complete configuration by TIA Portal – No local settings
- IT-like APIs

Security

- Copy and Know-how protection
- Leading edge Communication security
- Secure OUC and OPC UA



SIMATIC S7 1500V – Virtual PLC Facts

24/7 purchasing availability

@ SIEMENS Industrial Edge Marketplace

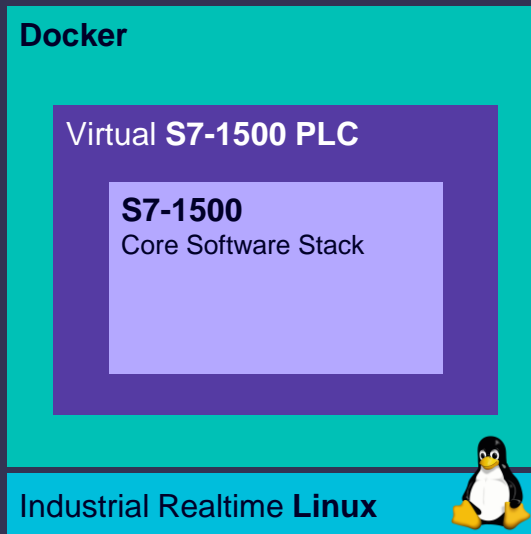
TIA Portal compatible

Real-time capable

Safety support

Decentral IO control

Siemens Industrial Edge Runtime



Multiple virtual PLCs run on one server, whereby each vPLC is hosted in one Industrial Edge Virtual Device.

Profinet RT with 1 ms Cycle Time

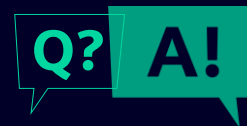
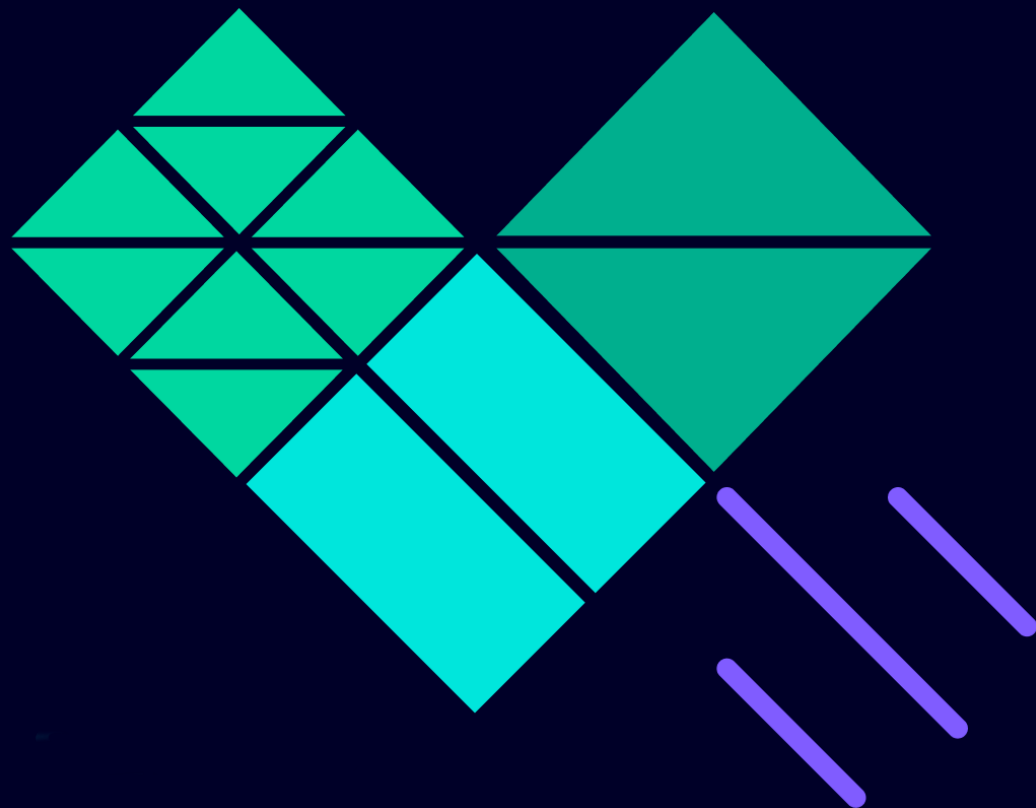
Hardware independent vPLC running on different kind of Industrial Edge device (virtual, IPC, IEOD)

One physical CPU Core per vPLC instance reserved

4GB of RAM and **1GB Disk** space per Instance

Welcome to the Siemens Industrial Edge Community!

Always stay up to date & interact with other Ecosystem participants



forum.industrial-edge.siemens.cloud 

Your space for questions, support & idea sharing!



docs.industrial-edge.siemens.cloud 

The new website for documentation & guides.

siemens.com/industrial-edge

Come play with us!

Explore and demo Industrial Edge in a Sandbox easy and fast



Register free of charge
at no costs for the user

8 hours of full playtime
while you are using the system

Explore Now!



+ All in one environment
where everything is preinstalled

+ Guided Tour
for an easy first touchpoint with the Industrial Edge Platform

+ Learn
how Apps, Devices and the Management System work together



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