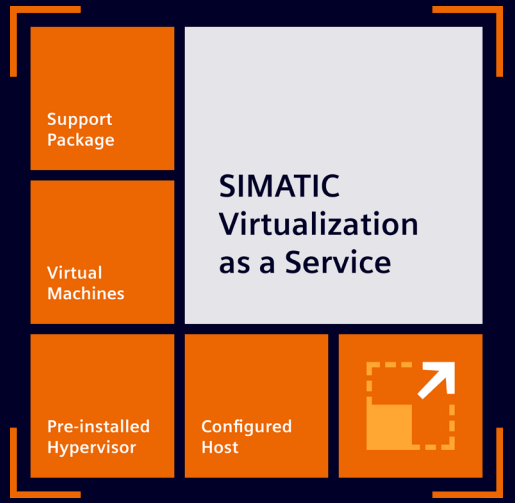
SIMATIC Virtualization as a Service

Future-proof modernization



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Innovative concepts for the optimized maintenance and modernization of PC-based control systems are key

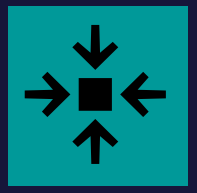
Operative challenges

- Apart from the preventive maintenance of the host platform, it is particularly the maintenance and care of the installed software components which is decisive for the lifecycle costs of a PC-based control system.
- The integration of IT-technologies into the industrial environment enables innovative concepts here as well, such as system virtualization.

Innovative concepts like virtualization can reduce lifecycle costs and simplify modernization of PC-based control systems.

Required solution

Cut lifecycle costs



Simplify complex system updates and system expansions

Fast, reliable service and support

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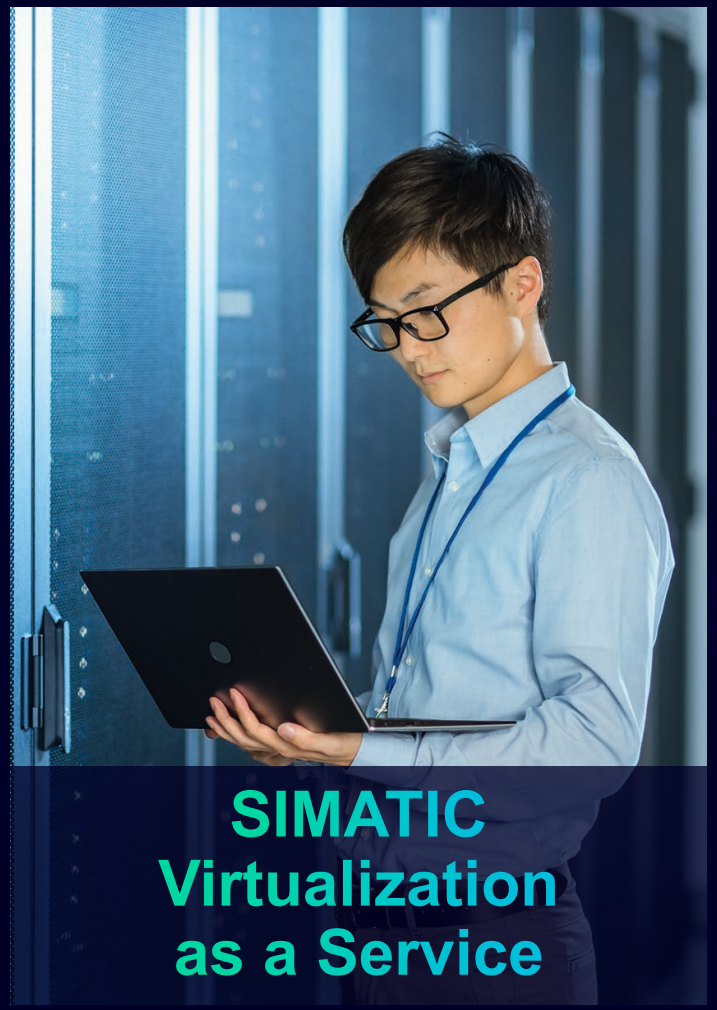
Future-proof modernization with SIMATIC Virtualization as a Service

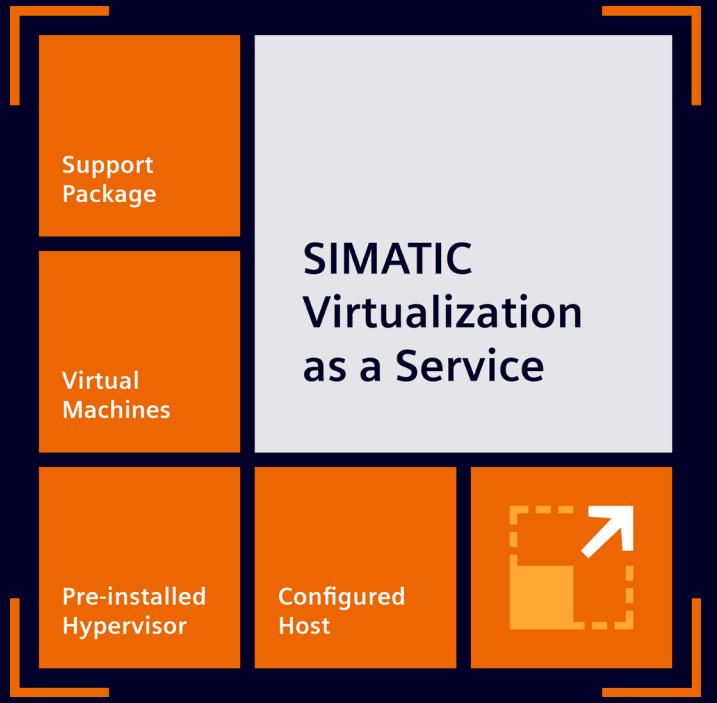


Solution

SIMATIC Virtualization as a Service is a future-oriented virtualization technology including suitable software and host components as well as services throughout the entire lifecycle. Everything from a single source – with all components working together in harmony.

How does it work?

- **Module – Configured Host:**
  Host and management console
- **Module – Pre-installed Hypervisor:**
  Installation and configuration of the virtualization layer
- **Module – Virtual Machines:**
  Delivery of a virtual machine ready for operation
- **Modul – Support Package:**
  Includes pre-installation and configuration of the total system, Technical Support, system documentation and After-Sales-Service



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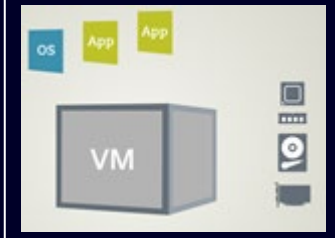
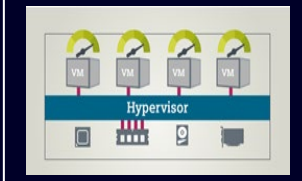
SIMATIC Virtualization as a Service
What does virtualization mean?

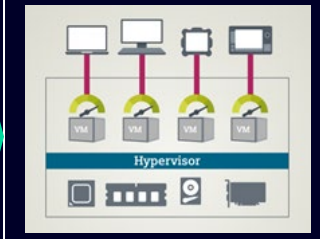
Through virtualization, the operating system and the user software of a computer are decoupled from its host.



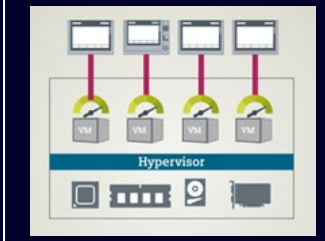
The operating system and the user software are made available in form of a virtual machine (VM).



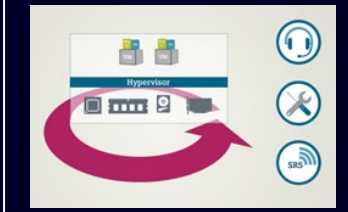
A hypervisor is installed as an additional software layer on a high performance server; it allows for the integration of several virtual machines on only one host.



The hypervisor handles the dynamic distribution of the host resources to the virtual machines.



The virtual machines are accessed through energy- and cost-efficient Thin Clients.



SIMATIC Virtualization as a Service offers this technology as a ready-to-run complete system including configuration and system support.

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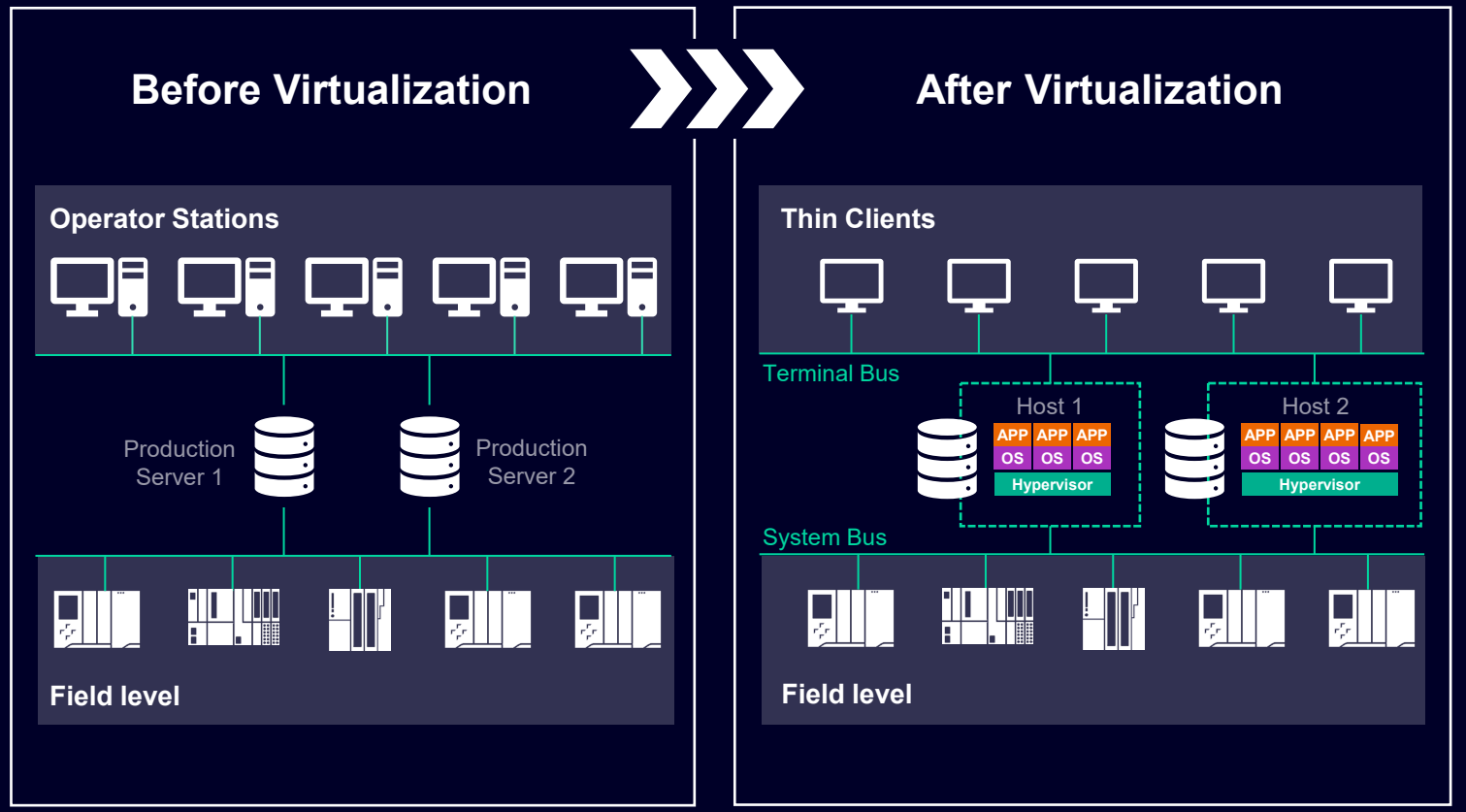
SIMATIC Virtualization as a Service
An automation system before and after virtualization



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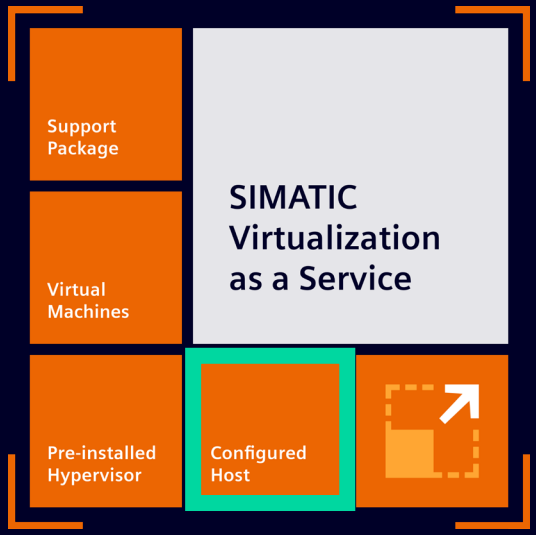
SIMATIC Virtualization as a Service Module “Configured Host”

New Dell PowerEdge R760/ R760xs hosts

Our Dell Technologies portfolio is updated to the PowerEdge 16th generation. The technical specifications are similar to HP Enterprise ProLiant DL380 Gen11 servers from our portfolio.

- Available as PowerEdge R760 and R760xs for optimized pricing
- 4th generation Intel XEON Scalable processors
- Supports DDR5 RAM with 5600 MT/s
- NVMe storage for better performance
- Integrated hot swapable BOSS device
- Energy efficient power supplies with 1100W



SIMATIC Virtualization as a Service scales to fit the market requiems of today and tomorrow

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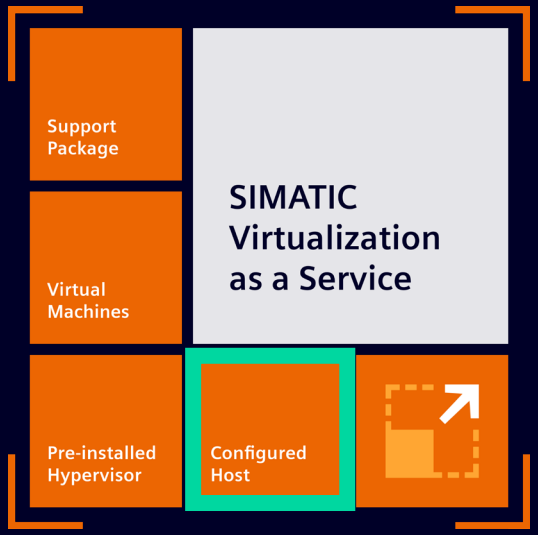
SIMATIC Virtualization as a Service Module “Configured Host”

The system platform consists of the host (HPE ProLiant or DELL PowerEdge) and a management console (HP Thin Client or DELL).

Several hosts are available – they are equally performant and have linear scaling:

	S[2]	M	L[3]	XL
	16x1	**24x1**	**16x2**	**24x2**
Cores	16	24	32	48
RAM [GB]	128	192	256	384
SSD[1] [GB]	3.200	4.800	6.400	9.600

Expandable via MLFB: RAM, SSD, NIC



[1] net - after RAID 5 redundancy
[2] also as Max Performance available: faster CPU; 256GB RAM
[3] also as Max Performance available: faster CPU; 512GB RAM

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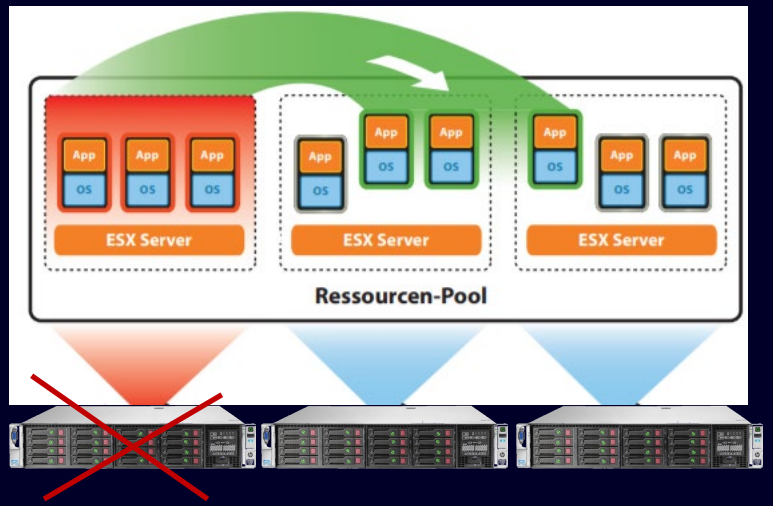
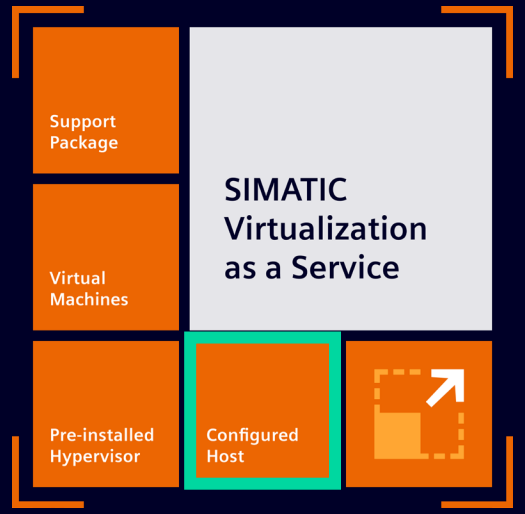
SIMATIC Virtualization as a Service
Module “Configured Host” – High available (v)SAN option

VMware only

The **(v)SAN cluster** is a prerequisite for the „High Availability“ feature of the VMware. This feature can be used with our SIMATIC Virtualization as a Service for any non-SIMATIC server application.
It features high availibility of the virtual machines and thereby of the PCS 7, WinCC and other applications.

In case of a failure on a physical server, the affected virtual machines will be automatically started on other productive servers with free capacities.





There are two options available: **vSAN** or **SAN cluster**

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SIMATIC Virtualization as a Service
Module “Configured Host” – SAN Cluster

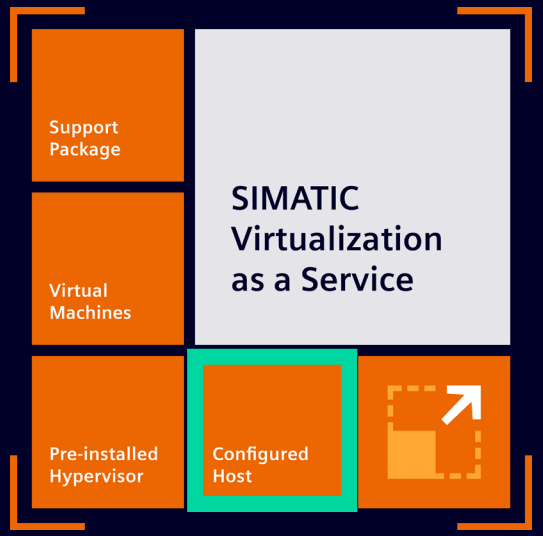
VMware only

Digital systems must be highly available in order to reduce system downtime in case of a host failure.

We offer a preconfigured Storage Area Network, completely integrated in the SIMATIC Virtualization as a Service.

The complete **SAN cluster** consists of the external storage and minimum 2 standardized 1-CPU SIVaaS hosts and can be enlarged to maximum 4 hosts.

- **Preinstalled and configured VMware software vSphere 8 Standard and VMware vCenter Server including the SAN configuration**



Pre-installation and configuration

- Configuration of the host
- Installation and configuration of the VMware Software
- Installation and configuration of the SAN software
- All necessary VMware licenses are included

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SIMATIC Virtualization as a Service
Module “Configured Host” – vSAN Cluster

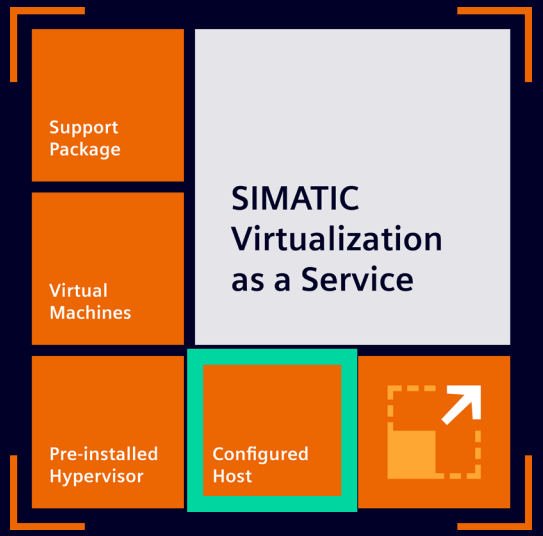
VMware only

Digital systems must be highly available in order to reduce system downtime in case of a host failure.

We offer a preconfigured hyper-converged storage approach, completely integrated in the SIMATIC Virtualization as a Service.

The complete **vSAN cluster** consists of minimum 3 standardized hosts and can be flexibly enlarged with further hosts.

- **Preinstalled and configured VMware software vSphere 8 Standard, VMware vCenter Server and vSphere 8 vSAN**



Pre-installation and configuration

- Configuration of the host
- Installation and configuration of the VMware Software
- Installation and configuration of the vSAN software
- All necessary VMware licenses are included

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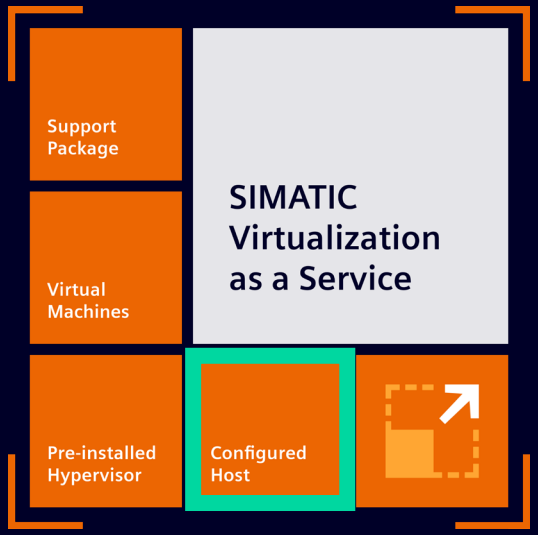
SIMATIC Virtualization as a Service
Module “Configured Host” – Overview

The following combinations of hosts and (v)SAN options are possible:

available for VMware + Hyper-V

	Standard				Max Performance	
	S	M	L	XL	S	L
CPU	16x1	24x1	16x2	24x2	16x1 MP	16x2 MP
RAM [GB]	128	192	256	384	256	512
Storage [TB]	3.2	4.8	6.4	9.6	3.2	6.4



VMware only

	SAN	
	S	M
CPU	16x1	24x1
RAM [GB]	128	192
HDD Storage[1] [TB]	3.6	4.8

VMware only

	vSAN		
	S	M	L
CPU	16x1	24x1	16x2
RAM [GB]	128	192	256
SSD Storage [TB]	4.0	5.0	7.5

[1] HDDs are installed in SAN

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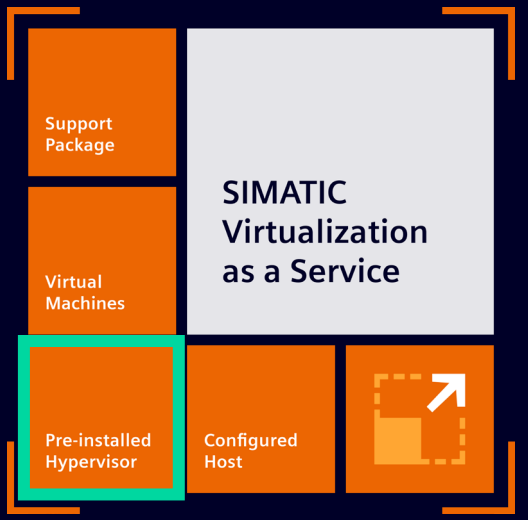
SIMATIC Virtualization as a Service
Module “Pre-installed Hypervisor - based on Microsoft Hyper-V”

NEW

Maximize your efficiency with Microsoft **Hyper-V**. The cost-effective and powerful virtualization solution.

The benefits at a glance:

- **Cost efficiency**: Integrated into Windows Server licenses.
- **Seamless Integration**: Perfect alignment with Microsoft products.
- **Powerful Performance**: Optimal performance for Windows-based VMs.
- **Security**: Protection through TPM and Secure Boot.



The new Hypervisor “Hyper-V” is already released for common SIEMENS DCS like PCS7, TIA Portal or WinCC

- It´s system-tested, pre-installed and pre-configured
- Extended consolidated 3, 5 or exclusively also 7 years support

Microsoft Hyper-V

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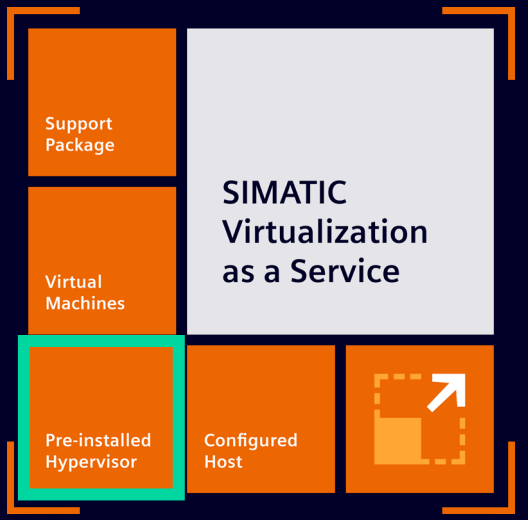
SIMATIC Virtualization as a Service
Module “Pre-installed Hypervisor - Comparison ESXi and Hyper-V”

NEW

The new pre-installed hypervisor Microsoft „Hyper-V“ compared to VMware by Broadcom:

	VMware ESXi	Microsoft Hyper-V
Costs	Separate licensing - can be more expensive initially but may offer more advanced features	Integrated in Windows Server
Integration	Provides extensive support for a variety of operating systems – incl. macOS, making it more flexible	Seamless integration with other Microsoft products like Windows Server, System Center, and Azure
Management Tools	Comprehensive management tools like vSphere web client and vCenter Server	Powerful management tools like Hyper-V Manager and Windows Admin Center
Performance	Known for its performance optimization and resource management capabilities	Offers excellent performance, especially when paired with Windows-based VMs
Security	Good security and monitoring features	Built-in security features like Shielded VMs that provide additional protection
Support Agreement	Fixed 5 years duration, VMware maintenance support limited to 10/2027	Selectable: 3, 5 or 7 years
Dependance	Virtual machines and SIEMENS application are bound to the virtual hardware version of VMware	No dedicated dependency between virtual machine and SIEMENS application



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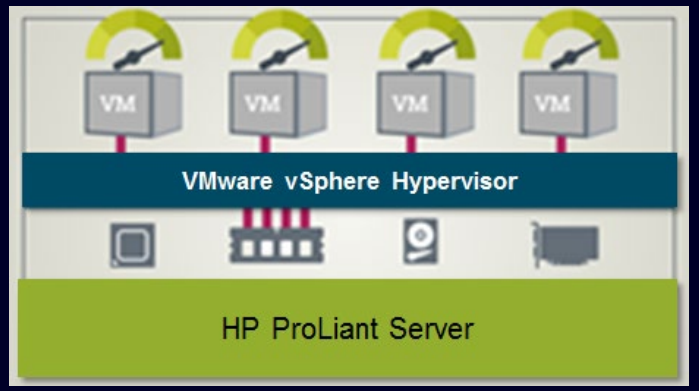
SIMATIC Virtualization as a Service
Module “Pre-installed Hypervisor - based on VMware”

On the basis of the system platform, a virtualization layer is installed that handles the recource distribution of the physical host to the virtual machines. VMware is used as the virtualization software.

- Preinstalled and preconfigured VMware software vSphere 8.0 Standard (perpetual)
- Vmware ESXi V8 Maintenance support is limited until October 2027 (End of General Support by Broadcom). For further information, please refer to https://support.industry.siemens.com/cs/ww/en/view/109961796
- Optional: VMware vCenter Server for centralized management of your virtual infrastructure



Pre-installation and configuration

- Installation and configuration of the hypervisor Software VMware vSphere 8
- Activated TPM Module and Secure Boot in all hosts
- Complete virtual network configuration
- Licensed VMware Software
- Pre-installed administration and maintenance software on the management console

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SIMATIC Virtualization as a Service Module “Virtual Machines”

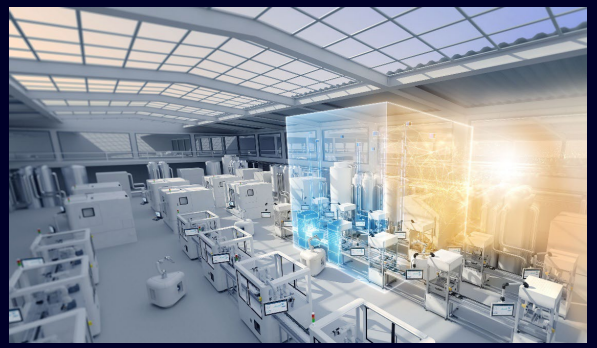
On the system platform, a virtual machine is delivered ready for operation.
On every virtual machine, a Microsoft Windows Server 2016, 2019 or 2022 64-bit (with activated license) is preinstalled.

We have broad expertise in hosting the following applications:

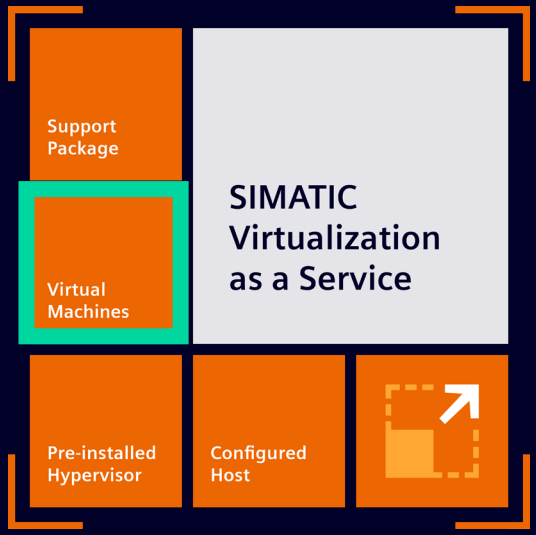
- SIMATIC PCS neo
- SIMATIC PCS 7
- SIMATIC Step 7
- SIMATIC WinCC
- TIA Portal
- BRAUMAT & SISTAR
- SIMIT
- COMOS
- DESIGO CC

We are happy to advise you on the integration of your application.

SIMATIC PCS 7



TIA Portal



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SIMATIC Virtualization as a Service Module “Virtual Machines”

In order to create added value for the customer the existing portfolio has been expanded with the new **SIVaaS version 4.0**.

The extension includes:

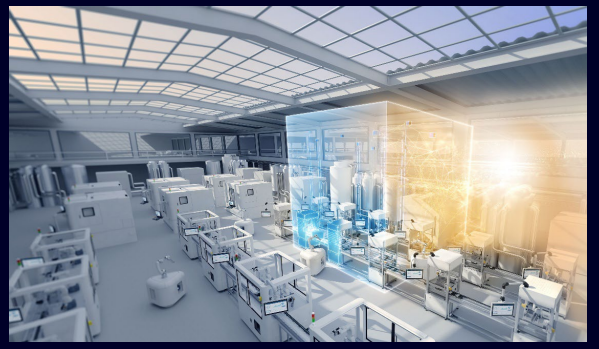
- a current update for:

  TIA Portal in Version 19
  and
  SIMIT in Version 11.2

  VMware only

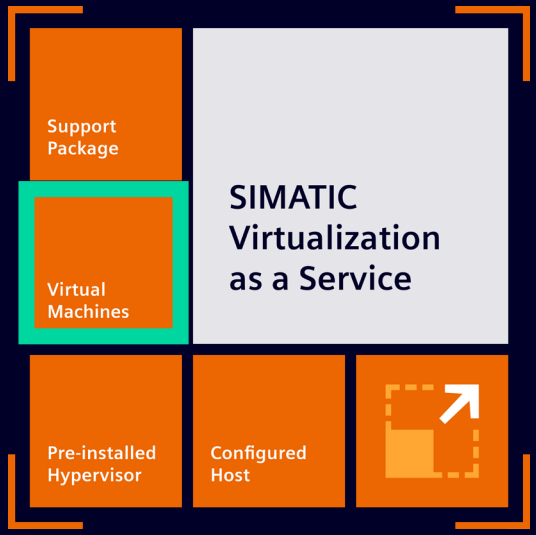
- and the introduction of the brand new

  SIMATIC PCS 7 V10 [1]



TIA Portal

SIMATIC PCS 7



[1] Due to the limited SalesRelease of PCS 7 V10 Batch/RouteControll and InformationServer will be released later

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SIMATIC Virtualization as a Service Module “Support Package“

Installation & Configuration

Support Contract

User Manual

After Sales Service

Additional Options

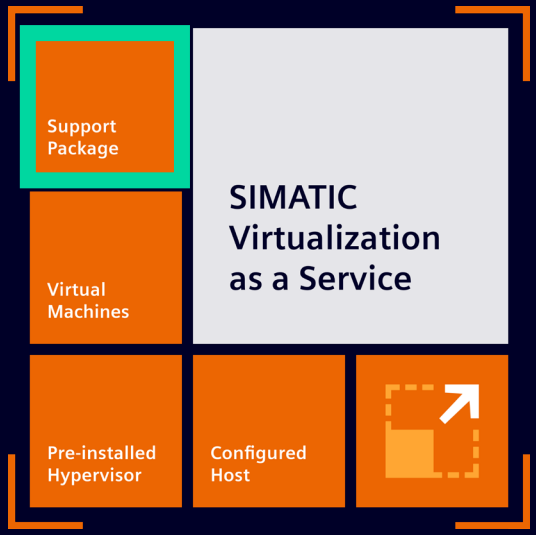
Pre-installation and configuration of the servers is part of the delivery scope

- 5-years only for VMware / 3-, 5- or 7-years for Hyper-V
- Technical Support for all used componentds included: Host, operating systems, VMware, SIMATIC products
- One contact person for all inquiries
- Individual support by experts (phone/eMail), processing duration of each case up to 2h. No limitation of cases
- Processing of inquiries regarding functions and system handling
- Coordination of the support activities regarding components from third parties
- DMR (Defective Media Retention) for broken storages – Customer IP will remain on site

In addition to the documentation of the HW/SW components, the system documentation includes a detailed technical manual, instructions, FAQ’s, upgrade procedures and application examples

Warranty (60 months after purchase) and spare parts availability until EOL + remaining service contract period

- Technical Support Extended
- Clients with linux based IGEL Operating System
- cRSP Ready Management Console
- Supplementary Lifecycle Services: Remote Services
- Supplementary Lifecycle Services: Industrial Cybersecurity Services



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Why not profiting from the industrial digitalization age and get Siemens on board for your IT/OT infrastructure?

Managed IT/OT Infrastructure

- includes a ready-to-run high-available IT infrastructure for OT environments.
- meets sustainability goals and the latest cybersecurity requirements.
- ensures operational continuity through remote management and monitoring by IT/OT experts.

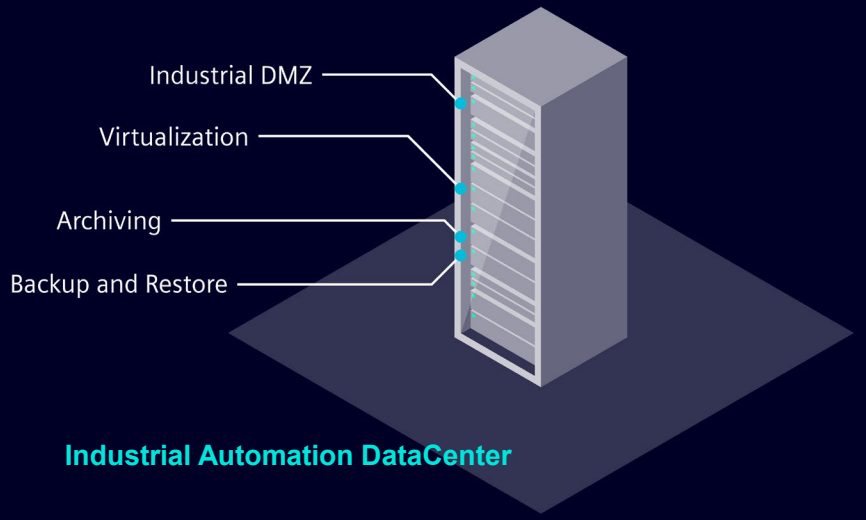
➢ **bridges the gap between IT and OT.**

The perfect symbiosis of hardware, software and services

Secure data exchange between IT and OT based on IEC 62443 with industrial DMZ infrastructure

Future-proof modernization of control systems with a pre-configured virtualization platform

Pre-configured IT infrastructure for optimized data handling:
- Archiving
- Backup and Restore



Industrial Automation DataCenter

+

Remote monitoring and management of your IT/OT infrastructure by IT/OT experts through the entire life cycle

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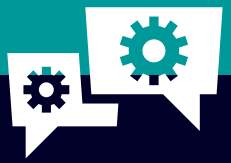
Siemens as reliable partner for IT infrastructure in OT environments

We are the automation experts

We drive digitalization

We understand industrial security

We have specific industry know-how



We offer state-of-the-art technology and end-to-end services from a single source

"We make sure that you can focus on your core business."

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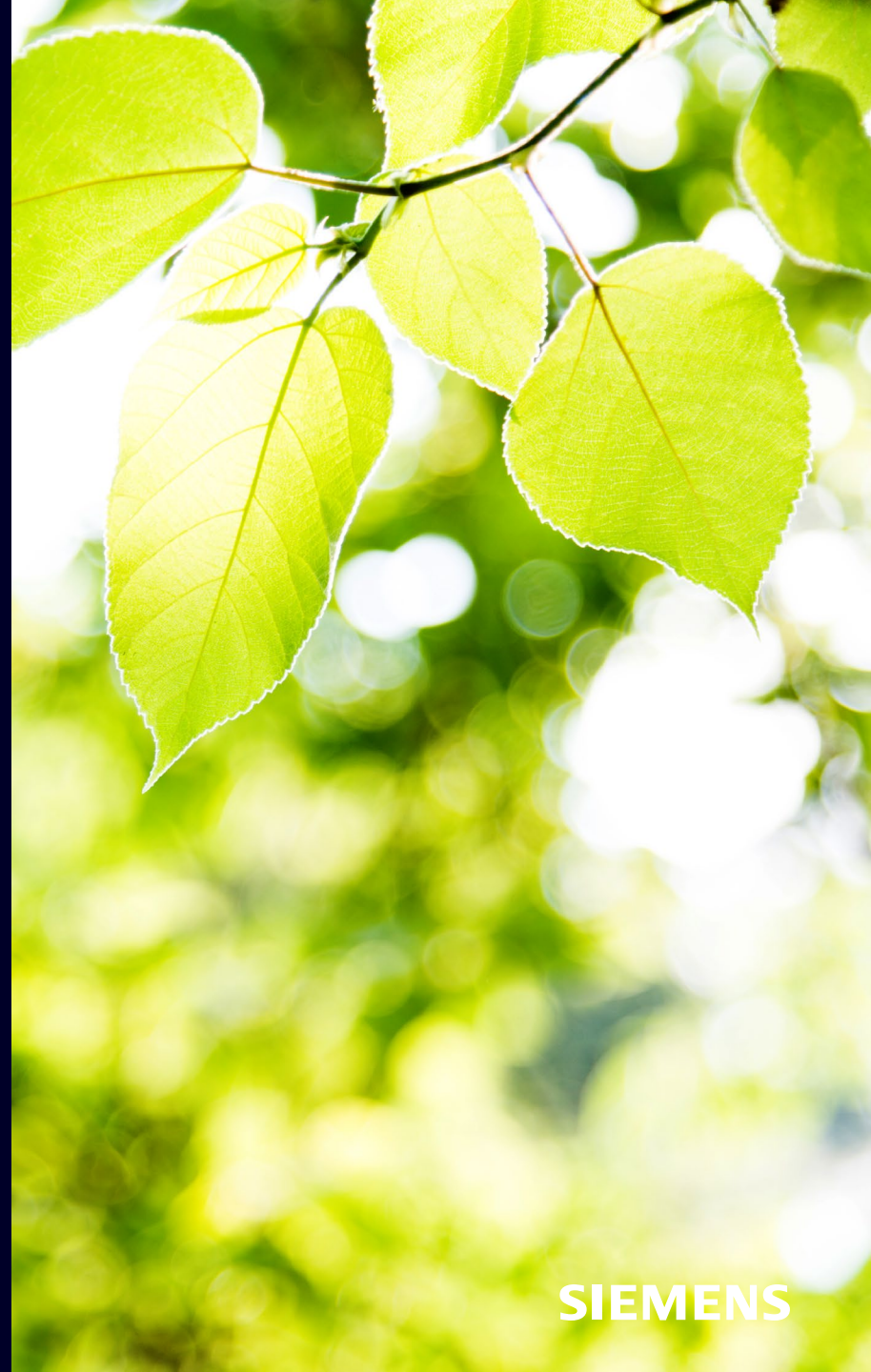
Contribution to a sustainable future with SIMATIC Virtualization as a Service

Up to 80% less space required

due to a standardized overall system with reduced number of communication interfaces

Up to 75% energy savings

due to optimized use of the IT resources deployed



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Why should you choose SIMATIC Virtualization as a Service?

System-tested and **pre-configured**
virtualization platform for industrial systems

Cost reduction due to **energy/space savings**
and **optimized maintenance/modernization**

100% lifecycle services **from a single source**

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Reference: Bayer CropScience AG, Germany
Digital transformation of the production plants

Customer profile	Bayer CropScience researches, develops and markets highly effective and innovative insecticides, fungicides, herbicides and seed treatment products. Around 2,000 different chemical products are manufactured at the CHEMPARK in Dormagen. Production focuses on the development and manufacture of crop protection products, polymers, plastics and rubber.
Customer objectives	As a result of the modernization, several production plants are to meet the latest requirements of a digital company. All necessary supplies and services are to be designed, offered, implemented and provided with the associated services from a single source.
Siemens solution	**Seven production plants were each equipped with an Industrial Automation DataCenter as part of the modernization** • Through intensive cooperation between **Siemens** and **Bayer CropScience AG**, the requirements with regard to the special features of production, the network architecture and the existing automation systems were determined and measures for conversion and preparation were developed. • In order to meet the requirements for the availability of the overall system, the system platform was designed on the basis of VMware vSAN technology. • A security workshop, a factory acceptance test and the implementation of specific customer requirements were successfully implemented within the scope of the project.
Customer value	• **Up to 80% less space** required due to a standardized overall system with the aim of reducing the number of communication interfaces • **Flexible system expansion** through preconfigured and ready-to-use individual components • **Up to 75% energy savings** due to optimized use of the IT resources deployed • Essential **IT security measures** were **already implemented** upon delivery

Reference ID: 22382

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Let us know if there is anything we can support you with!

You want to find out more?

Here you can find more information about SIMATIC Virtualization as a Service or contact the Siemens partner near you Siemens Contact Database

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Disclaimer

Subject to changes and errors. The information given in this document only contains general descriptions and/or performance features which may not always specifically reflect those described, or which may undergo modification in the course of further development of the products. The requested performance features are binding only when they are expressly agreed upon in the concluded contract.

Security Information

Siemens provides products and solutions with industrial security functions that support the secure operation of plants, systems, machines and networks.

In order to protect plants, systems, machines and networks against cyber threats, it is necessary to implement – and continuously maintain – a holistic, state-of-the-art industrial security concept. Siemens' products and solutions constitute one element of such a concept.

Customers are responsible for preventing unauthorized access to their plants, systems, machines and networks. Such systems, machines and components should only be connected to an enterprise network or the internet if and to the extent such a connection is necessary and only when appropriate security measures (e.g. firewalls and/or network segmentation) are in place.

For additional information on industrial security measures that may be implemented, please visit https://www.siemens.com/industrialsecurity

Siemens' products and solutions undergo continuous development to make them more secure. Siemens strongly recommends that product updates are applied as soon as they are available and that the latest product versions are used. Use of product versions that are no longer supported, and failure to apply the latest updates may increase customer's exposure to cyber threats.

To stay informed about product updates, subscribe to the Siemens Industrial Security RSS Feed under https://www.siemens.com/industrialsecurity

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