SINEMA Remote Connect V2.0
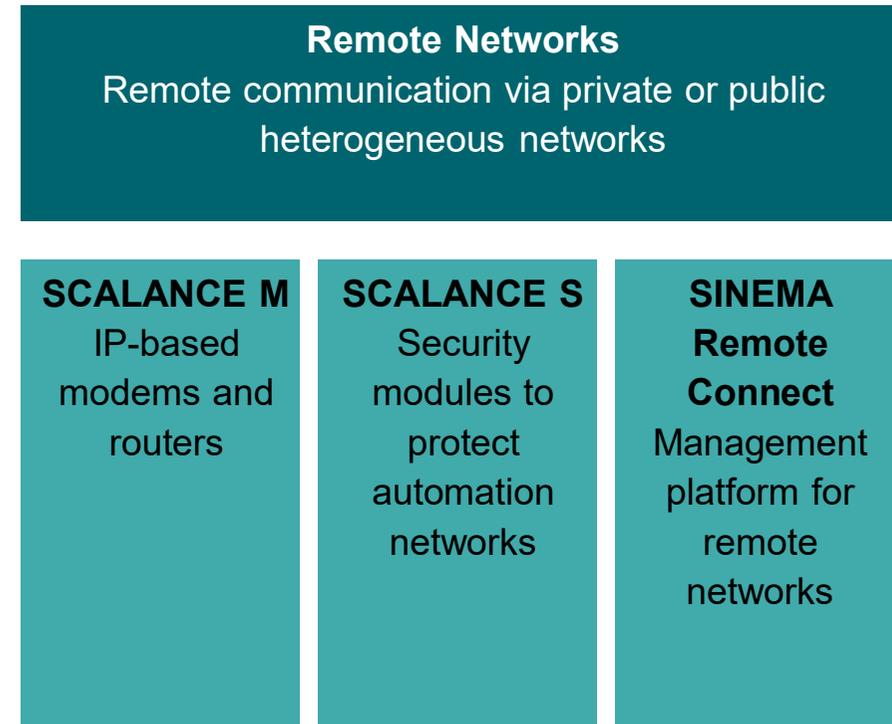
Market Entry Information (MEI)
Update 2018-11

siemens.com/sinema-remote-connect

SINEMA Remote Connect
Management platform for remote networks – Overview

KEY-PLUG

for the comfortable connection of
SCALANCE S615 & SCALANCE M Router
to the SINEMA Remote Connect Server

SINEMA Remote Connect Client

SINEMA RC Client

SINEMA Remote Connect Server

SCALANCE M816-1

SIMATIC S7-1500

Internet Router

Internet Router

SCALANCE M804 PB

SIMATIC S7-300

SIMATIC S7-1200

SCALANCE S615

Company network

Internet Router

Mobile wireless network

SCALANCE M876-4

SIMATIC S7-300

SIMATIC S7-1500 with CP 1543-1

SCALANCE SC 646-2C

SIMATIC S7-400

RTU30xx

Industrial Ethernet
VPN tunnel
Profibus

G_IK10_XX_50733

new

SINEMA Remote Connect
The management platform for remote networks

SIEMENS
Ingenuity for life

- Remote networks from Siemens were originally designed for telecontrol applications
  - SCALANCE M und SCALANCE S have the right fit for W&WW, O&G and SMART GRID

- For teleservice applications via remote networks up to now we offered individual products e.g. SIMATIC TeleService adapters and SCALANCE S/M for IP-based teleservice but no end-to end system
  - High degree of configuration effort
  - A lot of know-how necessary
  - No solution for difficult to reach plant sections (communication setup, OpenVPN, IPsec, proxy settings)

Remote Networks
Remote communication via private or public heterogeneous networks

SCALANCE M IP-based modems and routers	**SCALANCE S** Security modules to protect automation networks	**SINEMA Remote Connect** Management platform for remote networks

With SINEMA Remote Connect we have the right solution for all teleservice applications

SINEMA Remote Connect
What is SINEMA Remote Connect?

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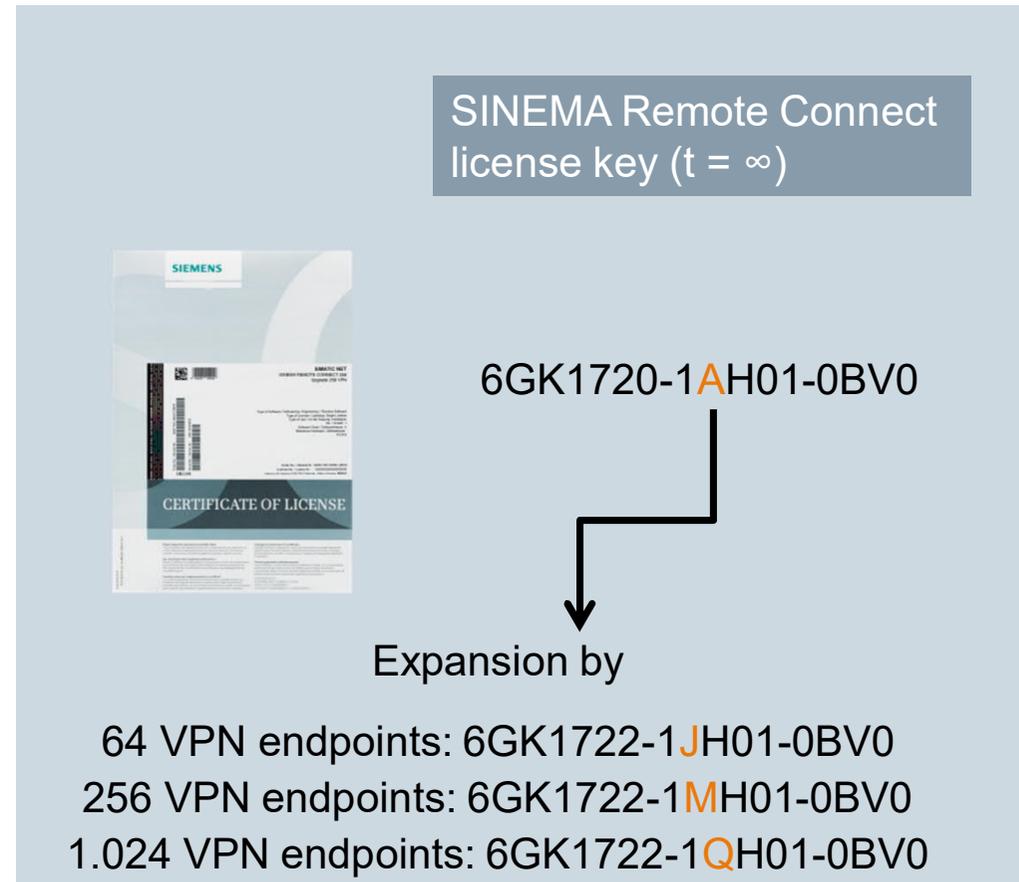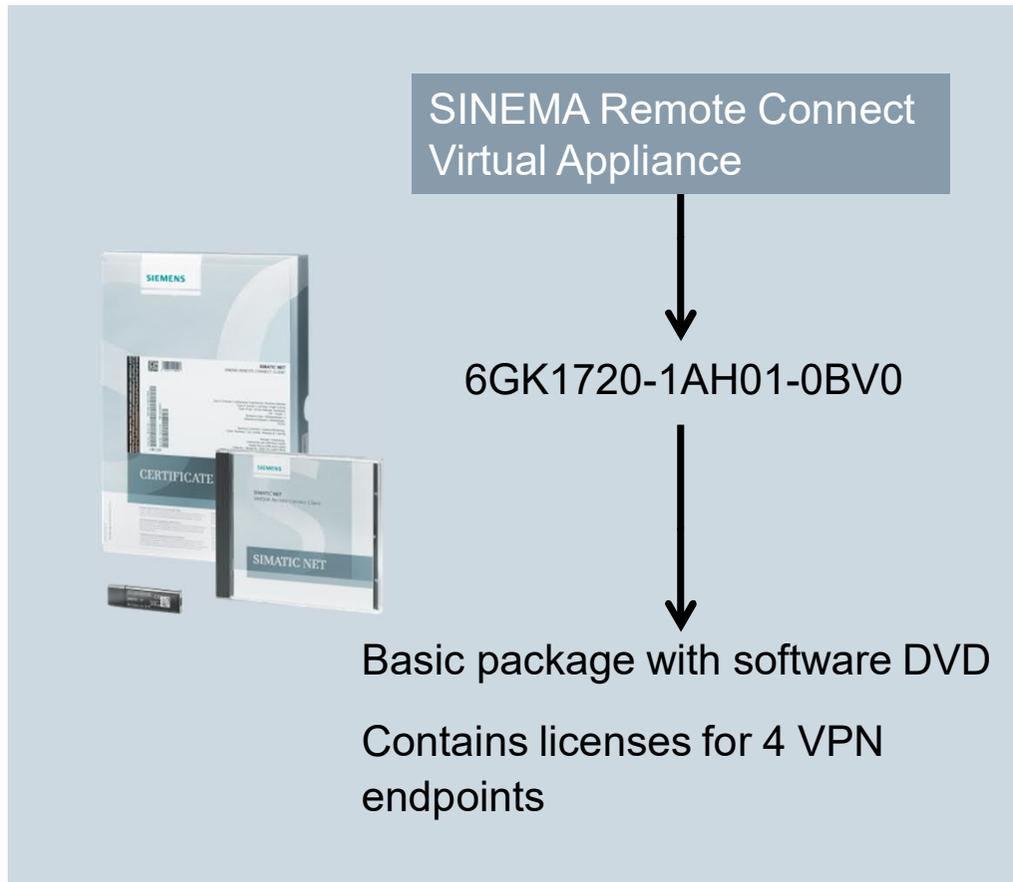## SINEMA Remote Connect – Management platform for remote networks

The management platform for remote networks, SINEMA Remote Connect (SINEMA RC), is a server application. With this, users can maintain widely distributed plants or machines with remote access conveniently and securely.

- SINEMA Remote Connect provides a secured connection to the machine to be maintained.
- The remote maintenance can, for example, be performed using the TIA Portal.
- The platform technology of SINEMA RC also known as rendezvous server allows secured management of tunnel connections (VPN) between the control center, the service technicians and the installed plants. Direct access to the company network into which the machine to be maintained is linked is avoided. The nodes intended to communicate with each other "meet" at a central location, the rendezvous server. The identity of the nodes is verified here by an exchange of certificates, before access to the machine can take place via the company network and the dedicated SCALANCE router.

SINEMA RC provides numerous additional features making it simple to use, e.g.:
- Device list function with SINEMA RC Client
- Simple assignment of rights via a user-friendly web interface
- Auto configuration of the Siemens routers and for SINEMA RC Client

SINEMA Remote Connect
Virtual appliance (single tenant system) – Naming

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SINEMA Remote Connect
Virtual Appliance

6GK1720-1AH01-0BV0

Basic package with software DVD

Contains licenses for 4 VPN endpoints

SINEMA Remote Connect
license key (t = ∞)

6GK1720-1AH01-0BV0

Expansion by

64 VPN endpoints: 6GK1722-1JH01-0BV0
256 VPN endpoints: 6GK1722-1MH01-0BV0
1.024 VPN endpoints: 6GK1722-1QH01-0BV0

SINEMA Remote Connect
Step-by-step completion of the remote network portfolio

New own hardware	Media	Accessories	System	Next steps

New own hardware: 50% reduction of list price Future-proof SCALANCE platform (like X and W)

Media: ADSL2+, SHDSL, EV-DO, LTE, LAN

Accessories: Antennas, cables, feedthroughs, Lightning protection, KEY-PLUG

System: SINEMA Remote Connect SINEMA RC Client TIA Portal*

Next steps: Virtualization, Cloud, PB-device and successor for TS-Adapter

*Remote access from TIA portal with SINEMA RC/ works as independent software side by side

SINEMA Remote Connect
Functions

Management of devices and users:

- User management with the configuration of rights

- Device and user management with group management

Connection management:

- Establishment of encrypted connections with OpenVPN and IPsec

- Establishment of permanent or event-based connections (establishment by wake-up SMS or digital input (DI))

SINEMA Remote Connect
Functions

Support during commissioning :

- Interface for auto configuration of devices and users

- Complete support of SCALANCE devices via auto configuration: S615, M804PB, M826, M816, M876, M874, RM1224, SC-600 and SINEMA RC Client

- Complete support of CPs via auto configuration for: CP 1243-1, CP 1243-8 IRC, CP 1243-7 LTE

- Support of devices via IPsec: CP 1543-1, CP 343-1 Advanced, CP 443-1 Advanced, CP 1628, SCALANCE S-600

- Support of devices via OpenVPN: RTU 303xC, RTU 3010C, CP 1543SP-1, CP 1542SP-1 IRC

- **subnets and partial subnets:**

- Support of routing

- Support of 1:1 NAT for mapping locally identical subnets

- Support of NAT for mapping dedicated local IP addresses

- Support of multiple subnets downstream from a SCALANCE M or SCALANCE S

SINEMA Remote Connect
Setup of the web based management

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Convenient WBM

User- and role-specific login

Just-in-time language switchover

Clear menu guidance

Filter function for convenient editing of lists

Device management directly after logging in

SIEMENS

SINEMA Remote Connect

Help ❓   Mittwoch, 7. Oktober 2015 21:11:34 ⏱   Language: English ▾

Logged on as "admin"

Log off   🔄

Devices

▸ System
▾ Remote connections
  ▸ Devices
  ▸ Device update
  ▸ Address spaces
  ▸ Participant groups
  ▸ Communication relations
▸ User accounts
▸ Security
▸ 👤 My account

ℹ Filter active

Search filter: All ▾   🔍 ☐ Precise match   Apply filter   Show all

☐	Name of the device ▲	VPN address ⇕	Remote subnet	Virtual local LAN	Status ⇕	Location	Type of connection	Actions
☐	RouterMaschine01	None	None	None	❌ offline	Halle 1, Segment 1	Wake-up SMS	ℹ ⚙ ☁ 🔍 ● 👥 ⏸ 📱

Create   Import   Copy   Delete

Screenshot update follows

Page 9

SINEMA RC Client
Functions

Address book:
- List view of all devices assigned to a user

Remote access:
- In addition to access to entire subnets, now also access restriction of individual devices within subnets for the user
- Dedicated device selection for Teleservice connection establishment

Personalized view:
- Personalized adjustment of device lists

Proxy server:
- For communicating with networks behind a proxy server infrastructure
- Support for HTTPS and SOCKS proxy servers

Auto-configuration interface:
- For very easy configuration of a connection to SINEMA Remote Connect

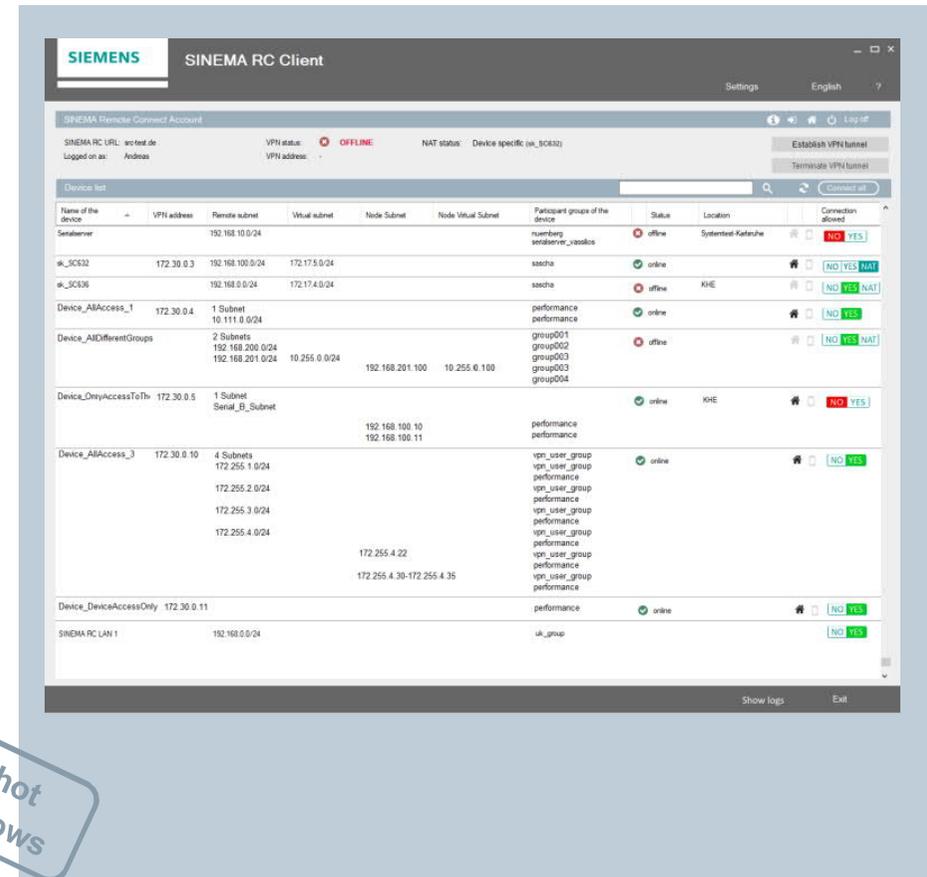**Establishment of a remote connection:**
- By issuing a wake-up SMS (in connection with mobile routers SCALANCE M874/876)

Safety mechanisms
- Tunnel encryption with OpenVPN

PKI smart card login:
- With two-factor authentication by smart card and key

Screenshot update follows

SINEMA RC Client
Structure of the user interface

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Convenient user interface with the look & feel of the TIA Portal

Device list with the devices assigned to the user

Selection of a device via "address book"

Convenient filter function

Accessible nodes

Web based server management

Connect all devices

Dedicated device access

NAT selection

Web based router management

Wake-up function for mobile devices via SMS

Screenshot update follows

SIEMENS — **SINEMA RC Client**

Settings   English   ?

SINEMA Remote Connect Account   Log off

SINEMA RC URL: Siemens-SRC.de   VPN status: ✓ Online   VPN status: Device specific (PlantA_Welding_Cell_1)

Logged on as: Service_user   VPN address: 172.29.0.56

Establish VPN tunnel

Terminate VPN tunnel

Device list   Connect all

Name of the device	VPN address	Remote subnet name	Virtual subnet	Node name	Participant groups of the device	Status	Location		Connection
PlantA_Press_01	172.29.0.43	Profinet	172.10.03.0/24	Press HMI SPS	Device_Service_Group Device_Service_Group VPN_Serviceuser_Ext VPN_Serviceuser_Siem VPN_Serviceuser_Siem	✓ online	Plant A	🏠	NO YES NAT
PlantA_Welding_Cell_1	172.29.0.31	Profinet	172.10.02.0/24	SPS HMI Robot	Device_Service_Group VPN_Serviceuser_Siem VPN_Serviceuser_Siem VPN_Serviceuser_Ext	✓ online	Plant A	🏠	NO YES NAT
PlantB_Assemblyline_1	172.29.0.28	OT Profinet		SCADA_PC Siemens_Drive HMI	Device_Service_Group Device_Service_Group VPN_Serviceuser_Siem Device_Service_Group VPN_Serviceuser_Siem VPN_Serviceuser_Siem	✓ online	Plant B	🏠	NO YES

Show logs   Exit

With the SINEMA RC Client it is possible to establish a Teleservice connection for e.g. TIA Portal / STEP 7 V5.x / PRONETA

SINEMA Remote Connect Server
Structure of the user interface

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Only 2 pages

Choose device type

New Device

Device Settings | Network settings

Device information:
- * Name of the device: S615_206
- * Password: ●●●●●●●
- * Confirm password: ●●●●●●●
- Vendor: Siemens
- * Type: SCALANCE S615
- Location: HQ
- Comment:

VPN settings:
- * VPN protocol: OpenVPN
- * Type of connection: Permanent
- ☑ Request VPN address
- ☐ Use fixed VPN address

Group settings:
- All access groups: vpn_user_group [Add]
- Device access only groups: vpn_user_group [Add]

[Next] [Quick Finish]

Screenshot updates follow

Create device without network information (for CPs and SIMATIC RTU3000C)

New Device

Device Settings | Network settings

Template Settings:

[Save settings as template] [Load setting from template]

Subnet Settings:
Device is a network gateway ☑

New Subnet: [Add]

Subnet Subnet 1 X
- Subnet name: Subnet 1
- Subnet access groups: vpn_user_group [Add]
- Subnet IP: 192.168.1.0
- Subnet Mask: 255.255.255.0
- Nat mode: None
- New node: S7-1500 [Add]

Node S7-1500 X
- Node name: S7-1500
- Node IP: 192.168.1.1
- Node access groups: [Add]
- vpn_user_group X

[Back] [Finish]

Collapse and hide sections

Apply template

Add nodes

Smartcard authentification

SINEMA Remote Connect
Licensing and device activation - What do I need where?

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SCALANCE M Router + KEY-PLUG
SINEMA RC

SCALANCE M Router + KEY-PLUG
SINEMA RC

SINEMA Remote Connect Server with
WIBU[1] - Licensing of VPN endpoints

SCALANCE S615 +
KEY-PLUG SINEMA RC

SCALANCE SC-600
(SINEMA RC license included)

OpenVPN Client and user
must be set up on the
server

Licensing of SINEMA RC
Clients via Automation
License Manager (ALM)

[1] © WIBU-SYSTEMS AG – German company for secure
hardware and software technology for Digital Rights
Management (DRM) in relation to software

Page 14

SINEMA Remote Connect and SCALANCE
Extension of the remote network portfolio to a system

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Legend:
- 🟩 Industrial Ethernet
- 🟧 VPN tunnel
- ⬛ Wired internet

Labels in diagram: SINEMA Remote Connect, Internet connection, SINEMA RC Client, Service Center, Service technician (mobile), OpenVPN Client, Mobile wireless network, Internet connection, SCALANCE S615 + KEY-PLUG, Office, Factory, Machine, SCALANCE M816-1 + KEY-PLUG, SCALANCE M876-4 + KEY-PLUG, SCALANCE SC642-2C, Customer A, Customer B, Customer C, Customer D, G_IK10_XX_30370

Example of a SINEMA RC configuration - full overview

Typical areas of application

- **Plants and machine building**
- Power distribution / substations (municipal utilities)
- Logistics / harbor logistics
- ITS / transport companies
- Water & wastewater (municipal utilities, …)

SINEMA Remote Connect use cases
Remote service for series machine manufacturers

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Ingenuity for life

Task

- Secured remote maintenance for serial machines and larger plants with identical subnetworks

Solution

- Easy creation of devices with routing/NAT information in SINEMA RC
- Simple selection of a device from the list of devices in SINEMA RC Client by mouse click

Benefits

- Time and money saved
- Can be used without specialized IT knowledge
- Flexibility through easy expandability
- Transparent IP communication
- Secured remote access (via VPN tunnel)

Configuration example SINEMA Remote Connect: Remote service for series machine manufacturing

SINEMA Remote Connect use cases
Remote service for special-purpose machine manufacturers

SIEMENS
Ingenuity for life
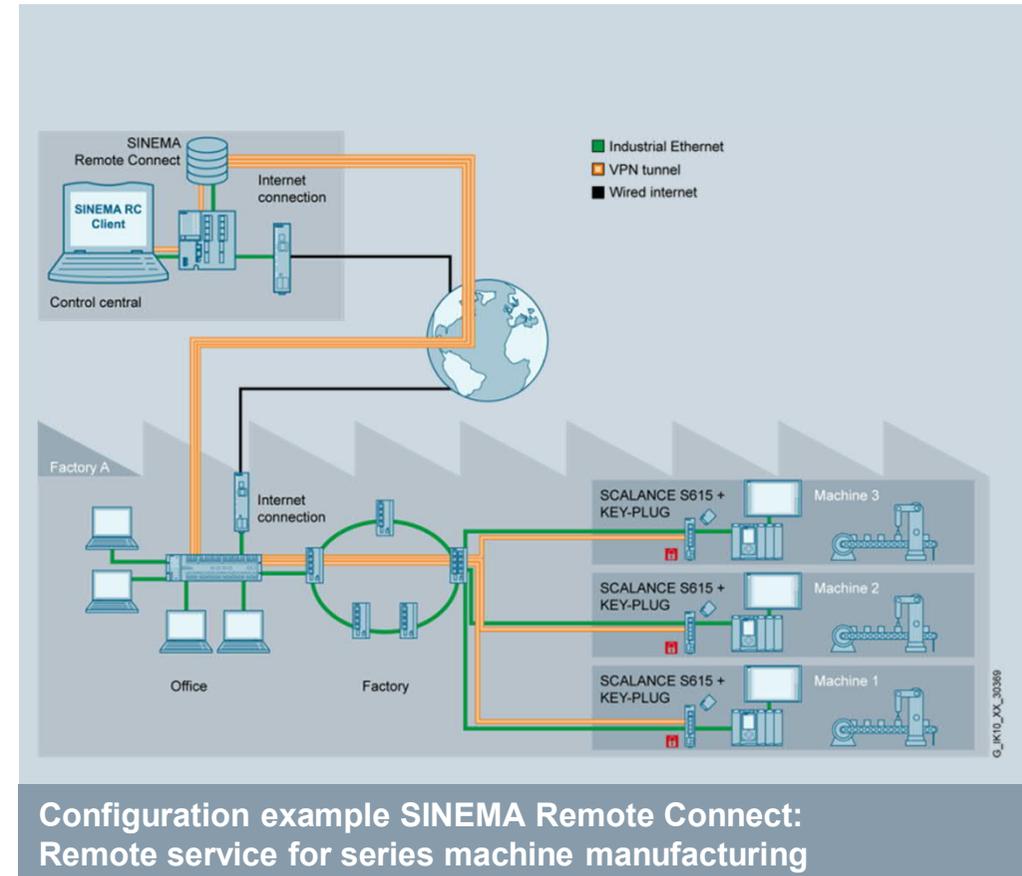
Task

- Secured remote access to special-purpose machines, sensitive areas and individual access restrictions

Solution

- Central management of machines and service technicians in SINEMA Remote Connect
- Assignment and management of user rights and access authorizations
- Logging of accesses

Benefits

- High transparency and security
- Error prevention through explicit assignment of know-how owners to the respective plant sections
- Transparent IP communication
- Secured remote access (via VPN tunnel)

Configuration example SINEMA Remote Connect: Remote service for special-purpose machine manufacturing
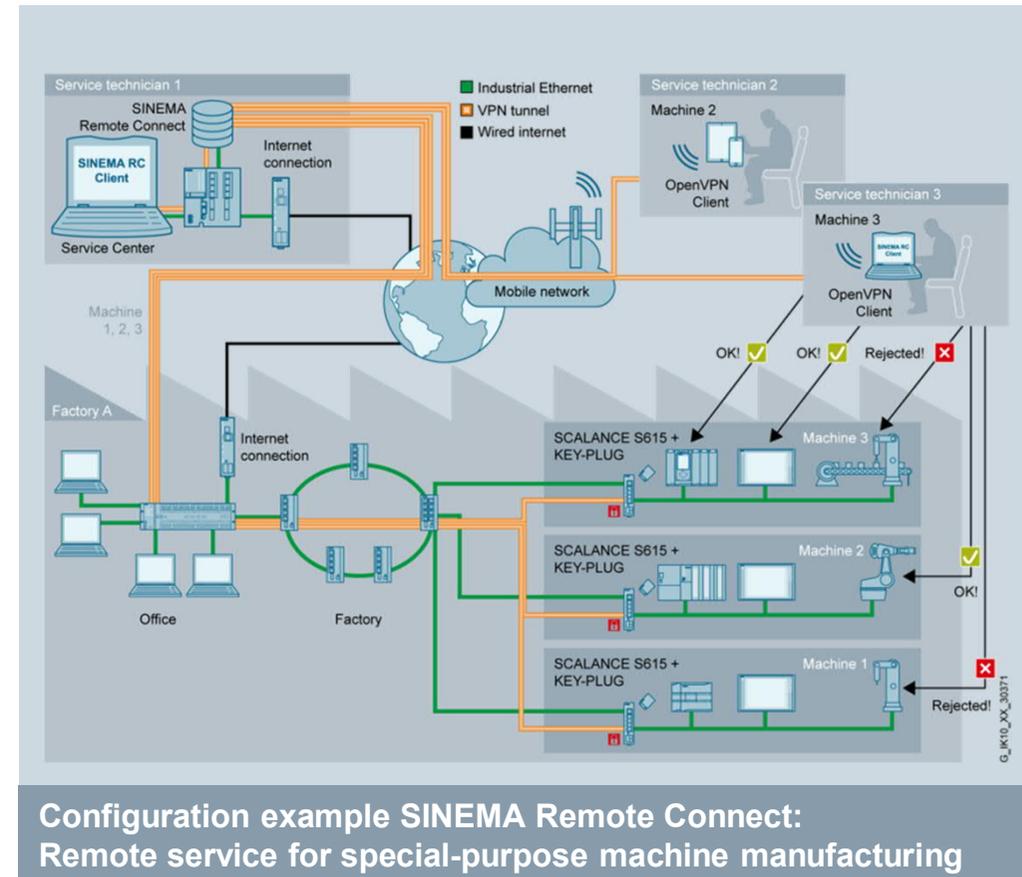
SINEMA Remote Connect use cases
# Condition Monitoring with CP 1243-7 and S7-1200

Task

- Central management of the connections needed to acquire status/ maintenance data

Solution

- Transparent communication structure via standard IP mechanisms
- Connection of S7-1200 controllers to the control center via mobile wireless with CP 1243-7
- Central management of the communication network in SINEMA Remote Connect
- Establishment of the VPN tunnel from the field

Benefits

- Transparency and overview of the remote maintenance network
- Easy, secure operation without specialized IT know-how
- Transparent IP communication
- Secured remote access (via VPN tunnel)

Configuration example SINEMA Remote Connect: Condition Monitoring
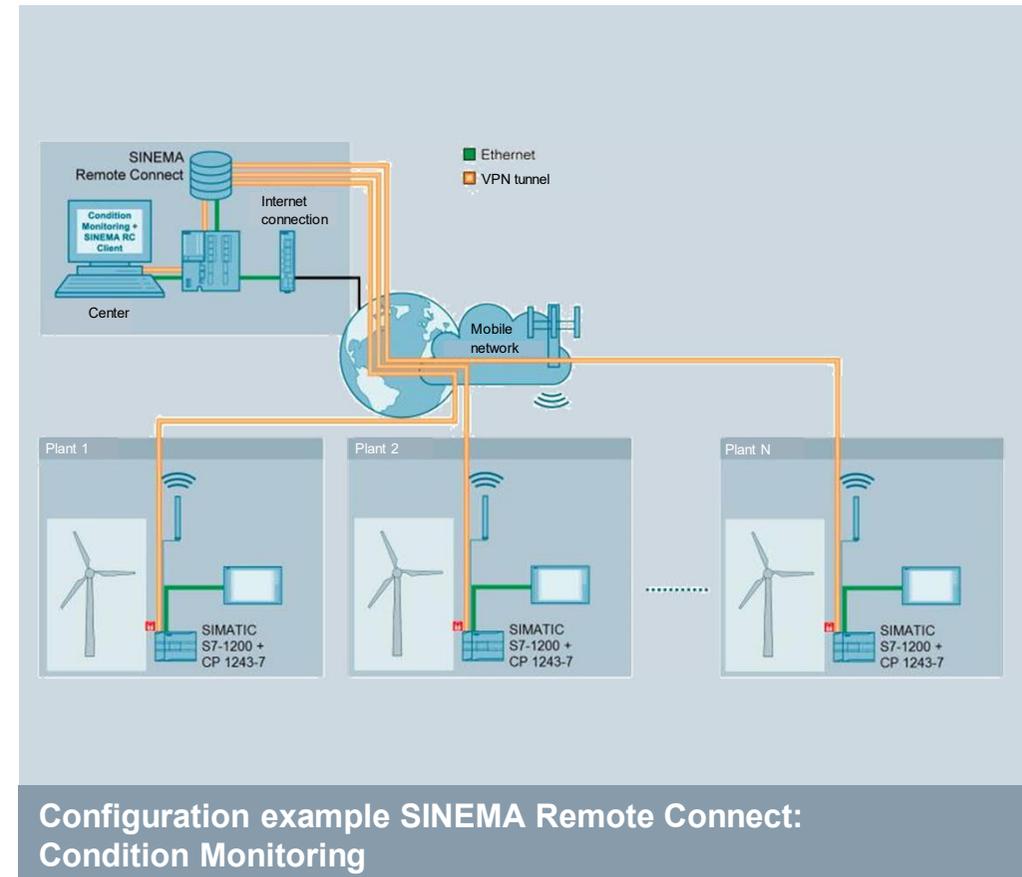
SINEMA Remote Connect use cases
Secured connection by means of security mechanisms (VPN)

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Task

- Remote maintenance of machines and larger plants
- Accesses to the machines/plants/system are protected by security mechanisms (OpenVPN, IPsec)

Solution

- Easy creation of devices with routing/ NAT information in SINEMA Remote Connect
- Simple selection of a device from the list of devices in SINEMA RC Client by mouse click
- Industry routers and service technicians can separately set up a secured connection to the SINEMA Remote Connect server
- SCALANCE M and S devices support firewall and VPN

Benefits

- Time and money saved
- Can be used without specialized IT knowledge
- Flexibility through easy expandability
- Transparent IP communication
- Prevention of manipulation and unauthorized access by means of secured data transmission and authentication

**Configuration example SINEMA Remote Connect:
Secured connection by means of security mechanisms (VPN)**
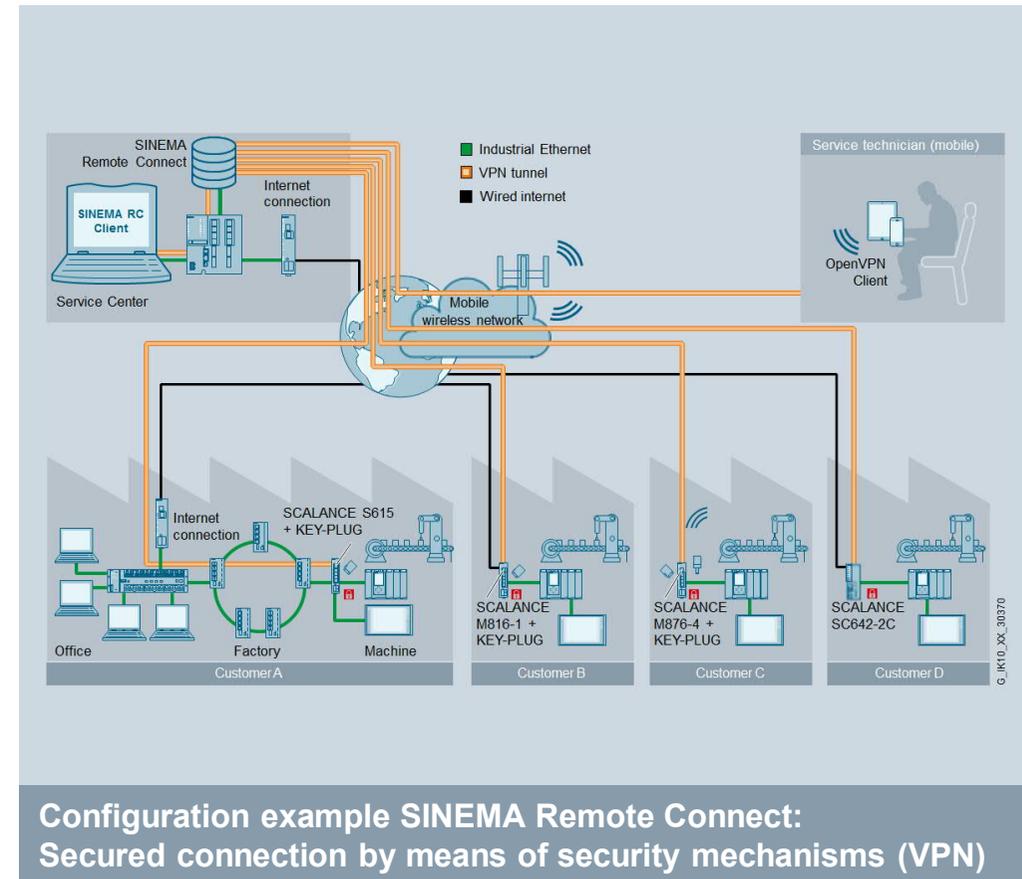
SINEMA Remote Connect use cases
Secured access: Telecontrol center to remote terminal units

SIEMENS
*Ingenuity for life*

Task

- Telecontrol plant with encrypted connections to the remote terminal units

Solution

- Telecontrol server and SINEMA Remote Connect server are available in the telecontrol center
- All secured VPN connections managed by means of SINEMA Remote Connect
- Local connection of the telecontrol center to SINEMA RC
- Telecontrol accesses to remote terminal units via SINEMA RC

Benefits

- Use of standardized encryption protocols
- Direct connection of the control center to SINEMA Remote Connect without additional security components (in the control center)
- Simpler administration because SINEMA Remote Connect server and telecontrol server are at a single location

Configuration example SINEMA Remote Connect: Secured access from telecontrol center to remote terminal units
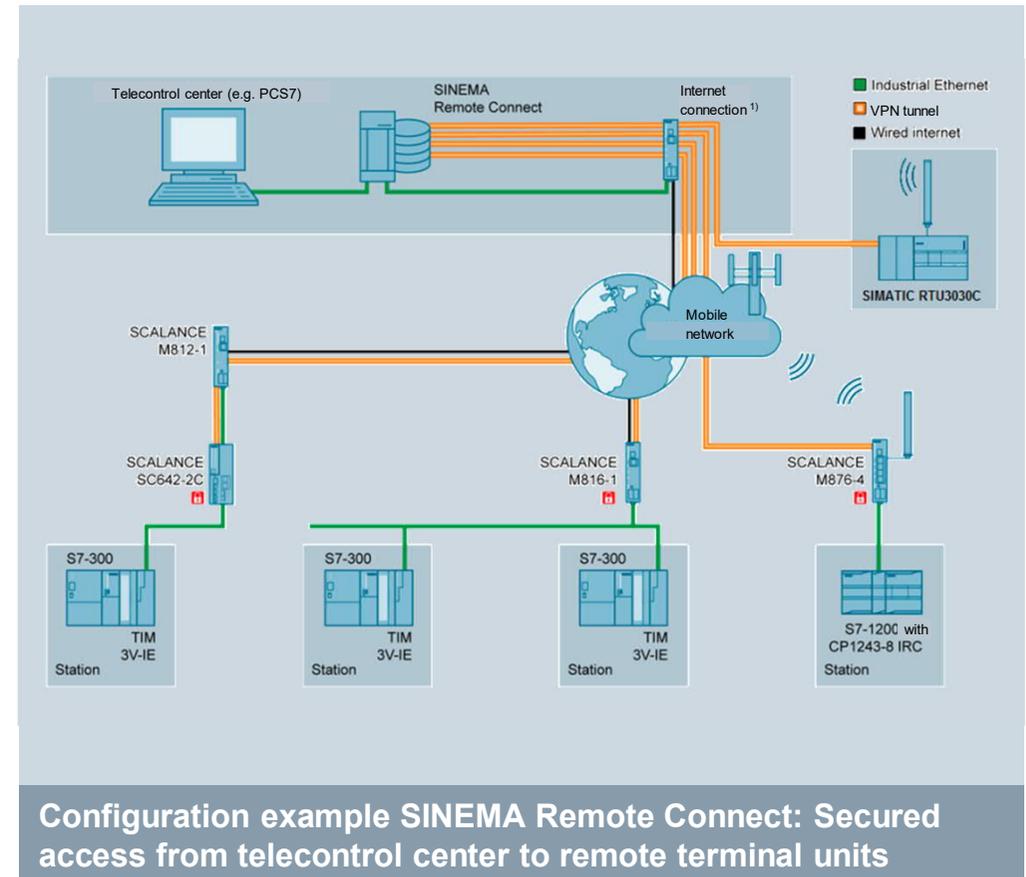
[1] SCALANCE M812-1 can be used here as a DSL router / modem

SINEMA Remote Connect use cases
Remote service with SCALANCE M804PB and Step 7

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Ingenuity for life

Task

- Remote service with remote access for PROFIBUS via MPI: A service technician is to access a PROFIBUS plant from outside the company network

Solution

- Connection of PROFIBUS/MPI plants over SCALANCE M804PB that is connected to the production cell over MPI
- Easy configuration and management of the VPN tunnels with the SINEMA Remote Connect management platform enables secure remote access to the plant

Benefits

- Remote Acess on machines and plants with PROFIBUS/MPI reduces time and costs for on-site operation
- Easy connection of consiting plants
- Prevention of manipulation and unauthorized access thanks to secure data transmission and authentication

OEM
End Customer
Internet
Mobile network
SINEMA RC Server
Production Cell
TIA Portal/ STEP 7*
TIA Portal Cloud Connector Client
SCALANCE M804PB incl. TIA Portal Cloud Connector Server
PG/PC
SINEMA RC Client
SCALANCE M876-4
*Requires TIA Portal as of V15 or STEP 7 SIMATIC Manager as of V5.6

- PROFIBUS / MPI
- Industrial Ethernet
- TIA Portal Cloud Connector Communication
- VPN

G_IK10_XX_50787

SINEMA Remote Connect together with TIA Cloud Connector – solution with SCALANCE M804PB (TIA Cloud Connector integrated)