



WinCC V8.0 Architectures

siemens.de/wincc-v8

WinCC V8.0

Symbol explanations



WinCC single system



WinCC Server



WinCC UNI-Clients
(Standard-Client)



WinCC Multi-Client



WinCC WebUX Client



WinCC WebNavigator Client

WinCC Engineering



PC without WinCC



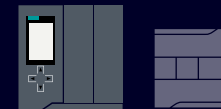
WinCC Unified Panel



Unified PC RT System



S7 system components



External database
e.g.: SQL, Oracle, Access



Ext

license needed on the computer





This set of slides provides an overview of common system architectures for WinCC V8 and which licenses are required on the participating WinCC stations.

WinCC V8.0 Scalability

Configuration principle and function tasks

Summery quantity structure – Following configurations were tested as typical scenarios

	Quantity	Comment
WinCC Server-Server communication	18 Servers	Connection to a multi-user system with MULIT-Clients has not been approved <ul style="list-style-type: none"> • One server can access the data from up to 17 other servers or redundant pairs of servers • The server accessing the data behaves as a client in respect of the configuration and operation, except that a standard server cannot be configured
WinCC Server or redundant Server pairs	18 Servers	Access to a maximum of 18 WinCC servers or redundant server pairs from WinCC MULTI-Clients
WinCC UNI-Clients (without their own project)	64 Clients	Maximum of 64 WinCC UNI-Client's interconnect to one Server. Redundant server pairs are possible
WinCC MULTI-Clients (with their own project)	50 Clients	Maximum of 50 WinCC MULTI-Clients in the WinCC distributed system. A maximum of 36 servers in the form of 18 redundant server pairs is possible
WinCC WebNavigator-Clients	150 Clients	
WinCC WebUX-Clients	100 Clients	As a typical scenario, we tested the simultaneous access of 100 WebUX-Clients to one WebUX server <ul style="list-style-type: none"> • 100 clients are not a “hard” system limit – it is technically possible to connect more than 100 clients simultaneously • The performance depends on the employed hardware and the volume of process data

WinCC V8.0 S7- process communication

SIMATIC NET Licenses

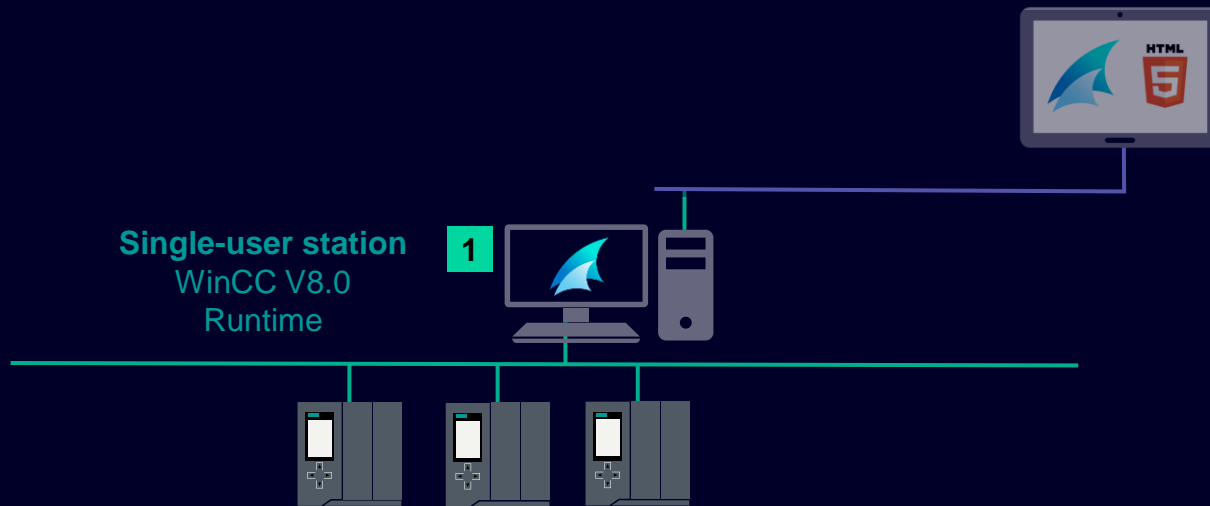
SIMATIC NET V18 license is required, if more than 8 x S7-connections are established.

SIMATIC NET Licenses	Number of supported connections
SOFTNET-IE S7 V18 *	up to 64 connections
SOFTNET-IE S7 Extended V18 *	up to 64 Connections (S7 -300/400)
	+ 128 Connections (S7-1500)
	+ 128 Connections (S7-1200)
HARDNET-IE S7 V18 **	
up to 120 connections (system tested)	

* The SOFTNET-IE S7 license is used for communication via **network card**.

** The HARDNET-IE S7 license is used for communication via Industrial Ethernet CP (especially CP 1623).

Single-user station Monitoring & Operating from a single PC

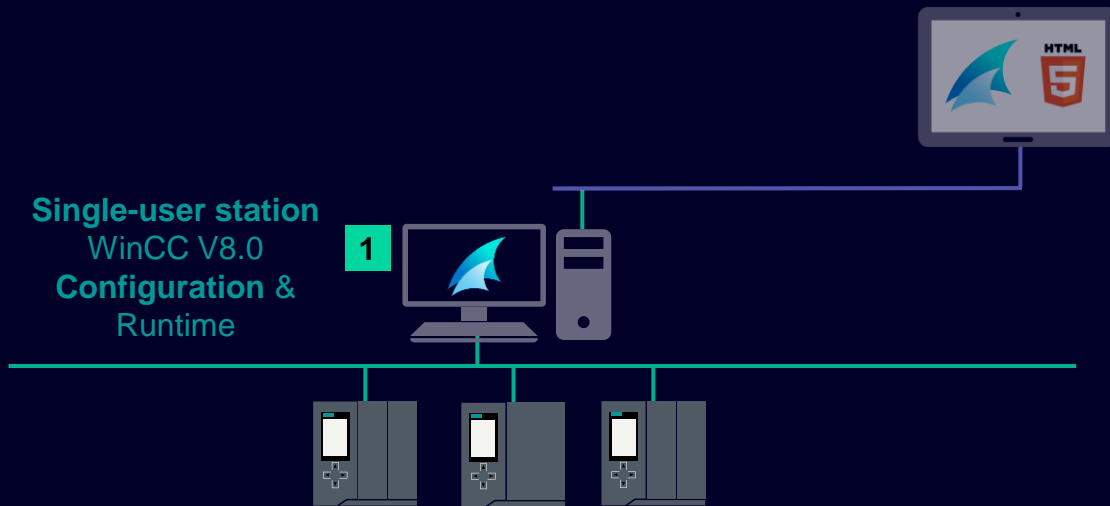


1. WinCC RT (Runtime)

Additional Information

- External Tags defined by size of license, unlimited number of internal tags are included in every RT/RC license
- base license already includes 512 archiving variables
- WebUX monitor license included in every RT/RC license

Single-user station with Engineering Monitoring & Operating from a single PC

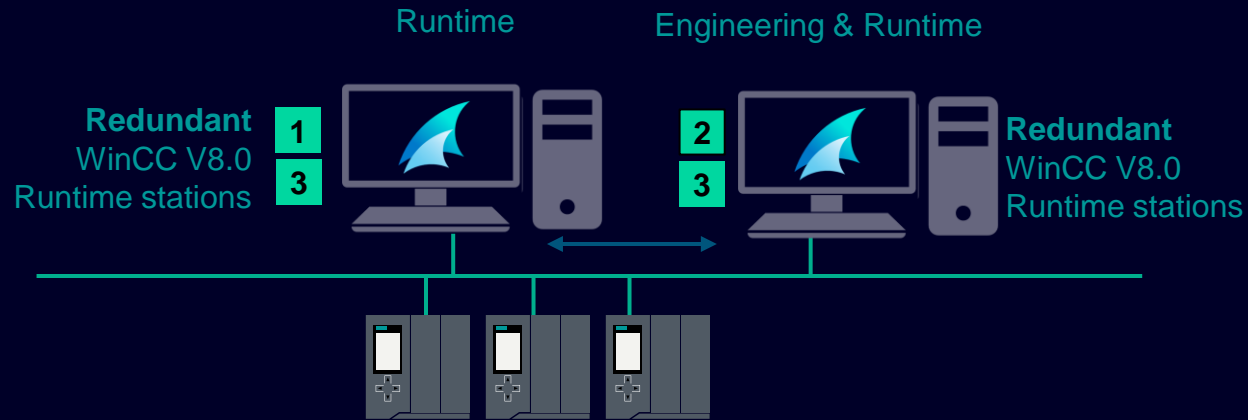


1. WinCC RC (Runtime & Configuration)

Additional Information

- External Tags defined by size of license, unlimited number of internal tags are included in every RT/RC license
- **Engineering and Runtime on the same PC**
- base license already includes 512 archiving variables
- WebUX monitor license included in every RT/RC license

Redundant engineering single-user stations



1. WinCC RT (Runtime)

2. WinCC RC (Runtime & Engineering)

3. WinCC Redundancy
(Package contains two licenses)

Additional Information

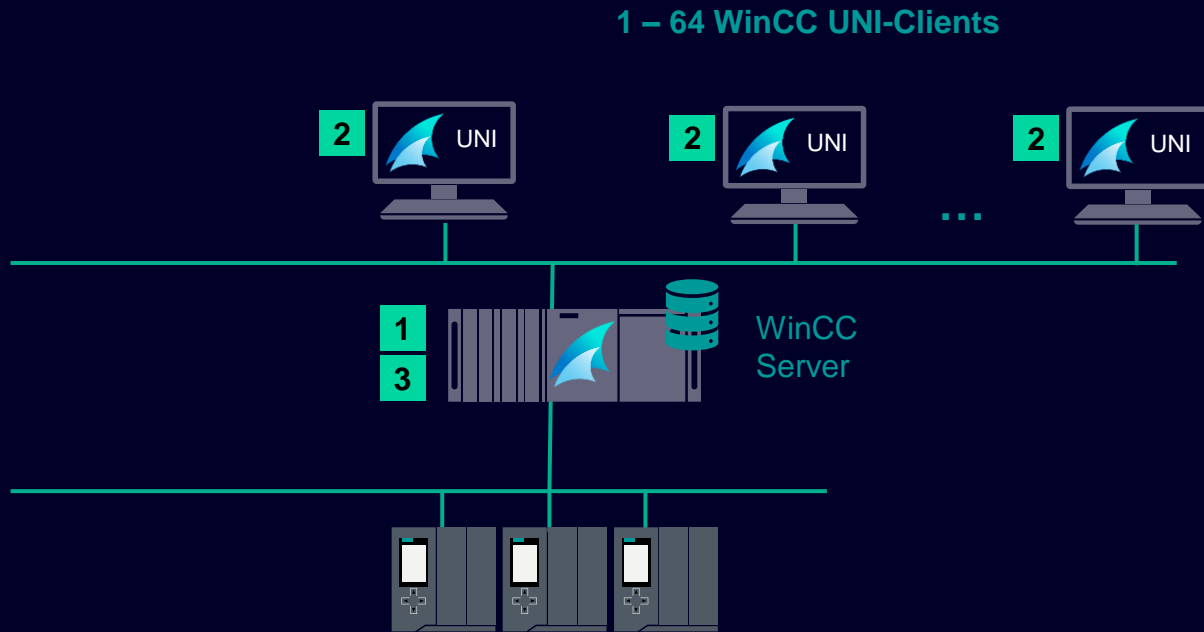
Both stations work in parallel (both are connected to the process). In case of a breakdown of one of WinCC stations, the other takes over the archiving of messages, process Data and user archive data (Recipe).

Automatic synchronization of all archives after resumption of normal operation

Redundancy package includes two licenses

Multi-user scenarios

Central server with several operator stations – UNI-Client (Standard-client)



1. WinCC RT (Runtime)

2. WinCC RT - Client

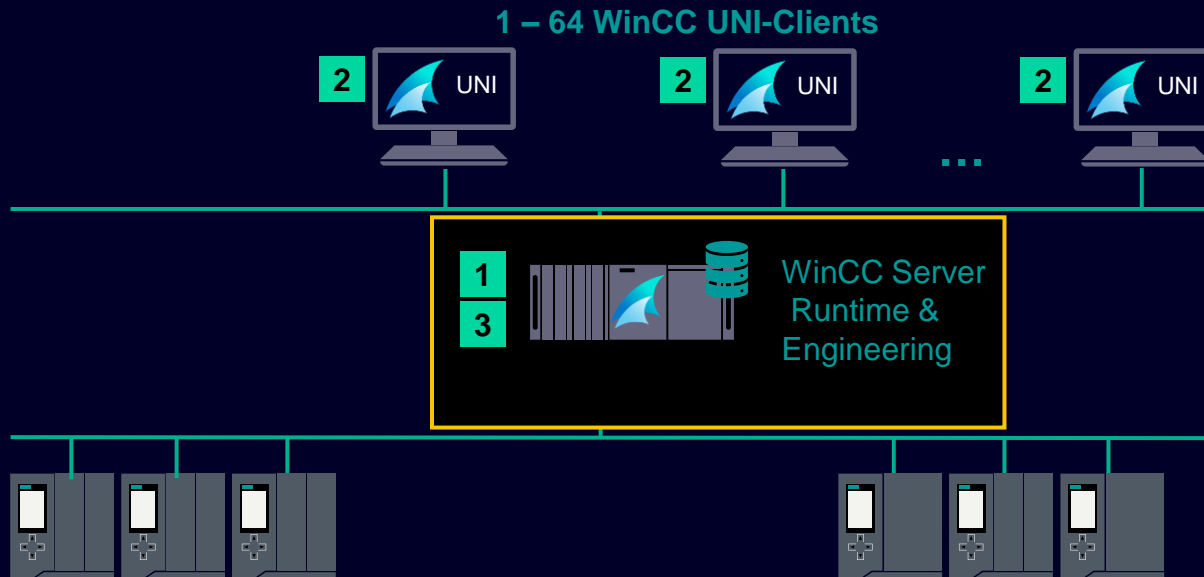
3. WinCC Server

Please note

A Standard-Client has **no WinCC project** and is connected to one specific server from which he retrieves data and screens.

Maximum of 64 WinCC UNI-Client's interconnect to one Server.
Redundant server pairs are possible

Multi-user stations with Engineering on the server



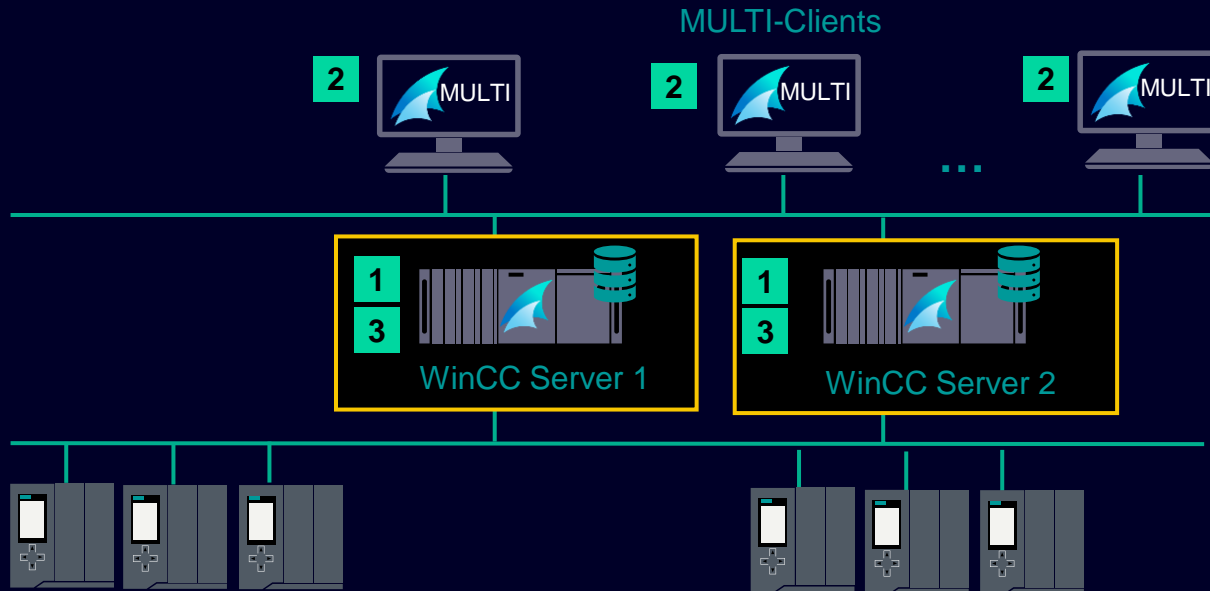
Please note:

The Engineering & Runtime license (RC) is needed on the server if it is used for runtime and for local engineering.

1. WinCC RC (Runtime & Configuration)
2. WinCC RT - Client
3. WinCC Server

Multi-user stations with multi-clients

Clients with their own projects



Please note:

A MULTI-Client can connect to several servers, from which he retrieves tags, alarms and screens.

One MULTI-Client can connect to max. 18 servers (servers can be redundant) at the same time.

One WinCC Server can serv up to 50 MULTI-Clients.

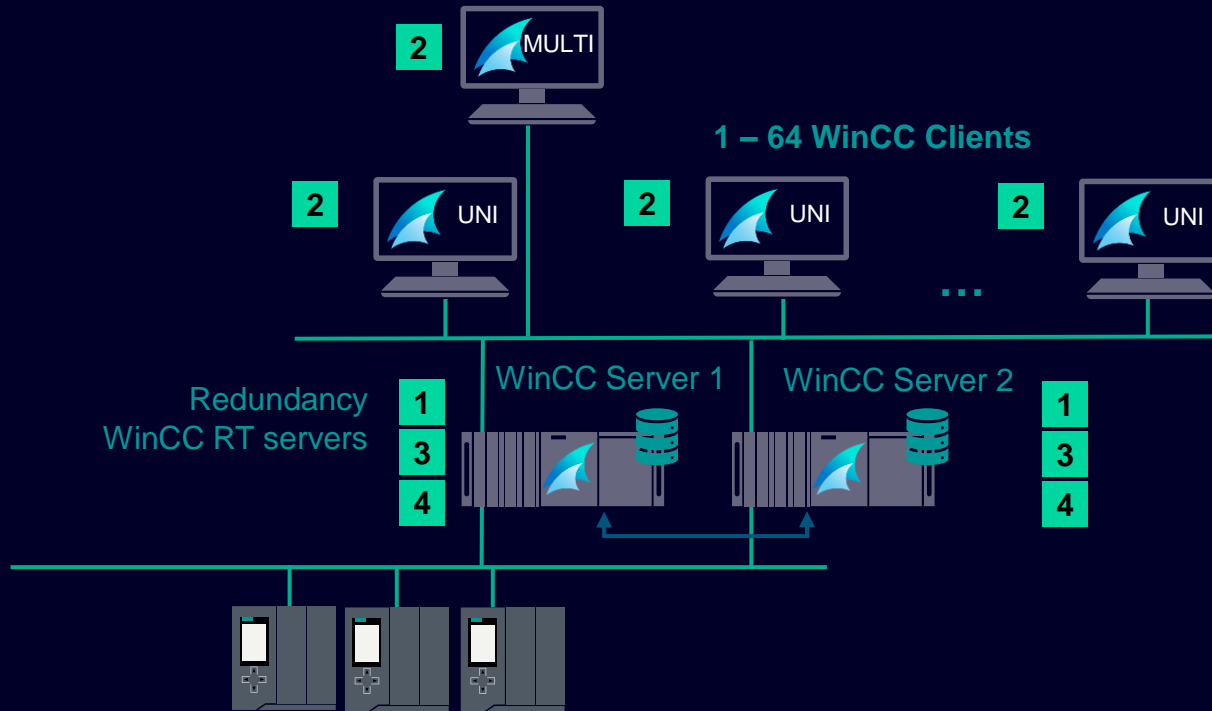
1. WinCC RT (Runtime)

2. WinCC RT - Client

3. WinCC Server

Multi-Client stations/Server with Redundancy

High availability



Please note

Due to the redundancy of the servers, the Clients can continue to work in case of a server fails.

The data is synchronized across the servers and the database is entirely replicated when operations return to normal.

1. WinCC RT (Runtime)

2. WinCC RT - Client

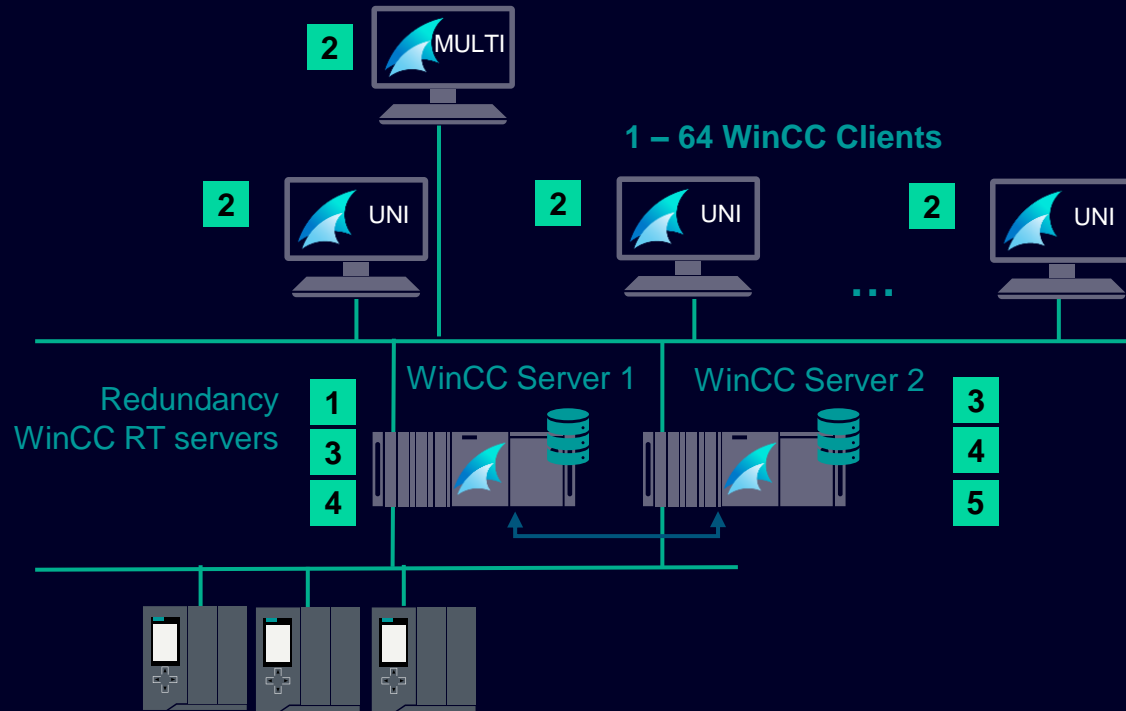
3. WinCC Server

4. WinCC Redundancy
(Package contains two licenses)

End customer scenario
Engineering done by System
integrator

Multi-Client stations/Server with Redundancy

High availability



1. WinCC RT (Runtime)

2. WinCC RT - Client

3. WinCC Server

4. WinCC Redundancy
(Package contains two licenses)

5. WinCC RC (Runtime & Configuration)

Engineering done on one of the
servers

Project distributed via WinCC Project
Duplicator

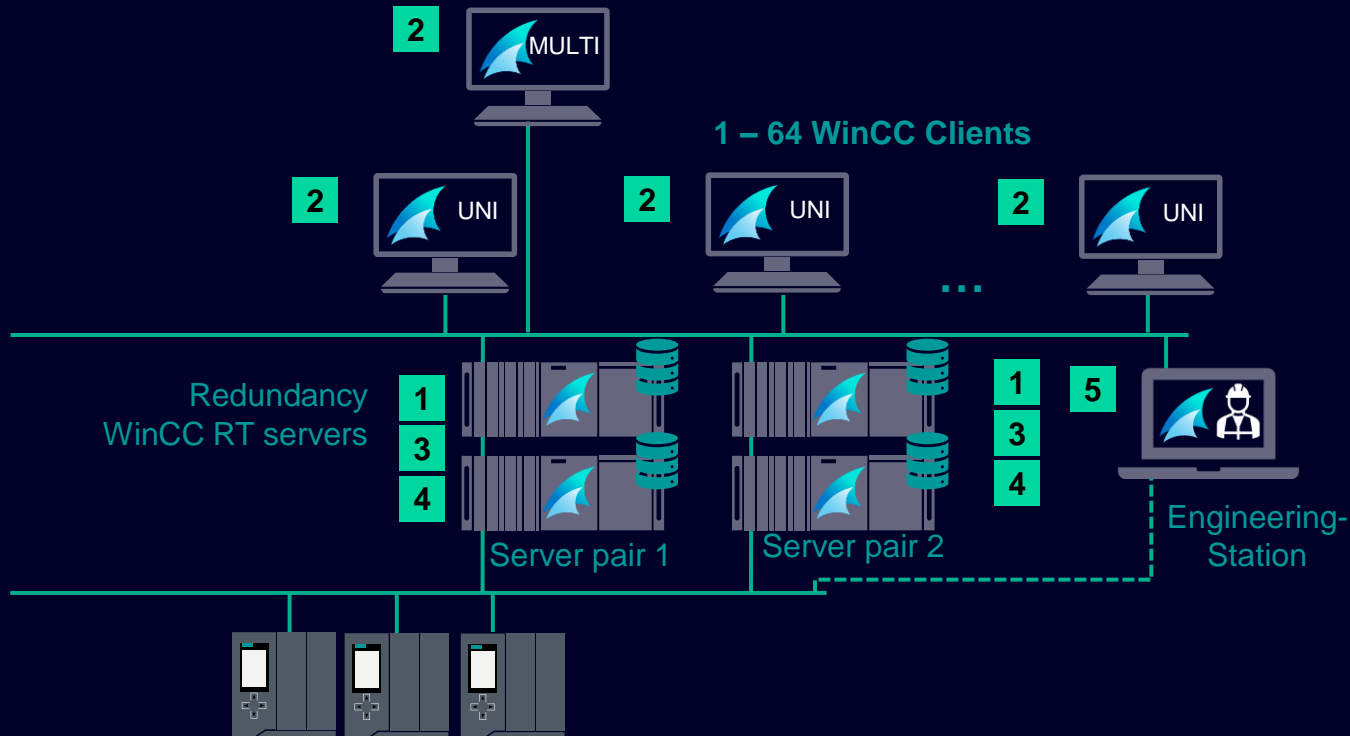
Please note

Due to the redundancy of the servers, the Clients can continue to work in case of a server fails.

The data is synchronized across the servers and the database is entirely replicated when operations return to normal.

Multi-Client stations/Server with Redundancy

High availability



1. WinCC RT (Runtime)

2. WinCC RT - Client

3. WinCC Server

4. WinCC Redundancy
(Package contains two licenses)

5. WinCC RC (Runtime & Configuration)

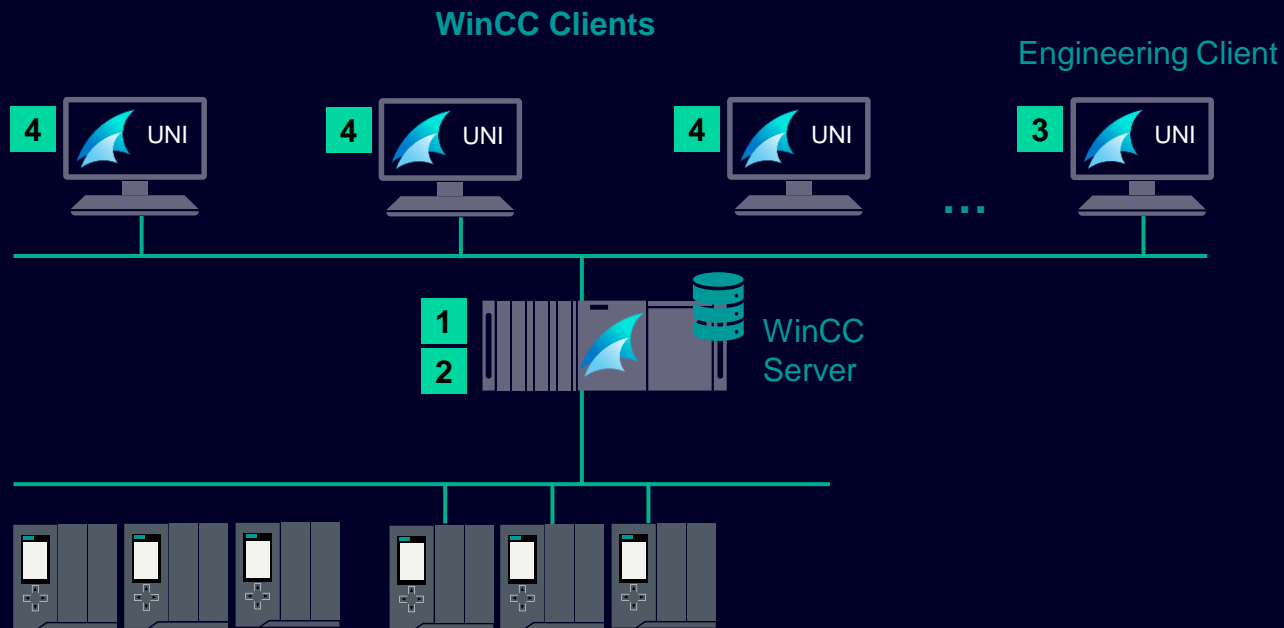
Please note

Due to the redundancy of the servers, the Clients can continue to work in case of a server fails.

The data is synchronized across the servers and the database is entirely replicated when operations return to normal.

Engineering done on dedicated
Engineering Stations
Project distributed via SIMATIC
Manager to all Servers

Multi-user stations with Engineering from an Engineering Client



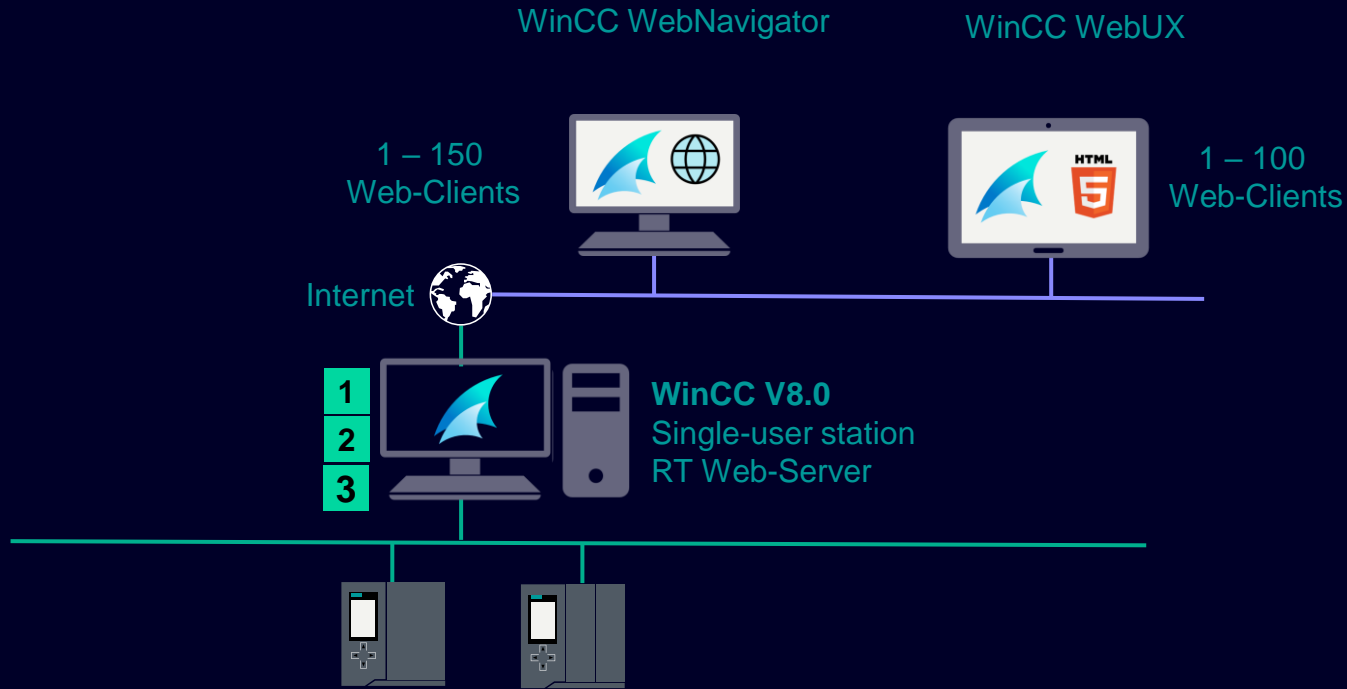
1. WinCC RT (Runtime)
2. WinCC Server
3. WinCC RC-Client
4. WinCC RT-Client

Please note

A WinCC client with RC Client license can be used as a Remote Engineering Client opening the project on the WinCC Server who can have any RT license.

Single-user station Web-server

Remote monitoring/operation stations and display and analysis for Web-client



Additional Information

WinCC/WebNavigator

for Web-Clients which run under a Windows operating system 1-150 Webclients (use "App"WinCC Viewer RT)

WinCC/WebUX

for Web-Clients which run under a HTML 5 Browser 1-100 Webclients

1. WinCC RT (Runtime)

2. WinCC WebNavigator*

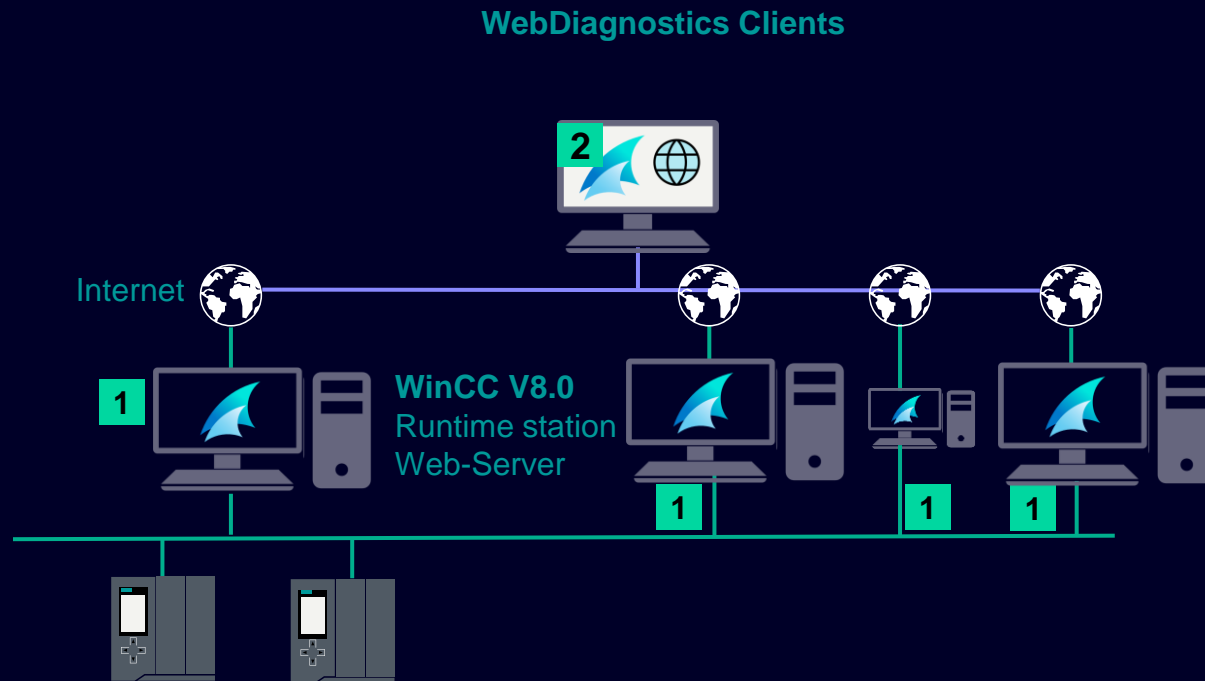
3. WinCC WebUX*

*Web-licenses per connection on the server
> High flexibility

WinCC can host both Web Servers at the same time, on the same machine

Single-user station Web-server

Remote monitoring/operation stations and display and analysis for Web-client



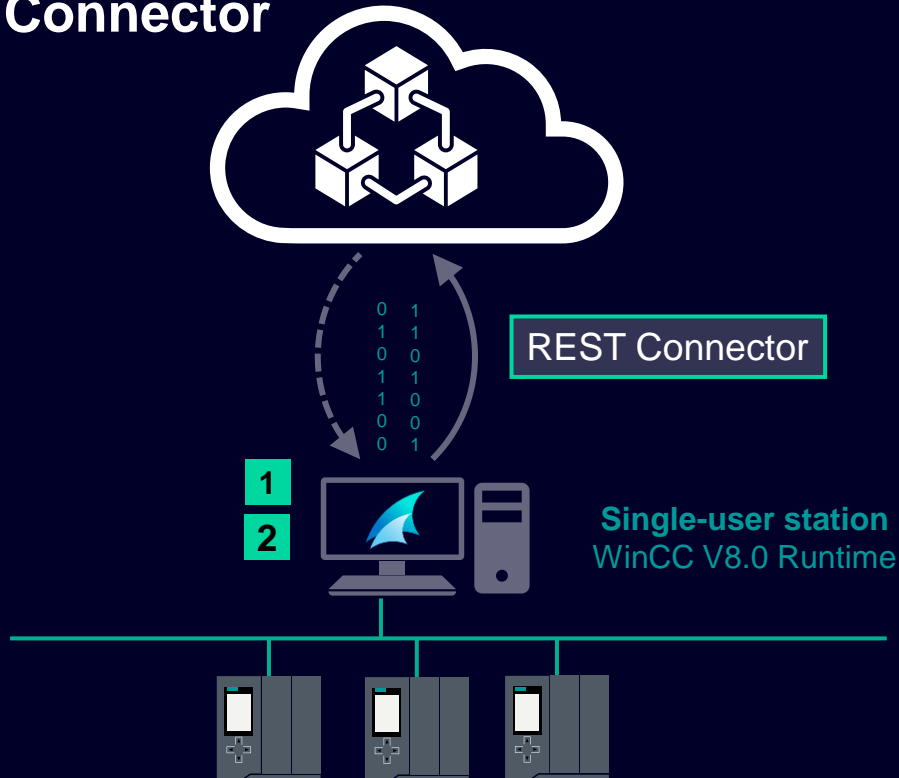
Additional Information

- WebNavigator Server is running and configured on the WinCC Runtime Stations.
- WebDiagnostic client has its license locally on the client and can connect to each of the Webservers individually.
- This is only available for WebNavigator.

1. WinCC RT (Runtime)

2. WinCC WebDiagnostic Client

WinCC V8.0 IT/OT Integration REST Connector



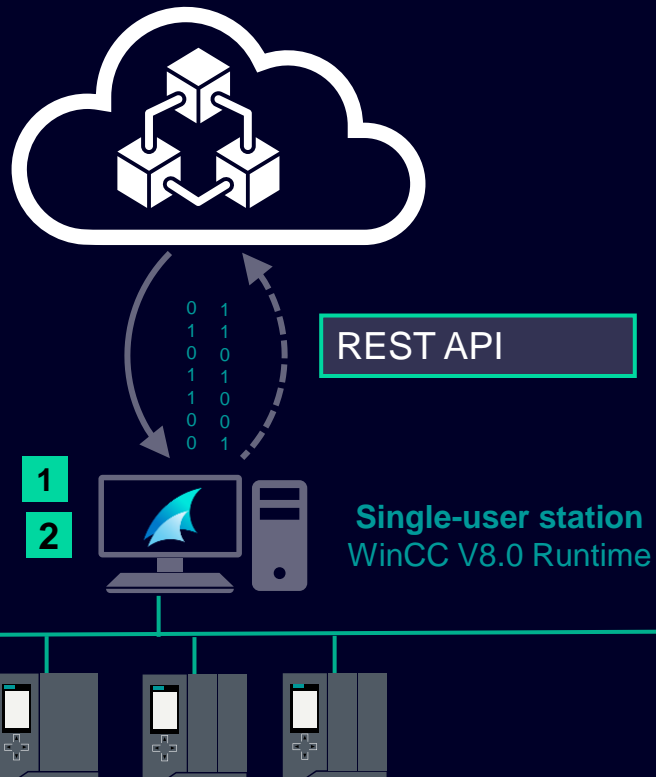
Additional Information

- REST Connector post data to external IT-application or get data from them
- Notification based on alarms in WinCC
- Data Exchange based on process value changes or user-defined cycles

1. WinCC RT (Runtime)

2. WinCC Connectivity Pack or
WinCC REST Connect

WinCC V8.0 IT/OT Integration REST API



Additional Information

- REST API allows other applications and systems to send REST requests to WinCC to read the configuration data of the tag management or to read/write RT values or Archive tags

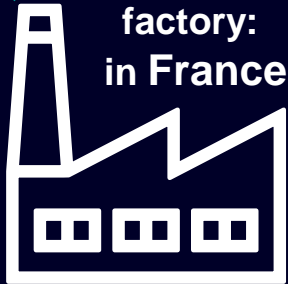
1. WinCC RT (Runtime)

2. WinCC Connectivity Pack or
WinCC REST Connect

WinCC V8.0 Function Cloud based Dashboarding



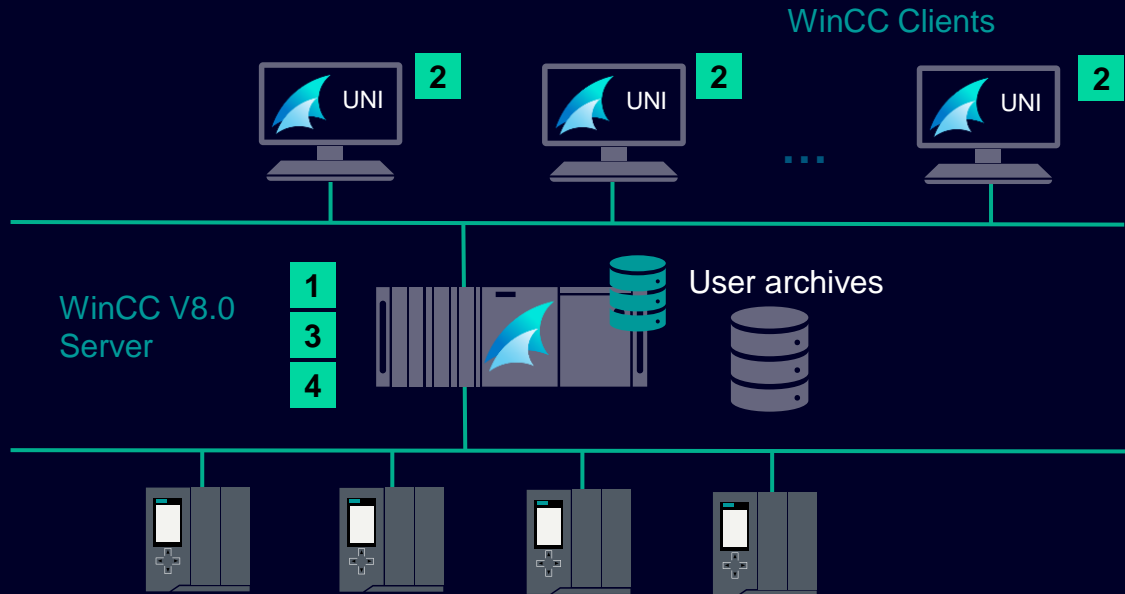
Internet



1. WinCC RT (Runtime)
2. WinCC Connectivity Pack or WinCC REST Connect

WinCC V8.0 User archives

Recipe management and control



- WinCC user archives allows a user to manage his archives in the form of tables
- E.g.: Management of recipes – management of batch parameters, etc
- The user archive license is on the server
- no user archives license is required on client side

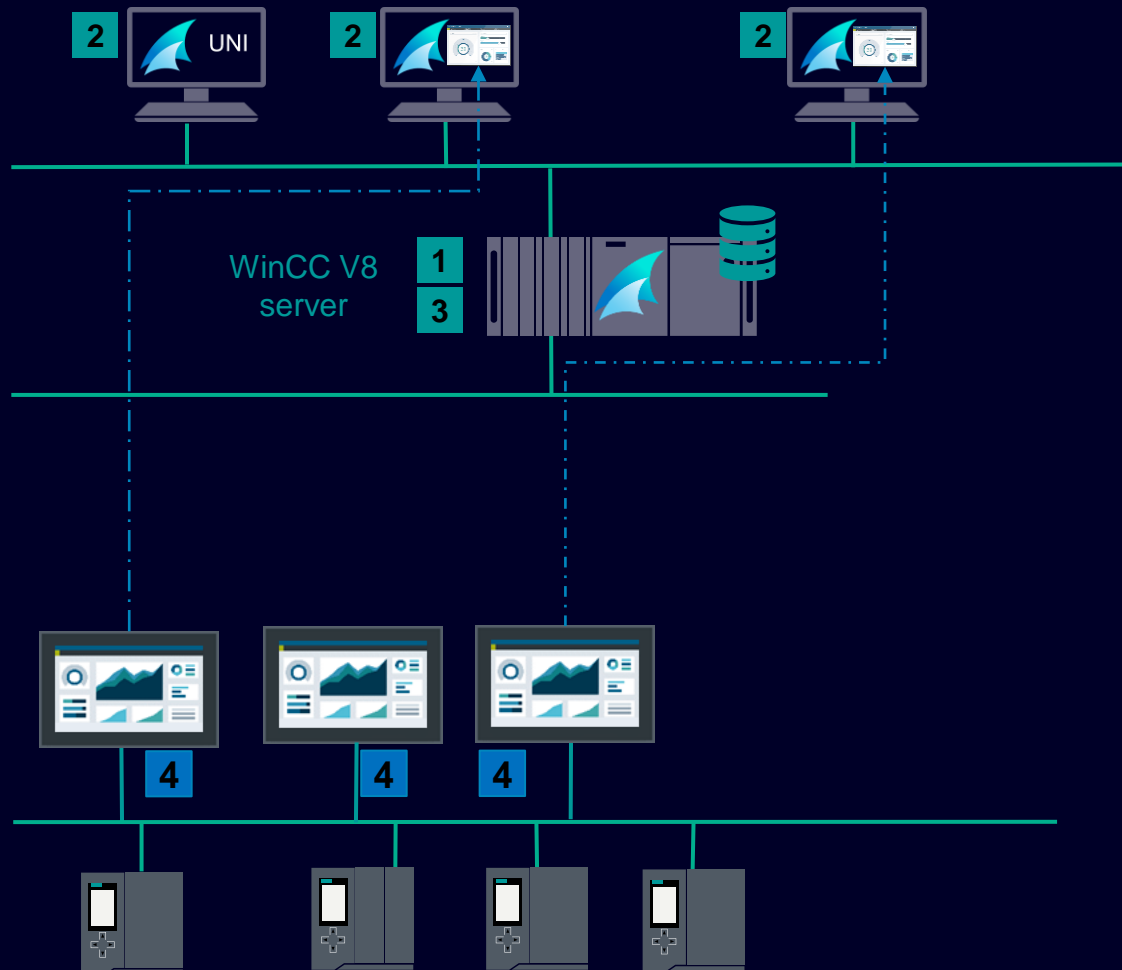
1. WinCC RT (Runtime)

2. WinCC Client

3. WinCC Server

4. WinCC UserArchive

WinCC V8: Build a bridge to unified Screen Access

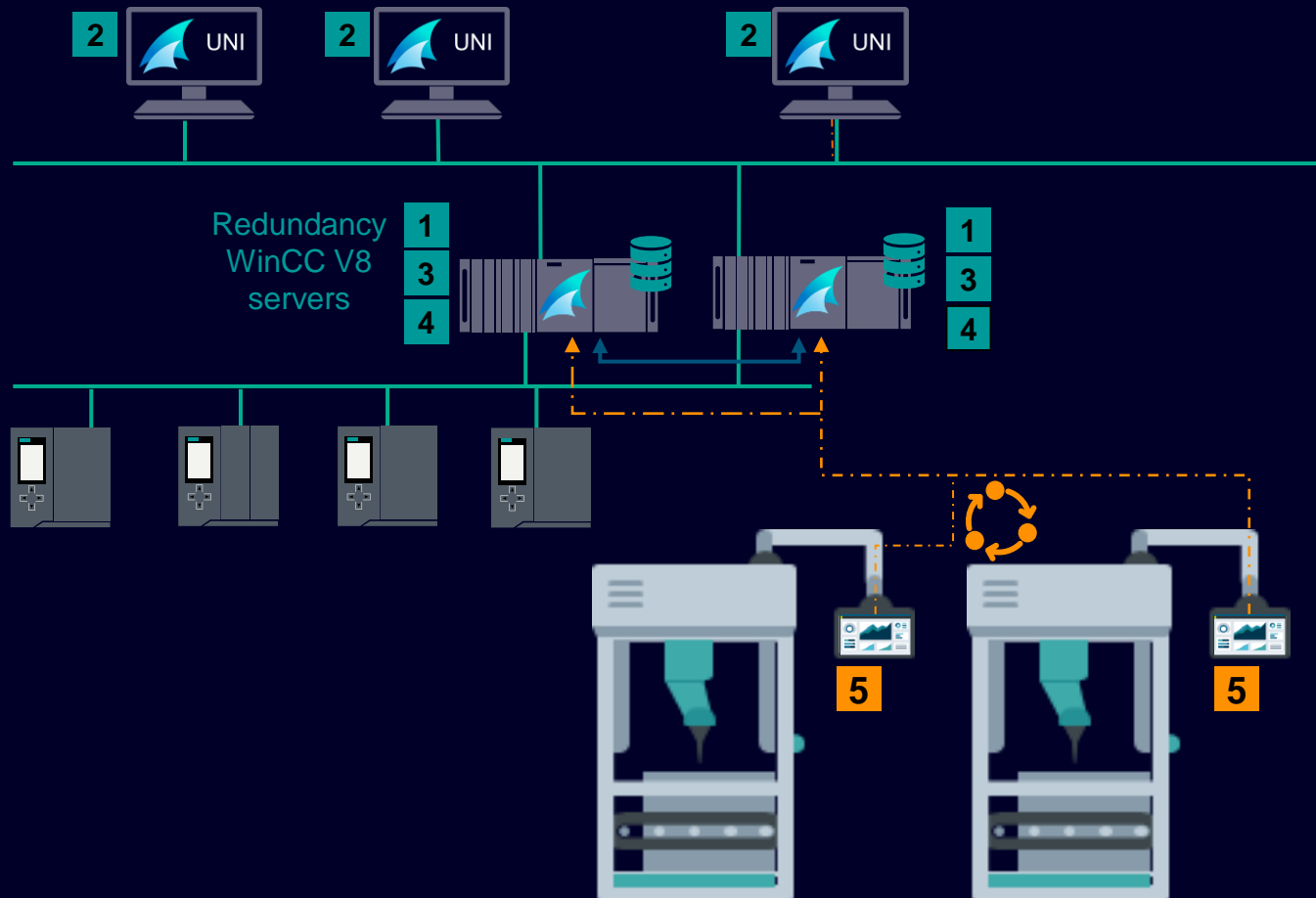


1. WinCC RT (Runtime)
2. WinCC RT-Client
3. WinCC Server
4. WinCC Unified Client Access

Pictures Access from WinCC V8.0 to WinCC Unified

- Unified Client Operate

WinCC V8: Build a bridge to unified Tag Collaboration



1. WinCC RT (Runtime)

2. WinCC RT-Client

3. WinCC Server

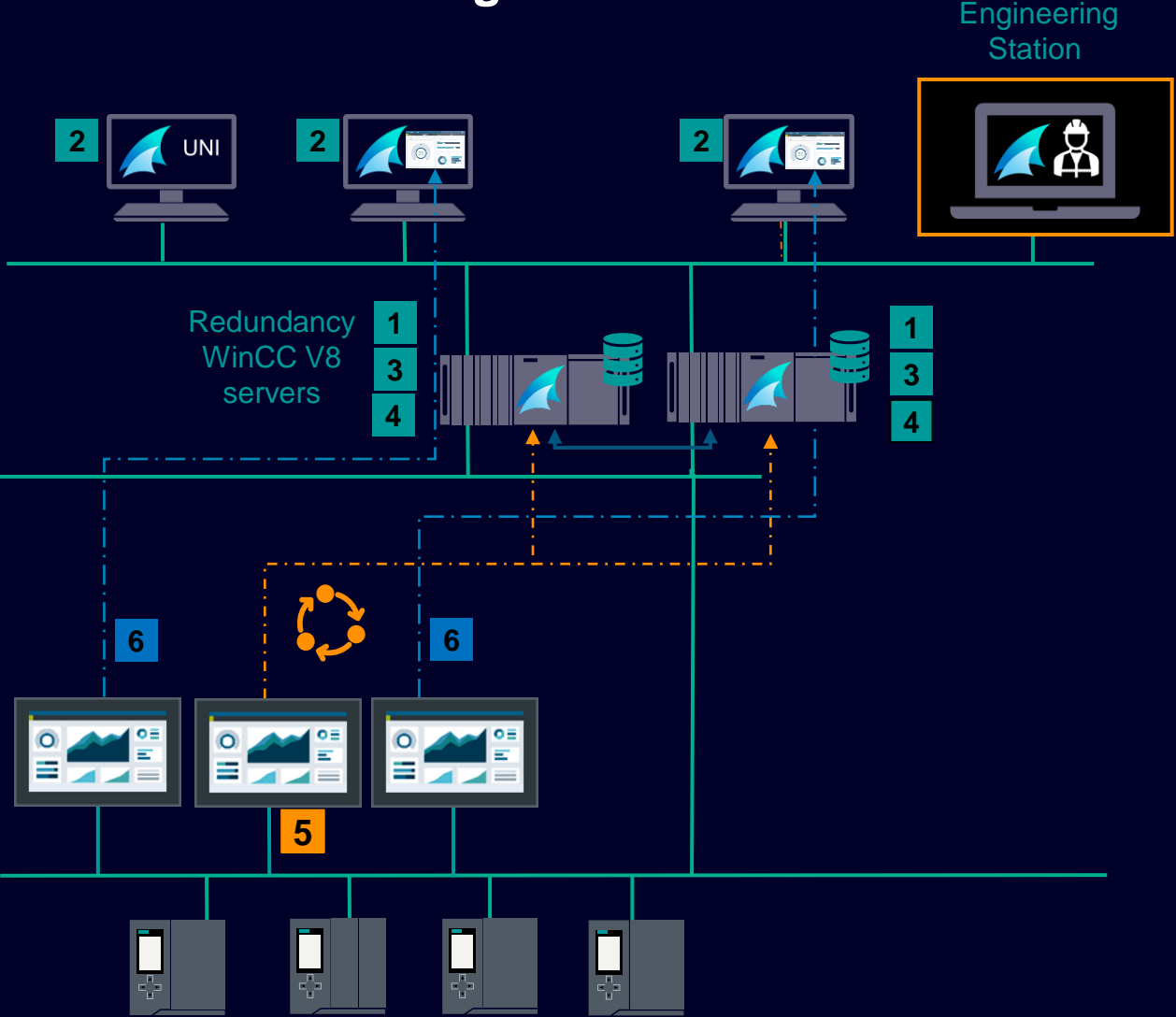
4. WinCC Redundancy

5. WinCC Unified Collaboration

**Tag connection
from Unified to WinCC V8.0**

- Connectivity Pack License
- Unified Collaboration License

WinCC V8: Build a bridge to unified Screen Access & Tag Collaboration



1. WinCC RT (Runtime)
2. WinCC RT-Client
3. WinCC Server
4. WinCC Redundancy
5. WinCC Unified Collaboration (for Tag access)
6. WinCC Unified Client Access (for Screen Integration)

WinCC architectures
with advanced options
will follow in next
version

Disclaimer

© Siemens 2024

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.

All product designations may be trademarks or other rights of Siemens AG, its affiliated companies or other companies whose use by third parties for their own purposes could violate the rights of the respective owner.

"This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. (<http://www.openssl.org/>)" and "This product includes cryptographic software written by Eric Young (eay@cryptsoft.com)"

"Contains portions or was derived from the RSA Data Security, Inc. MD5 Message-Digest Algorithm"