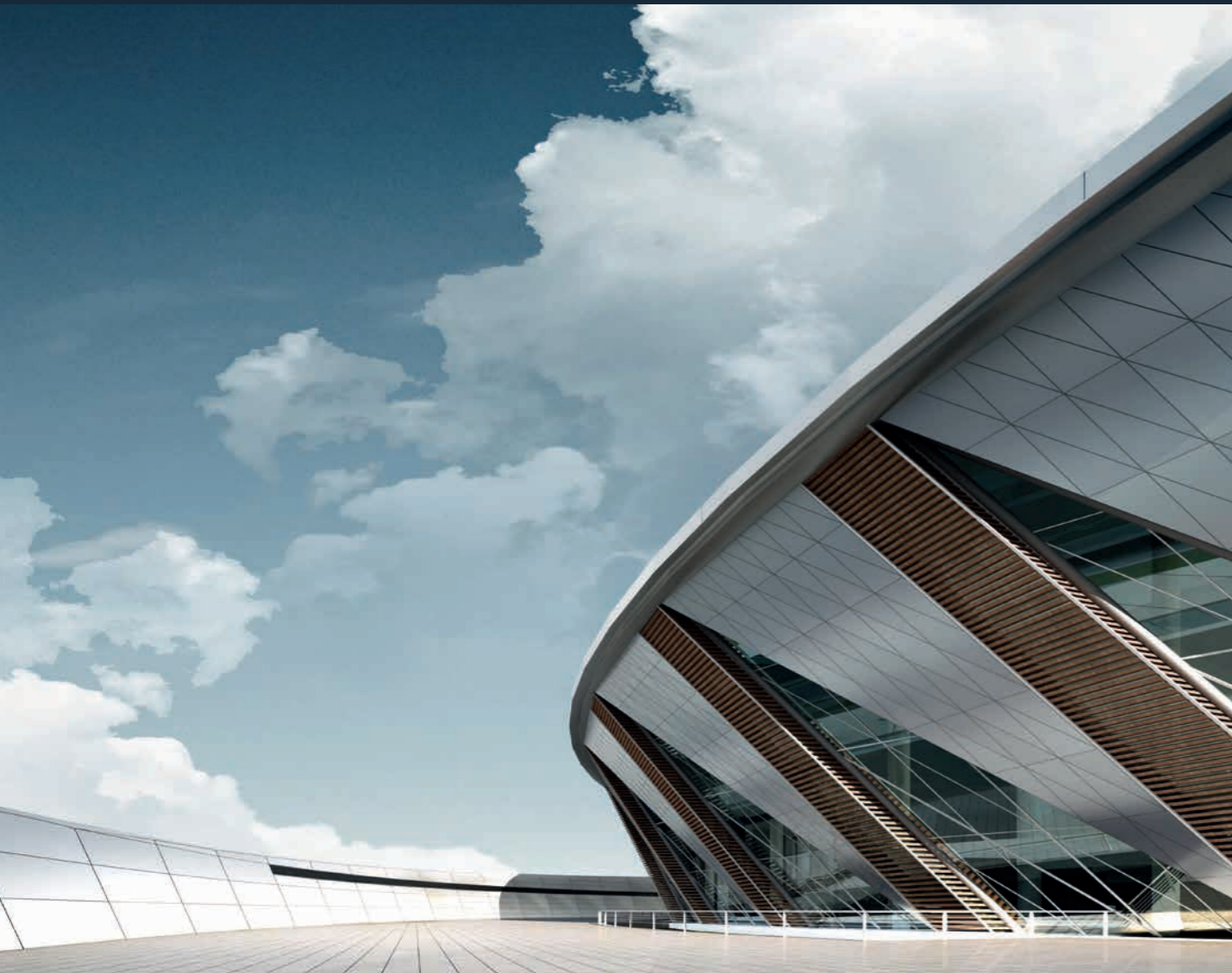**NETx**

AUTOMATION

NETx KNX OPC Server 3.5

NETx KNX OPC Server 3.5

The NETx KNX OPC Server 3.5 is a server application that provides a standardized way to access KNX networks and their devices and datapoints. As an OPC Data Access 2.0 Server the KNX datapoints, i.e. the KNX group addresses, are mapped to OPC items which can be accessed by any OPC client. Using server tasks, timers, response events, and scripts, the NETx KNX OPC Server 3.5 offers the possibility to add additional control functionality that is missing in the KNX network.

Due to the powerful server engine and its scalability, the NETx KNX OPC Server 3.5 proved itself as a standard solution for KNX projects of all sizes and types - from smart homes up to large enterprise buildings. Thanks to the easy to use NETx KNX OPC Studio and the integrated ETS import tool, any project integrator is able to configure it without much effort.

By providing the standardized OPC interface, the NETx KNX OPC Server 3.5 provides an ideal solution to integrate KNX datapoints into visualizations or other building management clients.

Performance

The data throughput for central monitoring increases according to the number of routers or interfaces used.

Central monitoring

The advanced NETx KNX OPC Studio offers the opportunity to monitor telegrams and values of datapoints.

Adding control functionality

Using server tasks, timers, response events, and/or LUA scripts, missing control functionality can be implemented within the NETx KNX OPC Server.

Scalability

Up to 1000 KNXnet/IP routers/interfaces and more than 100000 KNX group addresses can be managed.
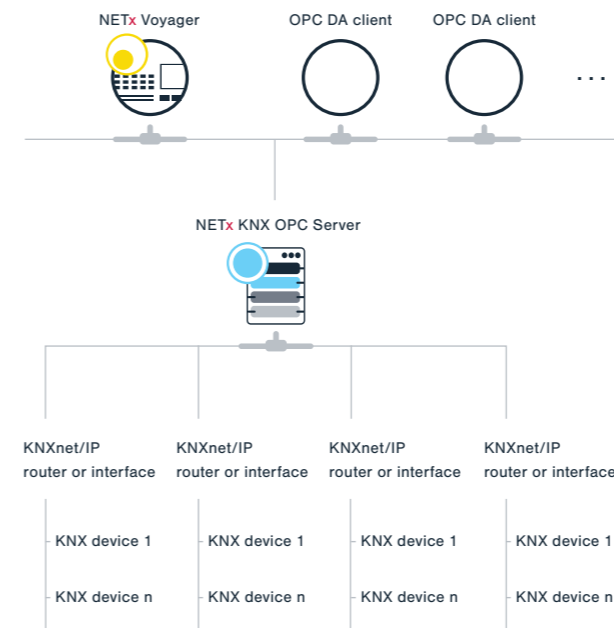
Main/backup

For high reliability, the NETx KNX OPC Server can be deployed as a main/backup solution.

Simulation mode

The configuration of the server can be tested without being connected to the physical KNX devices.

OPC

Example: OPC system structure

The new engine of the NETx KNX OPC Server 3.5 is responsible for not overloading the KNX networks. Data changes and other network telegrams are sent to the KNXnet/IP routers or interfaces in defined time intervals to ensure that the maximum bandwidth of the KNX TP1 medium is not exceeded.

If multiple KNXnet/IP routers and/or interfaces are connected to the system, the data throughput increases since the NETx KNX OPC Server 3.5 is able to communicate with each KNXnet/IP device in parallel. Using this approach, the NETx KNX OPC Server 3.5 is able to handle more than 100000 KNX group addresses in one single project. Thus, even the largest KNX projects can be managed in a reliable way.

Since the KNX group addresses are extended with the IP address of the KNXnet/IP router/interface, it is possible to reuse the same group address space behind each KNXnet/IP router/interface. Therefore, multiple different KNX installations with separate ETS projects can be handled by a single NETx KNX OPC Server.

Unified Driver and Direct(KNX)

The NETx KNX OPC Server is available in two different version: Unified Driver (UD) and Direct(KNX). While the Direct(KNX) version is based on the Falcon driver, the UD version uses multiple KNXnet/IP tunnelling connections in parallel.

1000 KNXnet/IP routers/interfaces

The data throughput increases according to the number of KNXnet/IP routers and/or gateways used. Therefore, controlling and monitoring of more than 100.000 KNX group addresses is possible.

VNET interface

The new **VNET protocol** allows an easy connection between the NETx KNX OPC Server 3.5 and the NETx Voyager 5.0 via network. Since VNET replaces the DCOM communication, the configuration and management of remote connections is much easier.

Online check

The connection state of all KNXnet/IP routers and interfaces as well as the status of the server itself (online/simulation, main/backup, active/standby) are monitored and available as OPC items. These OPC items can be used by, for instance, a visualization like any other datapoint.

Custom items

In addition to physical datapoints, so-called custom items can be created within the NETx KNX OPC Server 3.5. These custom items are used like ordinary datapoints – however they exist only virtually within the server. Using this concept, user-specific virtual data structures can be defined.

Adding control functionality

If the available control functionality provided by the field and automation level is not sufficient, missing functionality can be implemented within the NETx KNX OPC Server 3.5 using server tasks, timers, and/or response events. Furthermore, a script engine based on LUA scripts for implementing any functionality is available, too.

NETx KNX OPC Server 3.5

Geo data interface

By defining the geographical position of the NETx KNX OPC Server 3.5, geological data like the position of the sun, time of sunrise/sunset and the moon phase are calculated. This information can be accessed by OPC clients.

Simulation mode

This mode is used for testing the configuration of the server without being connected to the physical KNX network. Using the simulation mode, the functionality of connected OPC clients can be tested, too.

Server tasks

Using server tasks, different OPC items can be connected to each other. In addition, LUA scripts can be executed which react on data changes.

Live changes

Changing server tasks, timers, response events and even LUA scripts can be done during runtime without restarting the server.

Real time monitoring

All data changes can be monitored including their values and further meta-information.

NETx KNX OPC Server 3.5
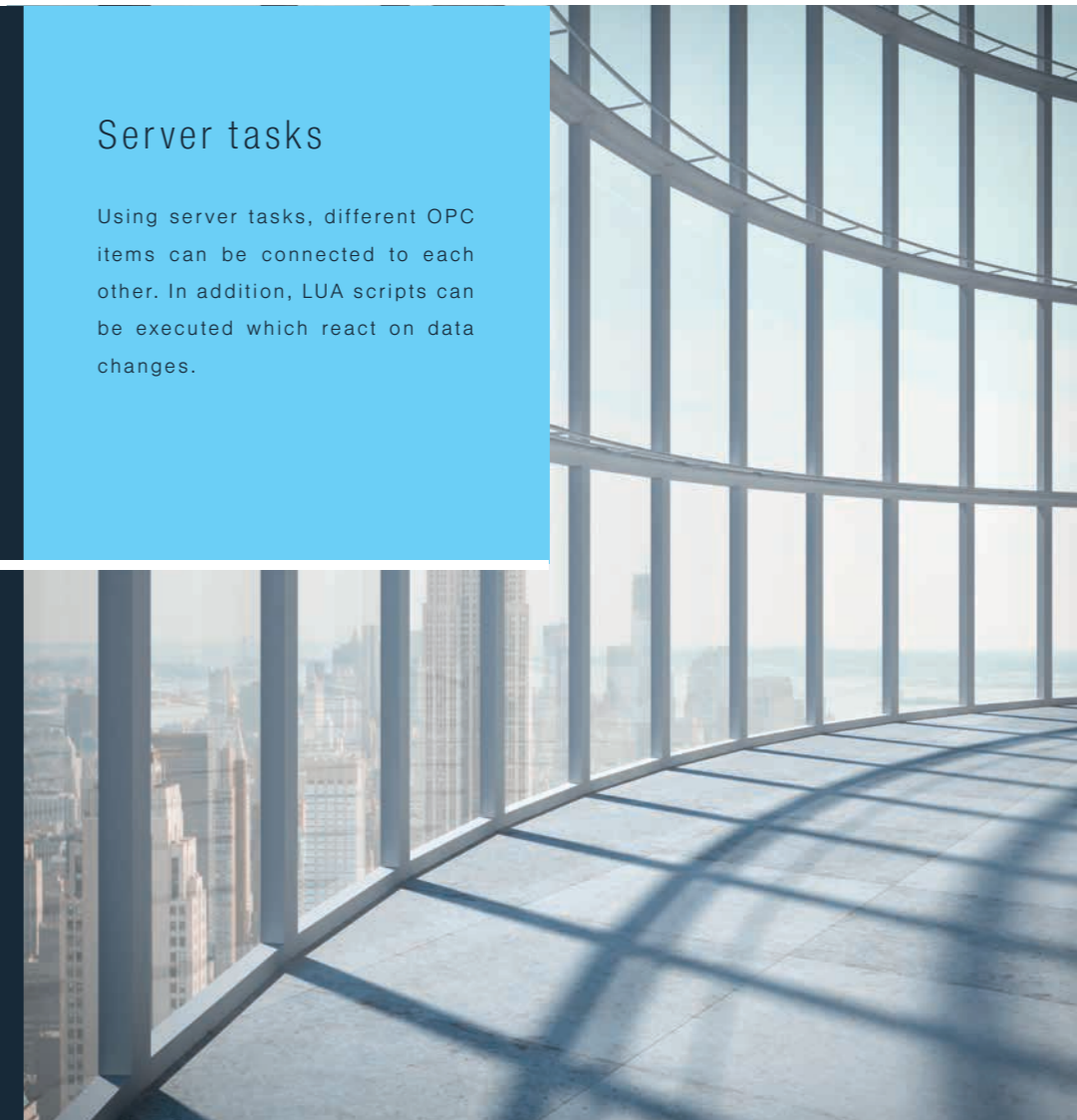
Versions

OPC | Direct(KNX)

1)

Unified driver

Driver - NETxAutomation

- Connection to the KNX network using KNXnet/IP
  routers and/or KNXnet/IP interfaces

- Supported protocols: KNXnet/IP tunneling, ABB IG/S,
  b.a.b-tec (eibNode)

- Up to 1000 KNXnet/IP routers/interfaces are supported

- Active monitoring of availability of physical devices

2)

Direct(KNX)

Falcon driver - KNX Association

- Connection to the KNX network with USB, RS232,
  KNXnet/IP router, or KNXnet/IP interfaces

- Supported protocols: KNXnet/IP tunneling,
  KNXnet/IP routing, USB, RS232

- Integrated Falcon driver

- Only for one interface to KNX
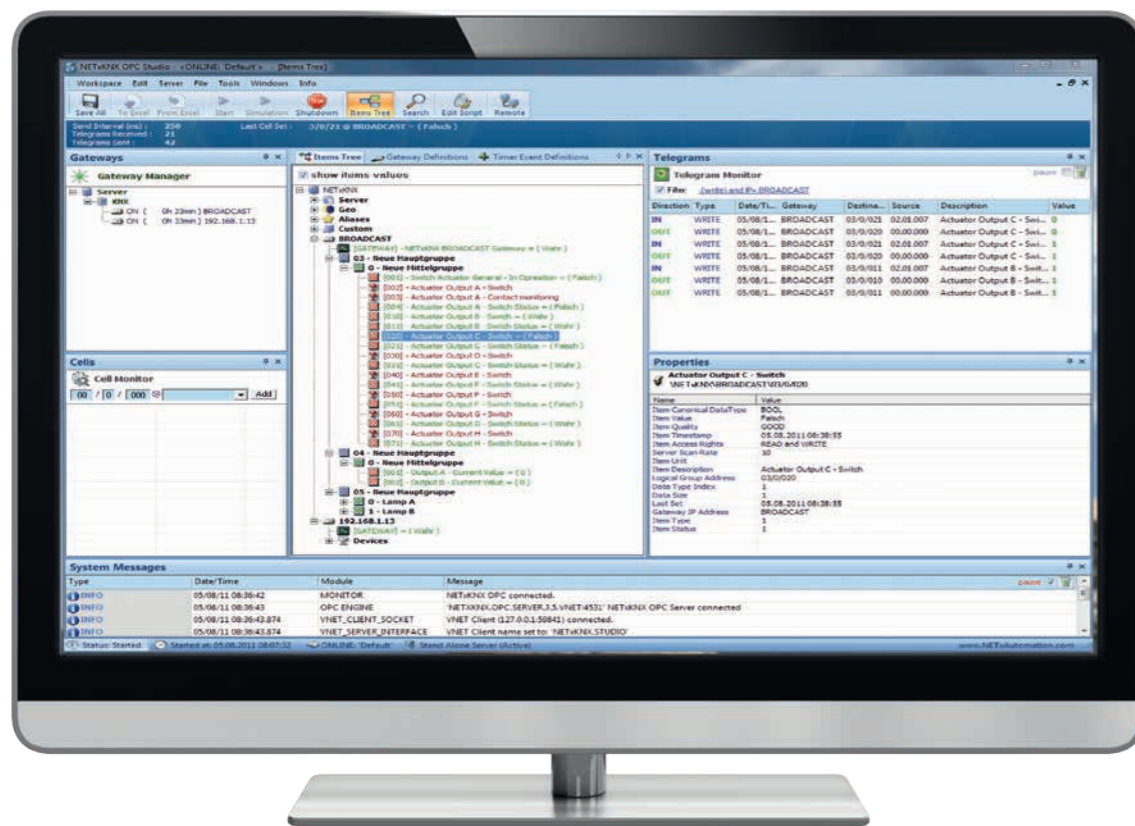
NETx KNX OPC Server/Studio

The system consists of two essential parts: the NETx KNX OPC Server and the NETx KNX OPC Studio. The NETx KNX OPC Server is the core component which runs as a Windows service in the background of the operating system. Managing the server application is done with the NETx KNX OPC Studio. The NETx KNX OPC Studio is a graphical user interface which allows the configuration and maintenance of the server application. The NETx KNX OPC Studio itself is also an OPC client. Therefore, the NETx KNX OPC Studio can also be used to monitor and control the KNX group addresses. In addition, the NETx KNX OPC Studio includes various tools. Using the NETx KNX ETS Converter, ETS projects can be imported in a simple way. The NETx Telegram Monitor is a tool that provides the opportunity to log all exchanged KNX group messages. In combination with the NETx Telegram History Explorer, the monitored telegrams can be stored on hard disk for future use.

Server extensions

In addition to the standard KNX interface for the integration of KNX networks and devices, several extension modules are available. These extensions provide the opportunity to integrate other, none-KNX datapoints into the NETx KNX OPC Server.

NETx Fidelio/Opera hotel system interface

NETx SQL database interface

NETx Protel hotel system interface

NETx OPC Bridge:
Using the NETx OPC Bridge, datapoints from other OPC DA 2.0 servers can be integrated into the NETx KNX OPC Server.

System monitoring

All events are stored in log files which can be used for system analysis and troubleshooting. Each failure of a KNXnet/IP router/interface is detected, displayed and logged immediately.
All configured KNX group addresses are monitored by the NETx KNX OPC Server. In addition to the current value of a datapoint, further meta-information (e.g. time of last value change, engineering units, ...) is available, too. The NETx KNX OPC Server can be used in all areas of building automation. Therefore it has already emerged as a standard in the KNX domain.

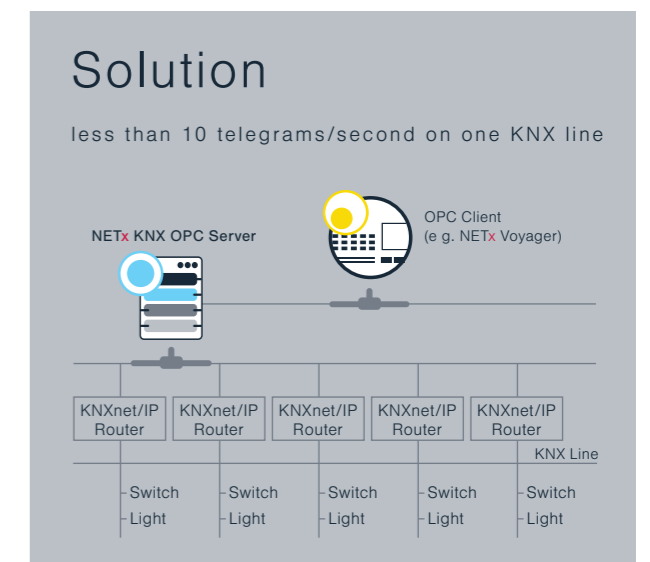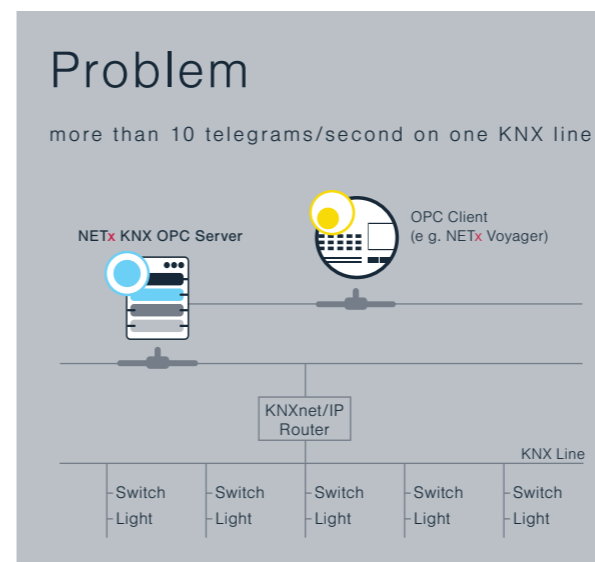**More than 2000 successfully realized projects prove the quality of NETx products.**

No matter if window blinds shall be controlled, weather data has to be integrated into the system, or lighting, heating, and other building services shall be controlled - the NETx KNX OPC Server provides a perfect solution.
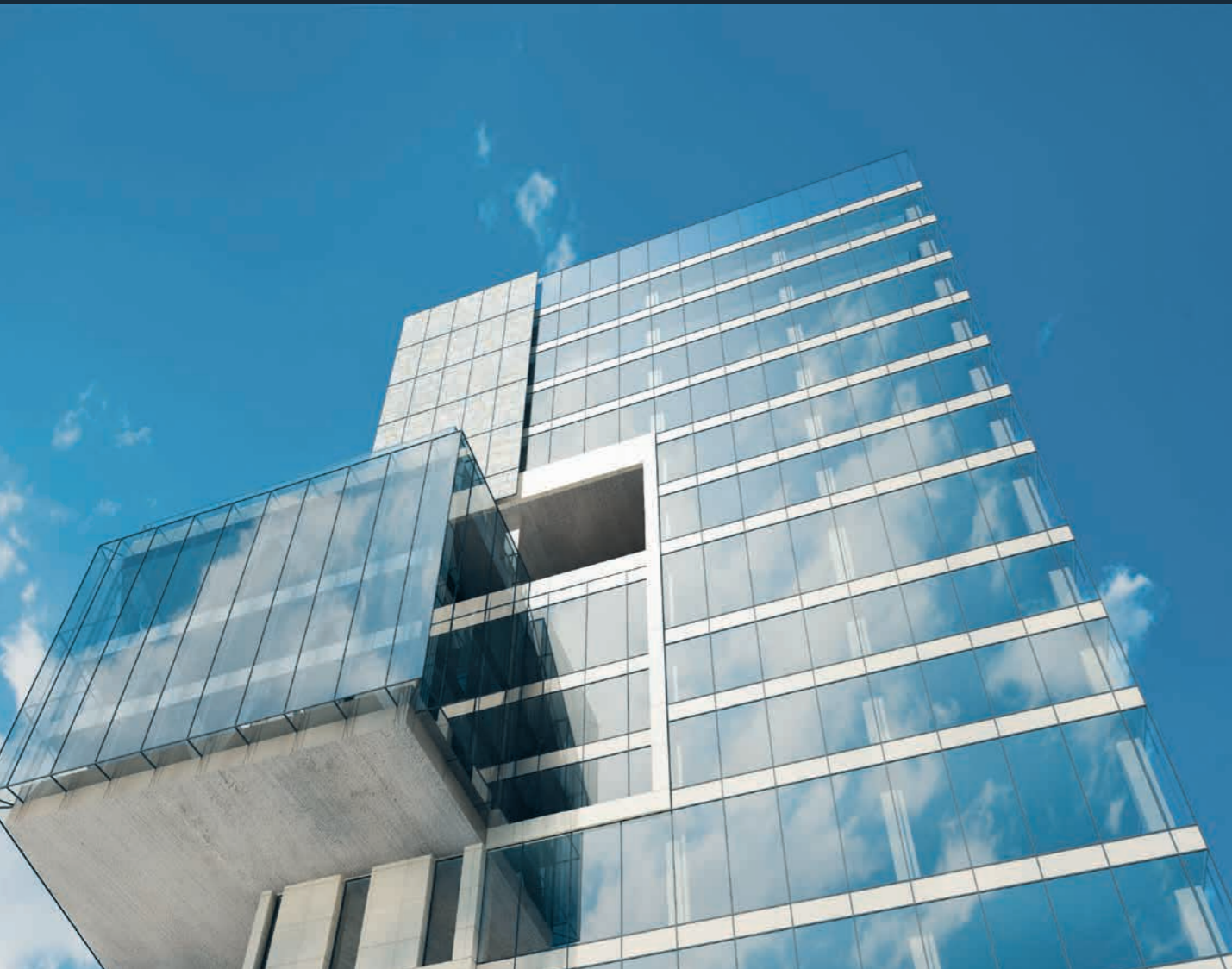
System optimization

To overcome the bandwidth limitation of the KNX TP1 medium, the amount of KNXnet/IP routers and/or interface can be increased. Since the NETx KNX OPC Server establishes a separate KNXnet/IP tunnelling connection to each router/interface, the server is able to receive and forward data changes in parallel. As a result the overall data throughput increases.

Problem

more than 10 telegrams/second on one KNX line

NETx KNX OPC Server

OPC Client
(e g. NETx Voyager)

KNXnet/IP Router

KNX Line

Switch / Light — Switch / Light — Switch / Light — Switch / Light — Switch / Light

Solution

less than 10 telegrams/second on one KNX line

NETx KNX OPC Server

OPC Client
(e g. NETx Voyager)

KNXnet/IP Router — KNXnet/IP Router — KNXnet/IP Router — KNXnet/IP Router — KNXnet/IP Router

KNX Line

Switch / Light — Switch / Light — Switch / Light — Switch / Light — Switch / Light

Reliability is one of the most important requirements in the field of building automation. Therefore, it is possible to integrate the NETx KNX OPC Server 3.5 as a NETx main/backup solution. The visualization is able to communicate to the main server and to the backup server. If the communication to the main server is interrupted, the connection to the backup server becomes immediately active and the visualization client can continue to receive data from the building automation system. Switching between main and backup server is done in an automatic way - without affecting the functionality seen by the end user.

Main/backup
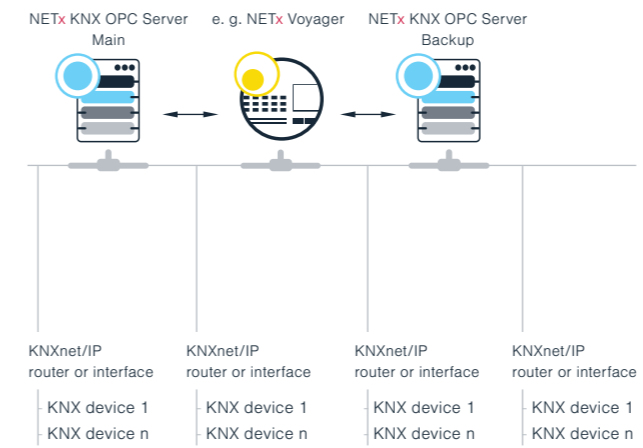
A **main/backup** solution not only increases the reliability of the system, but also simplifies maintenance. Whenever the configuration of the building automation system has to be changed during operation, the main server has to be switched offline in order to be able to change the configuration. During this configuration procedure, the backup server will remain online and the end user can use the visualization as usual. Again, the switching is fully autonomous, without user intervention.

Clustering
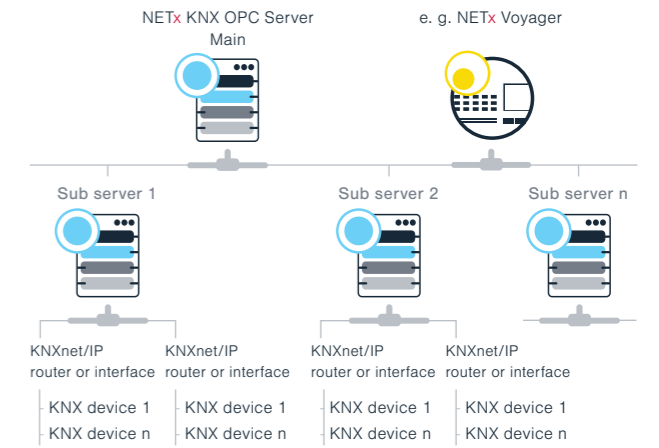
Cluster solution - The N-Mesh module of the OPC Server can also be used to connect different sub servers to a central main server. Using this approach, large KNX projects can be structured in independent sub systems. The main server that retrieves data from the different sub servers has a global view of the whole system. Clustering is an additional way to increase the system performance.

System reqirements

Hardware:
PC - Intel oder AMD - 1.6 GHz (Multicore recommended)
RAM: 2048 MB
Hard disk: 4 GB (8 GB recommended)
Ethernet interface: 100 MBit/s
Screen resolution: 1280 x 1024

Supported operating systems:
Unified driver:
Windows XP Professional (32 bit) SP 3
Windows 7 (32 bit | 64 bit)
Windows 8 (64 bit) | Windows 8.1 (64 bit)
Windows Server 2008 | 2008 R2 (32 bit | 64 bit)
Windows Server 2012 | 2012 R2 (64 bit)
Direct(KNX):
Windows XP Professional 32 bit / SP 3
Windows 7 32 bit | 64 bit
Windows Server 2008 | 2008 R2 (32 bit | 64 bit)

Last update: January 2014

NETx

NETxAutomation Software GmbH
Maria Theresia Straße 41 - TOP 10
4600 Wels | Austria
T +43 7242 252 900
F +43 7242 252 900 - 21
office@netxautomation.com
www.netxautomation.com

Member of:

KNX Association | OPC Foundation
BACnet Interest Group Europe

NETx KNX OPC Server for up to 1000 KNXnet/IP gateways on demand!

All versions are available with:
- **Softlock** (license code)
- **Hardlock** (USB-Dongle)

It is **recommended** to use the **Hardlock version**, since no additional licensing is necessary if the hardware or the operating system is changed.

Software	Number of KNXnet/IP routers/interfaces	Product-ID
OPC Server Direct(KNX)	1	S03.03.5.10.01
OPC Server UnifiedDriver	1	S03.03.5.20.01
OPC Server UnifiedDriver	3	S03.03.5.20.03
OPC Server UnifiedDriver	5	S03.03.5.20.05
OPC Server UnifiedDriver	10	S03.03.5.20.10
OPC Server UnifiedDriver	20	S03.03.5.20.20
OPC Server UnifiedDriver	32	S03.03.5.20.32
OPC Server UnifiedDriver	50	S03.03.5.20.50
USB-Dongle	Free USB port required	H00.00.0.00.04

Light & Building fair | Frankfurt

Awards received for projects where NETx products are used represent our international reputation. Especially the NETx KNX OPC Server solutions enjoy an excellent popularity.

EIBA Award (2004)
Architecture + Technology Award (2006)
KNX Award - International Europe (2010)

- **International Award Asia (2012)**
  Princess Noura University for women - Saudi Arabia
- **International Award Africa, America, Australia (2012)**
  Surf Coast Shire Civic Building - Australia
- **Special Award (2012)**
  Gran Melià Resort & Luxury Villas Daios Cove - Greece
- **National Award (2012)**
  HDI-Gerling Headquaters - Germany