Beyond connectivity

How Building X is revolutionizing cloud-based operations

SIEMENS

Executive summary

In an era where cloud connectivity and Internet of Things (IoT) integration are pivotal to business operations and building management, Siemens presents a comprehensive whitepaper on Building X, a cutting-edge solution designed to revolutionize smart building management through cloud technology.

As businesses increasingly rely on cloud storage for data management, recognizing its value in enhancing operational efficiency, the importance of cloud-connected smart buildings has come to the forefront. Building X, Siemens Smart Infrastructure's premier digital-offering, embodies this transformation by digitizing, managing, and optimizing building operations, thereby enhancing user experience, improving performance, sustainability, and meeting energy goals.

This whitepaper tackles prevalent misconceptions about cloud connectivity head-on, offering valuable insights and debunking myths that have hindered its adoption in building systems. It delves into practical applications of building automation, presenting use cases that highlight the platform's capability to enhance tenant comfort, optimize energy consumption and costs, and streamline operations and maintenance through real-world examples. Furthermore, it outlines diverse connectivity solutions and their benefits, aiming to empower organizations with the knowledge needed for successful implementation and to harness the full potential of smart building technologies.

Addressing myths surrounding cloud connectivity's security, interoperability, complexity, and cost effectiveness, the paper asserts that when properly implemented, cloud-based systems can significantly enhance security, foster interoperability among devices, and offer scalable solutions adaptable to buildings of all sizes.

Moreover, it emphasizes that cloud connectivity can reduce labor costs for maintenance by streamlining maintenance processes when strategically implemented. Building X's connectivity portfolio is highlighted as a strategic asset for organizations seeking to leverage data-driven insights for competitive advantage. The whitepaper showcases Siemens' commitment to facilitating a smooth transition to the cloud, supporting businesses in their journey towards remotely managed, smarter building automation.

Through detailed use cases and an exploration of Building X's extensive features and benefits, Siemens aims to demystify cloud connectivity and promote its adoption across the smart building sector.

In conclusion, Building X represents a significant leap forward in the integration of IoT/OT assets with cloud technology, offering a vendor-agnostic, flexible, and scalable solution that promises to drive innovation, improve building performance, and transform industries by fully leveraging the power of smart building technologies.

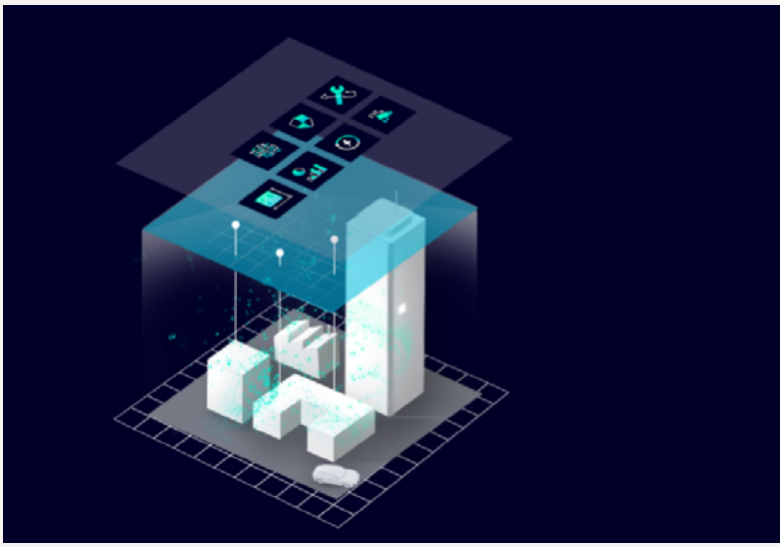
Table of contents

Introduction

Intoday's ever-evolving technological landscape, interconnecting Internet of Things (IoT) and Operational Technology (OT) assets to the cloud is becoming increasingly crucial for businesses. The cloud serves as the backbone of the IoT and is transforming businesses and in remarkable ways.

Nearly half of businesses store and manage their data in the cloud, indicating the widespread acknowledgement of the value of cloud storage.

Cloud connectivity has also revolutionized the way buildings are designed, constructed and managed. A notable advantage of cloud-connected smart buildings is the availability of critical insights into building's performance, comfort and security. Cloud solutions diminish the hardware footprint needed to integrate building control platforms. Cloud connectivity allows smart buildings to aggregate and centralize data from various sensors, devices, and systems more effectively.



Interconnecting IoT/OT assets to the cloud is becoming increasingly crucial for businesses.

This centralized data hub forms the foundation for real-time monitoring, analytics, and decision-making.

As the demand for intelligent and interconnected buildings continues to rise, the significance of cloud connectivity becomes increasingly paramount, albeit bringing forth challenges for organizations. Numerous myths and misconceptions surround the implementation of cloud technology in building systems. This whitepaper aims to empower organizations by providing the knowledge necessary to make informed decisions about adopting cloud technology in smart buildings automation.

The primary goal of this paper is to address the misconceptions head-on, offering valuable insights and debunking prevalent myths. In our exploration, we will shine a spotlight on Siemens Smart Infrastructure's solution for smart buildings, known as Building X. This open and cloud-based digital building platform digitizes, manages, and optimizes building operations to enhance user experience, improve performance, and sustainability and energy goals.

Moreover, this paper will delve into practical applications of building automation, addressing use cases such as enhancing tenant comfort, optimizing energy consumption and costs, and streamlining operations and maintenance. We will illustrate these with real-world examples. Additionally, the paper will provide a detailed overview of diverse connectivity solutions and elucidate their associated benefits. The intention is to offer a comprehensive resource that aids in successful implementation, ensuring that organizations harness the full potential of smart building technologies.

Glossary of key terms

IoT (Internet of Things): Refers to the network of physical objects ("things") embedded with sensors, software, and other technologies for the purpose of connecting and exchanging data with other devices and systems over the internet. In the context of smart buildings, IoT devices can include things like smart meters, lighting controls, and HVAC systems.

OT (Operational Technology): Encompasses the hardware and software used to control physical processes, devices, and infrastructure. OT is often found in industrial environments and critical infrastructure, playing a key role in managing and monitoring smart buildings.

Cloud Connectivity: The ability of devices, systems, or applications to connect and interact with cloud-based computing services. In smart buildings, this involves the integration of building management systems with cloud platforms for data storage, analysis, and remote management.

Smart Buildings: Buildings equipped with advanced automation and connectivity technologies that enable centralized control of building operations such as heating, ventilation, air conditioning (HVAC), lighting, and security systems to improve efficiency, occupant comfort, and energy savings.

BMS (Building Management System): A control system installed in buildings to manage and monitor the building's mechanical and electrical equipment, such as HVAC, lighting, power systems, and fire systems.

SaaS (Software as a Service): A software distribution model in which applications are hosted by a service provider and made available to users over the internet, often on a subscription basis. In the context of Building X, certain functionalities might be offered as SaaS to enable scalability and flexibility in building management.

API (Application Programming Interface): A set of rules and definitions that allows software applications to communicate with each other. In the context of smart buildings, APIs enable the integration of various systems and devices for enhanced data exchange and functionality.

Interoperability: The ability of different systems, devices, or applications to work together seamlessly. In smart buildings, interoperability is crucial for integrating diverse technologies and protocols to create a cohesive management system.

Edge Computing: A computing paradigm that involves processing data near the source of data generation, rather than relying solely on a centralized data-processing warehouse. This approach reduces latency, increases speed, and can improve the reliability of data processing in smart buildings.

Digital Twin: A digital replica of a physical entity, which can be used to simulate, analyze, and control the entity. In smart buildings, digital twins are used for optimizing building operations and maintenance.

SaaS (Software as a Service): A software distribution model in which applications are hosted by a service provider and made available to users over the internet, often on a subscription basis. In the context of Building X, certain functionalities might be offered as SaaS to enable scalability and flexibility in building management.

CHAPTER 1

Myths

When it comes to connectivity and especially cloud connectivity there are a lot of myths and misconceptions floating around. Let us start by addressing some of the most commonly voiced myths:

Myth 1: Cloud Connectivity is inherently insecure

Reality: Security concerns often top the list of reasons why some hesitate to adopt cloud solutions. However, when implemented correctly, cloud-based systems can enhance security by providing centralized management, regular updates, and robust authentication measures. It is essential to adopt industry best practices, such as encryption and multi-factor authentication, to mitigate potential risks.

Myth 2: Cloud connectivity is not interoperable

Reality: The notion that connectivity is not interoperable is a common misconception, as modern technologies and standards have significantly improved interoperability among various devices and systems. Interoperability refers to the ability of different systems, applications, or components to seamlessly exchange and interpret data.

Myth 3: Cloud solutions are only for large enterprises

Reality: Cloud solutions are scalable and adaptable to buildings of all sizes. Whether it's a small office or a large commercial complex, cloud connectivity offers flexibility in deployment. The various go to market models allow businesses to scale their usage based on their needs, making it cost-effective for organizations of various sizes.

Myth 4: Complexity and loss of control

Reality: Some fear that moving to the cloud means relinquishing control over their data and systems. In reality, cloud platforms offer extensive customization options, enabling organizations to tailor solutions to their specific needs. Moreover, cloud service providers often have robust management tools that give users granular control over their assets.

Myth 5: Connectivity results in high labor costs for maintenance

Reality: While it's a common misconception that implementing connectivity solutions leads to increased labor costs for maintenance, the reality is more nuanced. Connectivity can, in fact, streamline maintenance processes and reduce costs when implemented strategically.

Key take away

It's important to note that while connectivity can contribute to more efficient and cost-effective maintenance, proper planning, training, and a well-defined strategy are essential. Organizations need to invest in the right technology, ensure the security of connected systems, and train their workforce to leverage the benefits of connectivity without incurring unnecessary labor costs. When implemented thoughtfully, connectivity can be a valuable tool in reducing the overall burden on maintenance teams.

CHAPTER 2

Enhancing smart buildings

Unlocking the power of cloud services in IoT

With Building X, the first next gen offering designed and built as part of Siemens Xcelerator, unlocking the power of Cloud Services in IoT becomes easier and more user-friendly than ever before.

It starts with vendor agnostic connectivity strategies consisting of both flexible and scalable solutions to bring your resources securely to the cloud. Integration of existing and new assets as well as legacy applications and ecosystems are paving the way for significant reductions in initial investments and additional costs.

Across a portfolio of buildings where IoT/OT environment often consists of diverse devices and systems from various disciplines and from different vendors, it can be challenging to remotely manage devices and collect all these data. Equally important is that the connectivity solutions are designed flexibly enough, to ensure data continuity and align with the evolving requirements. Especially when the business needs are changing over time.

IoT/OT environment often consists of diverse devices and systems from various disciplines.

How does it work in a nutshell

Connect: We start first by connecting to Building X the data from different buildings, regardless of buildings' age, architecture, equipment type (BMS/ no BMS) and vendors.

Digitize: In a second step, the data gathered from different assets, such as meters, controllers, gateways, BMS, Siemens or 3rd party devices is digitized and collected under one single pane of glass, Building X, and shown as actionable insights.

Optimize: Only then can optimization take place! The purpose of the data is to monitor and optimize buildings when it comes to energy costs and usage, controlling comfort parameters, fire safety, etc. and this thanks to the different ready to use apps.

Explore: It is also possible to explore further use cases and applications. Building X allows customers to go beyond the ready-to-use Apps. Thanks to its open platform and APIs, customers can explore new opportunities with Analytics, Rules and AI.

Features and benefits

Secure: Central management with regular updates and strong authentication.

Interoperable: Digital thread framework for universal data access ensuring compatibility with your today's as well as legacy investments.

Scalable: Customer-centric design for all building sizes to cover your needs even as they change over time.

Open: Enabling 3rd party application integration and standardized APIs for powerful data analysis.

Accessible: Remotely manage connected assets, apply software updates and enjoy new features.

Cost optimization: Latest technology on a subscription basis – Truly As a Service.

Cloud Services

Building X and its services are designed in an open architecture format where all data from IoT building systems are bought together in a single data pool. The open, scalable, and modular platform enables integration of data from third party sources for a single building or for the entire portfolio.

To meet the most demanding needs around Edge and Cloud Connectivity, we are providing a powerful Connectivity Portfolio bundled with innovative products and cloud services that are quickly enabling businesses to harness the true potential of IoT/OT and transform their data into optimized insights by distributing them to a central cloud environment (Building X Platform).

Account management services

These services enable management of multiple facets of a company and user account for all the platform services and applications of the Building X platform. These include the management of subscriptions, memberships, users, roles, groups, invitations, access rights and general user settings. Usage of such services make operations efficient and secure across the entire platform.

Device management services

Device management and complementary onboarding services are the initial step in connecting IoT devices to the cloud. This process involves registering and configuring devices so that they can seamlessly communicate with the cloud infrastructure. It typically includes tasks such as device authentication, and network configuration. Cloud-based onboarding simplifies this process by providing standardized procedures and interfaces, reducing the complexity of integrating diverse devices into an IoT ecosystem.

Device secure cloud communication
Once devices are onboarded, they rely on efficient and reliable cloud communication services to exchange data with the central cloud platform. Cloud connectivity enables continuous data streaming, real-time notifications, and remote control of devices. This two-way communication is essential for applications like remote monitoring, predictive maintenance, and over-the-air (OTA) updates.

Device health services
Monitoring the health and performance of IoT devices is crucial for maintaining the integrity of an IoT ecosystem. Cloud-based device health services continuously gather data on device status, including system diagnostics. By analyzing this data in the cloud allows businesses to proactively identify and address issues before they result in device failure. This predictive maintenance approach maximizes uptime and minimizes operational disruptions.

Secure tunneling
Security is a paramount concern in IoT due to the sensitive nature of data and the potential risks associated with unauthorized access. Secure tunneling services establish encrypted connections between devices and the cloud, ensuring that data remains unaltered during transmission.

Deployment of edge apps
Edge computing, where data processing occurs at or near the source of data generation, is gaining popularity in IoT applications. Cloud connectivity services enable the deployment and management of edge applications on IoT devices. These edge applications process data locally, reducing latency and bandwidth usage while allowing for real-time decision-making. Examples include data acquisition and preprocessing, edge data buffering, processing of data from external sources directly on edge devices.

Remote device management and updates
One of the significant advantages of cloud connectivity is the ability to remotely manage and update IoT devices. Cloud-based device management interfaces provide insights into device status, configuration settings, and firmware versions. This remote management capability allows for timely updates, ensuring that devices are always running the latest software. It also enables troubleshooting and configuration adjustments without the need for on-site visits, saving time and resources.

Time series data storage
Time-series data is a fundamental component of IoT. It comprises data points collected at specific intervals over time, making it valuable for analysis, predictive maintenance, and historical reporting. Cloud connectivity services offer scalable storage solutions for time-series data, allowing businesses to retain and analyze large volumes of historical data easily. This historical data is invaluable for identifying patterns, optimizing processes, and making data-driven decisions.

Alarm and event services
In an IoT environment, timely responses to alarms and events are critical for maintaining system reliability and safety. Cloud connectivity services provide the infrastructure for defining, monitoring, and responding to alarms and events. Businesses can set up rules and thresholds, and when these conditions are met, alerts or automated actions are triggered. This proactive approach ensures that anomalies or critical events are addressed promptly, reducing downtime, and preventing costly failures.

API management services
APIs are essential for enabling communication and data exchange between different software applications, services, or systems. This set of tools and processes allow organizations to create, publish, manage and secure APIs in a systematic and efficient manner.

Summary

In conclusion, Building X being the cloud platform backbone facilitates the seamless integration of devices, enabling efficient data communication, ensuring device health, enhancing security, supporting edge computing, simplifying device management, storing valuable time-series data, and enabling timely responses to alarms and events. These services collectively empower businesses to harness the full potential of IoT, being open, drive innovation, and transform industries across the board.

USE CASE 1

Enhancing Connectivity and Energy Management for a Supermarket Chain's Old and New Buildings

Problem

A small supermarket chain with 10 shops is struggling with several challenges in managing their energy usage and reporting. Their diverse buildings portfolio makes it challenging for the customer to connect to a diverse spectrum of meters.

Travel Costs: Significant expenses are incurred traveling to each shop to gather energy data.

Manual Reporting: Collecting and reporting energy data is time-consuming and prone to errors.

Lack of Overview: Difficulty in understanding the overall energy usage across all shops.

Solution

The supermarket chain implemented tailored solutions for their older and newer buildings using Building X Energy Manager.

Older buildings (Group A)

- Subscribed to Building X Energy Manager.
- Connected older buildings to the cloud using their Windows computers.
- Engineers linked Modbus TCP/IP energy meters in each building to the computers.
- Used Building X Connect Software to send data to the cloud.
- Enabled remote monitoring and reporting of energy usage.

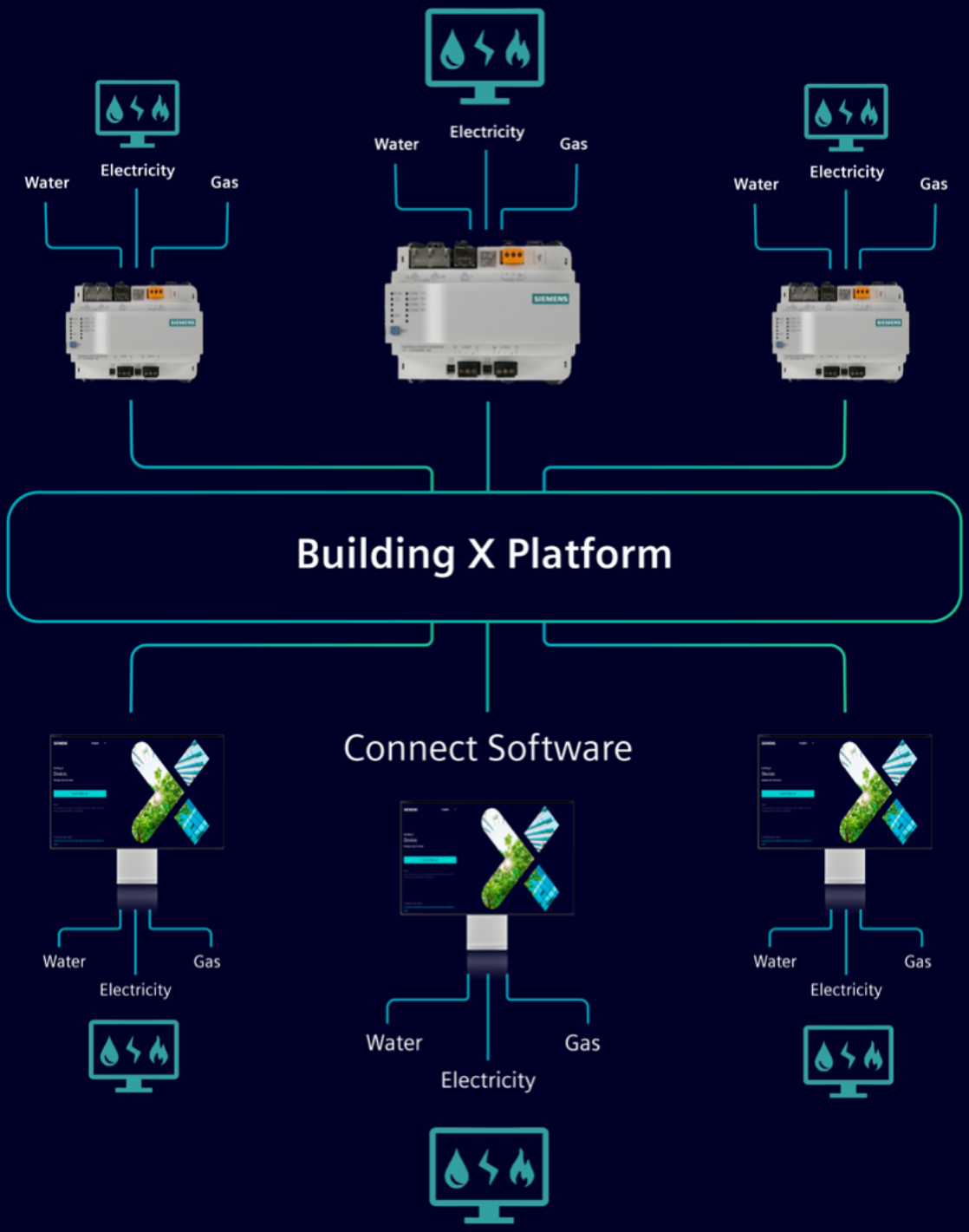
Newer buildings (Group B)

- Installed Siemens Connect X200 devices to connect existing energy systems to the cloud.
- Linked Modbus TCP/IP or Modbus RTU energy meters to the internet.
- Integrated buildings into the existing Building X Energy Manager system.
- Enabled real-time monitoring, remote management, and predictive future needs.

Outcome

By implementing Building X solutions, the supermarket chain achieved the following:

Simplified energy management: Centralized platform for managing energy usage across all shops.
Cost savings: Reduced travel costs by enabling remote data access.
Improved control: Gained better control over energy usage with accurate, real-time data.
Efficiency gains: Streamlined reporting processes and predictive maintenance, saving time and resources.



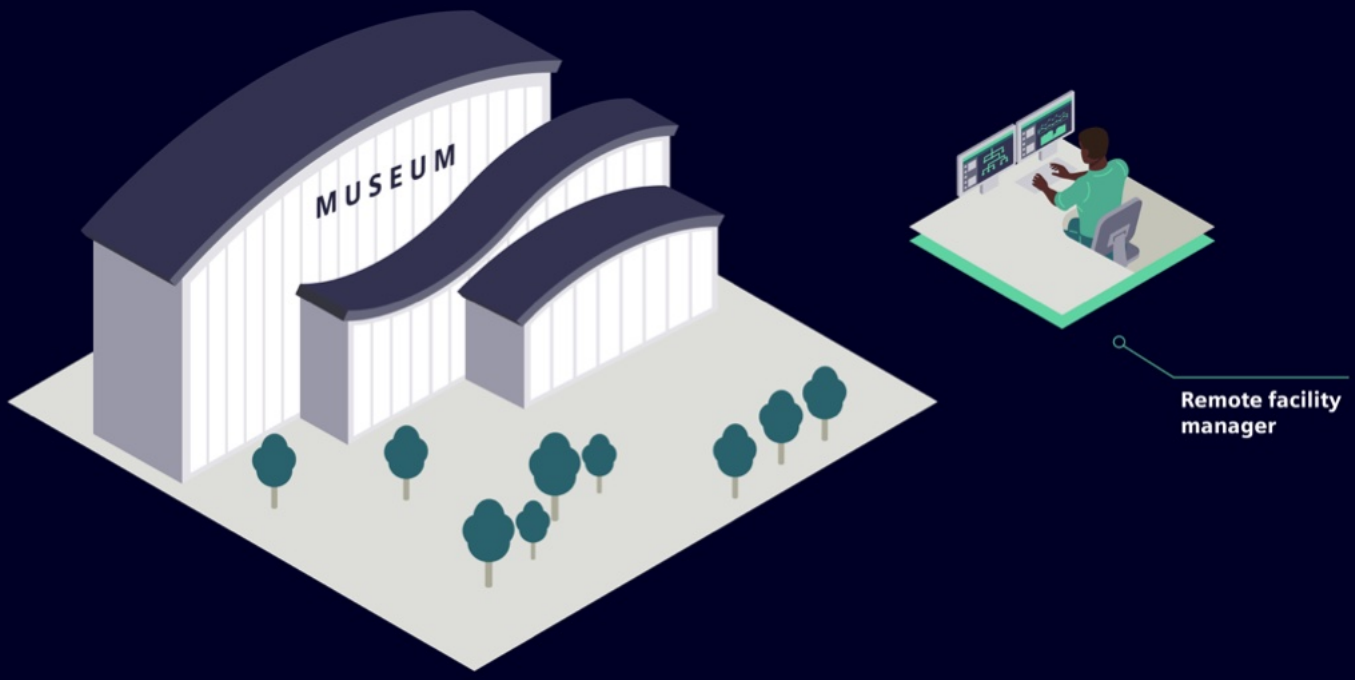
Benefits

Enhanced connectivity: Efficient onboarding and lifecycle management of building data.

Comprehensive data structure: Includes locations, equipment, data points, and geometries for diverse applications.

User empowerment: Enables logical structuring of connected data points and seamless integration of digital twin aspects.

By leveraging Building X, the supermarket chain improved operational efficiency, reduced costs, and gained a comprehensive understanding of their energy usage, leading to better decision-making and sustainability.



USE CASE 2

Maximizing the operational efficiency in large museum of ancient history

Problem
A large museum faces several challenges in maintaining optimal conditions for its exhibits and facilities, specifically related to their HVAC systems:

Monitoring multiple systems: Difficulty in overseeing numerous devices and systems not connected to the cloud.
Travel time: Technicians frequently travel to the museum for onsite problem resolution.

Future expansion: Need for efficient integration of new systems in the future.

Solution

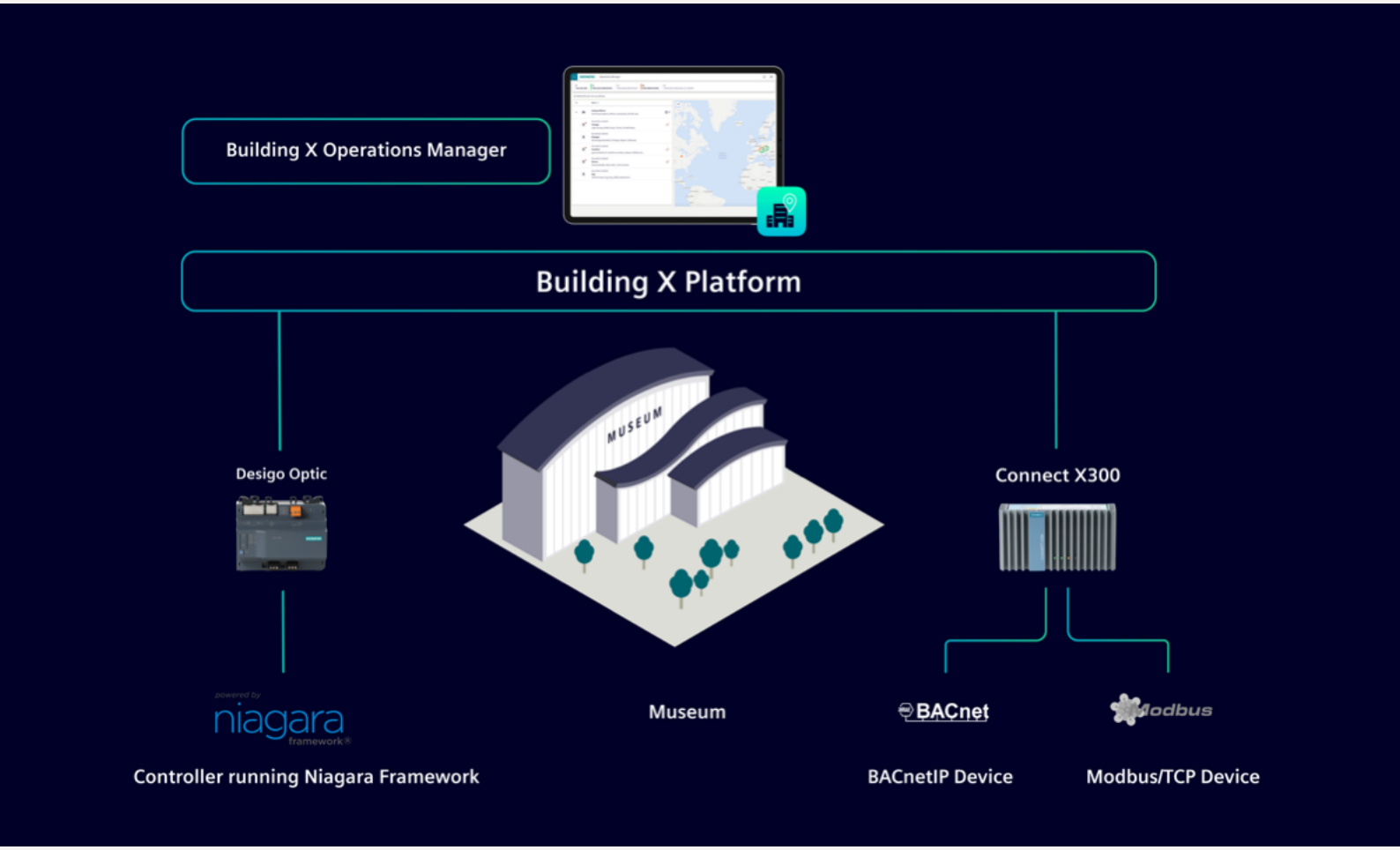
The museum implemented Building X Operations Manager and connectivity devices to streamline their operations.

Step 1: Getting connected

- Subscribed to Building X Operations Manager and set up an account.
- Installed Siemens Desigo Optic to link Niagara-based controllers to the cloud (handling up to 5,000 data points).
- Used Siemens Connect X300 to connect other devices and systems, including Modbus meters, to the cloud.

Step 2: Benefits of cloud connection

- Enabled remote monitoring of all systems, allowing for quicker problem identification and resolution.
- Reduced the need for frequent travel by technicians, saving time and costs.
- Ensured continuous monitoring to prevent issues before they escalate.



Outcome

By implementing Building X solutions, the supermarket chain achieved the following:

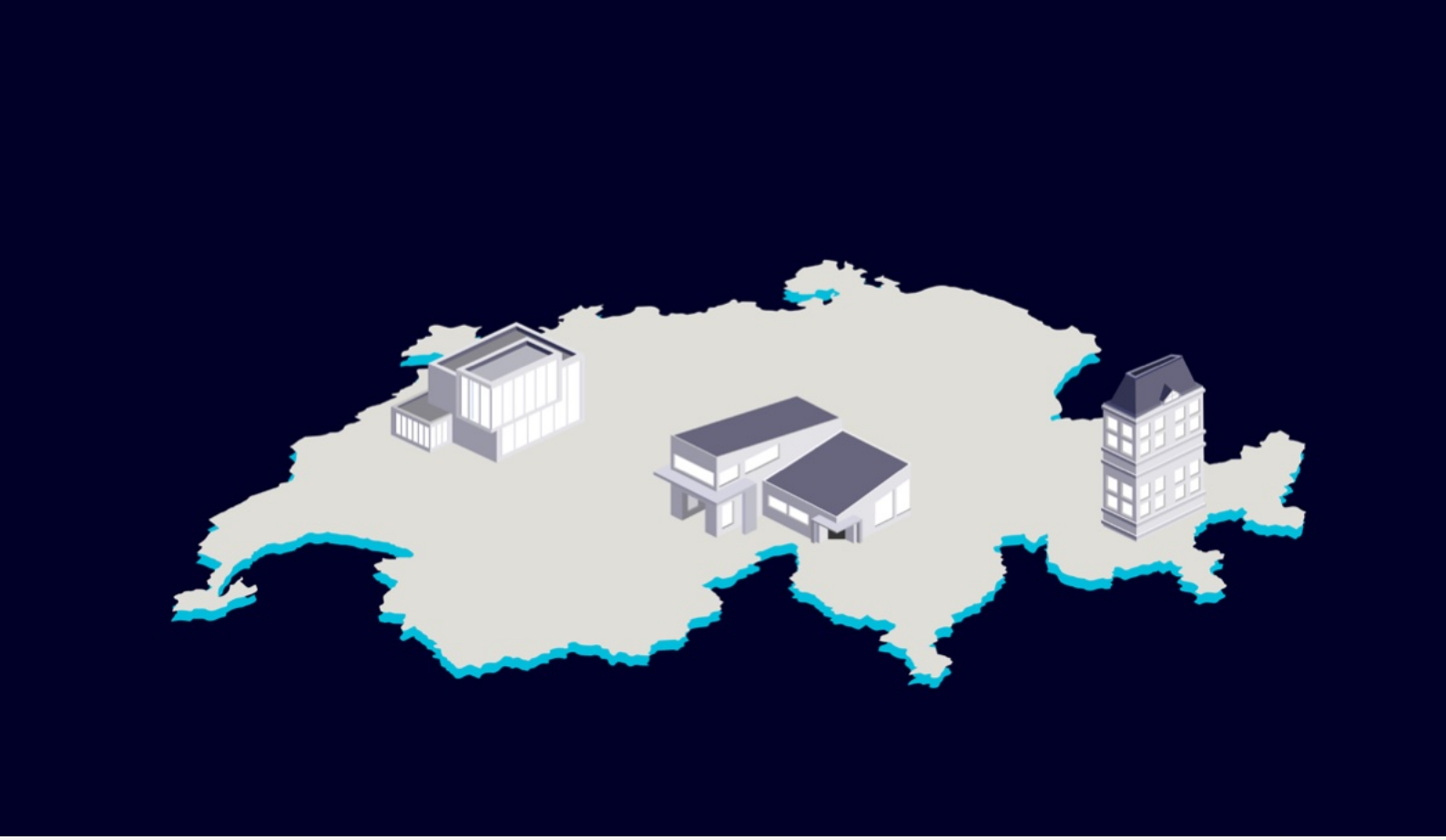
Simplified energy management: Centralized platform for managing energy usage across all shops.
Cost savings: Reduced travel costs by enabling remote data access.
Improved control: Gained better control over energy usage with accurate, real-time data.
Efficiency gains: Streamlined reporting processes and predictive maintenance, saving time and resources.

Benefits
In summary, the museum and their facility management team no longer need to spend excessive time traveling for onsite checks. With the ability to monitor and address issues remotely, they can resolve problems proactively, saving on travel costs and enhancing overall efficiency. Building X has streamlined their operations, kept systems connected and secure, and prepared them for future digital services.

What's in it for our customer:

Enhanced connectivity: Efficient onboarding and lifecycle management of building data.
Comprehensive data structure: Includes locations, equipment, data points, and geometries for diverse applications.
User empowerment: Enables logical structuring of connected data points and seamless integration of digital twin aspects.

By leveraging Building X, the museum has significantly improved its operational efficiency, ensuring optimal conditions for its exhibits and reducing operational costs.



USE CASE 3

Visualizing important KPIs of building IoT/OT data for facility managers

Problem
A real estate company in Switzerland with three buildings spread across different locations faces several challenges in connecting and managing these buildings:

Data extraction: Difficulty in retrieving data from various systems.
Data harmonization: Ensuring consistent data formats across all buildings.
Single platform: Need for a unified view of all building data.
Protocol compatibility: Ensuring data from all buildings can be read and understood.

Solution

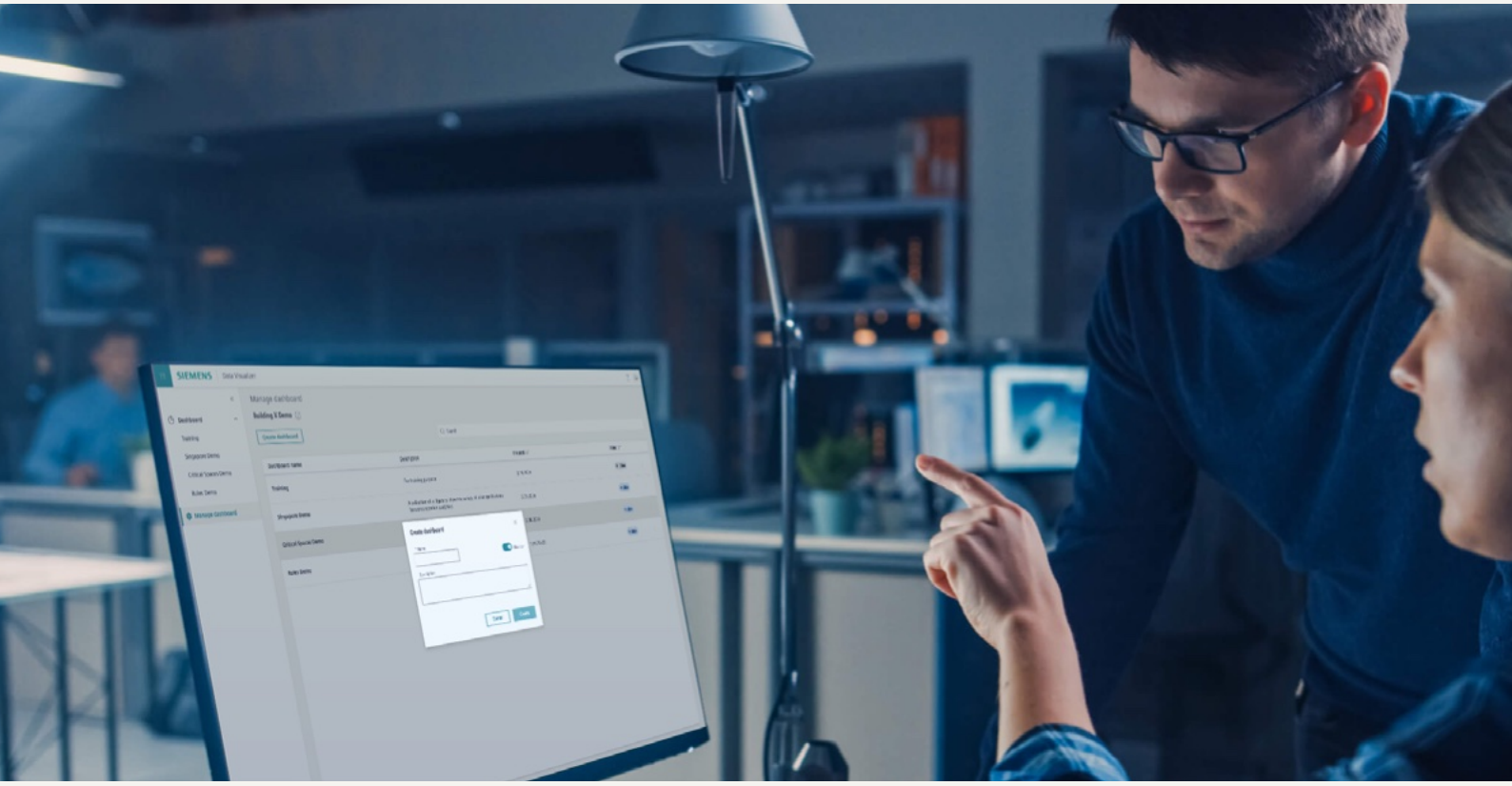
The company implemented Building X Data Visualizer and Operations API to streamline data integration and visualization.

Step 1: Getting connected

• Subscribed to Building X Data Visualizer and Operations API services.
• Activated their accounts and used Building X to connect all their buildings.
• Used Connect X300 to integrate data from BACnet and Modbus devices for the first building.
• Used Siemens Connect Box for the second building to handle data from various vendors and protocols.
• Used Siemens Connect X200 for the third building with only Modbus devices.

Step 2: Benefits of cloud connection

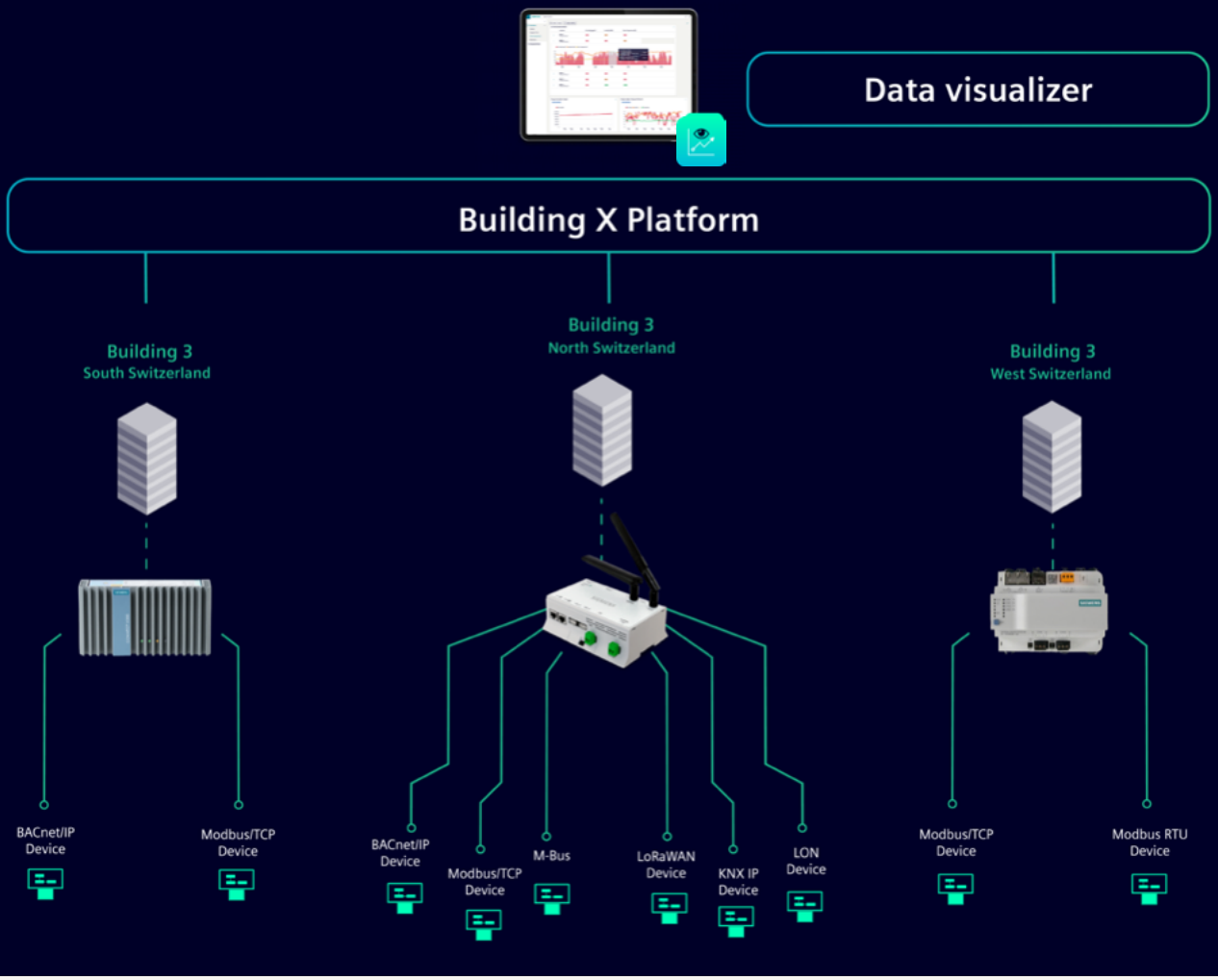
• Unified Visualization: Access to data from all buildings in one place with customizable dashboards.
• Data Analysis: Easy analysis and creation of custom widgets for insights.
• KPI Monitoring: Monitoring important metrics like tenant comfort and equipment status with clear KPIs.



Outcome

By using Building X, the company achieved significant improvements in data management and operational efficiency:

Unified data view: Consolidated data from all buildings into one platform.
Improved data analysis: Enhanced ability to analyze data and create insightful reports.
Effective KPI monitoring: Better monitoring of critical metrics, ensuring optimal building performance.



Example topology

Benefits

In summary, the real estate company successfully addressed its challenges by leveraging Building X solutions. They now have a single platform to visualize and analyze data from all buildings, leading to better decision-making, efficient operations, and improved tenant comfort. Building X has provided a robust framework for data integration and management, preparing the company for future digital enhancements.

What's in for our customer:

Enhanced connectivity: Efficient onboarding and lifecycle management of building data.

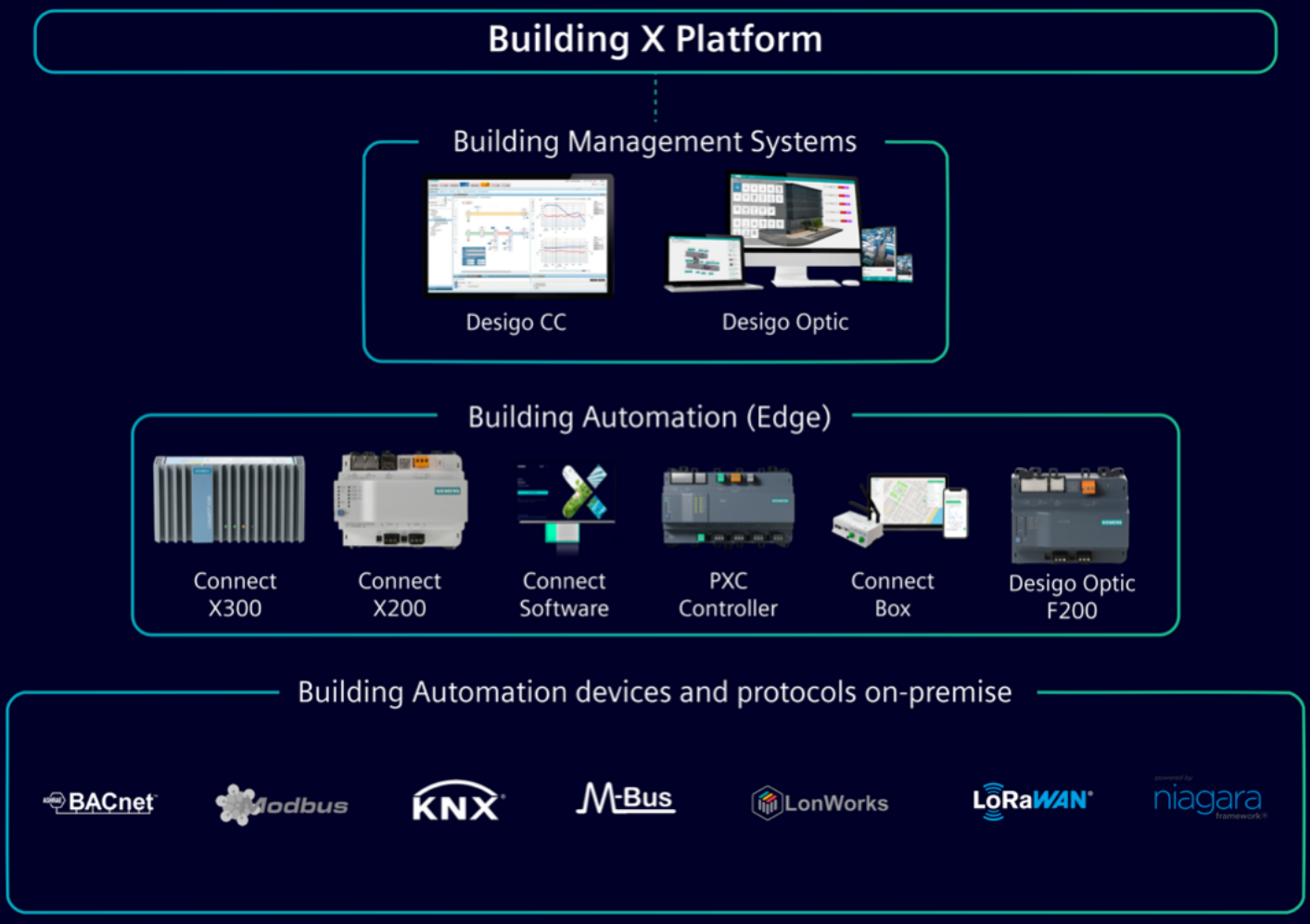
Comprehensive data structure: Includes locations, equipment, data points, and geometries for diverse applications.

User empowerment: Enables logical structuring of connected data points and seamless integration of digital twin aspects.

By leveraging Building X, the museum has significantly improved its operational efficiency, ensuring optimal conditions for its exhibits and reducing operational costs.

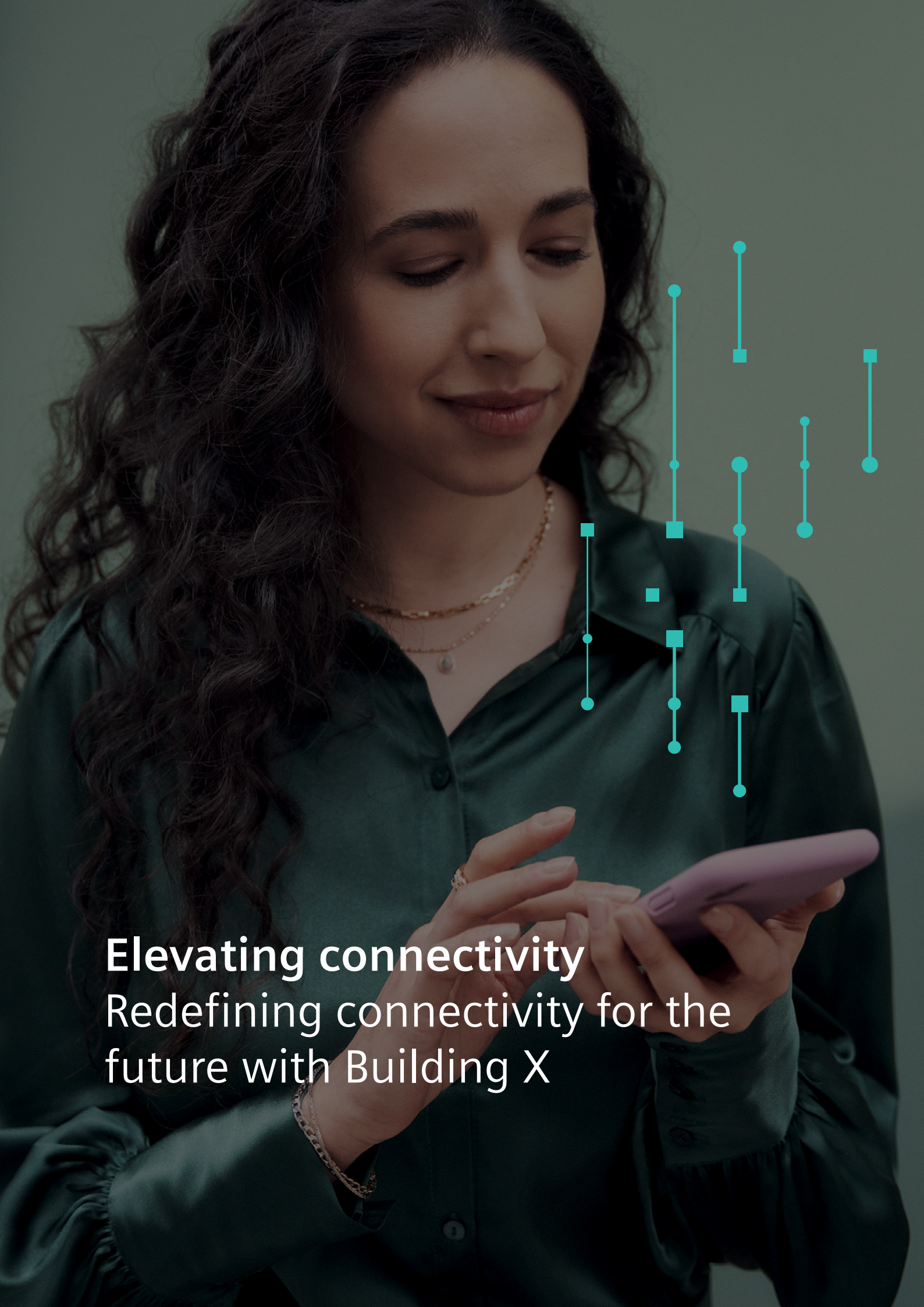
How our customers **are realizing their use cases**

Connecting Siemens as well as third-party data to the cloud represents a strategic move for all organizations seeking a competitive edge through data-driven insights. Embracing the capabilities of cloud platforms facilitates a more holistic understanding of markets and customers, driving informed decision-making and fueling innovation in today's dynamic business landscape. Our connectivity portfolio is enabling the smooth transition to the cloud and is supporting your journey towards a smarter, remotely managed building automation.



"We chose Building X to unify a complex, heterogenous data landscape including building management and equipment data. The deciding factors for us were fast onboarding and implementation, vendor-agnostic connectivity, and a high degree of scalability. We now use **Building X** to manage the sustainability and operational KPI's of our customers Buildings.

Korbinian Völkl
Owner of Völkl-Mess-Steuer-Regeltechnik



Elevating connectivity

Redefining connectivity for the future with Building X

Connectivity portfolio

In the dynamic landscape of smart building technologies, Siemens proudly presents its comprehensive suite of offerings designed to revolutionize the way buildings are managed and operated.

As we navigate through the intricate web of connectivity and automation, our solutions stand at the forefront, offering unmatched flexibility, scalability, and interoperability. This chapter delves into the specifics of our product portfolio, from cutting-edge edge gateways to versatile building management systems, all meticulously engineered to seamlessly integrate Siemens and third-party systems. Whether you're looking to connect legacy equipment to the cloud or implement state-of-the-art IoT applications, our offerings are tailored to meet the diverse needs of modern infrastructures, ensuring that your buildings are not just smart, but also sustainable, efficient, and future-ready. Join us as we explore how Siemens is redefining the possibilities of building automation, making it easier than ever to unlock the full potential of your assets.

BMS connectors

Product Series	BACnet /IP	BACnet SC	Modbus /IP	Modbus RTU	P2	File data	Niagara (Haystack)	KNX	KNX PL-Link	SNMP	OPC UA	LoRaWAN	Modbus	M-Bus	LON	LBP	Diematic	Simatic S7	IEC
Connect X200	●		●	●	●	●													
Connect X300	●		●		●	●													
Optic F200	●		●	●			●	●		●	●								
Connect Box	●							●				●	●	●	●	●	●		
PXC 4	●	●	●	●					●	●				●					
PXC 5	●	●	●	●					●					●					
PXC 7	●	●	●	●					●					●					
Desigo CC (customer network)	●		●					●			●			●				●	●

Siemens Connectivity product series feature set table

Connectivity portfolio

Connect Siemens and 3rd party building automation systems with an Edge gateway

Siemens Connect X200

Option 1: Wired connection to Siemens Connect X200 (hardware on customer network).

Siemens Connect X200 uses software technology that is remotely managed by Siemens.

Capacity
A single gateway can collect point data from Building Automation Systems and stream history data of 5’000 points continuously to Siemens Building X Cloud at user-defined time intervals. Capacity might vary depending on the connector used in the gateway.

Siemens Connect X300

Option 2: Wired connection to Siemens Connect X300 (hardware on customer network).

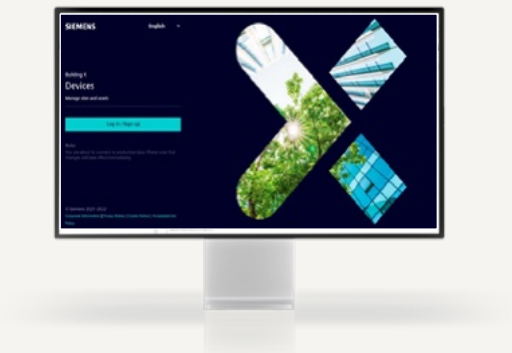
Siemens Connect X300 uses software technology that is remotely managed by Siemens. Supports the following networking capabilities.

Capacity
A single gateway can collect point data from Building Automation Systems and stream history data of 15’000 points continuously to Siemens Building X Cloud at user-defined time intervals. Capacity might vary depending on the connector used in the gateway.

Connectivity portfolio

Connect Siemens and 3rd party building automation systems with an Edge gateway

Connect Software



Option 3: Install Connect Software on Windows machine (hardware on customer network).

Siemens Connect Software uses software that is remotely managed by Siemens.

Capacity
A single gateway can collect point data from Building Automation Systems and stream history data of 15'000 points continuously to Siemens Building X Cloud at user-defined time intervals. Capacity might vary depending on the connector used in the gateway.

Siemens Desigo Optic F200

Siemens Desigo Optic F200 uses software technology that is remotely managed by Siemens.

Option 4: Wired connection to Siemens Optic F200 (hardware customer network).

Capacity
A single gateway can collect point data from Building Automation Systems and stream history data of 5.000 points continuously to Siemens Building X Cloud. Capacity might vary depending on the connector used in the gateway.points continuously to Siemens Building X Cloud at user-defined time intervals. Capacity might vary depending on the connector used in the gateway.

Connectivity portfolio

Connect Siemens and 3rd party building automation systems with an Edge gateway

Siemens Connect Box

Option 5: Wired connection to Siemens Connect Box (hardware on customer network).

Siemens Connect Box is a powerful IoT device that combines the essential functionality of a gateway, controller, and a modem in a single device.

Capacity
A single gateway can collect point data from Building Automation Systems and stream history data of 5.000 points continuously to Siemens Building X Cloud at user-defined time intervals. Capacity might vary depending on the connector used in the gateway.

Siemens PCXC4

Option 6: Wired connection to Siemens PXC 4 (hardware on customer network).

Siemens PXC4 is an IoT freely programable automation station for HVAC and building service plants.

Capacity
A single automation station can collect point data from Building Automation Systems and stream history data of 100 points continuously to Siemens Building X Cloud. Capacity might vary depending on the connector used in the gateway.

Connectivity portfolio

Connect Siemens and 3rd party building automation systems with an Edge gateway

Siemens PXC5

Option 7: Wired connection to Siemens PXC 5 (hardware customer network).

Siemens PXC5 is an IoT freely programable automation station for HVAC and building service plants.

Capacity
A single automation station can collect point data from Building Automation Systems and stream history data of 500 points continuously to Siemens Building X Cloud. Capacity might vary depending on the connector used in the gateway.

Siemens PCXC7

Option 8: Wired connection to Siemens PXC 7 (hardware on customer network).

Siemens PXC7 is an IoT freely programable automation station for HVAC and building service plants.

Capacity
A single automation station can collect point data from Building Automation Systems and stream history data of 1000 points continuously to Siemens Building X Cloud. Capacity might vary depending on the connector used in the gateway.

Connectivity portfolio

Connect building management systems

Siemens Desigo CC

Option 1: Siemens Desigo CC (customer network).

Siemens Desigo CC has built-in support for the following protocols plus additional extensions (refer to the product documentation).

Capacity
A single software instance can collect point data from Building Automation Systems and stream history data of 15’000 points continuously to Siemens Building X Cloud.

Summary

With Building X, the first next gen offering designed and built as part of Siemens Xcelerator, unlocking the power of Cloud Services in IoT becomes easier and more user-friendly than ever before. It starts with vendor agnostic connectivity consisting of both flexible and scalable solutions to bring your resources securely to the cloud. Integration of existing and new assets as well as legacy applications and ecosystems are paving the way for significant reductions in initial investments and additional costs.

The Cloud Connectivity services of Building X are designed in an open architecture format where all data from IoT building systems are bought together in a single data pool.

The open, scalable, and modular platform enables integration of data from third party sources for a single building or the entire portfolio.

Siemens Xcelerator is an open digital business platform that enables digital transformation faster and at a larger scale.

It is based on four principles:
Interoperable: digital thread framework for universal data access.
Flexible: low-code environment for easy customization of solutions.
Open: standardized APIs for powerful data analysis.
As a service: Latest technology on a subscription basis.

Let us show you how we can connect your buildings!

Book your Demo now

Published by
Siemens Switzerland Ltd

Smart Infrastructure
Global Headquarters
Theilerstrasse 1a
6300 Zug
Switzerland
Tel +41 58 724 24 24

Disclaimer:
The products presented in this paper may not be currently available in your region. While we strive to provide accurate and up-to-date information, availability of products can vary by location and market conditions. We advise readers to verify product availability with local Siemens offices before making any purchasing decisions.