Building Systems Integration

Introduction to Building Systems Integration

Buildings today are equipped with a diverse range of systems, subsystems, and equipment to control heating, ventilation, air conditioning (HVAC), energy management, lighting, elevators, parking systems, access control and more. Effective integration between these systems is critical to maximize building performance, reduce costs and achieve the health, safety and comfort levels demanded in modern, dynamic business environments.

Building operators and facility management personnel have a great deal of responsibility in ensuring the reliability and performance of a property's core building operating systems. It can get tricky and complex to control the usage, performance, cost, and maintenance of multiple systems. From HVAC to lighting, security, IAQ, occupancy and more, all the systems should be calibrated properly to function together and at their highest efficiency and performance levels. Unfortunately, this oftentimes isn't the case. It can be difficult to connect, control and adjust multiple systems to work together. Imagine the ability to integrate the functions of each of these system disciplines into one, unified platform and reaping incredible benefits while doing so.

Integration is the answer.

Benefits of Building System Integration

Let's start with the question "what is integration within a building automation system (BAS) environment?" An integrated BAS is one in which a platform connects, communicates, calibrates, and enhances the control of a building's different operational systems into a single, 2-way, cohesive network, and programming configuration. You name it, HVAC, lighting, packaged equipment, metering, sensors, video cameras, audio visual, mechanical, etc. it's all integrated into a single, unified control structure. Today's system integration includes all the operational systems within a building, but also can encompass facility management systems, workplace applications and can extend to utility grids.

Integration is an increasingly practical way for facility and property executives to achieve a range of operational and business benefits, from increased comfort to health and safety, to greater energy efficiency and sustainability to improved maintenance performance and productivity and reduced costs.

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System integration delivers tangible benefits for both new and existing buildings. By linking systems together, facility managers can obtain system capabilities that the systems could not do separately.

BAS integration serves as a solution capable of aggregating and analyzing the multiple sources of data required to oversee the function of an entire building. The operator isn't limited to simply looking at data from one building system; rather, a database with multiple systems is created so data can be analyzed and correlated, and useful building metrics can be developed, which leads to enhanced operations. Bringing all the building data into a unified database and putting it into practice using standard methodologies and processes to manage the data has multiple benefits. The data becomes more widely available, sharable, and accessible. There's also improvement in the data's integrity as well as analytics and storage. Furthermore, from a cost perspective, a single database reduces the cost and support for synchronizing separate databases. It provides a common platform for data mining, access, exchange, and archiving. There are many reasons why building operating systems should be integrated.

From the Operational Side:

- Better command and control
- Accurate data and insight to make critical operational decisions
- Makes legacy systems part of an integrated BAS network- "Embrace not Replace"
- Energy management and energy savings
- Lower installation costs and lower failure rates and downtime
- Increases equipment lifespan
- OEE (Overall Equipment Effectiveness)
- Asset protection
- Access on-site or remote location accessibility
- Enhances occupant experience
- Space utilization and efficiency
- Increases data analytics and fault detection
- Enables application sharing of data from one system to another
- Empowers sustainability and stewardship goals
- Improves productivity of operations staff
- Improves response times
- Single data repository
- Enhances troubleshooting capabilities

From the Business Side:

- Bridges the information gap with the necessary intelligence and insight to make critical business decisions
- Preserves investment in legacy systems
- Risk Mitigation
- Best practices for management of a portfolio of facilities
- ESG (Environmental, Sustainability, Governance)
- Improves capital planning
- Reduction of OPEX; Lower CAPEX
- Increases asset value
- Property marketability
- Operations efficiency and performance- streamlines operations and management
- Optimizes TCO
- Enables smarter buildings and facilities

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The Niagara Framework

The most widely used building integration platform is the Niagara Framework. With over a million instances deployed globally and a trusted platform, Niagara is the universal standard in Building Automation Integration Software. Niagara integrates building systems and enterprise applications into one automation infrastructure for daily operation, maintenance, and engineering. It enables the extraction and exchange of data to help manage and control building operations and to run at optimal performance and energy efficiencies. The unique strength of the Niagara Framework is its ability to easily integrate multiple disparate systems and devices from different manufacturers, support all the open standard network protocols used in buildings today and normalize all the data within them. Niagara creates a common environment that connects to almost any system or equipment, regardless of manufacturer or communication protocol. It integrates different building systems and allows establishment of automatic rules which allow multiple systems to interact with each other. Niagara normalizes the data contained within the equipment and devices and integrates systems and devices in other types of applications as it is not just confined to buildings related use.

By integrating today's diverse building systems, the Niagara Framework is creating better buildings---ones that are smarter, use less energy, are more efficient, have lower operating costs, are safer and contribute to a sustainable environment.

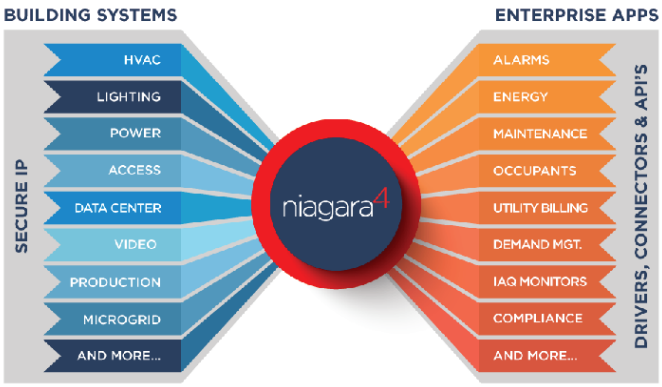

Image courtesy of Tridium

What is Niagara?

- A powerful and flexible software framework platform specifically designed for real time building automation control and integration
- A software platform that connects different components, operating systems and applications together
- Universal Building Automation Software that integrates building systems and enterprise applications into one automation infrastructure for daily operation, maintenance, and engineering
- Merges multi-vendor automation systems, internet-enabled infrastructure, and real-time enterprise integration into one single, scalable, extensible platform solution
- Enables the extraction and exchange of data to help manage and control building operations and to run at optimal performance and energy efficiencies
- The unique strength of the Niagara Framework is its ability to easily integrate disparate multiple systems and devices and supports all the open standard network protocols used in buildings today and normalize all the data within them

What Does it Solve?

- The integration of proprietary and otherwise incompatible products into a unified enterprise solution within any facility
- The synchronization, management, and control of major building systems such as heating, ventilating, and air conditioning (HVAC) systems, energy, lighting, security, fire, safety
- Increases the functionality and value of building equipment and systems
- Meets the need for open standards, open protocols, open systems

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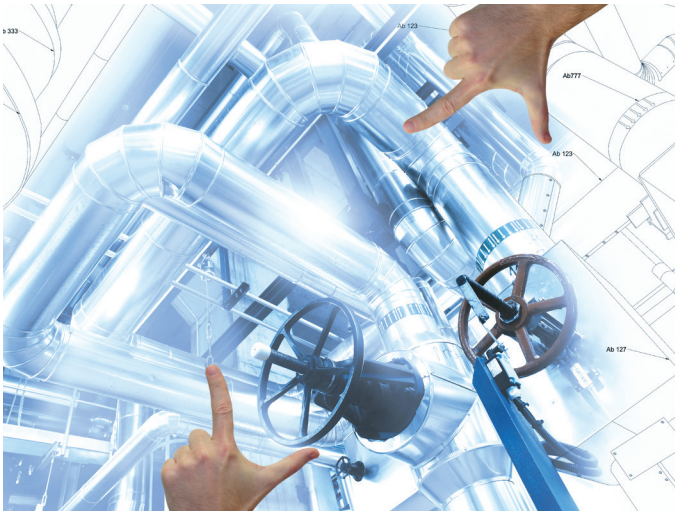

Niagara and the Advantages of Integration

With respect to integration, Niagara integrates different systems in the building and enables the establishment of a set of automatic rules which allow these multiple systems to become interoperable and interact with each via one single unified system. The result is a building that is more flexible, efficient, and adaptive.

Niagara can integrate a wide variety of system and equipment types. These can include air handling units, lighting, standby generators, chillers, UPS, fire systems and other building equipment.

Niagara supports all widely used open standard network protocols with a wide range of legacy drivers available for both individual buildings as well as portfolio-level management. It can also be used to integrate systems and devices in other types of application since its capabilities are not confined to buildings related use.

What Can it do for You?

The single most valuable result of adopting the Niagara Framework is that the Niagara architecture puts users in control of their facilities, letting them choose the products they want, with the features they need, from the vendors who perform to their expectations. The Framework allows end-users to quickly reconfigure their control systems dynamically over the internet in response to changing needs. End-users do not have to settle for a compromise solution selected from traditional, one-size-fits-all automation products that never fully solve unique control problems.

The benefits of adopting the Niagara Framework as an integration solution include:

- Eliminates the need to replace existing systems
- Removes the burden of being locked in to one provider or manufacturer
- Enables the real-time access, collection and exchange of data and the sharing of information between the building systems and the enterprise
- Automates the many services required to manage and operate a facility including the environment, lighting, energy management and security access control, workplace and more
- Provides the openness that is in demand today
- Successful integration of multi-vendor building automation products
- Seamless integration of BAS data with enterprise information systems
- Can be deployed in any type of commercial facility-office buildings, retail, schools/ universities, churches, medical, and industrial, government, whether single or multi-site

Summary

Today, integration is an increasingly practical way for building owners, operators, and facility executives to achieve a range of benefits, from increased comfort to health and safety, to greater energy efficiency and improved operational performance and productivity.

Lynxspring offers a comprehensive portfolio of Niagara-built programmable and application specific controllers, solutions, and services that deliver and support the integration and interoperability of today's building systems and equipment. Embracing open software and hardware platforms, Lynxspring develops, manufactures, distributes, and supports edge-to-enterprise solutions and IoT technology that creates smart buildings, smart equipment, and smart applications. The company's technologies and solutions provide the connectivity, control, integration, interoperability, data access and management and analytics enabling users to extract insight, value, and outcomes from operational data.

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More information about Lynxspring is available at: https://www.lynxspring.com/

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