



Niagara Update N4 & Niagara Analytics

January 19, 2018 | The Langham Luxury Hotel, Chicago, IL

Agenda

- **Niagara 4 Product Updates**
- **Access and Security Product Updates**
- **Niagara Cloud**
- **Niagara Analytics**
- **Estimating**
- **Q&A**

Key Tridium Team Members

- **Nate Kehr – Business Development Manager**
- **Ed Merwin – Channel Team Leader**

At ASHRAE

- **Jim Bland – President & GM Tridium**
- **Ken Schmidt – VP Global Sales**
- **James Johnson – Niagara Technical Expert**
- **And a host of others**

As of December 2017



INSTANCES OF
niagara
WORLDWIDE

642711

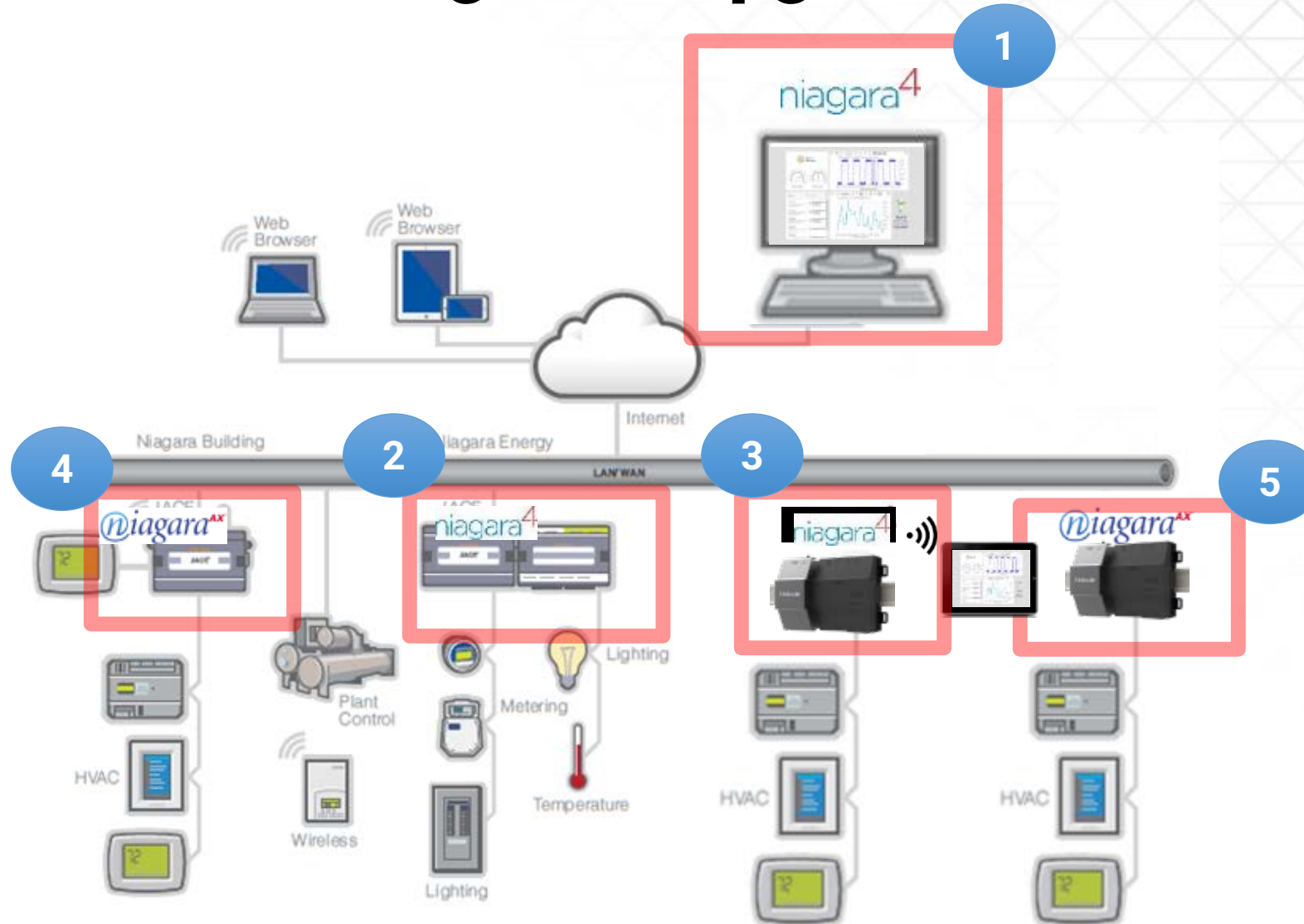


Niagara 4 Update

Niagara AX-Niagara 4 compatibility

- **Network compatibility**
 - **Systems can have mix of Niagara AX and Niagara 4 JACES**
 - **Niagara Network will work between Niagara AX and Niagara 4**
- **Station conversion tools**
 - **Tool to convert Niagara AX stations to Niagara 4 stations**
 - **N4 resource checker helps upgrading existing JACEs**
 - **Many 3rd party drivers and other modules have been converted to Niagara 4**
 - **Tool included with Niagara4 builds (n4mig.exe)**
- **Developer APIs**
 - **Rare opportunity improve Niagara APIs**
 - **Developers will have to re-compile/re-factor their modules for Niagara 4**
 - **Most modules will only require minor re-factor for developers**
 - **N-driver driver framework supported – others deprecated**
- **Hardware**
 - **Runs on any JACE w/ hotspot VM (J3, J6, J6E, J7)**
 - **Runs on the JACE 8000**

Niagara AX to Niagara 4 Upgrade Path





Niagara 4.4 and beyond

Niagara 4.4 Current Release (Long Term)

Feature	
Single Sign On – Supporting an Existing SAML Authentication Scheme	Usability improvement to allow users to log into one stations in their enterprise and then have access to other station without having to re-authenticate.
Improve Performance – System & UI <ul style="list-style-type: none">• Hierarchy• Tag Dictionary Optimization• Charting	Ensure the frameworks is performing as optimally as possible. Significant improvement to Web Server page loads
Template Enhancements	Enhances the core Niagara Framework and provides foundational support to Niagara Edge.
HTML 5 Progression <ul style="list-style-type: none">• HTML5 Alarm Console• HTML5 Scheduler	Continue work on Bajaux Field Editors, Manager Views, and improvements to Alarm Console and Scheduler.
Security	Ensure the Niagara Framework is held to the highest security standards.

Last minor build for Legacy JACEs

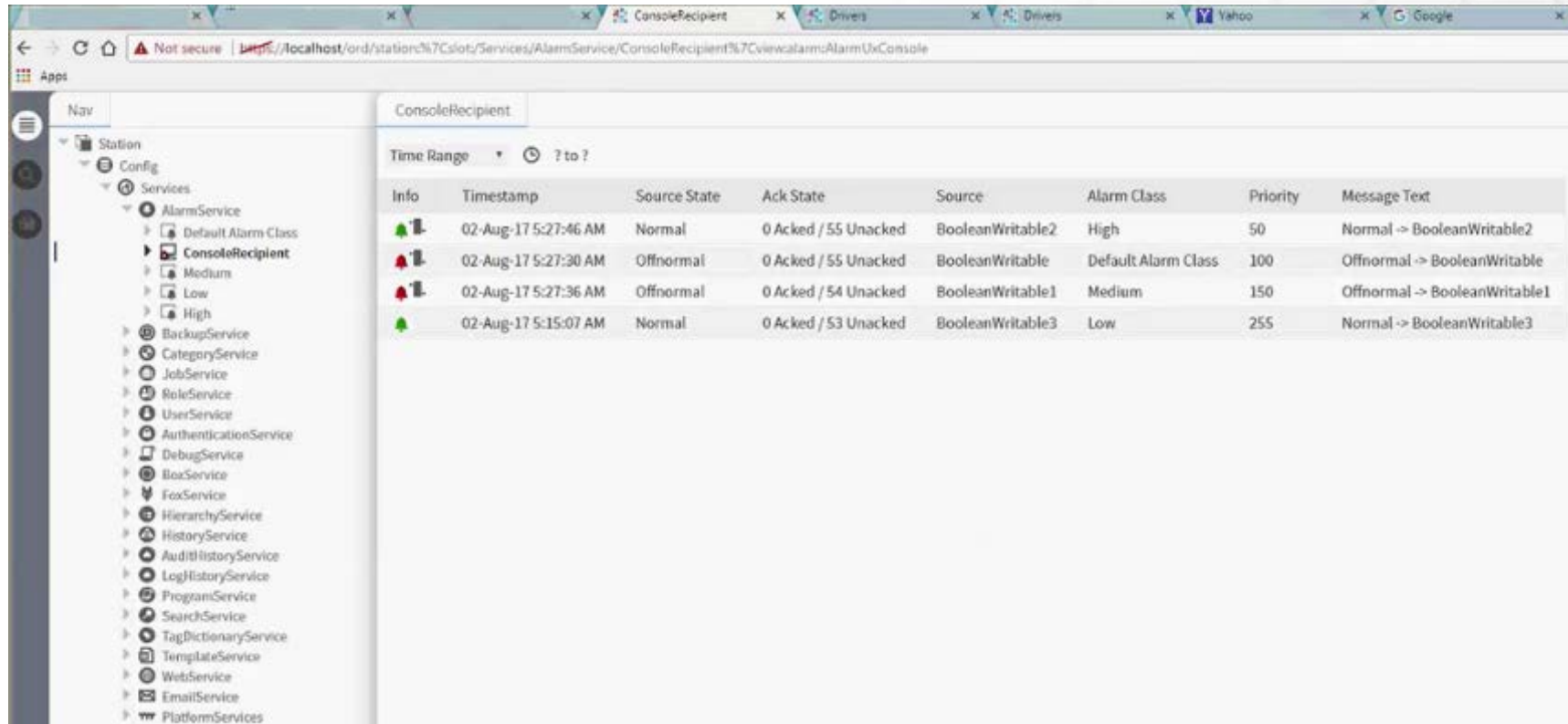


Niagara 4.5/4.6 Feature Set Goals

Feature	
Single Sign On – Support using an Internal SAML Authentication Scheme	Usability improvement to allow users to log into one stations in their enterprise and then have access to other station without having to re-authenticate.
System Search & Hierarchies via a Supervisor (aka Enterprise Search)	Provide an on premise solution for end users and system integrators to easily navigate through their entire Niagara Network.
Guest Account	Allow users to enable a “guest” mode for use in kiosks and digital signage.
HTML 5 Progression	Improve mobile user experience and support
FIPS 140-2 in N4	Unlocks the ability to sell into the federal govt.
Security	Ensure the Niagara Framework is held to the highest security standards.

Alarm Console Update

4.4



The screenshot shows a web browser window displaying the Niagara Alarm Console. The URL is `https://localhost:ord/stationc%7Cslot/Services/AlarmService/ConsoleRecipient%7CviewalarmAlarmUxConsole`. The interface includes a navigation pane on the left with a tree view of services, and a main content area showing a table of alarm events. The table has columns for Info, Timestamp, Source State, Ack State, Source, Alarm Class, Priority, and Message Text. There are four rows of data, each with a status icon (green for Normal, red for Offnormal).

Info	Timestamp	Source State	Ack State	Source	Alarm Class	Priority	Message Text
	02-Aug-17 5:27:46 AM	Normal	0 Acked / 55 Unacked	BooleanWritable2	High	50	Normal -> BooleanWritable2
	02-Aug-17 5:27:30 AM	Offnormal	0 Acked / 55 Unacked	BooleanWritable	Default Alarm Class	100	Offnormal -> BooleanWritable
	02-Aug-17 5:27:36 AM	Offnormal	0 Acked / 54 Unacked	BooleanWritable1	Medium	150	Offnormal -> BooleanWritable1
	02-Aug-17 5:15:07 AM	Normal	0 Acked / 53 Unacked	BooleanWritable3	Low	255	Normal -> BooleanWritable3

- **HTML 5 Alarm console available in Niagara 4.4**
- **Faster than Workbench in most cases**
- **Ability to filter, acknowledge, etc...**

Scheduler Update

4.4

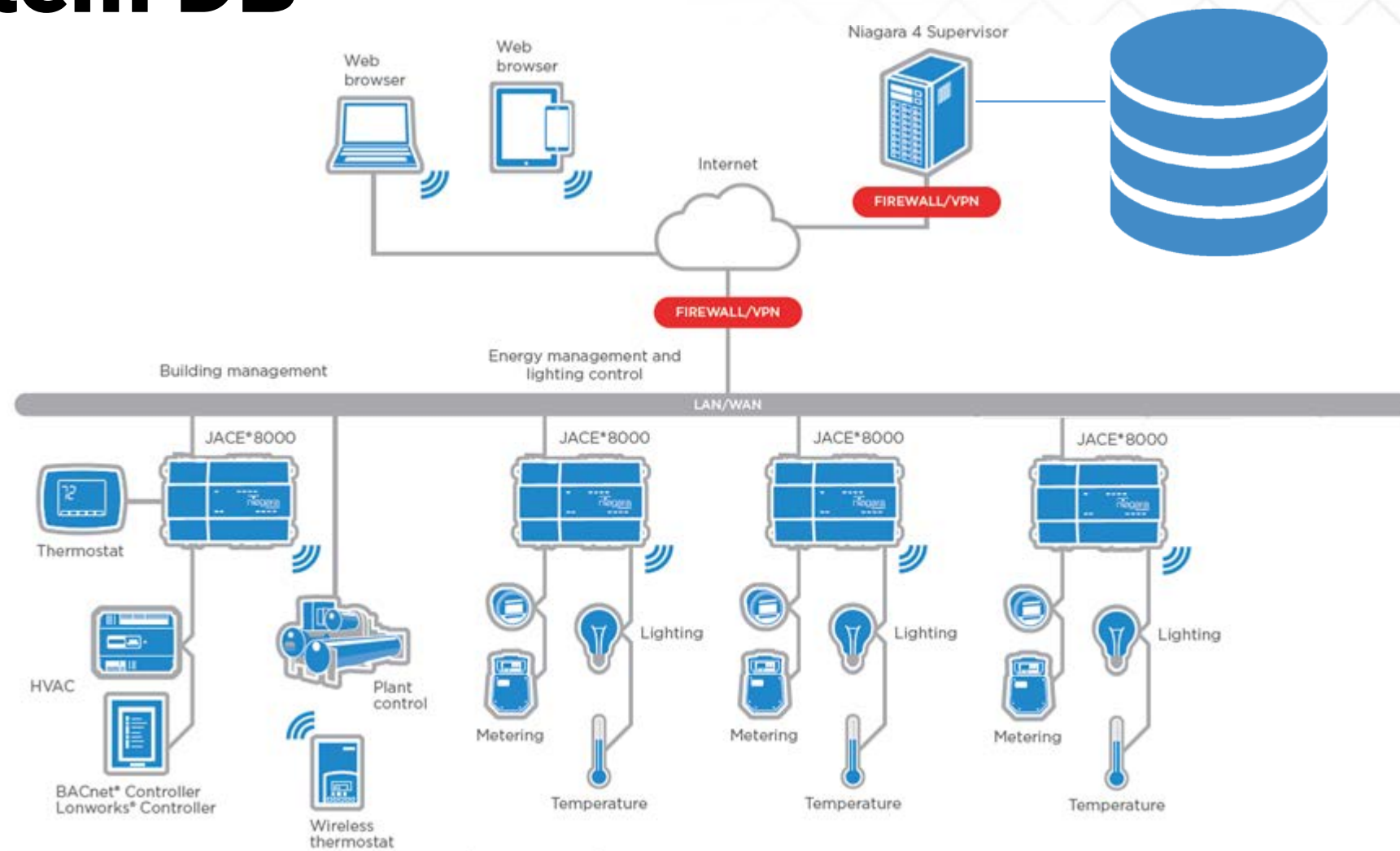
The screenshot displays the Niagara 4.4 Web Scheduler interface. The browser address bar shows the URL: localhost/ord/station:%7Cslot:/nccb26655/EnumDefaultColors%7Cview:schedule:WebScheduler. The interface includes a navigation pane on the left with a tree view showing the project structure, including 'Station', 'Config', 'Services', 'Drivers', 'Apps', 'simples', 'Admin Write', 'Folder', and 'nccb26655'. Under 'nccb26655', 'EnumDefaultColors' is selected. A 'Palette' at the bottom left lists various schedule types like 'alarm', 'bacnet', 'baja', 'control', 'email', 'history', 'kitControl', 'schedule', 'BooleanSchedule', and 'EnumSchedule'. The main area shows a 'Weekly Schedule' grid for 'EnumDefaultColors' with tabs for 'Weekly Schedule' and 'Special Events'. The grid has columns for days of the week (Sun to Sat) and rows for time slots (3:00 AM, 6:00 AM, 9:00 AM, 12:00 PM, 3:00 PM, 6:00 PM, 9:00 PM). Each cell contains a schedule name and its active time range. A large number '12' is overlaid on the 12:00 PM slot for Sunday.

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
3:00 AM	Analog Input 12:00 AM - 3:00 AM	Device 12:00 AM - 3:00 AM	Program 12:00 AM - 3:00 AM	Pulse Converter 12:00 AM - 3:00 AM	Access Credential 12:00 AM - 3:00 AM	Character String Value 12:00 AM - 3:00 AM	Positive Integer Value 12:00 AM - 3:00 AM
6:00 AM	Analog Output 3:00 AM - 6:00 AM	Event Enrollment 3:00 AM - 6:00 AM	Schedule 3:00 AM - 6:00 AM	Event Log 3:00 AM - 6:00 AM	Access Point 3:00 AM - 6:00 AM	Date Pattern Value 3:00 AM - 6:00 AM	Time Pattern Value 3:00 AM - 6:00 AM
9:00 AM	Analog Value 6:00 AM - 9:00 AM	File 6:00 AM - 9:00 AM	Averaging 6:00 AM - 9:00 AM	Global Group 6:00 AM - 9:00 AM	Access Rights 6:00 AM - 9:00 AM	Date Value 6:00 AM - 9:00 AM	Time Value 6:00 AM - 9:00 AM
12:00 PM	Binary Input 9:00 AM - 12:00 PM	Group 9:00 AM - 12:00 PM	Multi State Value 9:00 AM - 12:00 PM	Trend Log Multiple 9:00 AM - 12:00 PM	Access User 9:00 AM - 12:00 PM	Date Time Pattern Value 9:00 AM - 12:00 PM	Notification Forwarder 9:00 AM - 12:00 PM
3:00 PM	Binary Output 12:00 PM - 3:00 PM	Loop 12:00 PM - 3:00 PM	Trend Log 12:00 PM - 3:00 PM	Load Control 12:00 PM - 3:00 PM	Access Zone 12:00 PM - 3:00 PM	Date Time Value 12:00 PM - 3:00 PM	Alert Enrollment 12:00 PM - 3:00 PM
6:00 PM	Binary Value 3:00 PM - 6:00 PM	Multi State Input 3:00 PM - 6:00 PM	Life Safety Point 3:00 PM - 6:00 PM	Structured View 3:00 PM - 6:00 PM	Credential Data Input 3:00 PM - 6:00 PM	Integer Value 3:00 PM - 6:00 PM	Channel 3:00 PM - 6:00 PM
9:00 PM	Calendar 6:00 PM - 9:00 PM	Multi State Output 6:00 PM - 9:00 PM	Life Safety Zone 6:00 PM - 9:00 PM	Access Door 6:00 PM - 9:00 PM	Network Security 6:00 PM - 9:00 PM	Large Analog Value 6:00 PM - 9:00 PM	Lighting Output 6:00 PM - 9:00 PM
	Command 9:00 PM - 12:00 AM	Notification Class 9:00 PM - 12:00 AM	Accumulator 9:00 PM - 12:00 AM	Unassigned31 9:00 PM - 12:00 AM	Bitstring Value 9:00 PM - 12:00 AM	Octet String Value 9:00 PM - 12:00 AM	null 9:00 PM - 12:00 AM

HTML 5 Scheduler available in Niagara 4.4

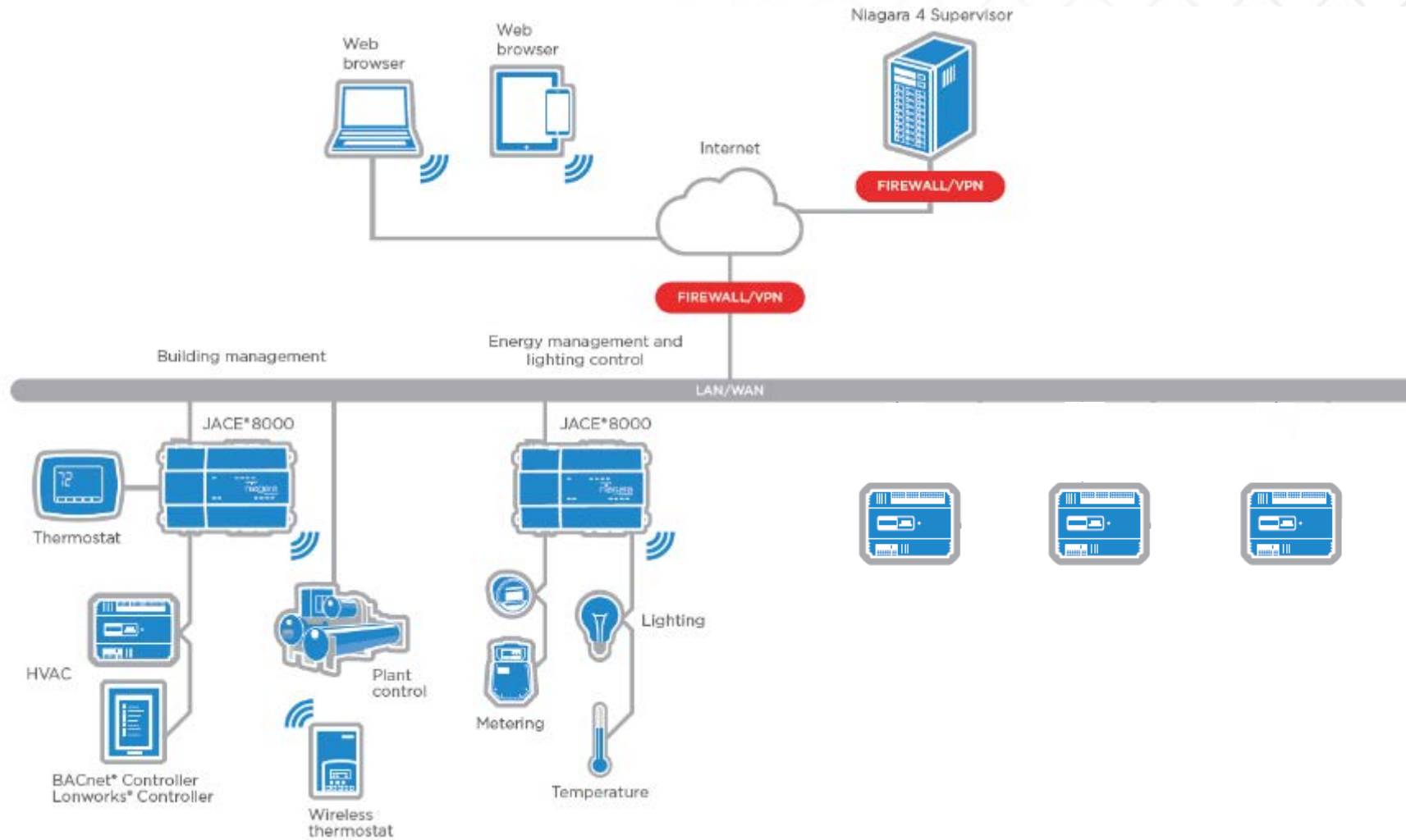
- Support added for active dates and trigger schedules
- Customized through CSS and lexicons

System DB



Niagara Edge Tools – Auto Join

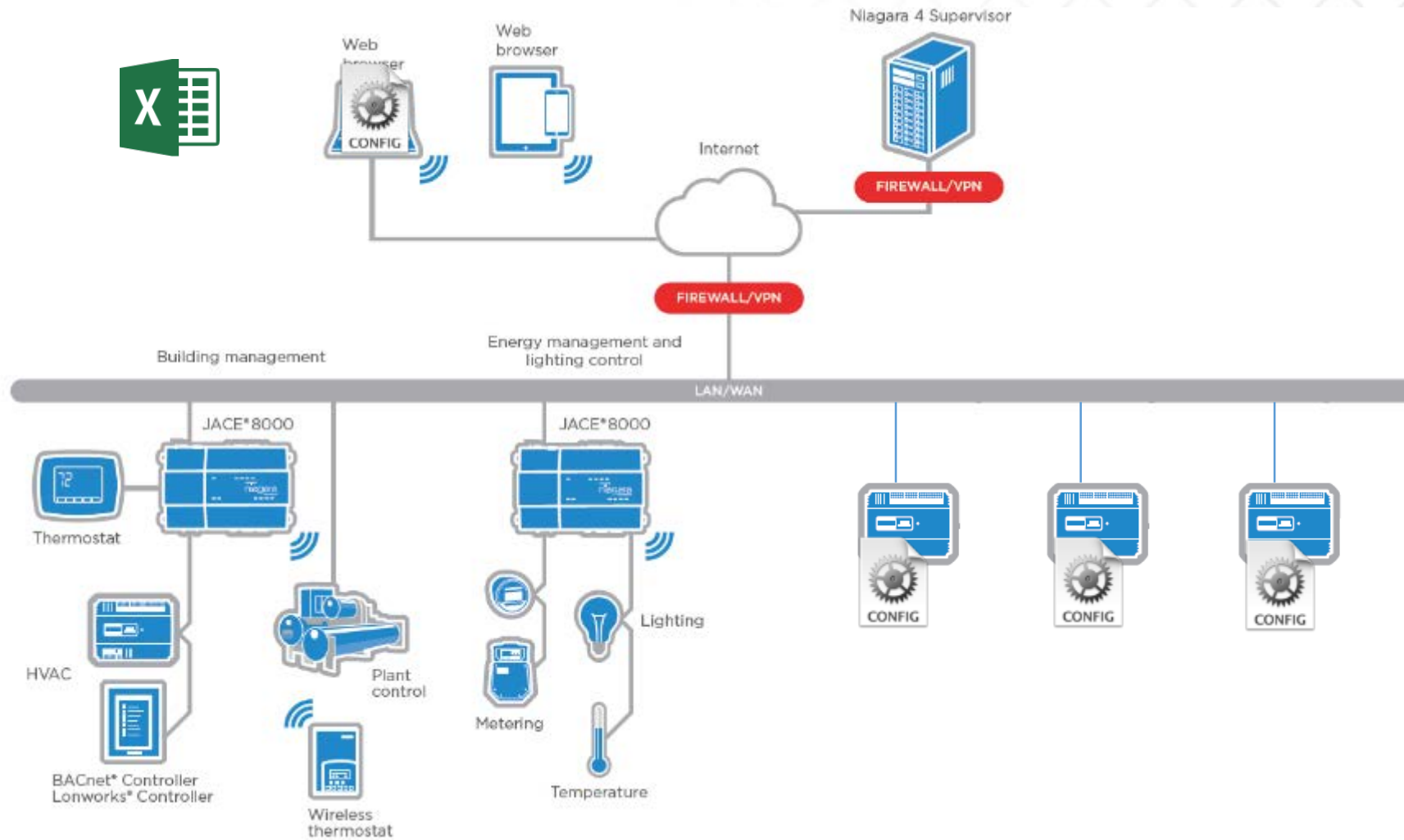
4.6



Niagara Edge Tools

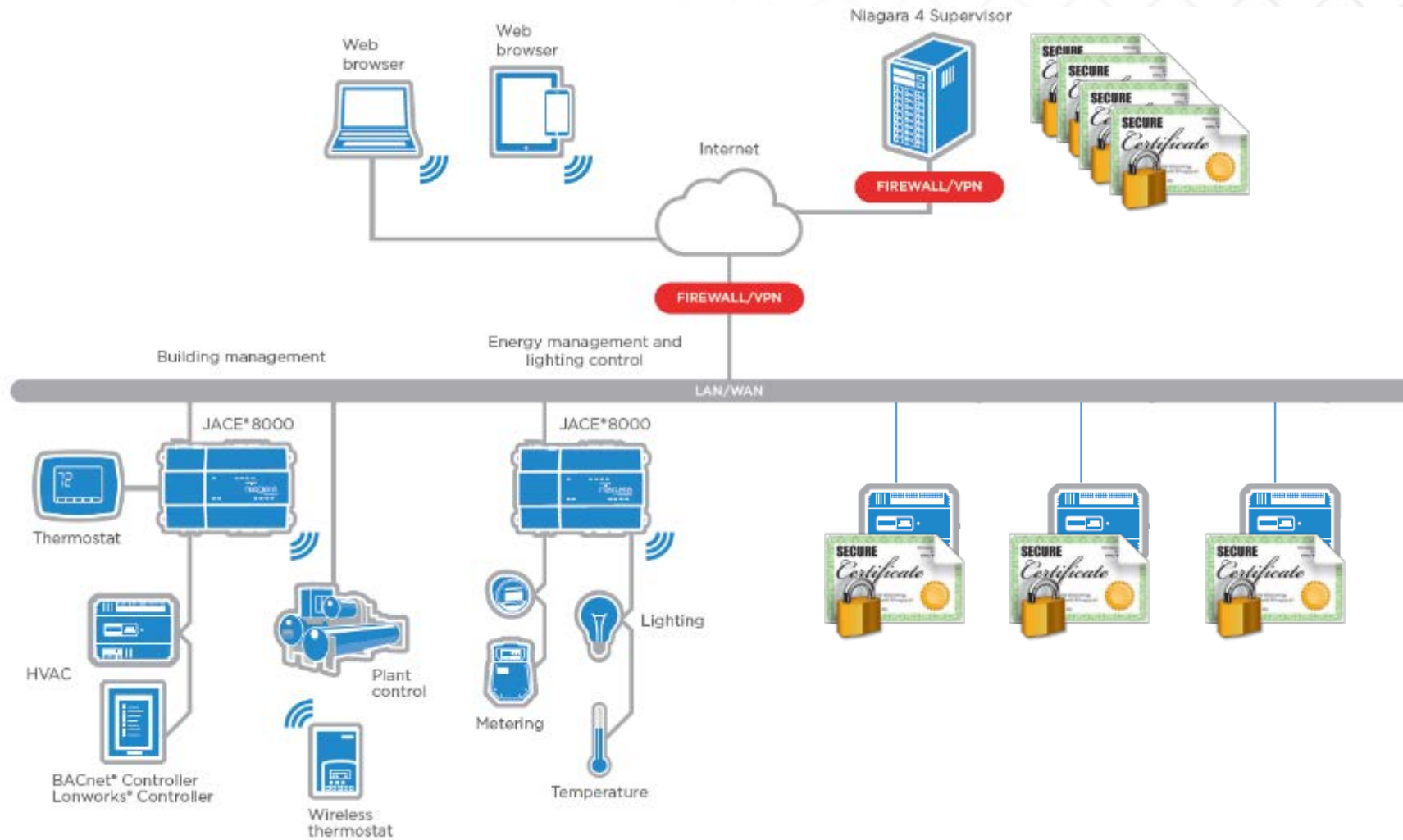
Config Updates

4.6



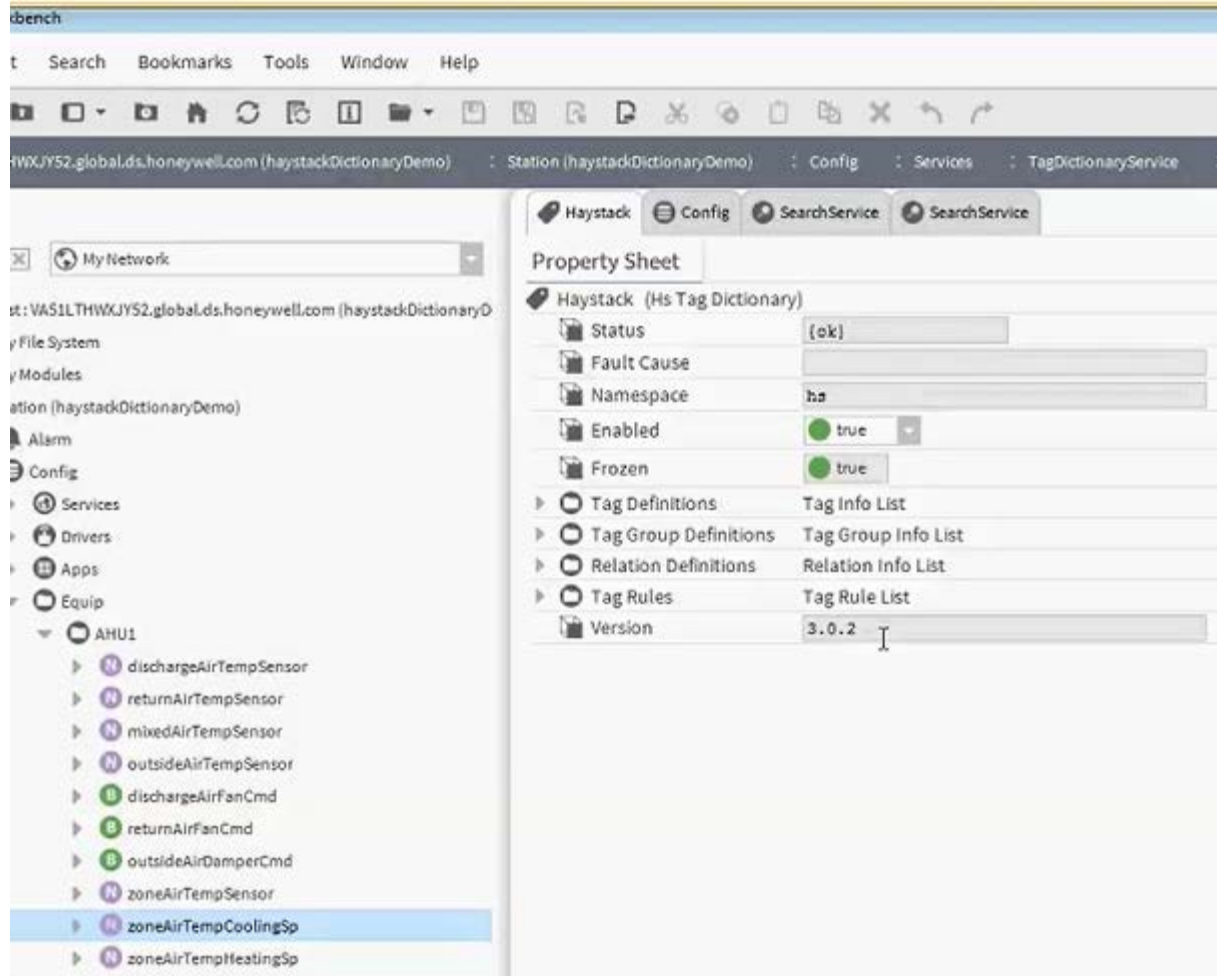
Niagara Edge Tools – Certificate Mgmt

4.6



Haystack Updates

4.4



Haystack dictionary updated to 3.0.2 in Niagara 4.4

Outdated tags are not allowed for future use.

Outdated tags are still usable.



Jace Equipment Controller

JEC - 834

JEC-834

- Replacement platform for JEC-234 and JEC-334!
- Package includes:
 - JACE 8000
 - IO R 34
 - Licensed for:
 - Standard open drivers
 - Drivers Licensed for 0 devices & 6 points
 - Requires Niagara 4.3 or higher.





Enterprise Security Roadmap

Enterprise Security Roadmap

- **Enterprise Security 2.3 U1 – Released June 2017**
 - **Release of database API – LDAP integration, rdbms integration for databases such as PeopleSoft, etc.**
 - ***Easy Lobby Visitor Management Driver***
 - ***Support for Security Application on JACE 8000 platform***
 - **Updated video drivers for Milestone and Axis**
 - **Based on Niagara AX 3.8 U2**



Enterprise Security 2.4 – July 2018*

- ***Based on Niagara 4.6***
- JACE 8000 running Niagara 4.4
- All previously supported functionality
- Updated video framework API



*Note: Dates and features listed above are forward looking targets and are subject to change.

Enterprise Security Roadmap

- **Enterprise Security 3.0 – 2019***
 - **Move from Security Application to Security Platform**
 - **"Build your own UI" using security widgets and dashboard tools**
 - **Add differentiating features to your security offering using APIs and custom programs**
 - **Differentiate with your special set of integrations using APIs for security**

*Note: Dates and features listed above are forward looking targets and are subject to change



Niagara eSignature

For projects requiring secured authenticated documentation such as 21 CFR Part 11

- **Native Niagara module**
- **Converts points to secure points**
- **Creates secure point histories**
- **Actions on these points require username and password authentication**
- **Niagara based user configuration management**
- **Beta Testing Now**

Set With Authentication

Point Name: Eff_CD_SAT_SP

New Value: 85.00

Reason: Cleaning

Other Reason:

Primary Signature

Username: Operator_prod

Password: ••••••

Comment: Optional

Sign

Legal Text:

Pursuit to Section 11.100 of Title 21 the code of Federal Regulations, this to certify that <Pharma Inc > intends all electronic signatures executed by our employees, agents or representative located anywhere in the world, are the binding equivalent of traditional handwritten signature

OK Cancel



Niagara Cloud

Asset Manager

- **Organization access**
 - **User access is managed at the enterprise level**
 - **Register your organization with the asset manager as a first step to Niagara Cloud**
- **User permissions**
 - **Users**
 - **Device Manager**
 - **Organization Manager**

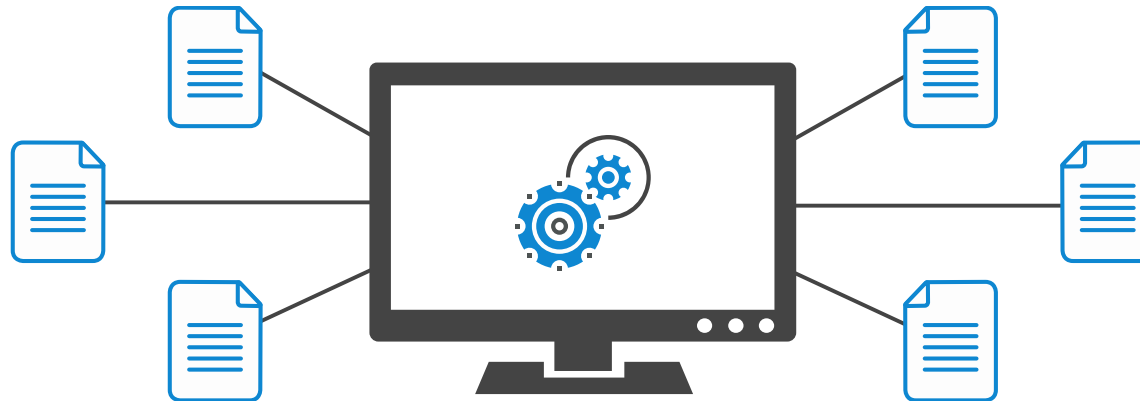




Enterprise License Management

Issues

- Management of multiple brands of Niagara Framework Licenses
- Keeping track of SMA dates and versioning
- Managing periodic Station backups

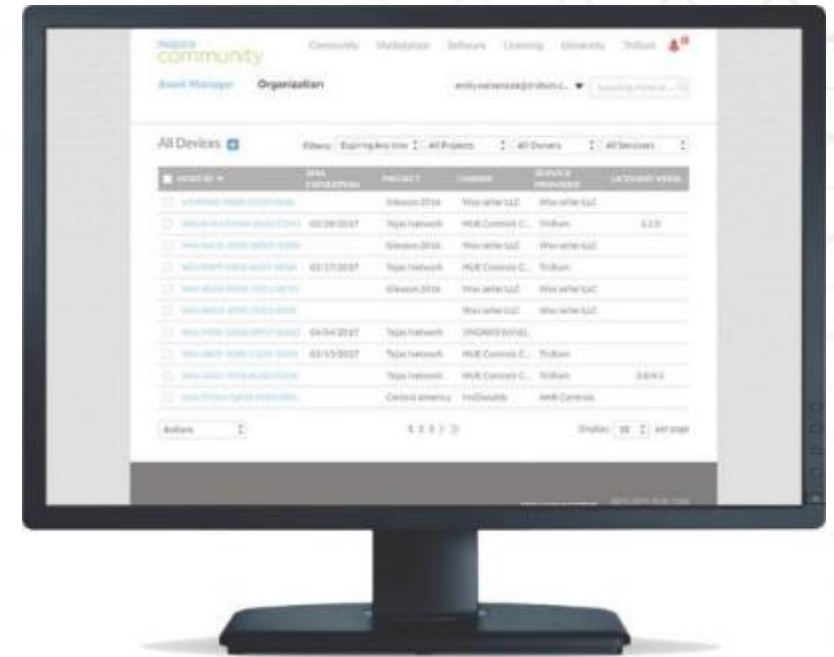


Features

- **Automatic push notifications of maintenance expirations and renewals**
- **Centralized, brand-agnostic view of all Niagara license information**
- **Easy access to specific device details through filters**
- **Access to Niagara Licensing through single log-in**
- **Access to device backups via Niagara Cloud Backup as a Service**

How it works

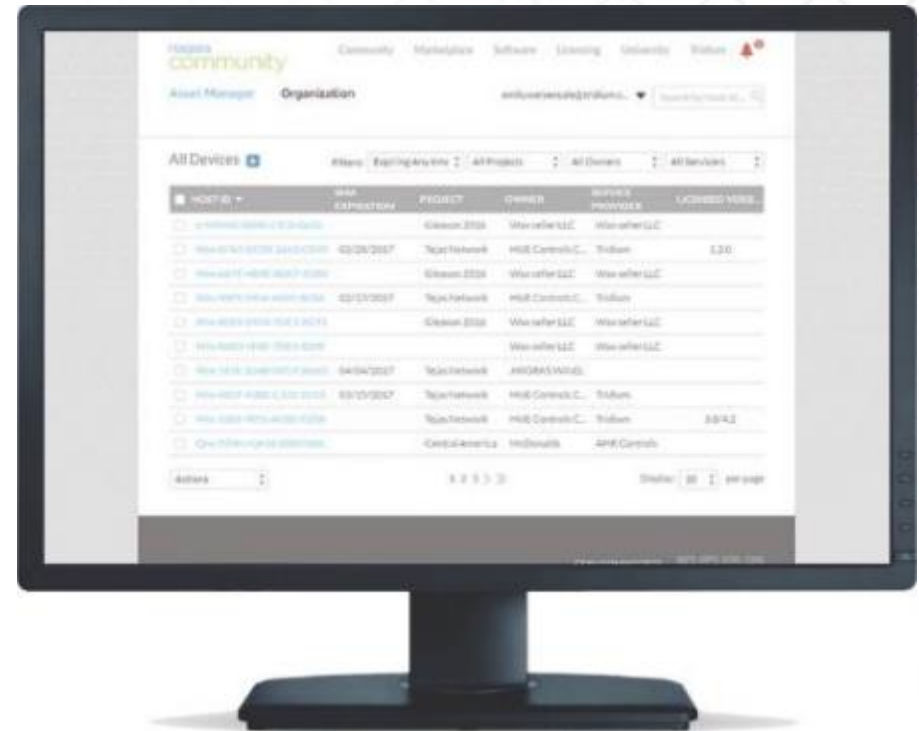
- 1. Log in via Niagara Community**
- 2. Sign up to use the Enterprise License Management (ELM) tool through the Niagara Community website**
- 3. Manage company users and permissions**
- 4. Upload HostIDs**
- 5. Tag Service Provider and Owner**
- 6. View and manage all registered assets at any time**



Enterprise's license data

- Device data
- Brand
- Model
- SMA dates
- Licensed software version
- Software options

- Customizable data
- Owning organization
- Service providing organization
- Project tag
- Address
- Installed software version
- Notes





Welcome to the Community

Engage. Learn. Share. Succeed.



New

Track your Niagara software maintenance
expirations using the new asset manager tool

[GET STARTED](#)



All Devices

[Add a New Device](#)

Filters:

Expiring Any tim

All Projects

All Servicercs

All Licensed Vers

<input type="checkbox"/> HOST ID	MAINTENANCE EXPIRATION	PROJECT	SERVICE PROVIDER	LICENSED VERSION
<input type="checkbox"/> Win-185D-D28E-9BC8-0839		Dem	Tridium USA	4.3/3.8
<input type="checkbox"/> Qnx-NPM6-0000-148B-FE32		GSA Testing	Tridium USA	3.8
<input type="checkbox"/> Qnx-NPM6-0000-11E0-A99E		GSAR7-TA211	Tridium USA	4.3/3.8
<input type="checkbox"/> Qnx-NPM6-0000-1082-6CF3		GSA Testing	Tridium USA	3.8/4.3
<input type="checkbox"/> Qnx-NPM6-0000-1082-5A3A		Dem	Tridium USA	3.8/4.3
<input type="checkbox"/> Qnx-NPM2-0000-12B6-E3E7		My Old Project	Tridium USA	3.5
<input type="checkbox"/> Qnx-NPM2-0000-0E56-6828			Tridium USA	3.7
<input type="checkbox"/> Qnx-JVLN-0000-00F7-4DAC			Tridium USA	3.8/4.3



<input type="checkbox"/>	NAME	ROLE	USERNAME	DATE ADDED
<input type="checkbox"/>	Yahoo, Scott	Device Manager	sailingcal21@yahoo.com	07/31/17
<input type="checkbox"/>	B, Scott	Device Manager, Org ...	sailingcal21@gmail.com	07/11/17

Asset Details

Host ID

Qnx-NPM2-0000-12B6-E3E7

Owner

Willowick

Service Provider

Tridium USA

Brand

Vykon

Model

J-200

Project

My Old Project

Address

Software Maintenance Agreement Expiration

Licensed Software Version

3.5

Installed Software Version

Notes

Old JACE2 Demo

Latest Backup

[View All Backups](#)

System Guid

Software Options

R-MDB-RTU-AX

DR-MDB-S-AX

DR-MDB-TCP-AX

DR-MDB-TS-AX



Back Up As A Service BaaS

BaaS solves unique challenges



24/7 access to a copy of a JACE station should it be necessary to restore



Single JACE projects can enjoy the benefits of automated backups

Back up your data and safeguard your business with Niagara Cloud

Here's how it works



1

Installation

Install cloud connectivity software on the JACE, create the end-user profile and test backup to the cloud.



2

Automation

Devices regularly back up securely to the cloud.



3

Restoration

The LKG (Last Known Good) configuration is downloaded and installed on a new JACE or existing JACE.



4

Documentation

The event history is available on the dashboard for later reference and reporting.

BaaS FAQs

What's the cost for Backup as a Service through Niagara Cloud?

Niagara Cloud is bundled with the Software Maintenance Agreement (SMA).

What are the version compatibilities of the initial release of Backup as a Service?

Niagara Cloud is compatible with Niagara 4.3 and up.

Where will my data be stored?

Your data is stored in Windows Azure in Microsoft's Data Centers.

Is my data safe?

The data is encrypted in transit and at rest using your passphrase. This makes it impossible for any third parties, including Tridium, to view your data.

How does it get there?

The JACE will push the backup to the Niagara Cloud. It just needs access to the Internet via standard ports



Niagara Analytics

Value Propositions

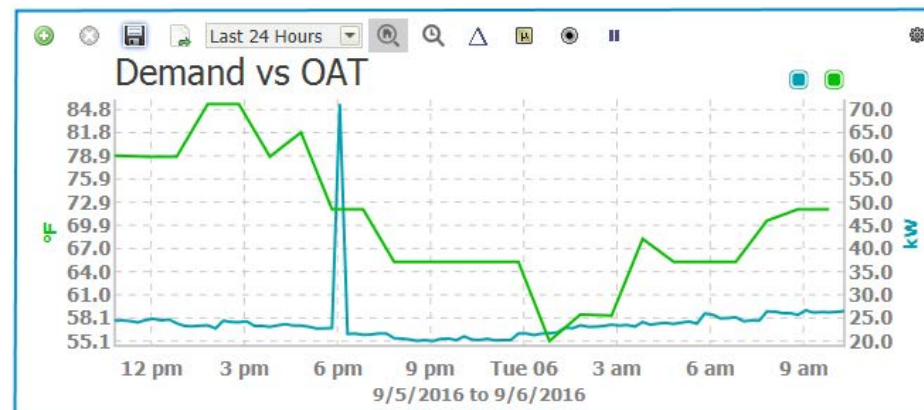
Data Aggregation

Fault Detection and Diagnostics

Alerts on trends and exceptions

Analytic Actions

- ▶ China
- ▶ UK
- ▼ US
 - ▼ Energy
 - ▶ AHU1_SubMeter
 - ▶ CWS1_SubMeter
 - ▶ HWS1_SubMeter
 - ▶ MainMeter
 - ▶ PhysicalAttributes
 - ▶ VAV01_SubMeter
 - ▶ VAV02_SubMeter
 - ▶ VAV03_SubMeter
 - ▼ HVAC
 - ▶ AHU1
 - ▶ CWS1
 - ▶ HWS1
 - ▼ VAV01
 - ▶ VAVboxflow
 - ▶ VAVboxflowSP
 - ▶ VAVdamperPos
 - ▶ spaceTemp



VYKON Integrated Analytics 2.0

- **Base Part Included with every JACE 8000 and Niagara 4 Supervisor license!**
 - **NA Software Maintenance included with N4 SMA**
 - **Leverages N4 Hierarchy**
 - **Analytics Auto-Tag Feature**
 - **Analytics Graphics**
 - **Works with N4 Chart Builder**
 - **For Embedded & Supervisor Platforms**

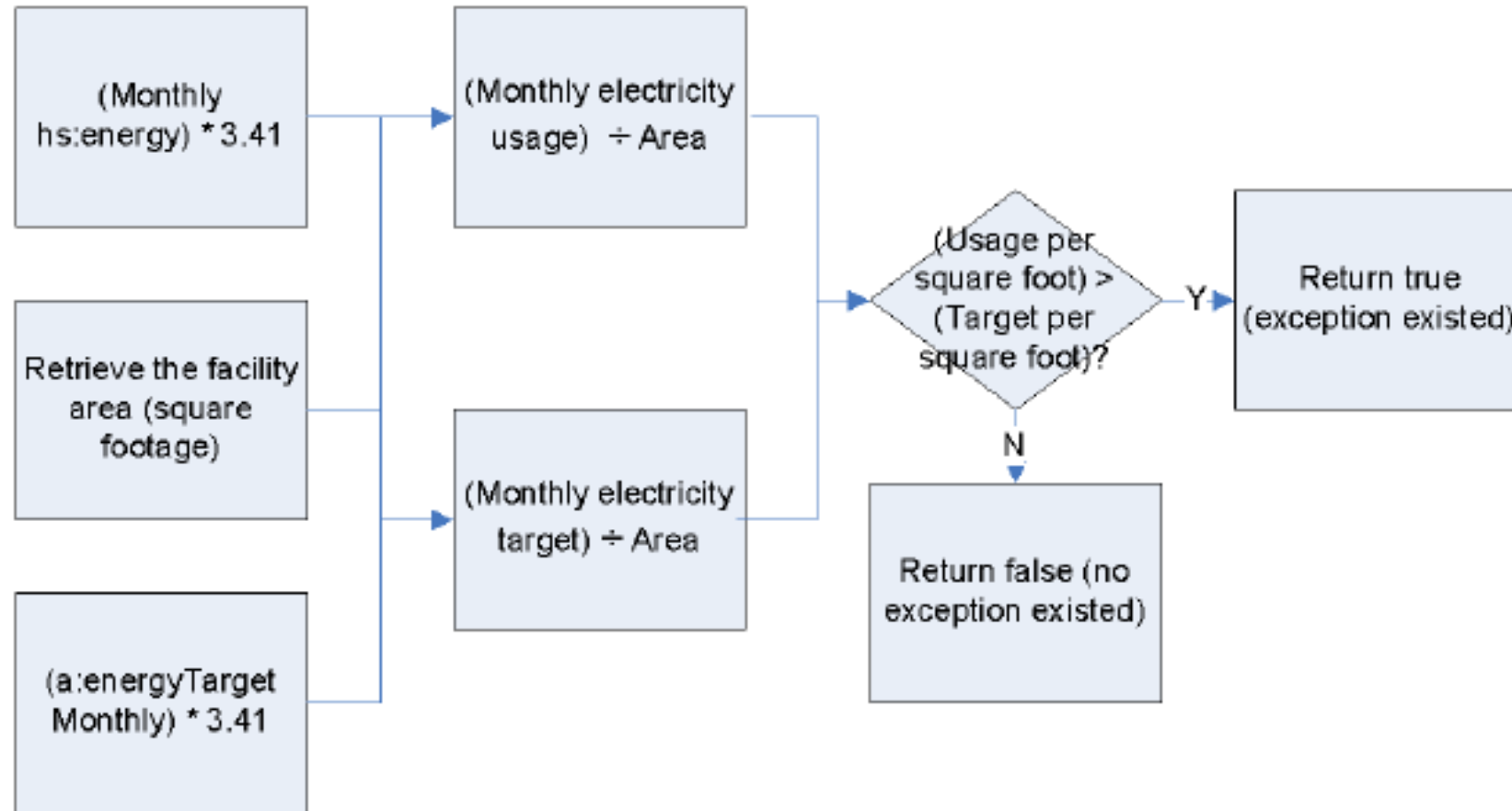


Niagara Analytics Library

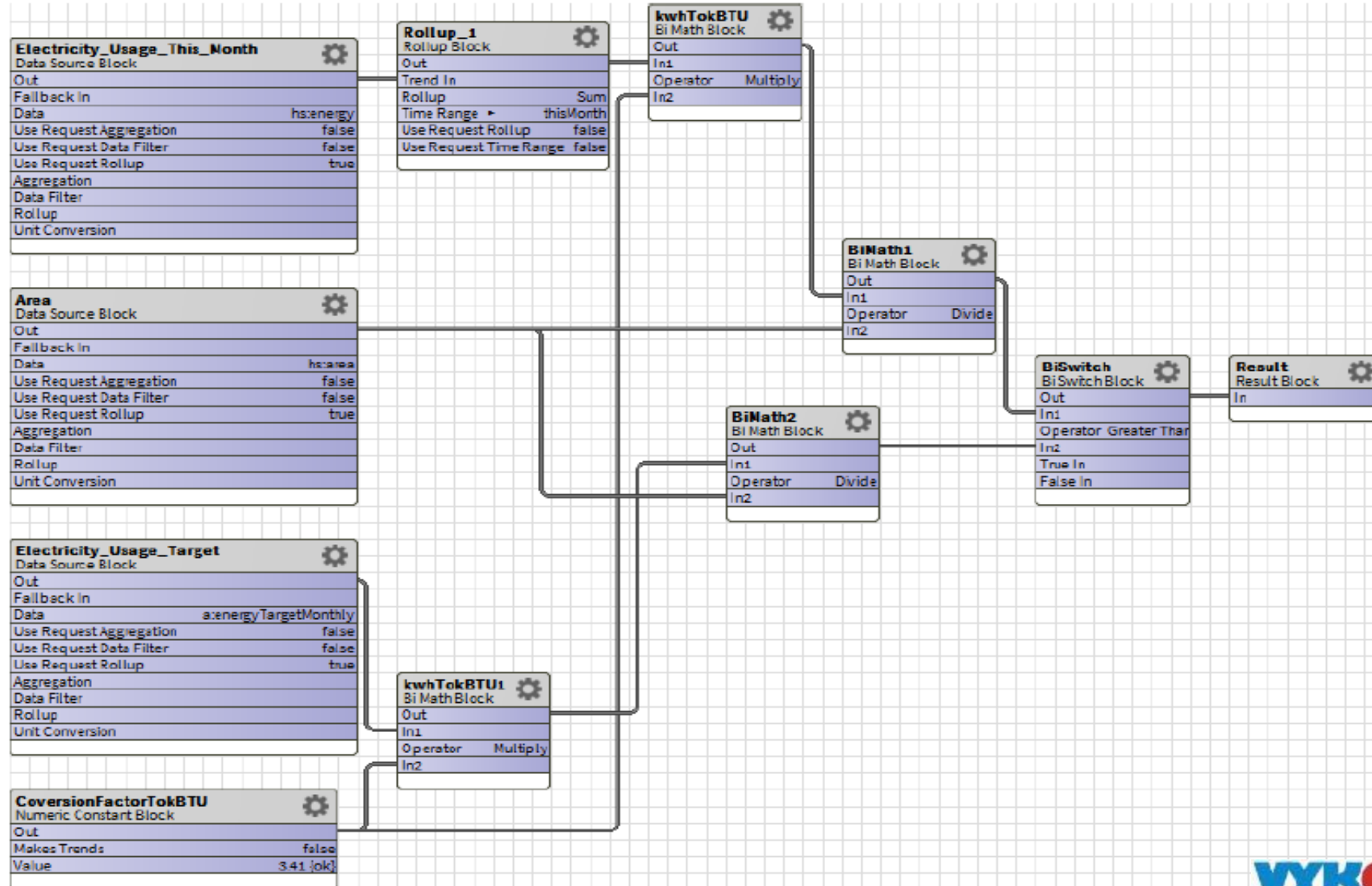


Sample Algorithm

Excerpted from Niagara Analytics Framework 2.0 Reference



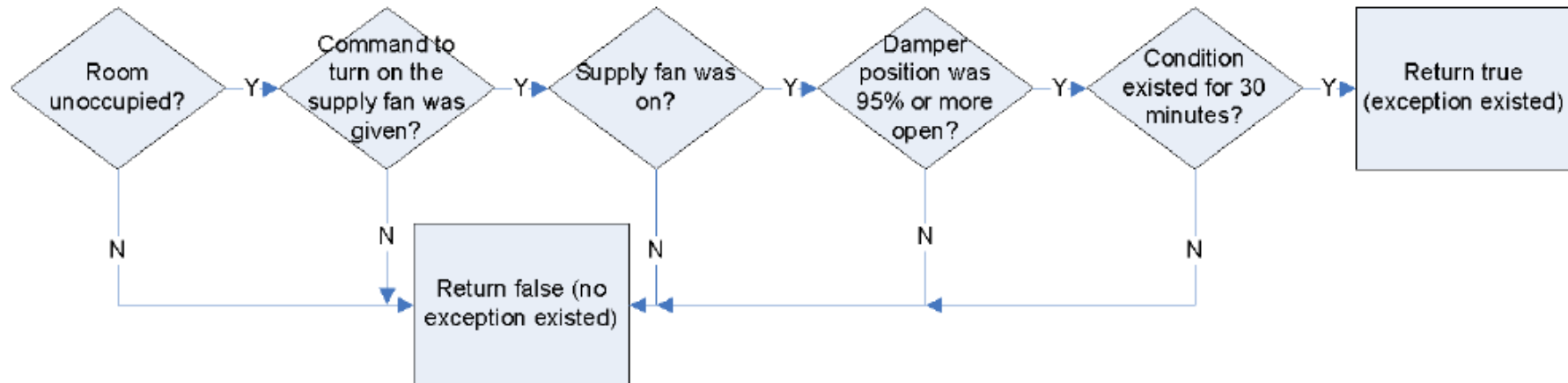
Sample Algorithm



Sample Algorithm

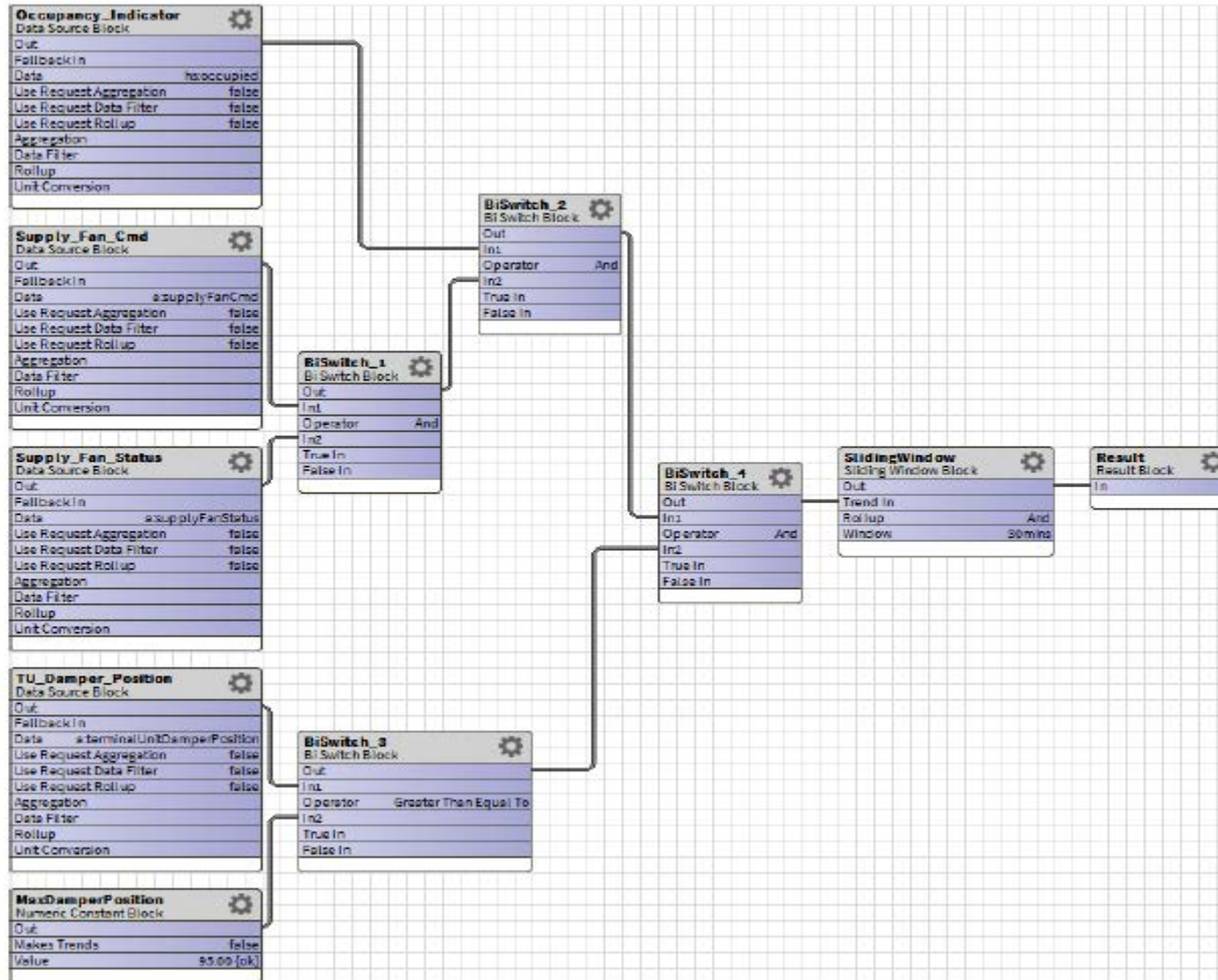
Excerpted from Niagara Analytics Framework 2.0 Reference

- **VAV Damper open 100% for too long**



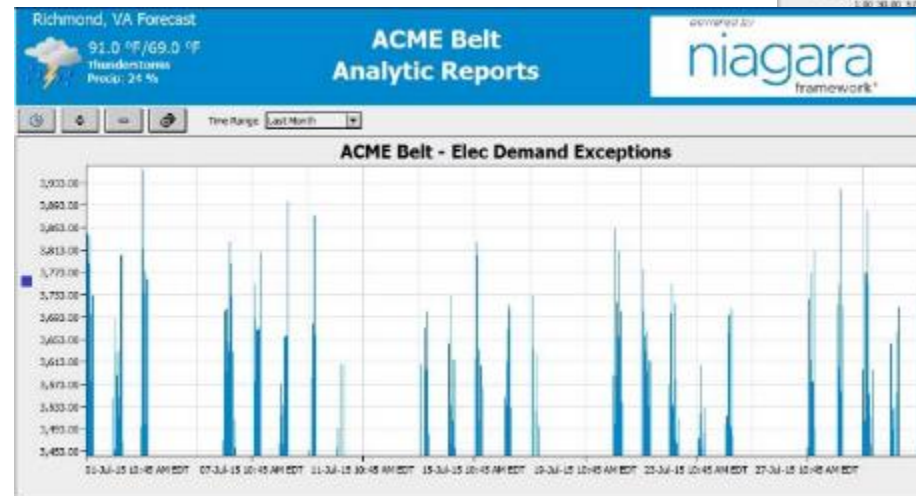
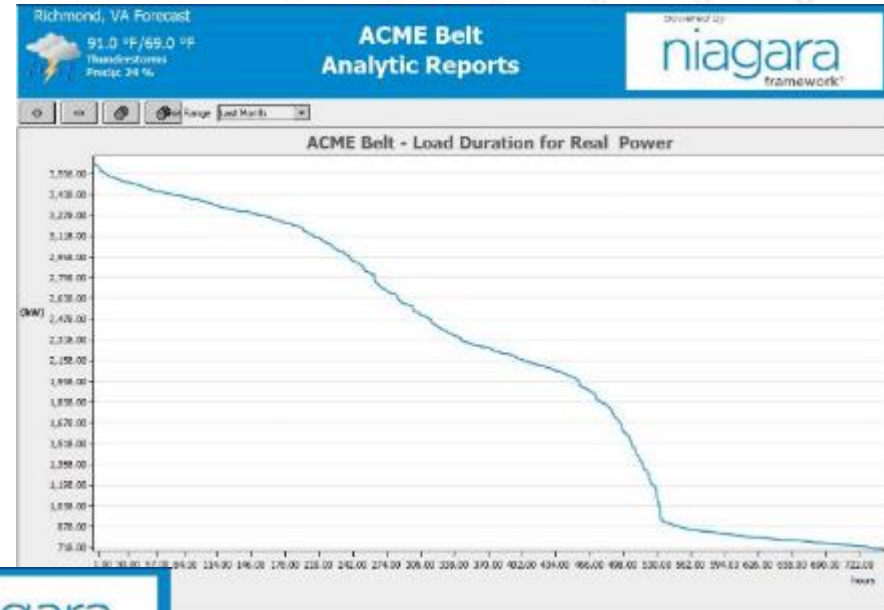
Sample Algorithm

- VAV Damper open 100% for too long



Standard Analytics Charts

- Standard Bar Chart with Analytics Bindings
- Load Duration
- Average Profile
- Relative Contribution
- Ranking
- Equipment Operation
- Spectrum
- Aggregation
- Exception



Niagara Analytics Key Take Aways

- Fully integrated with Niagara 4
- NA Library to jumpstart your deployment
 - HVAC
 - Utility
- Haystack support
- Analytic Auto-tagging
- Good reference material is available to build on
- Training available @ Tridium University



Niagara 4 and Analytics Demo Site

The screenshot displays a web application interface for the Niagara 4 and Analytics Demo Site. The interface is set within a browser window titled "NiagaraNetwork". On the left side, there is a navigation menu with options: "Station", "Home", "Histories", and "Hierarchy". Below the menu is a search bar with the placeholder text "Enter Search...". The main content area features a map of the United States Eastern Coast. At the top of the map area, there is a banner with the "niagara analytics" logo on the left, the text "US Eastern Coast" in the center, and the "TRIDIUM niagara4" logo on the right. The map shows several locations marked with red location pins: Boston, MA; Richmond, VA; and Boca Raton, FL. In the bottom right corner of the map area, there are two green buttons with question marks and the text "NEED HELP?". Below these buttons are the labels "Demonstration Details" and "Tags to Search". An information icon (i) is also visible in the top right corner of the map area.

Niagara 4 and Analytics Demo Site

<https://niagara4demo.tridium.com>

User = Demo

Password = Niagara123



Thank you!

Gamification Code: #####



OT NETWORKS

January 19, 2018 | The Langham Luxury Hotel, Chicago, IL

What is the Intent of Division 25?

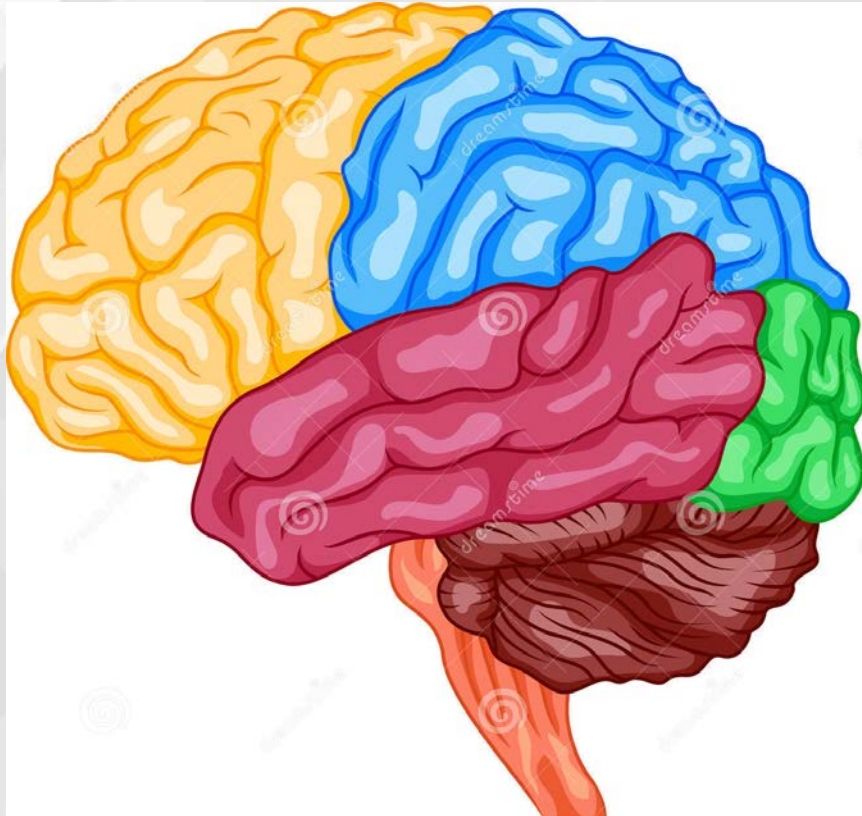


The Integrated Automation Platform specified in Division 25 is the heart of Integrated Building Systems. This section describes the systems, subsystems, hardware, software and implementation of a Platform that will seamlessly integrate different control systems and protocols into one common graphical display.

YOU CANNOT SIMPLY STATE THAT THE SYSTEM SHALL BE TRIDIUM



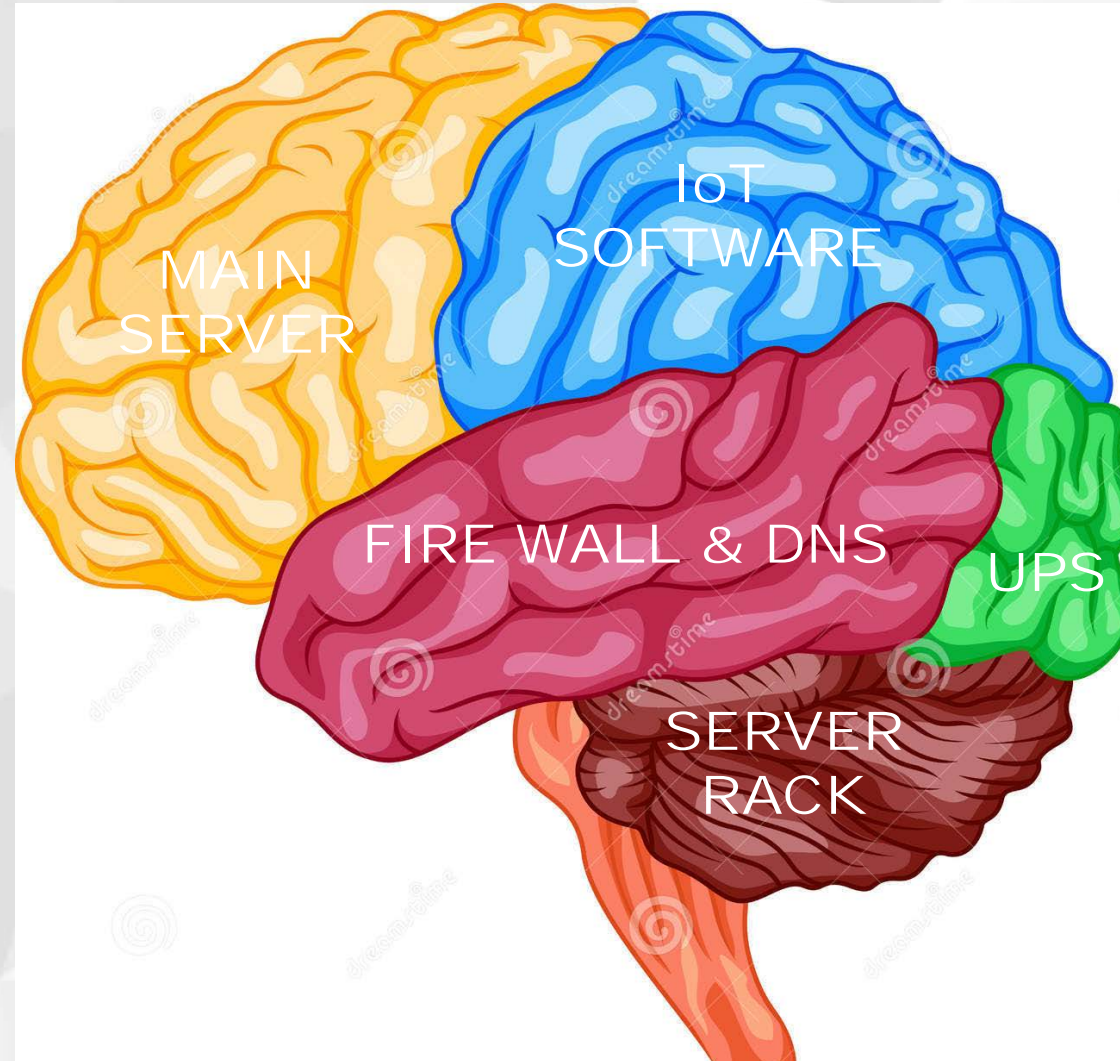
The Basic Concept



+



The Brain



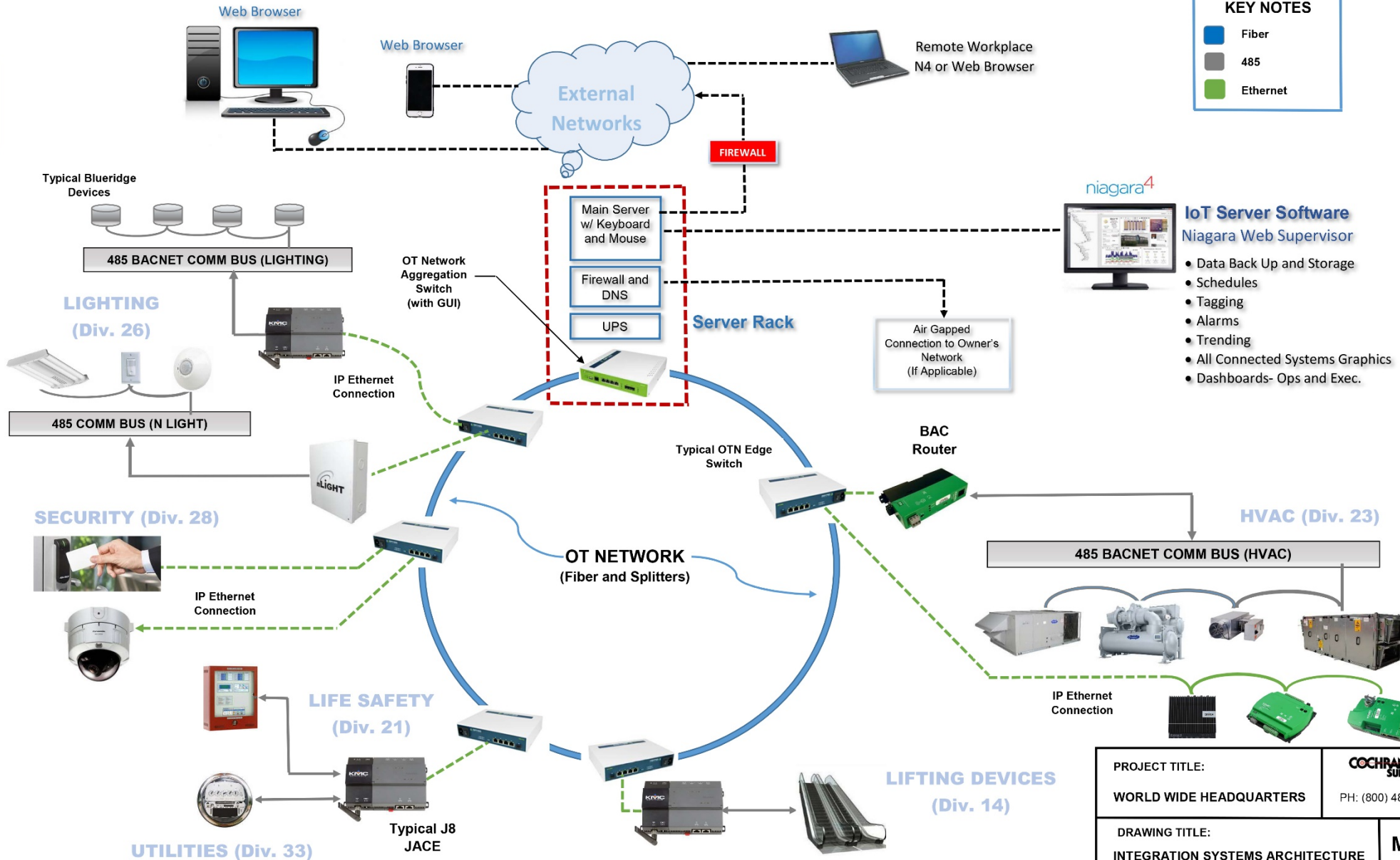
The Spine



IoT & INTEGRATED AUTOMATION TOPOLOGY- Div. 25

KEY NOTES

- Fiber
- 485
- Ethernet



PROJECT TITLE:	WORLD WIDE HEADQUARTERS	 PH: (800) 482-4894
DRAWING TITLE:	INTEGRATION SYSTEMS ARCHITECTURE	

Thank you!

**Nicole Conklin, Product Manager
Cochrane Supply & Engineering
nicole@cochraneSupply.com**



Gamification Code: