



NS2022

ACCELERATING INNOVATION

The Innovation Revolution Applications Track



Chris Riccobono

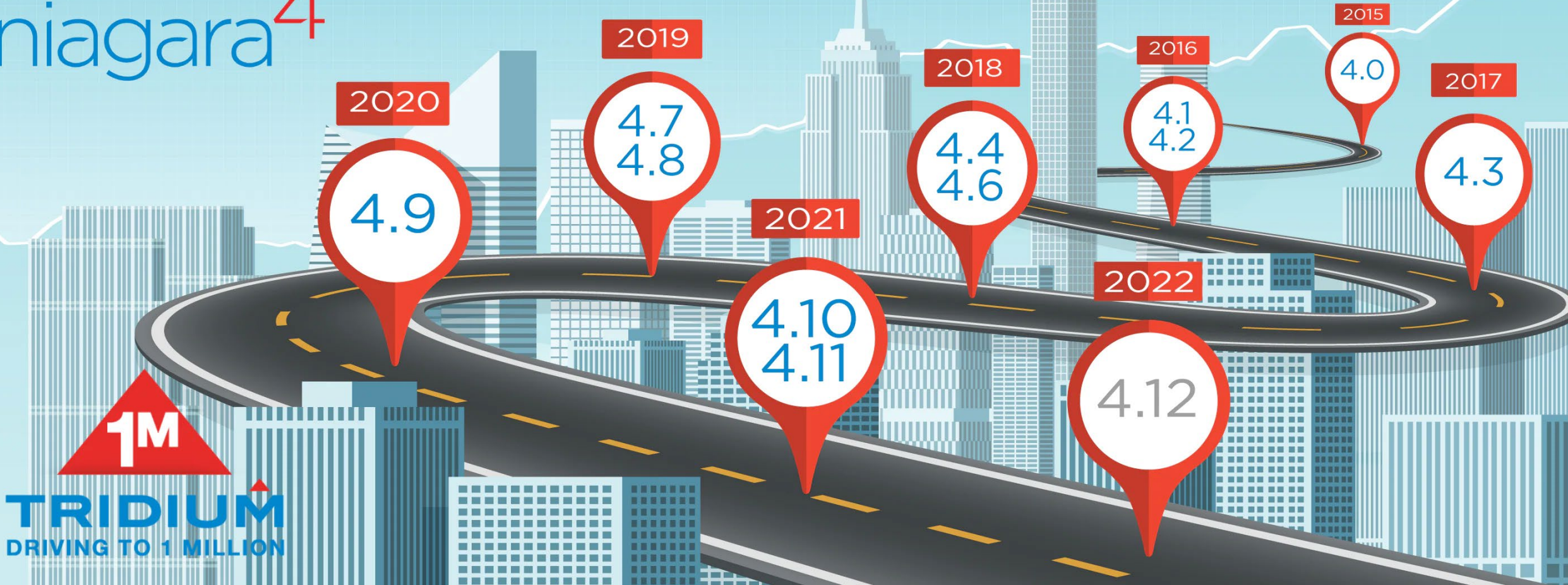
- *Sr. Product Owner*
- *8 years with Tridium*
- *Application Engineer*

- SSCP (ISC²) • CEM (AEE)

- B.S. Mechanical Engineering



niagara⁴



1M
TRIDIUM
DRIVING TO 1 MILLION



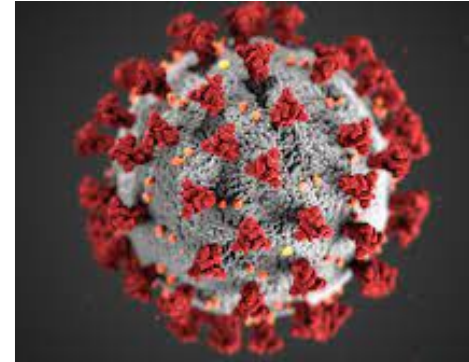
2018



2019



2020



2021





- SSO via SAML
- HTML5 Scheduler & Alarm Console
- Haystack 3.02
- Analytics 2.1
- RHEL 7.4 Support

- System DB
- Responsive Graphics Support
- Bulk Tagging & Templating
- Template Provisioning
- FIPS 140-2
- RHEL 7.5

- Edge 10
- Enhanced Provisioning
- Application Templates
- JACE as a DHCP Server

- Security Dashboard
- Client Cert Auth
- ACE Deterministic Engine
- 3rd Party Module Signing

- JSON Toolkit
- SSO via Niagara idP
- Tag based px bindings
- Expanded RIO support (E10)
- Https Proxy Server
- Security History Log
- MQTT - AWS Auth
- Video Surveillance Integration

- System DB Support for tag-based bindings
- Ux Media
- HTML5 Tag Manager
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- Edge Tools and Licensing Update
- Video Surveillance Viewer

- Archive History Provider
- Alarm Archive Provider
- BACnet SC
- Web Wiresheet
- TLSv1.3 Support

Track	id
Applications	A
Business	B
General	G
Tech Trends	T

Day	id
Tuesday	T
Wednesday	W

Session	id
1 st	1 or 1A/1B
2 nd	2 or 2A/2B
3 rd	3 or 3A/3B
4 th	4 or 4A/4B
5 th	5 or 5A/5B

AT2

**Applications
Tuesday
2nd Session**



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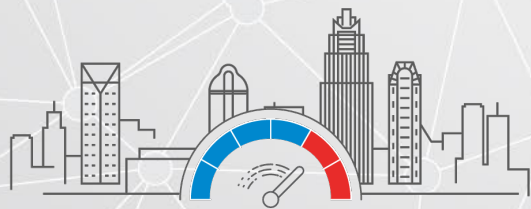
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4.4

- SSO via SAML
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4.9

SSO via Niagara idP
AW3B – James Johnson

4.10

Responsive Graphics Support
Ux Media
AT3 – Kevin Mamajek

4.6

4.6

System Database
Bulk Tagging
HTML5 Tag Manager

4.10

Tag Based Analytics
AW4 – Kevin Mamajek

4.4

4.6

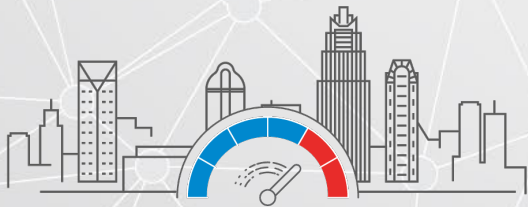
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- RHEL 7.5

4.10

System DB Support for tag-based bindings
AW3A – Curtis McKerlie

Enhanced Provisioning
Application Templates
AW2 – Kyle Sardinia

4.7



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4.7

- Edge 10
- Enhanced Provisioning
- Application Templates
- JACE as a DHCP Server

4.8

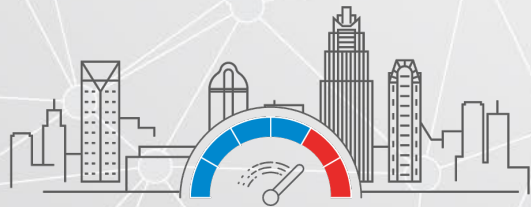
ACE Deterministic Engine AW5 – Kyle Sardinia

Expanded RIO support (E10)

4.9

4.10

Edge Tools and Licensing Update AW2 – Kyle Sardinia



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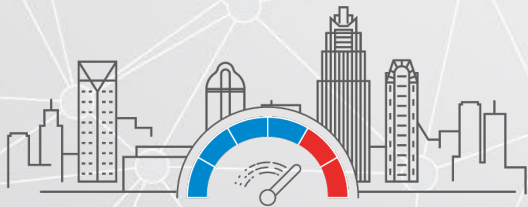
4.8

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- ACE Deterministic Engine
- 3rd Party Module Signing

4.8

ACE Deterministic Engine**AW5 – Kyle Sardinia**

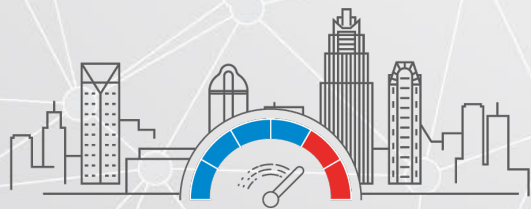
4.10

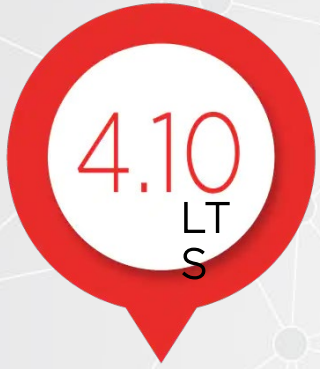
ACE for NPSDK**NPSDK?****Niagara Portability
Software Development Kit****BW5B – Michael Smith**

4.9

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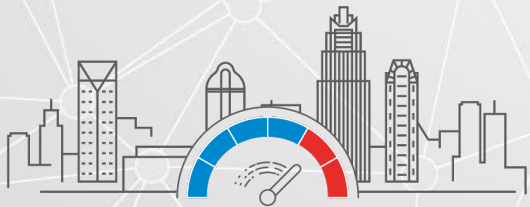
4.9 JSON Toolkit

AT4 – Nick Dodd & Jason Woollard4.10 **System DB Support for tag-based bindings****AW3A – Curtis McKerlie**4.10 **Video Surveillance Viewer****TW2 – Michael Smith****NS2022**
ACCELERATING INNOVATION



- System DB Support for tag-based bindings
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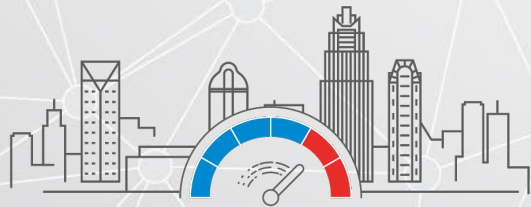
Cybersecurity

- **SSO via SAML**
- **FIPS 140-2**
- **Security Dashboard**
- **Client Cert Auth**
- **3rd Party Module Signing**
- **SSO via Niagara idP**
- **Https Proxy Server**
- **Security History Log**
- **TLSv1.3 Support**



4.11

- Archive History Provider
- Alarm Archive Provider
- BACnet SC
- Web Wiresheet
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Niagara History Collection

Archive to Remote Storage

Collection at the Jace

Config

- Services
- Drivers
- Apps
- NumericWritable**
 - Proxy Ext
 - NumericInterval
- Files
- Histories
 - va51tr15
 - AuditHistory
 - LogHistory
 - NumericWritable**
 - SecurityHistory

Available Local Storage LOW



Archive to the Supervisor

Config

- Services
- Drivers
 - NiagaraNetwork
 - ProvisioningNwExt
 - va51tr15
 - Points
 - Histories
 - Retry Trigger
 - Remote_NumericWritable**
 - Alarms
 - Schedules
- Apps
- Files
- Histories
 - demo
 - va51tr15
 - NumericWritable**

Available Local Storage OK



500GB of 1TB Used

Config

- Services
- Drivers
 - NiagaraNetwork
 - RdbmsNetwork**
 - MySQLDatabase
 - Histories
 - Retry Trigger
 - va51tr15_NumericWritable**

Available Local Storage OK



50MB of 1TB Used

Config

- Services
- Drivers
 - NiagaraNetwork
 - Your Remote Storage Driver**
 - Your Remote Storage Device
 - Histories
 - Retry Trigger
 - va51tr15_NumericWritable**

Problem

Nav

Config

Files

Histories

- demo
- va51tr15
 - NumericWritable

NumericWritable

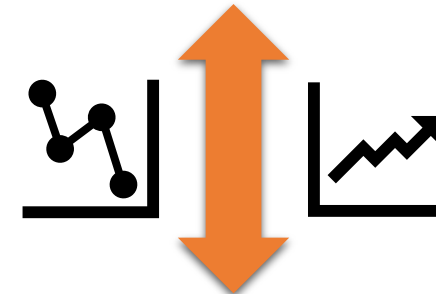
History Table

Today

1

Timestamp	Trend Flags	Status	Value
14-Oct-21 4:59:25 PM UTC	{}	{null}	0.0
14-Oct-21 4:59:30 PM UTC	{}	{null}	0.0
14-Oct-21 4:59:35 PM UTC	{}	{null}	0.0
14-Oct-21 4:59:40 PM UTC	{}	{null}	0.0
14-Oct-21 4:59:45 PM UTC	{}	{null}	0.0

Remote Storage



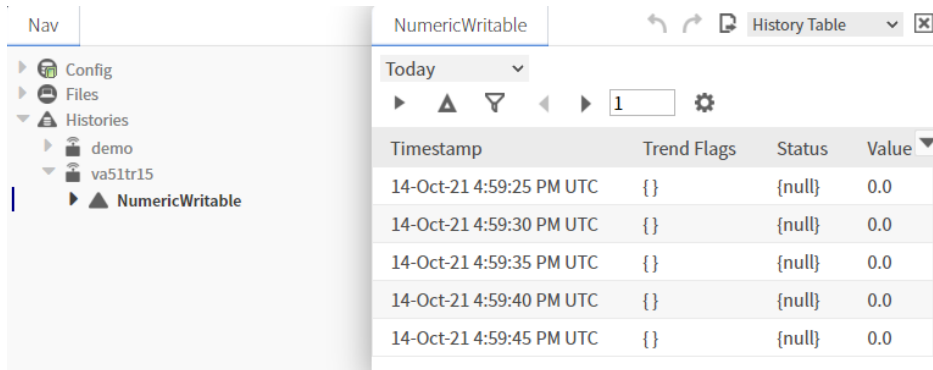
Niagara Supervisor

Archive History Provider

public abstract class **BArchiveHistoryProvider**

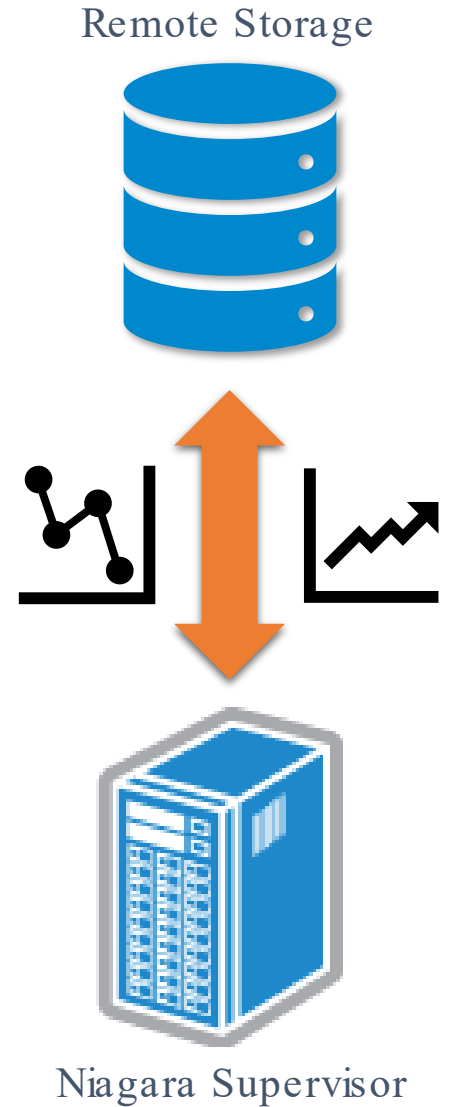
Delivered at the History level by providing the History Service
the ability to look across multiple data storage locations

- Streamlines access to Niagara History data regardless of its location



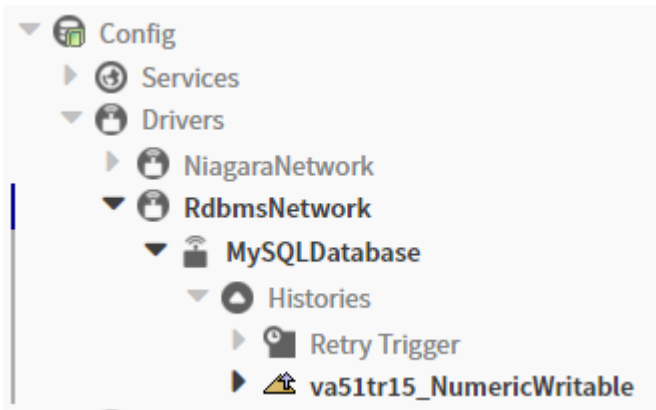
The screenshot shows the Niagara History Service interface. On the left is a navigation tree with 'Config', 'Files', 'Histories', 'demo', and 'va51tr15' (expanded to show 'NumericWritable'). The main area displays a table for 'NumericWritable' with columns: Timestamp, Trend Flags, Status, and Value. The table contains five rows of data for the date 14-Oct-21.

Timestamp	Trend Flags	Status	Value
14-Oct-21 4:59:25 PM UTC	{}	{null}	0.0
14-Oct-21 4:59:30 PM UTC	{}	{null}	0.0
14-Oct-21 4:59:35 PM UTC	{}	{null}	0.0
14-Oct-21 4:59:40 PM UTC	{}	{null}	0.0
14-Oct-21 4:59:45 PM UTC	{}	{null}	0.0



RDB Archive History Provider

Archive to Remote Storage



A screenshot of the RdbArchiveHistoryProvider configuration window. The window title is 'RdbArchiveHistoryProvider'. The left pane shows the configuration tree with 'RdbArchiveHistoryProvider' selected. The right pane shows a table of configuration parameters.

Display Name	Value	Commands
Status	{ok}	
Enabled	true <input checked="" type="checkbox"/>	
Fault Cause		
Max Archive Results Per Query	50000 [1 - max]	
Archive Limit Notifications	Notify Once Per Query Range Per Session	
Ord To Rdbms	station:/slot:/Drivers/RdbmsNetwork/MySQLDatabase	
Use Default Fetch Size	true (ignore Custom Fetch Size) <input checked="" type="checkbox"/>	
Custom Fetch Size	0 [0 - max]	
Fetch Size In Use	0	

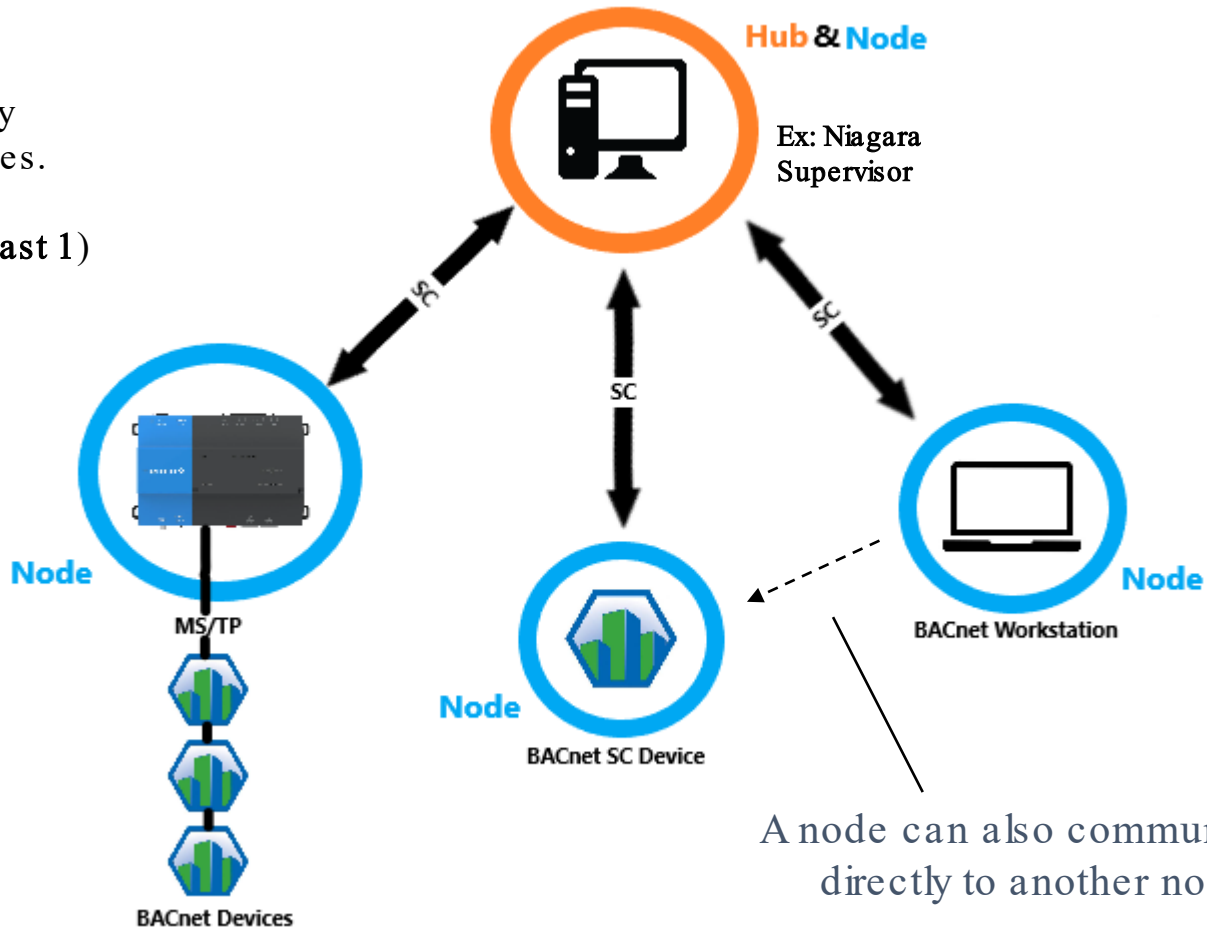


Niagara Supervisor

Relational DB

BACnet/SC Architecture

Hub and Spoke Design



A hub –

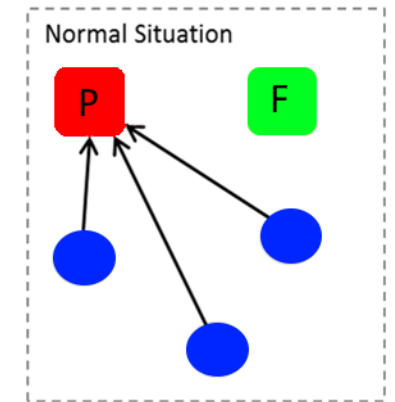
- Directs traffic between any number of connected nodes.
- Is required for every BACnet/SC network (**at least 1**)

A node can be a –

- Device Controller
- Single Thermostat
- Facility Workstation
- Router to an existing BACnet system

Failover design –

- All nodes must be capable of connecting to a **Failover Hub** in the event the **Primary Hub** is unavailable



From ASHRAE's BACnet Secure Connect A Secure Building Infrastructure for Building Automation



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