



NS2022

ACCELERATING INNOVATION

The Niagara Journey

*A glimpse into the Niagara
roadmap for continued
customer value and insight*



Panelists
Michael Smith
Sr. Product
Manager



Chris
Riccobono
Sr. Product Owner



Stephen
Holicky
Sr. Product
Manager



The Niagara Journey



Roadmap & Vision

Fully Integrated & Automated Facility Systems

Big Data Integrity

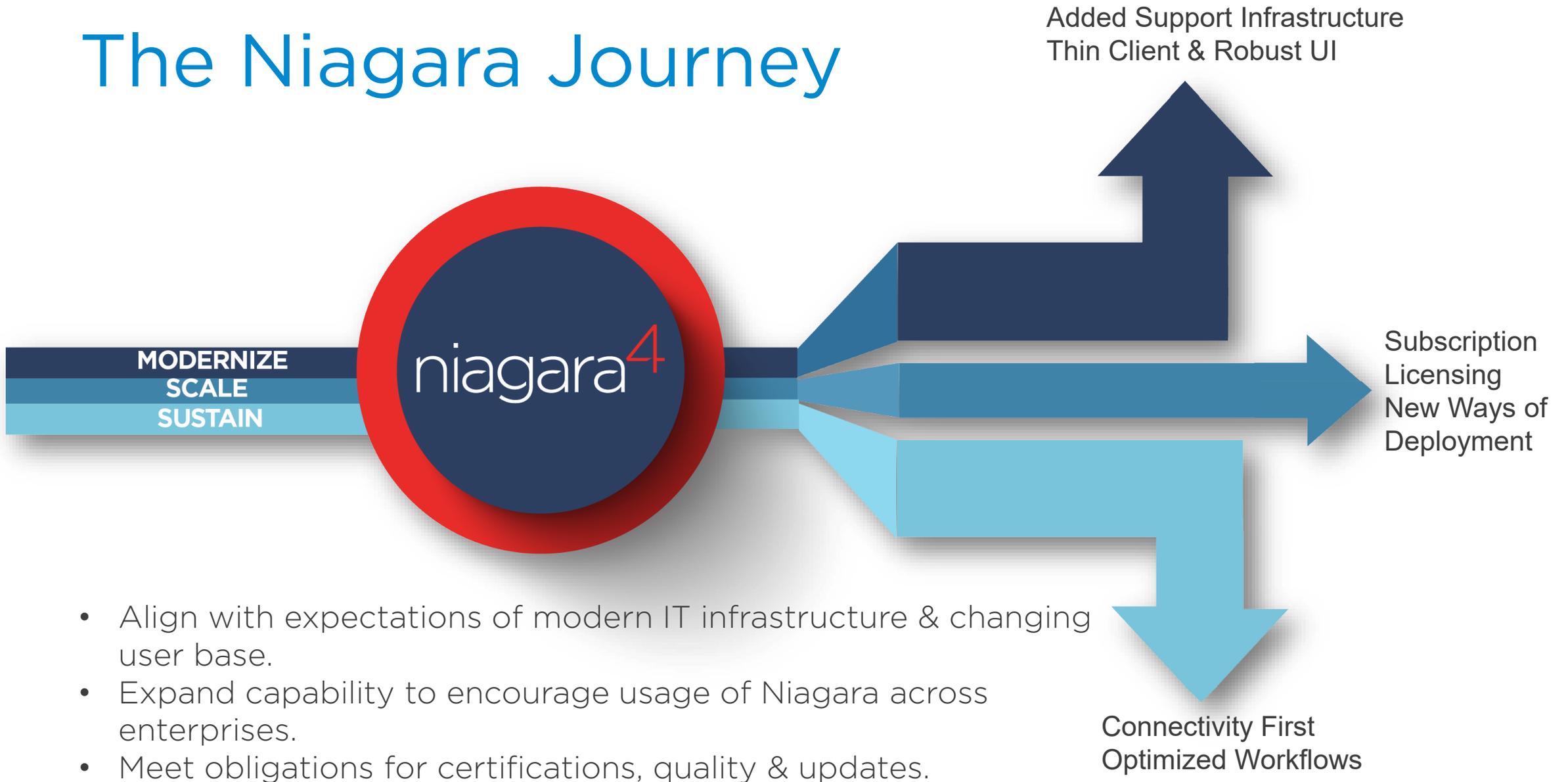
Optimal Space and Asset Utilization

Provides a Safe and Healthy Environment

Empowers Workers with Frictionless Workplaces Tech

Contributes to Carbon Neutrality by 2050

The Niagara Journey



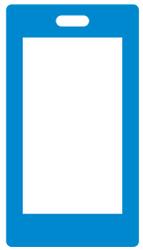


niagara 4.12

COMING SOON!

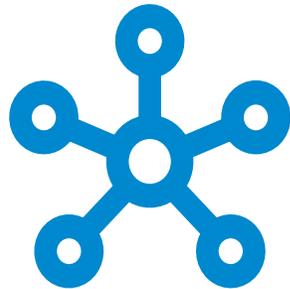
Niagara Framework[®]: Always Evolving - 4.12

Niagara 4.12 brings exciting new features that continue to evolve Niagara's key tenets of visualization, rapid deployment, security, Edge, connectivity, certification and IT compliance.



Visualization

WebWiresheet 2.0
HTML5 Niagara
Point Manager View
HTML5 BQL Query
Builder



Connectivity

MQTT - Azure Auth
HTTP Driver
MSTP Engine Optimization
MaxPro Support in Video
Framework



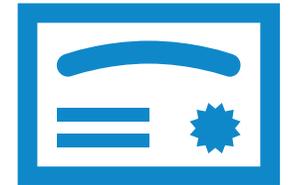
Security

Critical Support Updates &
Enhancements



Deployment

Internationalization
Support
Edge Tools Updates



Certification & Compliance

Expanded History
Character
Limitation
BACnet Protocol
Revision 15
Update

The background features a dark blue gradient with abstract, flowing patterns of dots and lines in shades of blue, teal, and purple. On the right side, there are concentric circular patterns resembling a stylized eye or a lens. The overall aesthetic is modern and technological.

niagara
framework[®]

visualization

WebWiresheet 2.0

Get Back
Your
Valuable
Time

With Niagara
4.12 &
Wiresheet 2.0

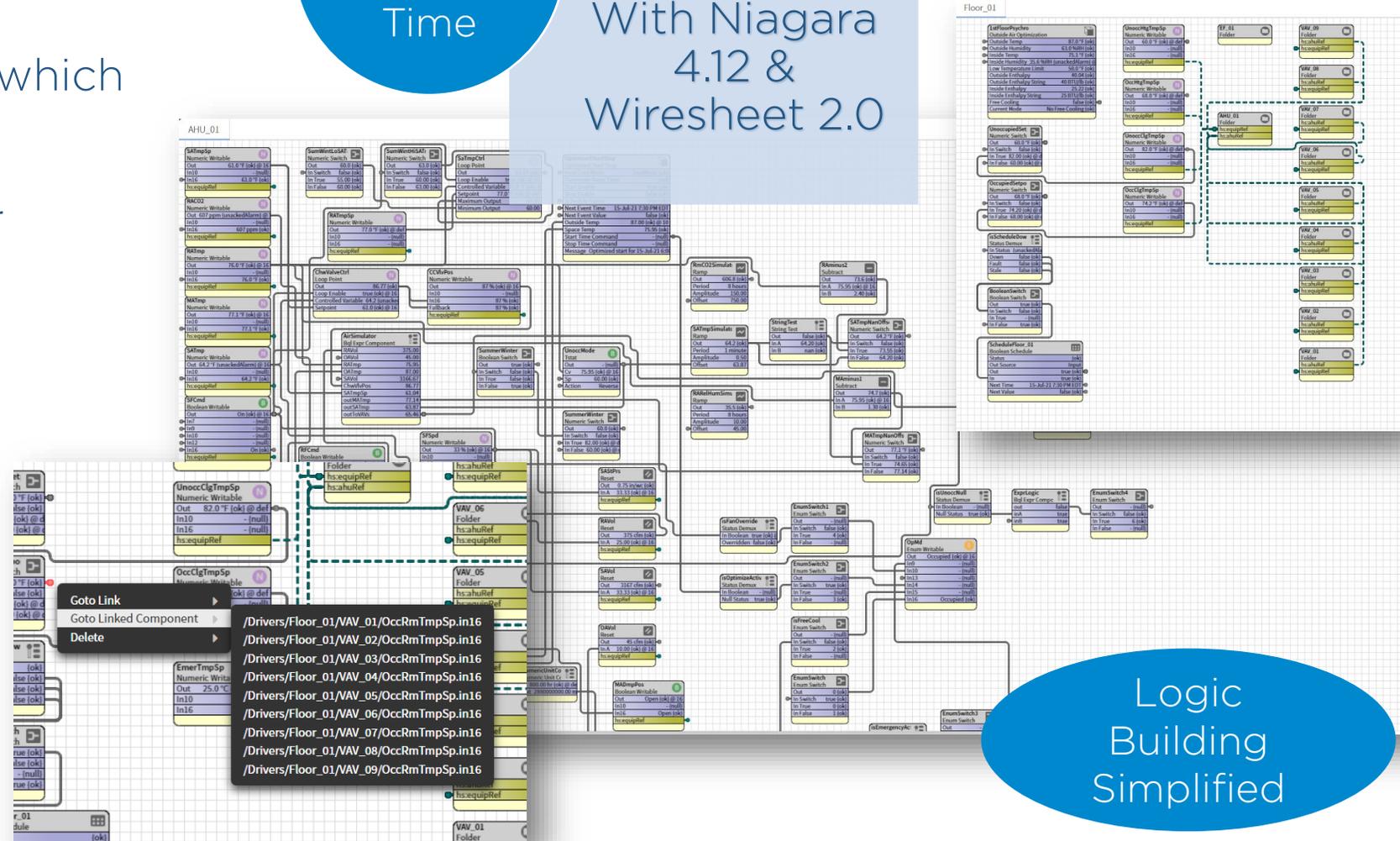
WebWiresheet is a native HTML5 configuration tool which extends the power of the Workbench Wiresheet Application into a Browser Environment

- Intuitive Linking

- Multi-Selection Mode

- Rapid Relation Marking

- Search Service Integration



Logic
Building
Simplified

HTML5 Niagara Network Point Manager



Extends the functionality of the Workbench Niagara Point Manager Application into a Browser Environment.

Discovery and addition of components via an enriched HTML5 Browser Interface

Reduces Truck Rolls!

The screenshot displays the 'covered' section of the application with a table of components:

Slot Path	Type
/Services/SecurityService/certificates/tridium/expiry	nss:CertificateExpiryPoint
/Services/SecurityService/certificates/servercert/expiry	nss:CertificateExpiryPoint
/Services/EventService/Recompile	kitControl:GreaterThan
/Services/EventService/RecompileTime	
/Services/EventService/MultiVibrator	
/Services/EventService/LessThan	
/Services/EventService/And	
/Drivers/NiagaraNetwork/TridiumStation	

Below this is the 'stabase' table:

Name	Point Id
CCVlvPos	slot:/Drivers/Floor_0
DprRstSp	slot:/Drivers/Floor_0
SAFItSts	slot:/Drivers/Floor_0
LowTmpDet	slot:/Drivers/Floor_0
MATmp	slot:/Drivers/Floor_0
OADmpPos	slot:/Drivers/Floor_0
OATmp	slot:/Drivers/Floor_0
OAVol	slot:/Drivers/Floor_0
RACO2	slot:/Drivers/Floor_0

A configuration dialog box is open, showing a tree view of components under 'NiagaraNetwork'. The 'SAFItSts' component is selected, and its configuration is displayed. The 'Ord Type' is set to 'Slot'. The dialog has 'OK' and 'Cancel' buttons.



Drag-n-drop functionality



Improved user experience



Enhances your workflow efficiency



Provides Added Flexibility



HTML5 BQL Query Builder



Provides an enhanced querying workflow and improved user experience, giving you even more flexibility to quickly get the job done

- Query components via an HTML5 Browser Interface

- Configure Reports in a Browser using the Report Service

- Create BQL queries for later use across your Niagara Stations

The screenshot displays the 'Edit saved queries' interface. At the top, there is a table with columns 'Name' and 'Query'. Below the table, a 'Bql Query Builder' dialog is open. The dialog has a 'Find' section with an input field containing 'Config' and a search icon. To the right of the search field, it says 'Of type: N Numeric Point'. Below the search field, there is a 'Match' section with a radio button for 'All'. Underneath, there are three rows of configuration fields: 'name' with a 'like' operator and the value '*Tmp*', 'parent.name' with an '=' operator and the value 'AHU_01', and 'out.value' with a '<' operator and the value '65'. At the bottom of the dialog, there are 'OK' and 'Cancel' buttons.

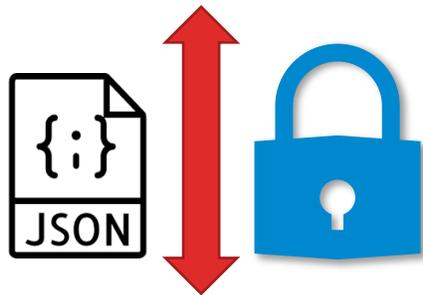
The logo for Niagara Framework, featuring the word "niagara" in a large, lowercase, sans-serif font, with "framework" in a smaller, lowercase, sans-serif font below it, followed by a registered trademark symbol (®). The background is a dark blue grid of hexagons with a network of glowing blue and white nodes and lines.

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A network diagram consisting of numerous nodes of varying sizes and colors (blue, white, orange) connected by thin, light blue lines, set against a dark blue background with a hexagonal grid pattern.

connectivity

MQTT Driver Azure[®] Authenticator



Reduce the time and complexity of integrating Niagara with cloud solutions with updated connectivity options.

- Updates to Niagara MQTT driver to support Azure authentication
- Utilize with the JSON Toolkit to construct cloud messages



HTTP Client Driver

The HTTP Client module provides tools and a driver, which interact with HTTP services, such as web services and restful API endpoints



Permits data exchange both in and out of a station



Execute a GET, POST or PUT between Niagara and APIs or web services

SW Option for Purchase

Niagara Supervisor

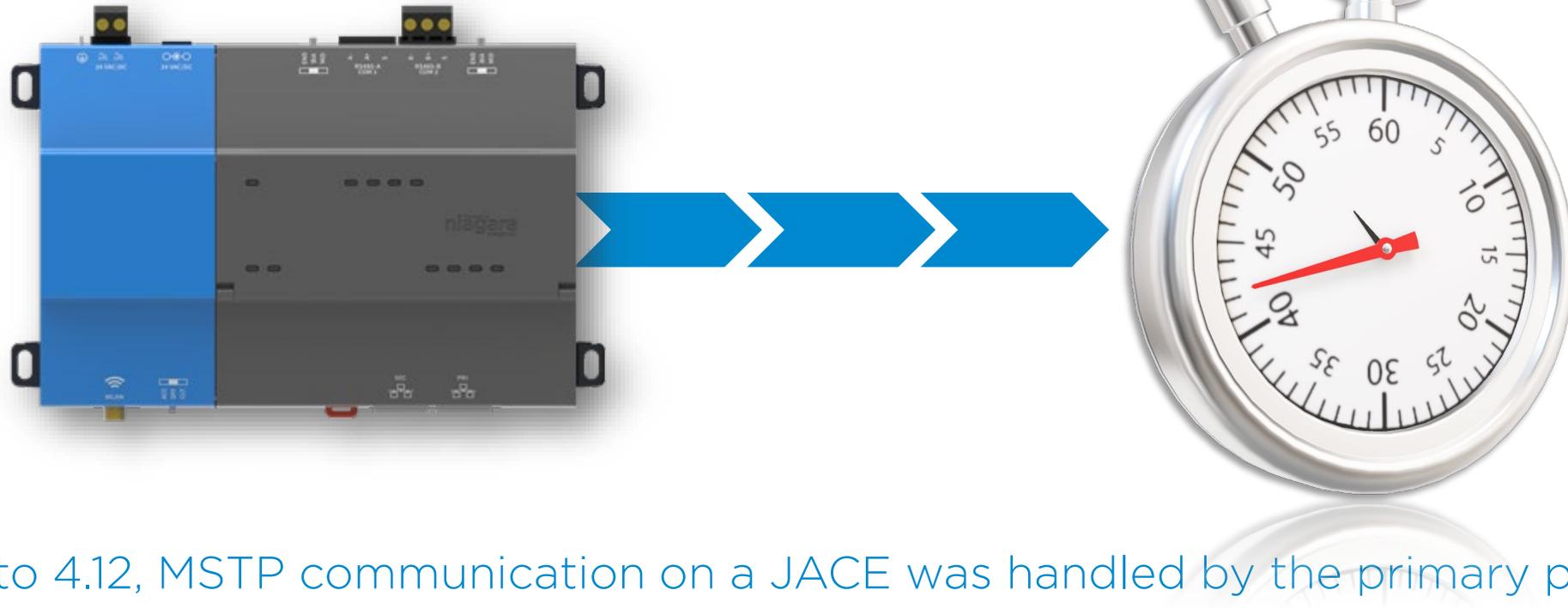
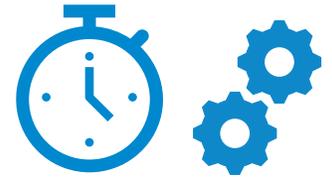


JACE



Requires Active SMA

JACE[®] MSTP Engine Optimization



Prior to 4.12, MSTP communication on a JACE was handled by the primary processor
Now in Niagara 4.12, MSTP processing has been re-engineered to utilize the on-board co-processor to ensure robust and efficient communication

Integration with Video Surveillance



MAXPRO®
VMS
Video Management System

- Now Supported in the Video Framework

Integrate with BMS via HTML5 presentation

Stream live or recorded video feeds

Integrate video with Niagara Alarm Console

Other supported integrations

Milestone Xprotect Professional+ and Corporate
Axis Cameras (Live Viewing)



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security

General Cyber Security Enhancements



User Prototypes & Authentication Scheme

- The SAML Authentication Scheme can now be configured to optionally merge user prototypes that match a user's prototype attributes, instead of just picking a single prototype.
- LDAP and Kerberos authentication schemes can now be configured to optionally merge user prototypes that match a user's prototype attributes, instead of just picking a single prototype.

Platform User Access

- Niagara Daemon user logins and login failures are now captured in the local station's "Security Audit Log"

Security Dashboard Enhancements

- Hidden Users are now displayed on the User Service Card

User Service

7

- ⚠ Number of hidden users: 1.
- ⚠ A Super User with name "admin" exists.
- ✅ Lock Out feature is enabled in the User Service.
- ℹ Number of all users in the station is: 4.
- ℹ Number of Super User accounts in the station is: 2.
- ℹ Password expiration is DISABLED for all users.
- ℹ Concurrent sessions are ENABLED for super users: admin, lucid

⚠ Warning 2
✅ OK 1
ℹ Info 4

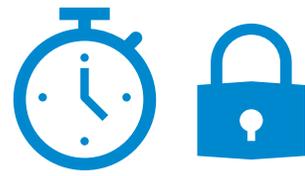
[MORE](#)

Number of hidden users: 1.
Hidden users may not show up in every view. An attacker could create a hidden user that would be difficult to detect. It is not recommended to have any hidden users.

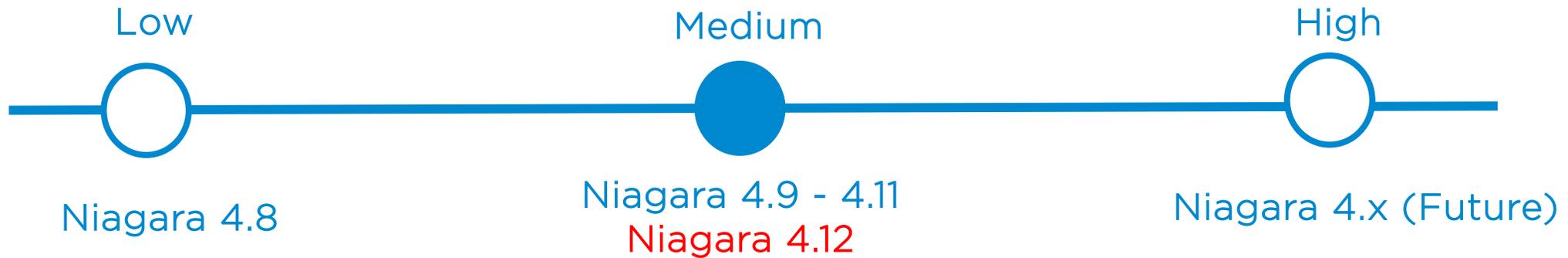
test/SecurityHistory

Timestamp	Operation	User Name	Message
21-Sep-21 9:27:33 AM EDT	Login	admin	/Services/FoxService/serverConnections/Session 127.0.0.1 Workbench 4.12.0.37.272
21-Sep-21 9:28:10 AM EDT	Login	[REDACTED]	Platform 127.0.0.1 Niagara/4.12.0.37.272
21-Sep-21 9:28:40 AM EDT	Login Failure	sfjkhjkh	Platform 127.0.0.1 Niagara/4.12.0.37.272
21-Sep-21 9:35:40 AM EDT	Logout	admin	/Services/FoxService/serverConnections/Session 127.0.0.1 Workbench 4.12.0.37.272
21-Sep-21 10:42:26 AM EDT	Login	admin	/Services/FoxService/serverConnections/Session 127.0.0.1 Workbench 4.12.0.37.272
21-Sep-21 10:44:02 AM EDT	Changed	admin	Property /Services/FoxService.supportLegacyClients changed from 'Default: Yes (may change in future version)' to 'No (Recommended)
21-Sep-21 10:45:42 AM EDT	Changed	admin	Property /Services/WebService/hostHeaderValidationSettings.validateHostHeader changed from 'false' to 'true'

Securing Niagara - 3rd Party Module Signing



Default Verification Mode by Version

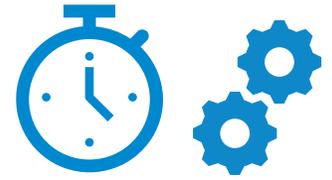


Verification Mode	Description
Low	Modules that are unsigned, untrusted, or have expired certificates will cause warnings but still function. Error if signed module modified after it was signed. Can be increased to Medium or High.
Medium	All modules must be signed by valid, trusted certificate (may be self-signed). Can be decreased to Low or increased to High.
High	All modules must be signed with CA Certificate. Can be decreased to Medium.

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deployment

Internationalization Support



New Release Artifact which provides a delta of the lexicons added, edited or removed in the release in a user-friendly format

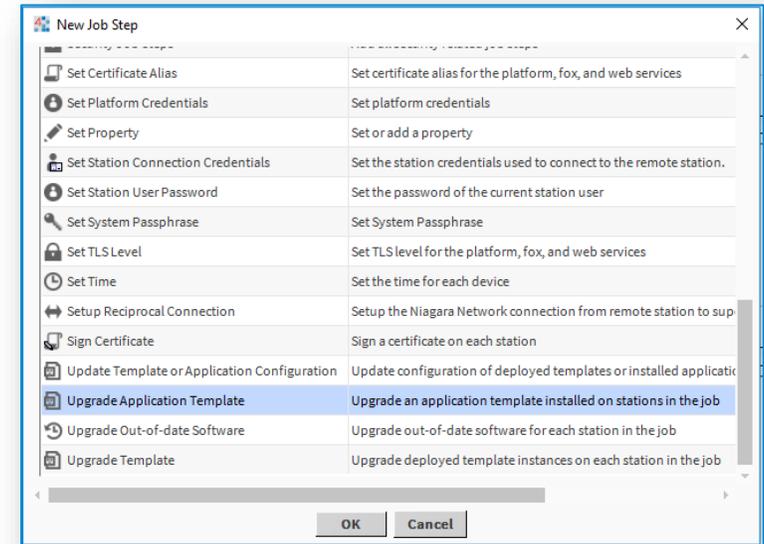
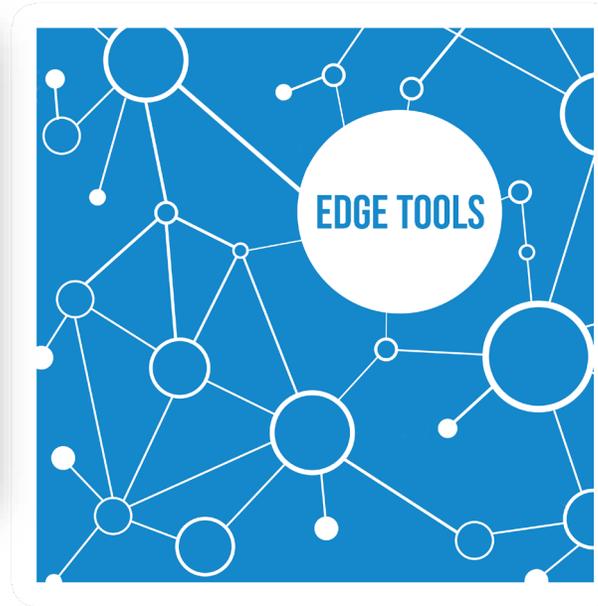
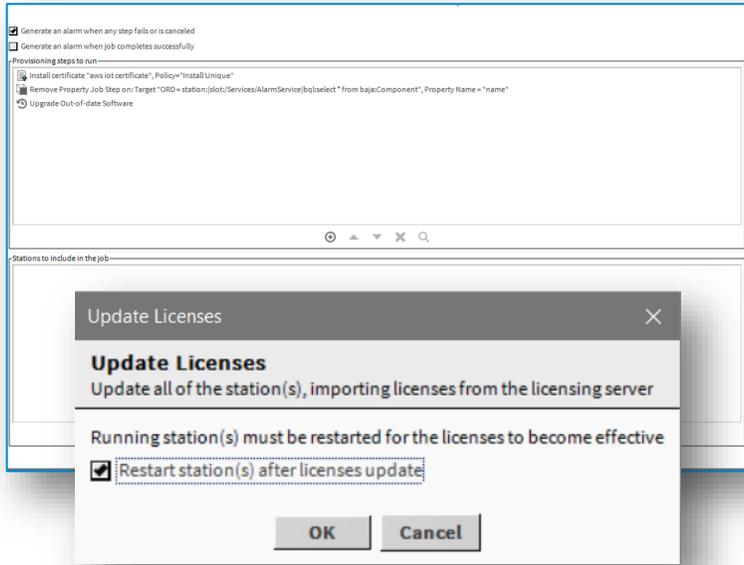
Targets Non-English-Speaking Segments

Quickly Incorporate Release Lexicon Changes into your Applications





Facilitating Niagara at the Edge



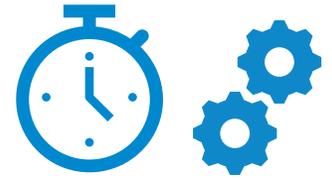
Reduce time spent installing, commissioning, and configuring multiple Niagara devices with application templates and provisioning. The latest updates to Edge Tools include:

- ❑ Enhanced Layout – Combined Network & Device Job Step Windows
- ❑ New Provisioning Job Steps – Remove Platform User, Set Platform User & Remove Property
- ❑ Upgrade License Job Step now allows users to Defer Reboot for Later

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certification
compliance

History Character Limit Expansion



In previous versions of the Niagara Framework, the character limit on history names was 44. Now in Niagara 4.12, the limit has been expanded to 200 characters.

Giving you back the flexibility you deserve!



Conform with any Point Naming Convention

Removes the need for cryptic point naming

Quickly Locate Niagara Histories

Supported Infrastructure

Keeping pace with advancing infrastructure to enable more efficient, long-term support



Supported Operating Systems

Windows	Virtual Machine
Windows 10 64-bit Professional / Enterprise	VMWare ESXi 6.7
Windows 11	Mobile
Windows Server 2016	iOS 12
Windows Server 2019	iOS 13
Linux	Android 8 (Oreo)
Red Hat Enterprise Linux 7.x 64-bit	Android 9 (Pie)
RedHat Enterprise Linux 8.x 64-bit	Android 10 (Queen Cake)
Ubuntu Desktop & Server 20.04 LTS	

Supported Databases

SQL Database
MySQL Server 8.0 (mysql-connector-java-8.0.24)
MS SQL Server 2016 (v13)
MS SQL Server 2017 (v14)
MS SQL Server 2019 (v15)
SQL Database
Oracle 12c.1/2
Oracle 18c
Oracle 19c LTS
Niagara SystemDB
Orient v3

Supported Browsers

Browser
Chrome (v85)
Firefox (v81)
Microsoft Edge (v85)
Web Launcher
Mobile Browser
Safari on iOS (v13.1)
Chrome on Android (v85)

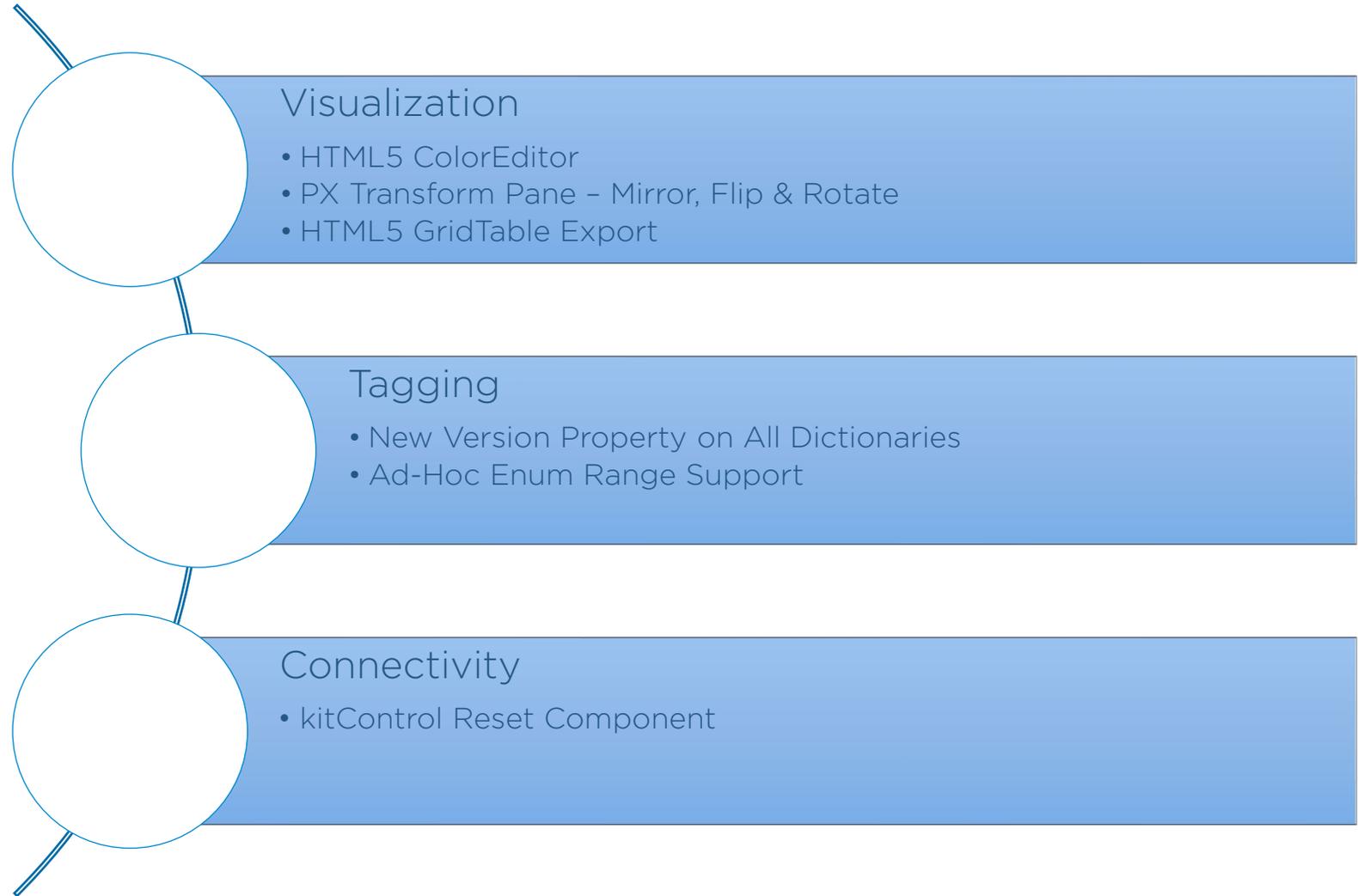


New Additions Shown in Bold

• HIDDEN GEMS
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Niagara 4.12 Hidden Gems

A Collection of **Smaller Features** with each release that provides **specific ongoing value** for Niagara stations, applications, services and/or end-users

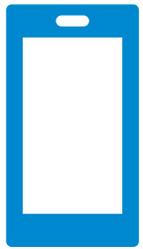


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framework[®] 4.xx

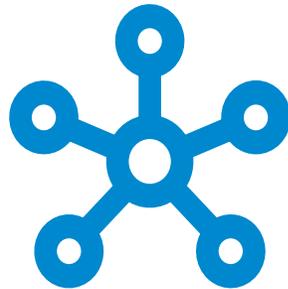
Niagara Framework[®]: Always Evolving - 4.xx

The next generation of Niagara brings exciting new features that continue to evolve Niagara's key tenets of visualization, rapid deployment, security, Edge, connectivity, certification and IT compliance.



Visualization

HTML5 Niagara
Device Manager
Views
HTML5 Certificate
Manager



Connectivity

Multi-Tiered SystemDB
Subscription Licensing
Containerized Niagara
Edge Tools Updates
Enhanced Installer



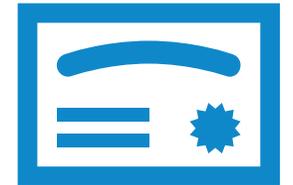
Security

Critical Support Updates &
Enhancements
SysLog Integration



Deployment

Haystack 4
Modern Auth
Support for Email
Service
Remote Updates



Certification & Compliance

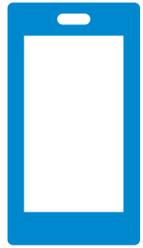
BACnet
Protocol
Revision 16
Update

All items and schedules are subject to change at Tridium's sole discretion. Tridium has no obligation to deliver any future product outlined in this document.

LONG TERM SUPPORT RELEASE

magara 4.10

Niagara Framework 4.10 LTS - Features Overview



Visualization

System DB Support for Tag Based PX
UI Performance Enhancements
Video Surveillance Viewer
HTML5 Tag Manager



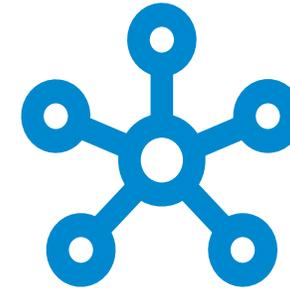
Deployment

Edge Tools Updates
Bulk Certificate Signing Tool



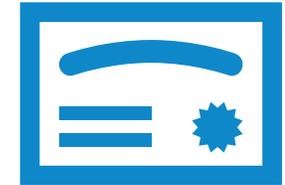
Security

Critical Defects/Enhancements



Connectivity

MQTT - Google Auth
Edge Licensing Scheme



Certification & Compliance

BACnet Certification
JACE-8000 = B-BC profile,
Supervisor = A-WS, AS-B, and MOU-B profiles
Edge-10 = B-BC profile

4.10 LTS - Update Build Cadence



The Why - Key Highlights



Support

Updates & Defect Fixes through Q4 2023



Stability

Targets Application Developers & Enterprises



Functionality

Powerful Feature Set

niagara 4.11

NOW AVAILABLE!

Niagara Framework: Always Evolving - 4.11



Visualization

WebWiresheet
WebChart
Enhancements



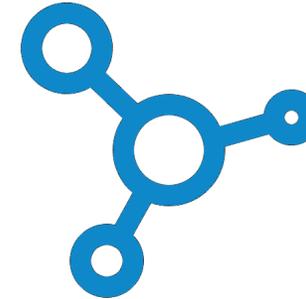
Deployment

Edge Tools Updates
Optimized JACE Memory
Added Support Infrastructure



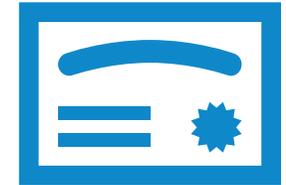
Security

Critical Support Updates
& Enhancements
TLS 1.3



Connectivity

BACnet/SC
Archive History Provider



Certification &
Compliance

Alarm Archive Provider

The Why – Key Highlights



Appeal

Latest & Greatest Features in Niagara



Innovative

Targets Customers Who Need New Functionality



Secure

Updates to Latest Support Tech & Libraries

JACE 9000

niagara
framework®

JACE-9000 - Product Intro

JACE-9000



Industry leading enterprise
supervisory controller

Key Features

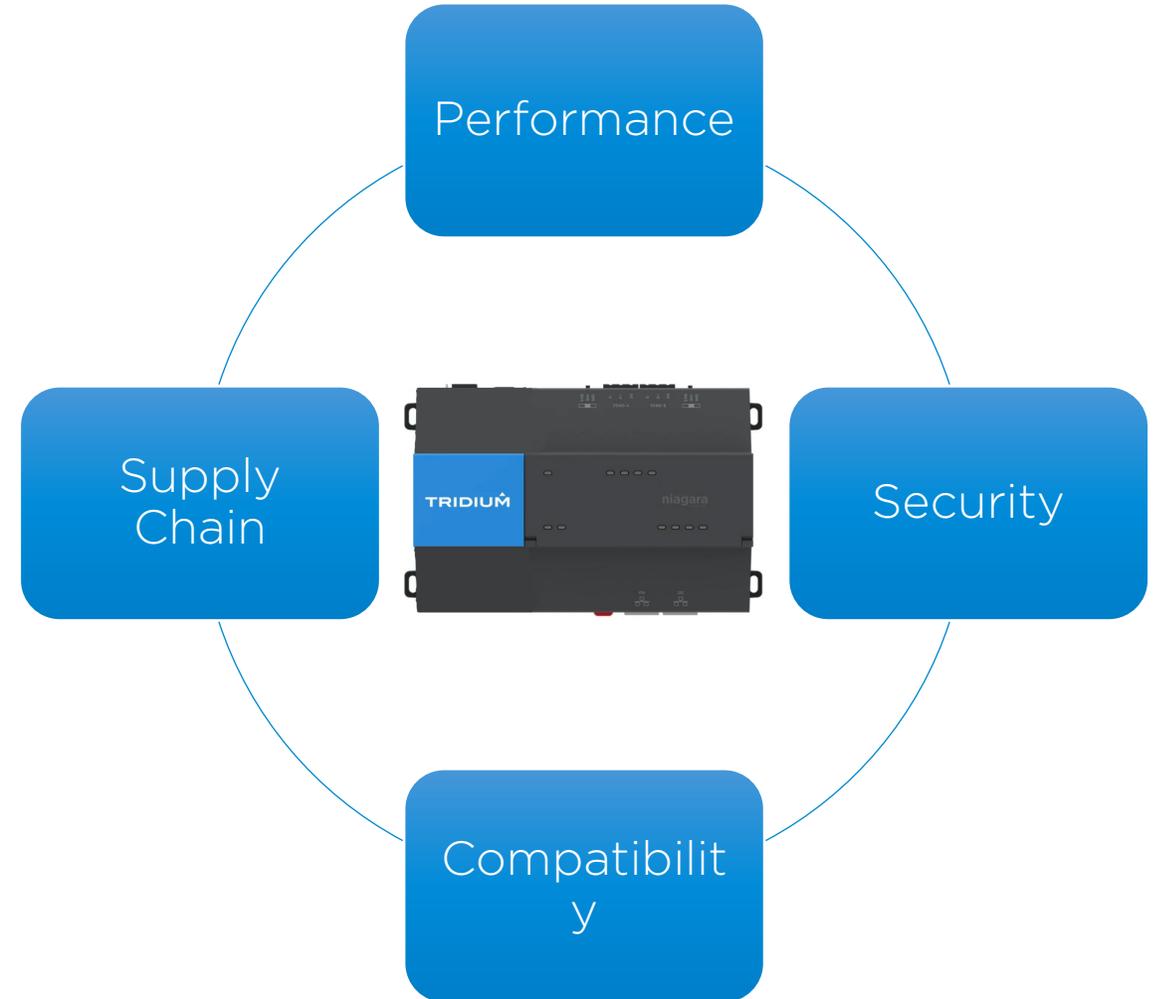
- Quad core iMX8M+ CPU
- Double the amount of RAM
- 4X the amount of storage
- Ubuntu Core 20 operating system
- Wireless and Non-Wireless model
- Refreshed branding clip
- Easy drop-in replacement / upgrade to JACE-8000
- Supports all existing expansion modules (and remote IO)
- All connectors in same location and same orientation

Roadmap Objectives

- Remote device management
- Edge computing platform
- Mobile management UI
- Machine learning capabilities (N/A)

JACE-9000 - Product Comparison

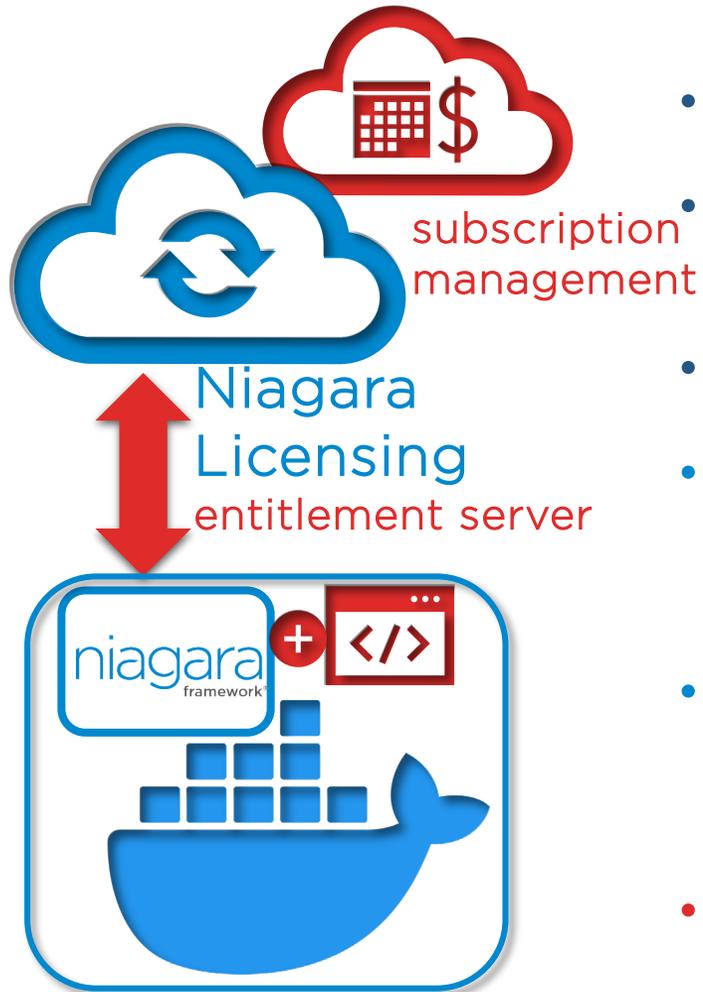
	JACE-8000	JACE-9000
Processor	Single Core 1GHz TI AM3522	Quad Core 1.6GHz NXP iMX8M+
Operating System	QNX	Ubuntu Core 20 Linux
Memory	1GB	2GB
Storage	4GB uSD	8GB uSD
RS-485 Ports	2	2
USB Backup	Yes	No
Ethernet	10/100	10/100/1000
FRAM	2Mbit	4Mbit
Wi-Fi	2.4GHz	2.4 & 5GHz
Bluetooth	NO	Yes
Debug Port	Yes	Yes



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PORTABILITY

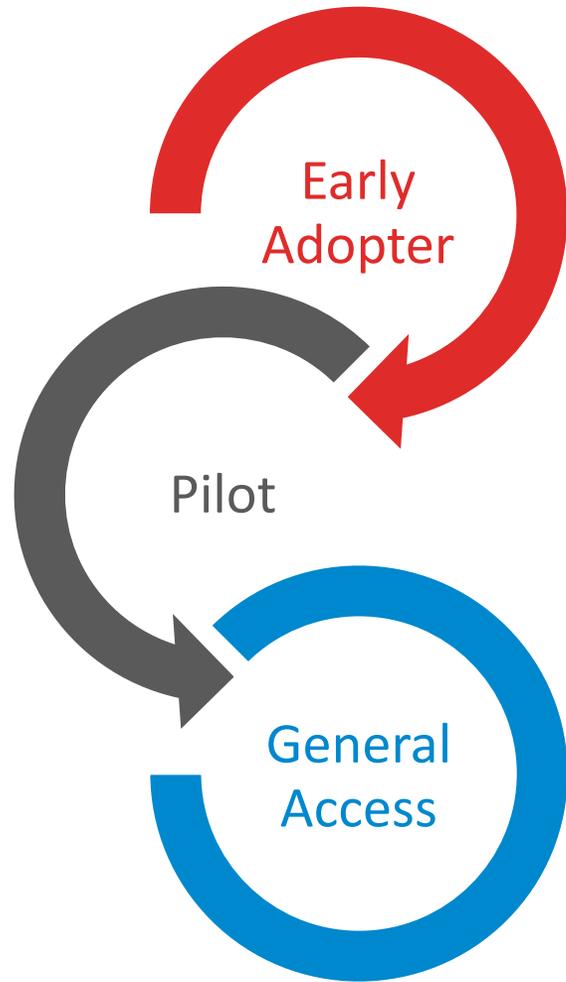
Niagara Containerization – Introduction



- Niagara Framework supplied in a Docker container
- Partner OEMs can add their own applications as required prior to their deployment
- Support for AMD_x86 and Arm64 architecture
- For OEMs using a container management system, this can facilitate **easy remote deployment and updating of Niagara on connected devices**
- As the container is commissioned, it will contact the Tridium entitlement server to authorize install, deploy license, and stay activated
- **Containerized Niagara is being launched as a subscription only service**

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Containerization – Roadmap

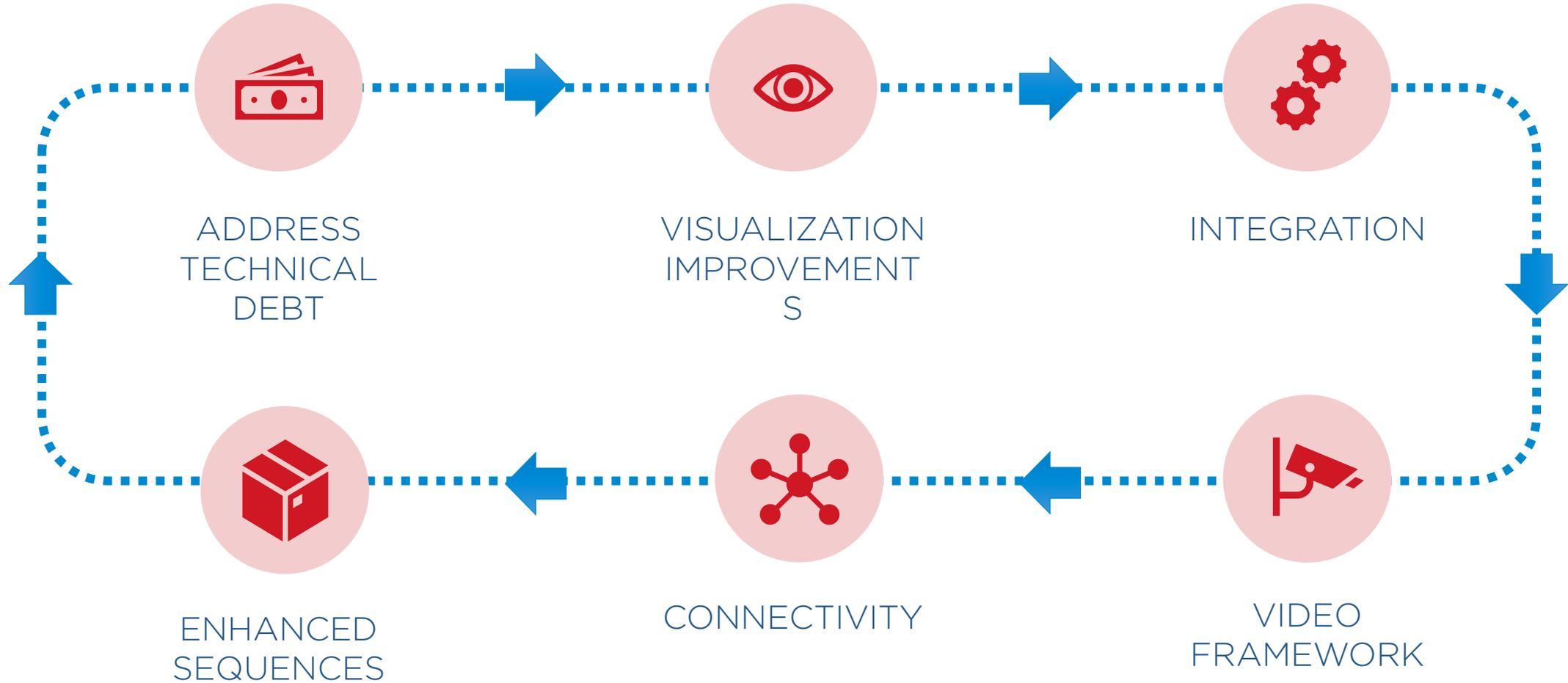


- Early adopter phase - Docker Container provided with full Niagara build plus built in JRE & Niagara licenses with 90-day expiry for testing in the partner OEM's lab
- Pilot phase - containers provided for pilot customer sites - Docker container provided with full Niagara build plus built in JRE & maximum required Niagara licenses with agreed expiry date (up to 6 months)
- All containers to be deployed in an environment that can contact the Tridium Entitlement Server to manage a) registration and activation of new site licenses b) validity of a site license c) feature set and optional add-ons to Niagara license
- Commercial offering targeted to coincide with Niagara 4.13 release

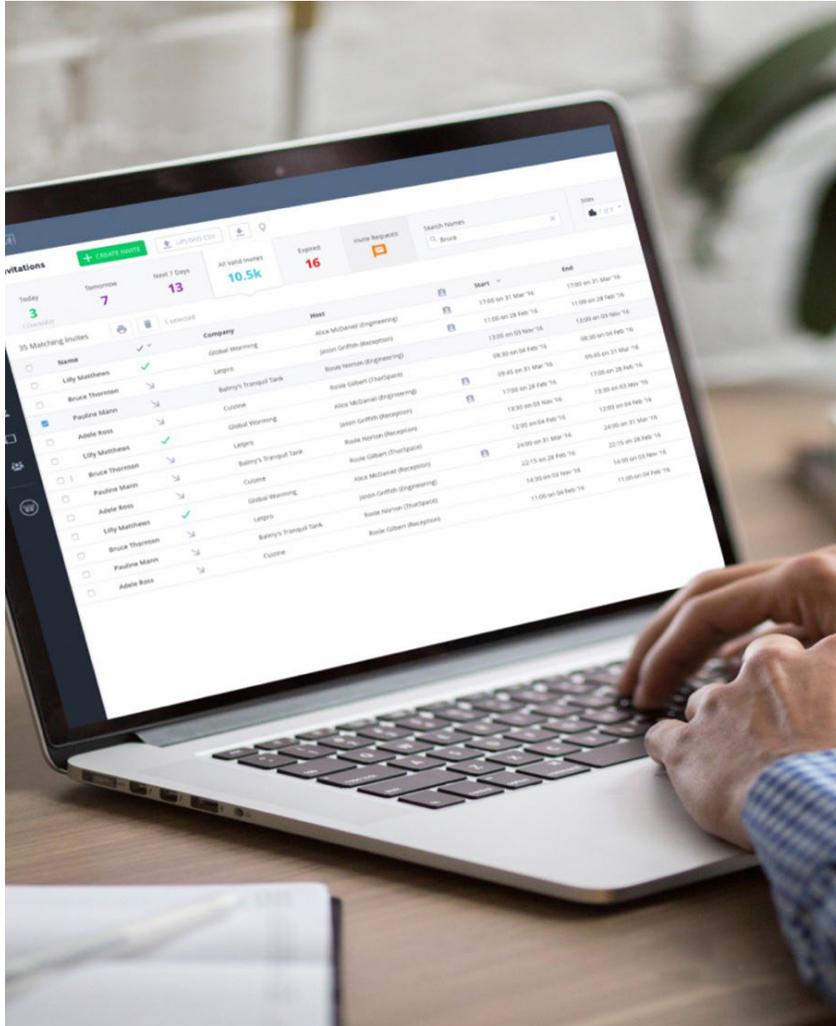
niagara

ENTERPRISE SECURITY

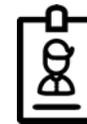
Niagara Enterprise Security – Roadmap



SINE | Niagara Enterprise Security Integration



Seamless and integrated solution to help you manage risk and compliance in your Niagara Enterprise Security.



VISITOR MANAGEMENT

Configurable, intuitive check-in process with reporting



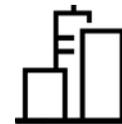
CONTRACTOR MANAGEMENT

Pre-induction and geo-fenced mobile check-in



COMPLIANCE MANAGEMENT

Digitize manual processes; record of logs and approvals



OCCUPANT EXPERIENCE

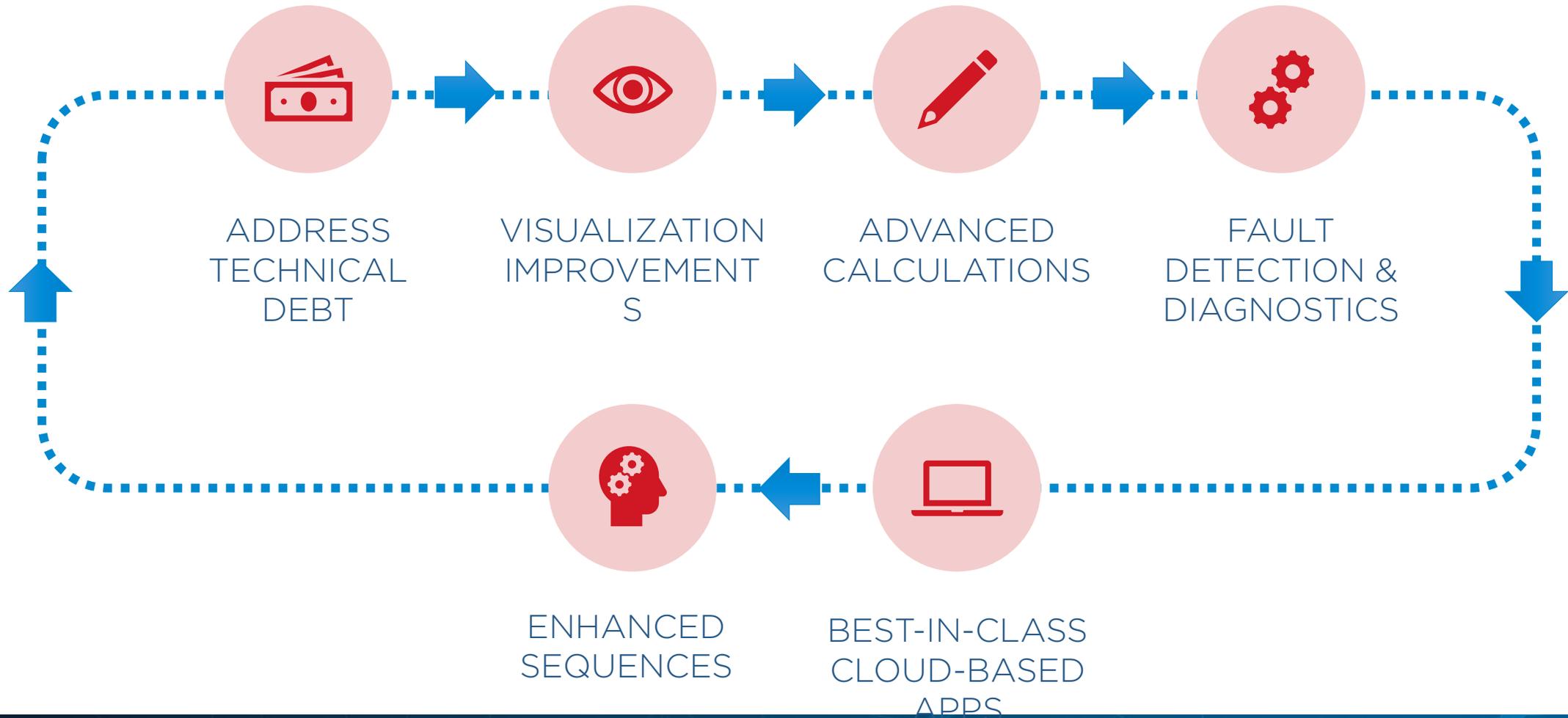
Frictionless access, information, feedback, booking

niagara

ANALYTICS



Niagara Analytics – Enhancements Roadmap

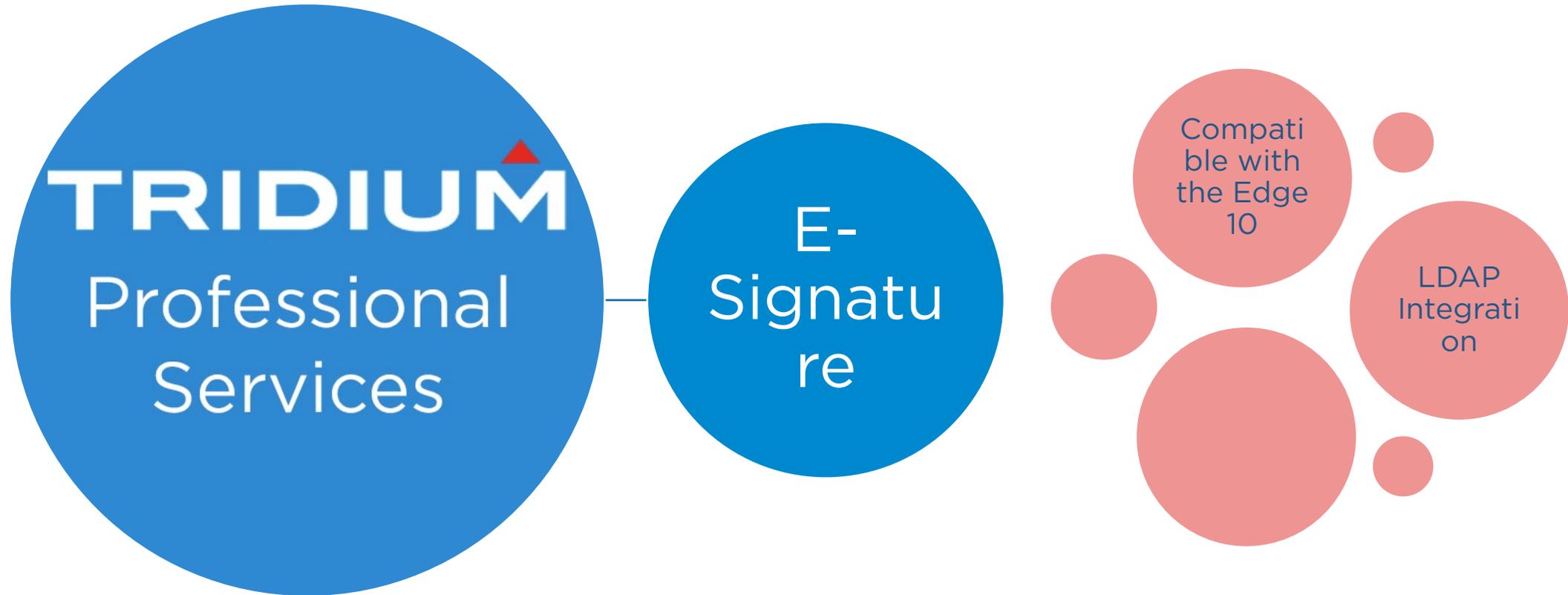


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Tridium Professional
Services

Tridium Professional – 4.12 Enhancements





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CHARLOTTE, NC | APRIL 4-6

Q&A

Thank you!!





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