

How vXchnge Centralized its Operations with the PI System and Datacenter Clarity LC

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Conference Theme & Keywords

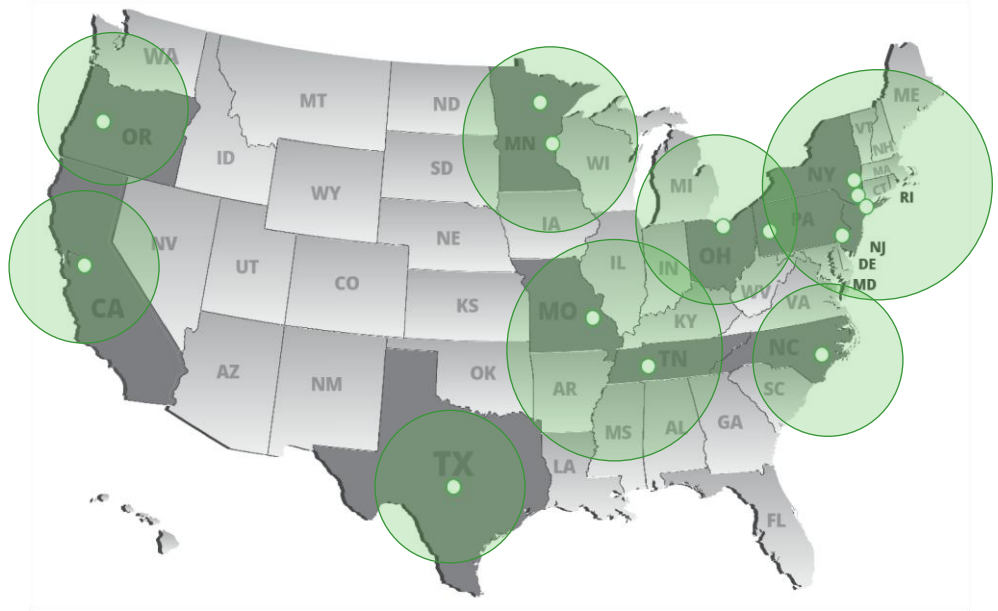


Presentation Agenda

- vXchnge
 - Introduction
 - Operational Challenges
 - Business Challenges
 - Solution: PI & Datacenter Clarity LC
 - Benefits
- Maya HTT – PI Integrator
 - Datacenter Clarity LC
 - Integrations Overview
 - Future work



- Leading carrier neutral colocation services provider
- Dedicated to improving business performance of it's customers
- 14 strategically located datacenters across the US
- Unmatched brand protection
- Flexible, Reliable, Resilient and Scalable software defined data-center



Business Challenges of a Datacenter



- Resiliency
- Forecasting & Expansion planning
- Growth
 - Site Expansion
 - New Sites

Operational Challenges of a Datacenter

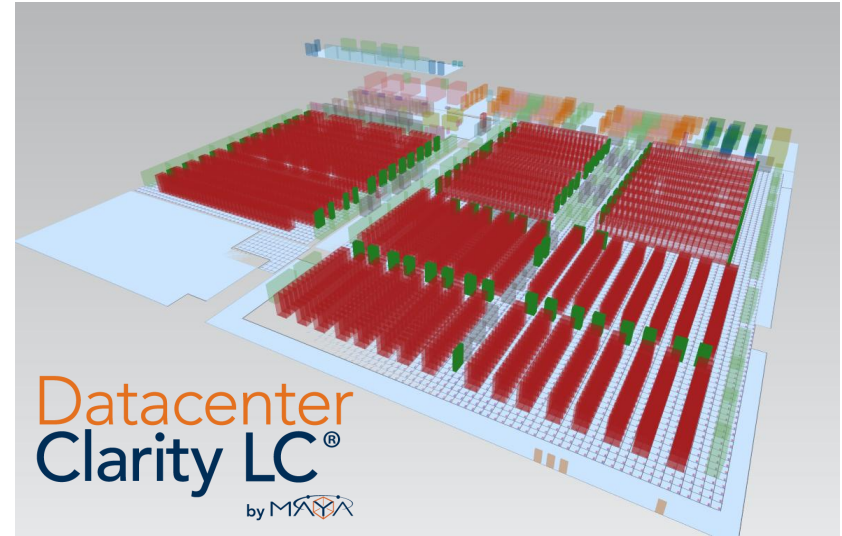
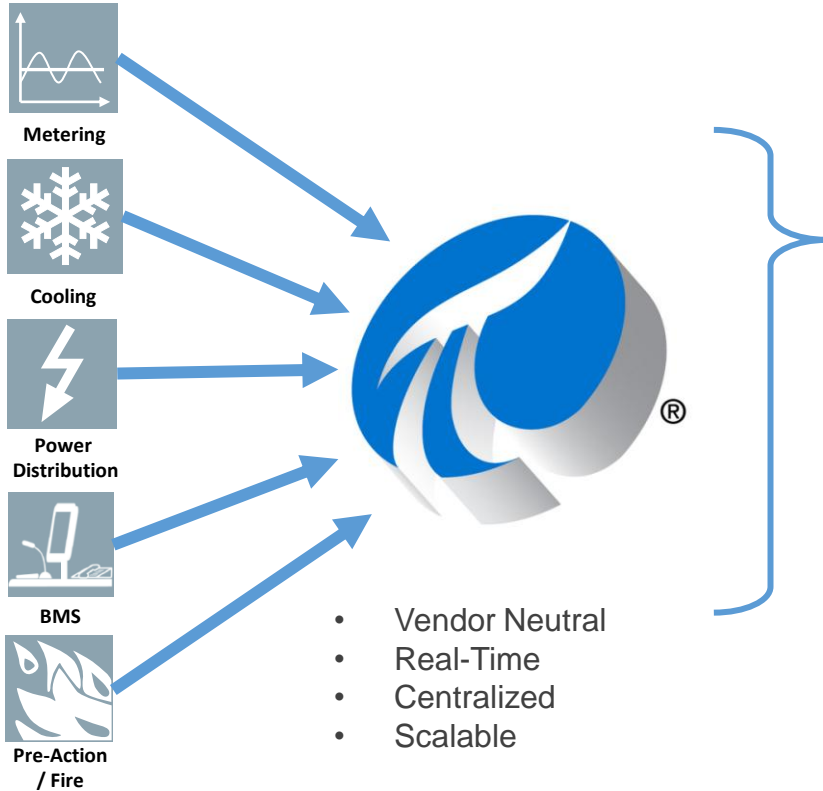
Facts

- 14 Sites
- 35+ Generators, 300+ CRACs, 5000+ Cabinets
- 24x7x365 On-Site Staff

Requirements & Objectives

- 99.9999% uptime SLA
- Keep our customers informed
- Maintain visibility into critical equipment
- Identify & troubleshoot issues quickly

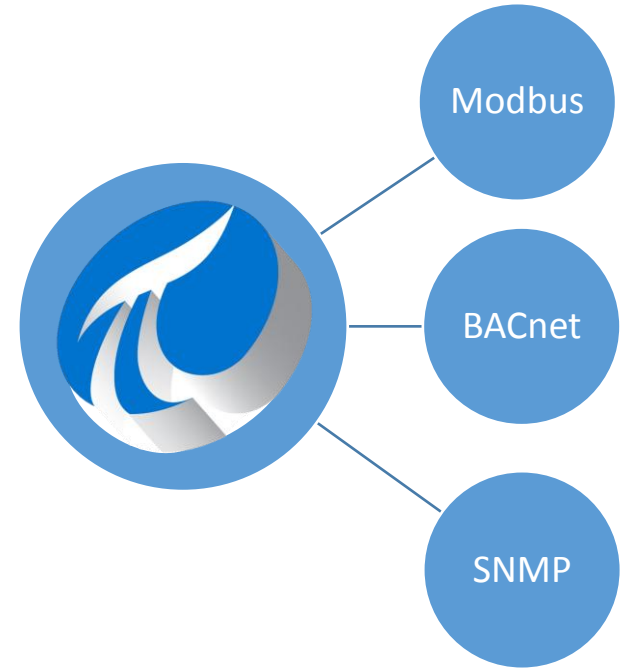
OSIsoft PI and Maya Datacenter Clarity LC



- 3D Visualization
- Asset Management
- Electrical and Network Connections
- 3D Alarm Management
- Event notification

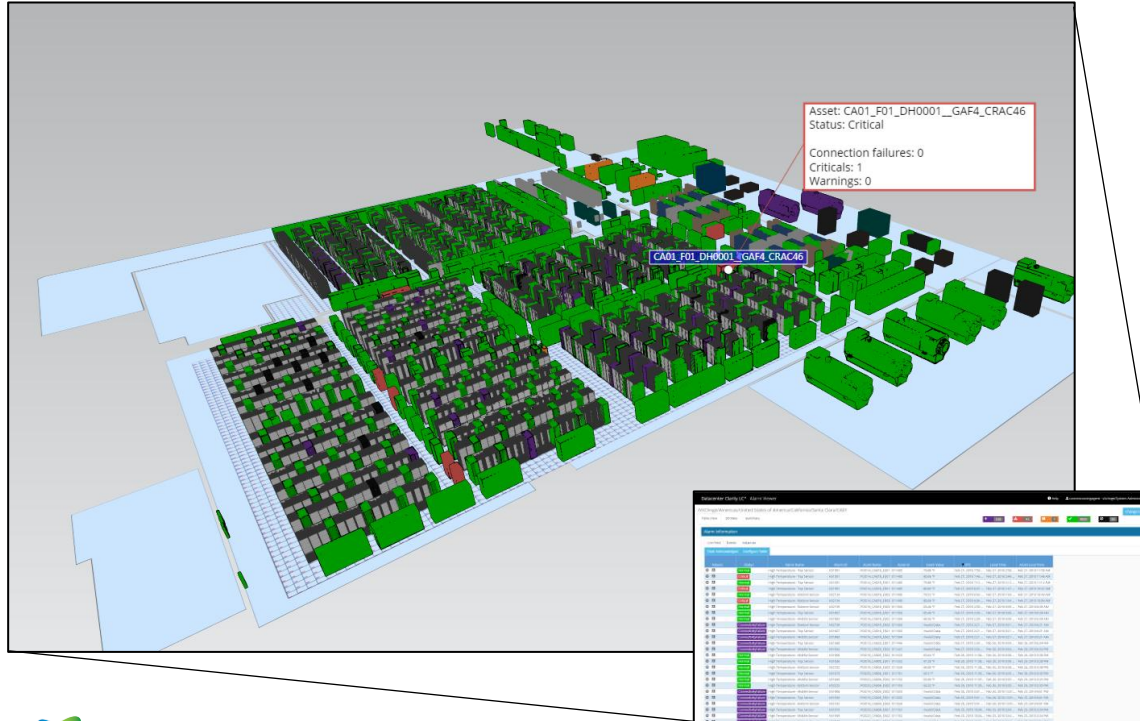
Results (1/5): Vendor Neutral

- vXchnge grows inorganically
 - requires connecting to a wide variety of equipment from different manufacturers
- Multiple communication protocols allows communication to new and legacy equipment
 - SNMP, ModbusE, ModbusS, BACnet, SNMP Trap
- Unified view of equipment across different makes/models



Result (2/5): Real-Time Data - Awareness

Alarm 3D View

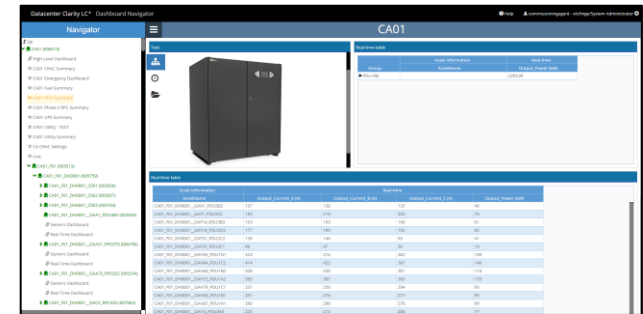


Alarm Table View

Site Emergency Dashboard



PDU Summary Dashboard



Result (3/5): Centralized Data

- vXchnge operates 14 datacenter across the US
- The PI System allows a single platform for collecting and viewing data from a wide variety of sources



Result (4/5): Streamlined & Consolidated Operations



































































Datacenter Clarity LC® Alarm Viewer Help sanjose - Datacenter Operation/San Jose Site/Datacenter Operator

Table View Tree/Map View 3D View Summary Datacenter Clarity Co/ Americas/ United States/ California/ San Jose/ 301

Alarm Information

Live Feed Events Instances

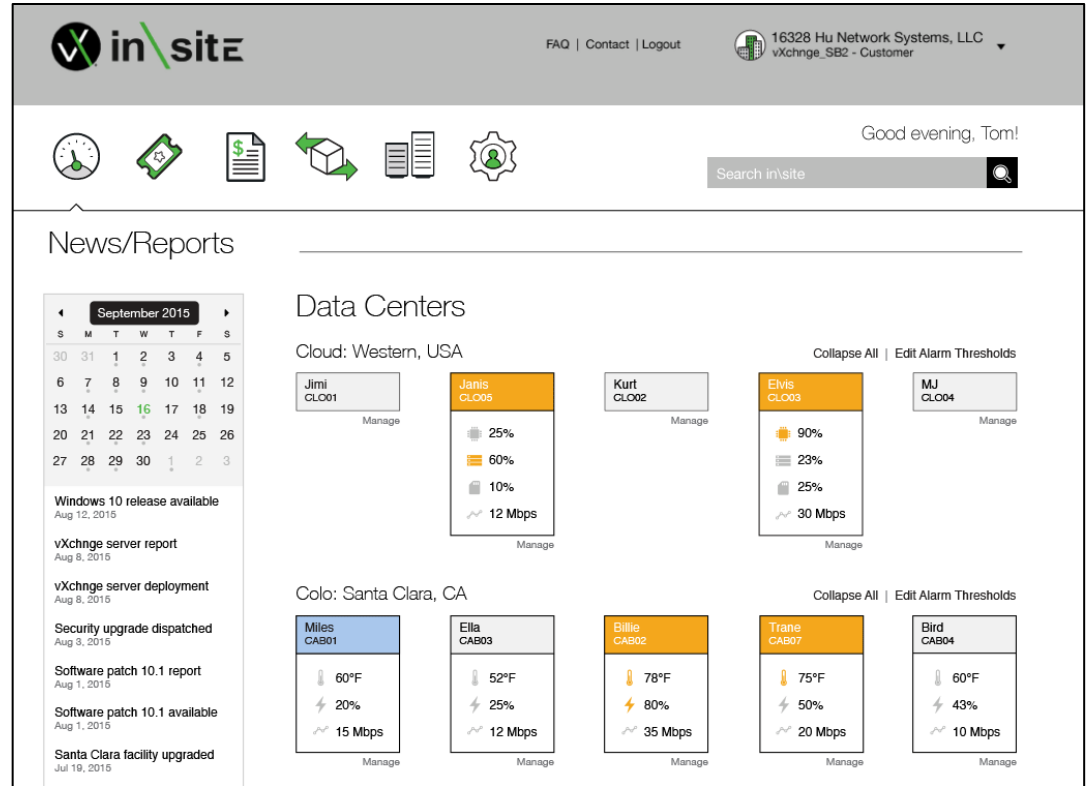
Clear Acknowledged

Actions	Status	Alarm Name	Alarm Descrip...	Alarm ID	Event Value	UTC	Local Time	Asset Local Time	Triggering Met...	Priority	Acknowledged...	Acknowledged
  	Critical	CRAC_Cooling_Ca...	Alarm for CRAC c...	A5746	19.98 %	Friday, March 2, 2...	Friday, March 2, 2...	Friday, March 2, 201...	Cooling_Capacity	1		
  	Normal	Server_CPU	Alarm for CPU us...	A6064	70.55 %	Friday, March 2, 2...	Friday, March 2, 2...	Friday, March 2, 201...	CPU	1		
  	Warning	Server_CPU	Alarm for CPU us...	A6064	75.64 %	Friday, March 2, 2...	Friday, March 2, 2...	Friday, March 2, 201...	CPU	1		
  	Warning	CRAC_Cooling_Ca...	Alarm for CRAC c...	A5746	20 %	Friday, March 2, 2...	Friday, March 2, 2...	Friday, March 2, 201...	Cooling_Capacity	1		
  	Normal	Server_CPU	Alarm for CPU us...	A6064	73.35 %	Friday, March 2, 2...	Friday, March 2, 2...	Friday, March 2, 201...	CPU	1		
  	Critical	CRAC_Cooling_Ca...	Alarm for CRAC c...	A5746	19.98 %	Friday, March 2, 2...	Friday, March 2, 2...	Friday, March 2, 201...	Cooling_Capacity	1		
  	Warning	Server_CPU	Alarm for CPU us...	A6064	75.17 %	Friday, March 2, 2...	Friday, March 2, 2...	Friday, March 2, 201...	CPU	1		
  	Normal	Server_CPU	Alarm for CPU us...	A6064	70.73 %	Friday, March 2, 2...	Friday, March 2, 2...	Friday, March 2, 201...	CPU	1		
  	Warning	Server_CPU	Alarm for CPU us...	A6064	78.94 %	Friday, March 2, 2...	Friday, March 2, 2...	Friday, March 2, 201...	CPU	1		
  	Normal	Server_CPU	Alarm for CPU us...	A6064	74.67 %	Friday, March 2, 2...	Friday, March 2, 2...	Friday, March 2, 201...	CPU	1		
  	Warning	Server_CPU	Alarm for CPU us...	A6064	77.05 %	Friday, March 2, 2...	Friday, March 2, 2...	Friday, March 2, 201...	CPU	1		
  	Warning	CRAC_Cooling_Ca...	Alarm for CRAC c...	A5746	20.01 %	Friday, March 2, 2...	Friday, March 2, 2...	Friday, March 2, 201...	Cooling_Capacity	1		
  	Critical	CRAC_Cooling_Ca...	Alarm for CRAC c...	A5746	19.98 %	Friday, March 2, 2...	Friday, March 2, 2...	Friday, March 2, 201...	Cooling_Capacity	1		
  	Warning	CRAC_Cooling_Ca...	Alarm for CRAC c...	A5746	20.01 %	Friday, March 2, 2...	Friday, March 2, 2...	Friday, March 2, 201...	Cooling_Capacity	1		
  	Critical	CRAC_Cooling_Ca...	Alarm for CRAC c...	A5746	19.98 %	Friday, March 2, 2...	Friday, March 2, 2...	Friday, March 2, 201...	Cooling_Capacity	1		
  	Warning	CRAC_Cooling_Ca...	Alarm for CRAC c...	A5746	20 %	Friday, March 2, 2...	Friday, March 2, 2...	Friday, March 2, 201...	Cooling_Capacity	1		
  	Critical	CRAC_Cooling_Ca...	Alarm for CRAC c...	A5746	19.98 %	Friday, March 2, 2...	Friday, March 2, 2...	Friday, March 2, 201...	Cooling_Capacity	1		
  	Warning	CRAC_Cooling_Ca...	Alarm for CRAC c...	A5746	20 %	Friday, March 2, 2...	Friday, March 2, 2...	Friday, March 2, 201...	Cooling_Capacity	1		
  	Normal	Server_CPU	Alarm for CPU us...	A6064	73.11 %	Friday, March 2, 2...	Friday, March 2, 2...	Friday, March 2, 201...	CPU	1		
  	Critical	CRAC_Cooling_Ca...	Alarm for CRAC c...	A5746	19.99 %	Friday, March 2, 2...	Friday, March 2, 2...	Friday, March 2, 201...	Cooling_Capacity	1		
  	Warning	Server_CPU	Alarm for CPU us...	A6064	77.75 %	Friday, March 2, 2...	Friday, March 2, 2...	Friday, March 2, 201...	CPU	1		
  	Warning	CRAC_Cooling_Ca...	Alarm for CRAC c...	A5746	20 %	Friday, March 2, 2...	Friday, March 2, 2...	Friday, March 2, 201...	Cooling_Capacity	1		

☐ Actions
☐ Status
☐ Alarm Name
☐ Alarm Description
☐ Alarm ID
☐ Event Value
☐ UTC
☐ Local Time
☐ Asset Local Time
☐ Triggering Metric
☐ Priority
☐ Acknowledged By
☐ Acknowledged Description
☐ Acknowledged Date
☐ Asset Name
☐ Asset ID
☐ Asset Category
☐ Asset Manufacturer
☐ Asset Model
☐ Asset Type
☐ Row
☐ Room
☐ Floor
☐ Building
☐ Site
☐ City
☐ State
☐ Province
☐ Country
☐ Business Zone
☐ Company
☐ Row Groups
 Drag here to set row groups

Results (5/5): Customer Value – in\site Platform

- in\site Customer Platform
- PI WebAPI used to collect data from the PI System and present in In\site



Centralized Operations with the PI System and Datacenter Clarity LC



Company and Goal:

vXchnge is a leading carrier neutral colocation services provider dedicated to improving the business performance of its customers.



CHALLENGE

vXchnge has a wide variety of mission-critical equipment from different vendors in facilities across the US

- 14 Sites
- Strict customer SLAs

SOLUTION

Centralized PI System collecting and presenting data with Datacenter Clarity LC for 3D visualization, dashboards and alarming

- Real-Time Visibility through Dashboards and Alarming
- Data Accessible to all users: Business, Operators, Customers
- 3D Visualization and Asset Management

RESULTS

The PI System and Datacenter Clarity LC allow vXchnge to manage and monitor operations effectively, in real-time

- Improved visibility and response time to critical events
- 25% reduction in commissioning time through end-to-end system testing

How vXchnge Centralized its Operations with the PI System and Datacenter Clarity LC

Foad Amoon, vXchnge, Director of Systems Management

Patrick Lepage, Maya HTT, Senior Application Engineer



Canadian Software company

- Largest simulation co in Canada
- Founded in 1982
- HQ in Montreal, 6 NA Offices
- OSIssoft OEM partner and SI
- Siemens PLM Partner since 1986
- R&D in engineering and sciences
- 29 solution portfolio
- WW and local partners



150+ employees

- 100 Developers
- 35 PhD
- 44 Masters
- 26 Languages
- 30 Nationalities

WW Projects

- 1,000,000 cars
- 10,000 aircraft engines
- 1000+ engineering projects
- 100+ datacenter sites
- 50+ satellites in orbit
- 1 really good hockey stick

Offerings

- Software Development
- Machine learning / AI
- IIOT
- Engineering Services
- Optimization & Simulation



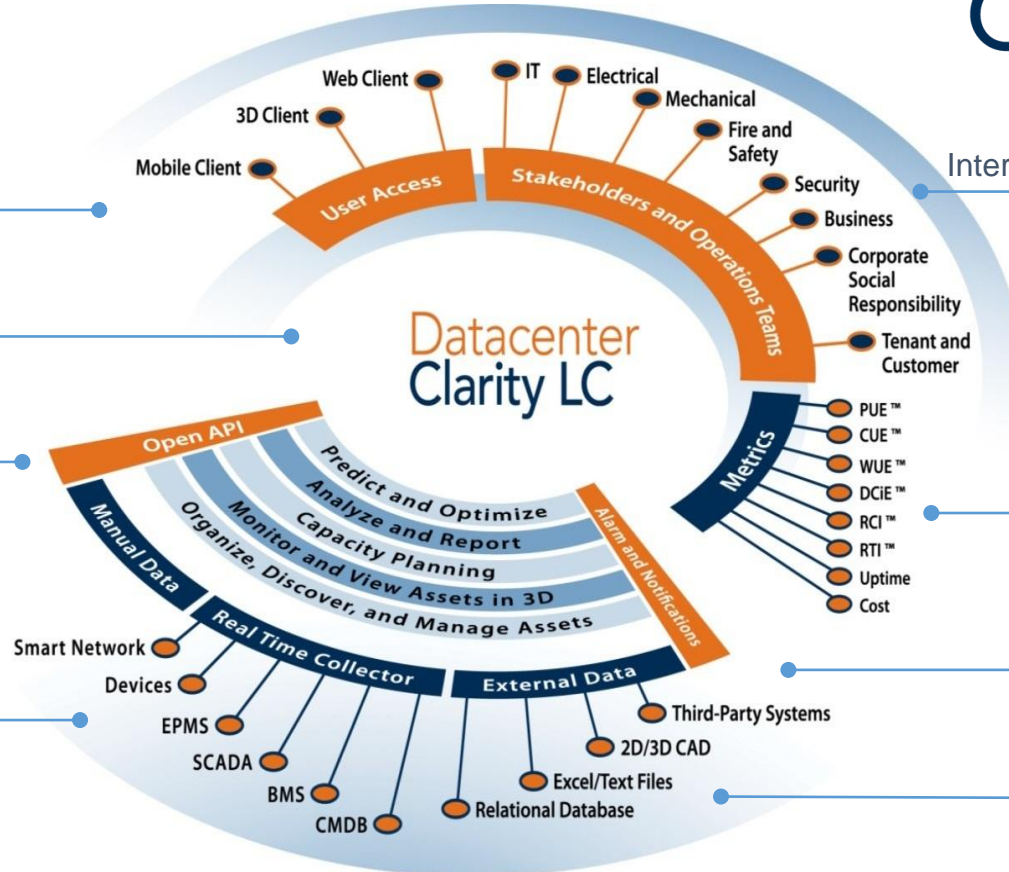
Datacenter Infrastructure Management (DCIM)

Datacenter
Clarity LC[®]
by MAYA

Operational access

AI Ready

Integration of 3rd party systems using open API



Interaction with different Stakeholders

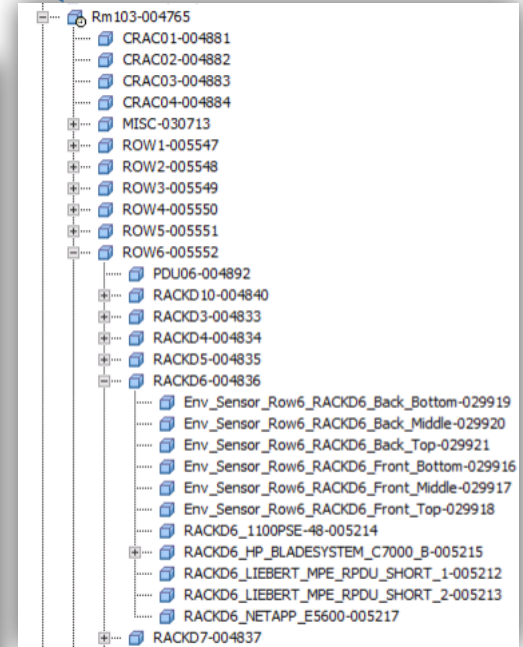
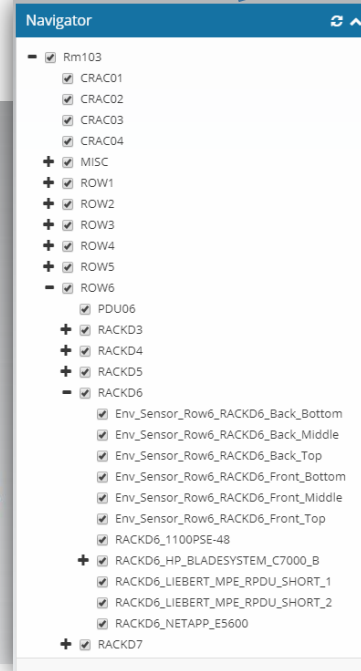
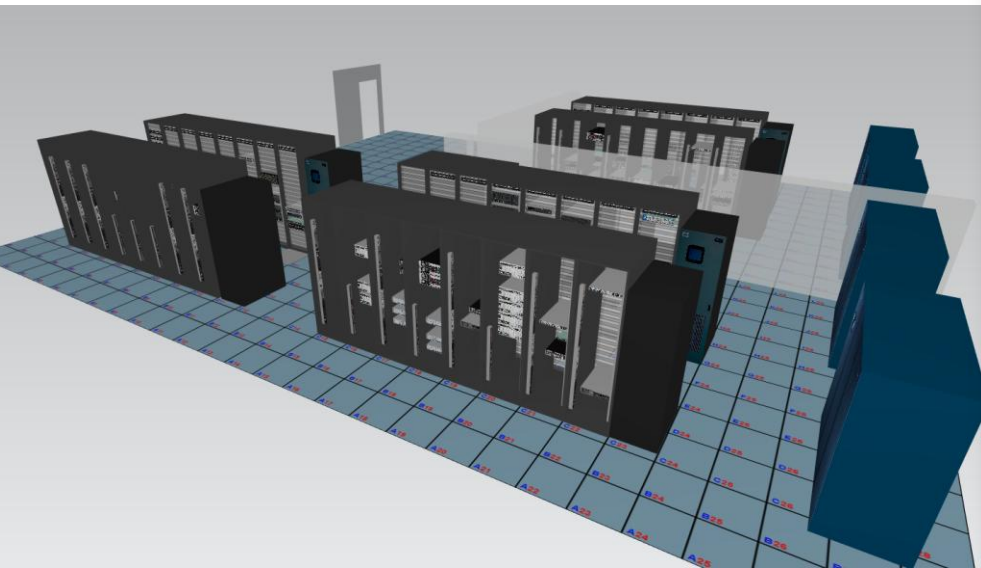
Key Performance Metrics

Alarm management based upon webclient access

Existing data's which will be used to feed Clarity LC

The OSIsoft PI System is the Real-Time Monitoring Foundation of Datacenter Clarity LC

Replicating the data center assembly structure in PI AF



The OSIsoft PI System is the Real-Time Foundation of Datacenter Clarity LC

PI points created from DCIM interface

Real Time Attributes

Realtime Monitoring Enabled: ☐ True ☒ False

Protocol: SNMP

Name	Value
CommunityString	vxchnge
HostName	10.6.9.132
InterfaceID	13
PointSource	SNMP_CAEXP
SNMPVersion	2c
ScanClass	1

	Name	Value
	Return_Temperature	78.400001168251 °F
	DisplayName	Return Temperature
	IsRTM	True
	MaxValue	100
	MinValue	50
	Config	SNMP protocol is used
	_Last	1.50.3;CS=vxchnge;V=2c
	SNMP	\\%Server%\%Element%

Text Visualizer

```
\\%Server%\CA01_F01_EL0002_EP01_CRAC101-021603.Return_Temperature;descriptor=CA01_F01_EL0002_EP01_CRAC101-021603  
Return_Temperature;pointsource=SNMP_CAEXP;ReadOnly=True;ptclassname=classic;pointtype=Float64;exdesc="OID=.1.3.6.1.4.1.476.1.42.3.4.1.2.3.1.50.3;  
CS=vxchnge;V=2c";compdev=1;compdevpercent=1;instrumenttag="HOST=10.6.9.132";location1=13;location4=1;convers=0.1;shutdown=0;span=1
```

☒ Word Wrap

OK Cancel

OSIsoft and Datacenter Clarity LC at vXchnge

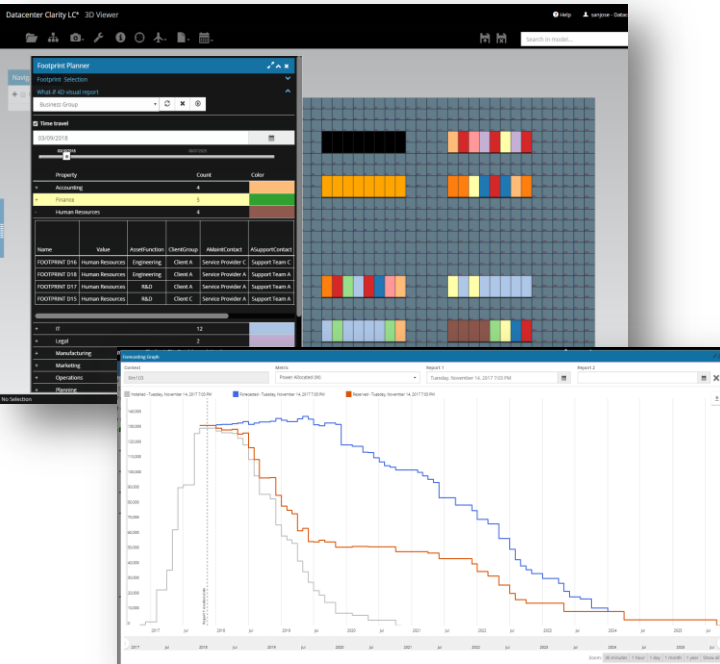


- Currently deployed at 3 Sites
- PI Data Archive, PI AF, PI Web API, 25+ Interface Nodes
- High Availability – PI Collective
- 16,000 Elements, ~150,000 Data Streams, ~15,000 Alarms
- Installation and Configuration work done remotely

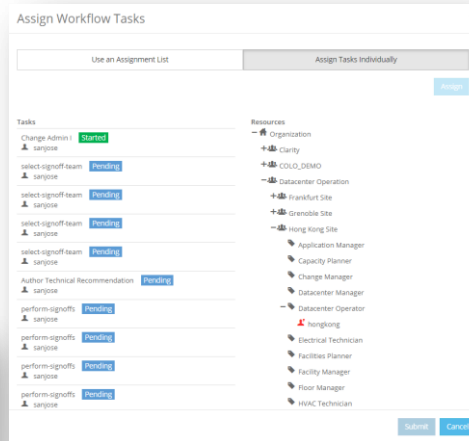
Future work at vXchnge



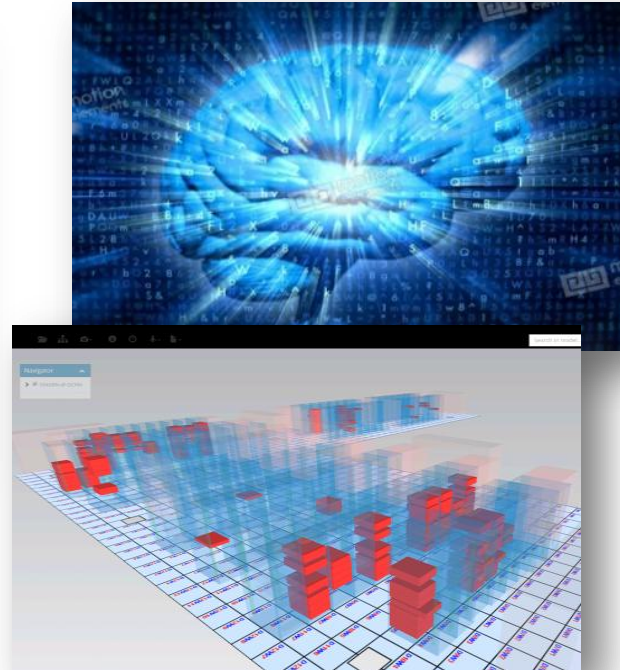
Forecasting & Capacity Planning



Workflow & Change Management



Predictive Analysis & Machine Learning





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- Director, Systems Management
- vXchnge



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- Senior Application Engineer
- Maya HTT

Questions

Please wait for the **microphone** before asking your questions

State your **name & company**



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Merci

谢谢

Спасибо

Danke

Gracias

Thank You

감사합니다

ありがとう

Grazie

Obrigado