

# FEDERAL UTILITY PARTNERSHIP WORKING GROUP SEMINAR

November 15-16, 2017  
Ontario, California

## Cybersecurity – Providing Secure Access to Operational Data while Protecting Industrial Control Networks

Hosted by:



# OSIsoft - We believe **People with Data** can **Transform** their World



“Data is valuable. The more data you have, the more value you have.”

**Dr. Patrick Kennedy, Founder OSIsoft**



“OSIsoft and the PI System exist to make you smarter, enabling better decisions and improved operational and reliability excellence.”

**Christopher J Crosby, Principal Advisor, OSIsoft**

“OSIsoft delivers the information infrastructure for the operating world.”

**David Mount, Partner KPC&B and Former OSIsoft Board Member**



# About OSIsoft

Founded in  
**1980**

**15,000+** Installations,  
**4,000+** Customers  
in **123** Countries

World-Class  
Customer  
Support

Privately  
Held  
Company

Global  
Presence, **27**  
Offices  
Worldwide

Power & Utilities  
Oil & Gas  
Chemical/Petro  
Metals & Mining  
Pulp & Paper  
Pharma, Life Sciences

Datacenters/Facilities  
Discrete/Food & Bev  
Transportation

"Pathfinders"  
Over 20% of  
Revenue in R&D

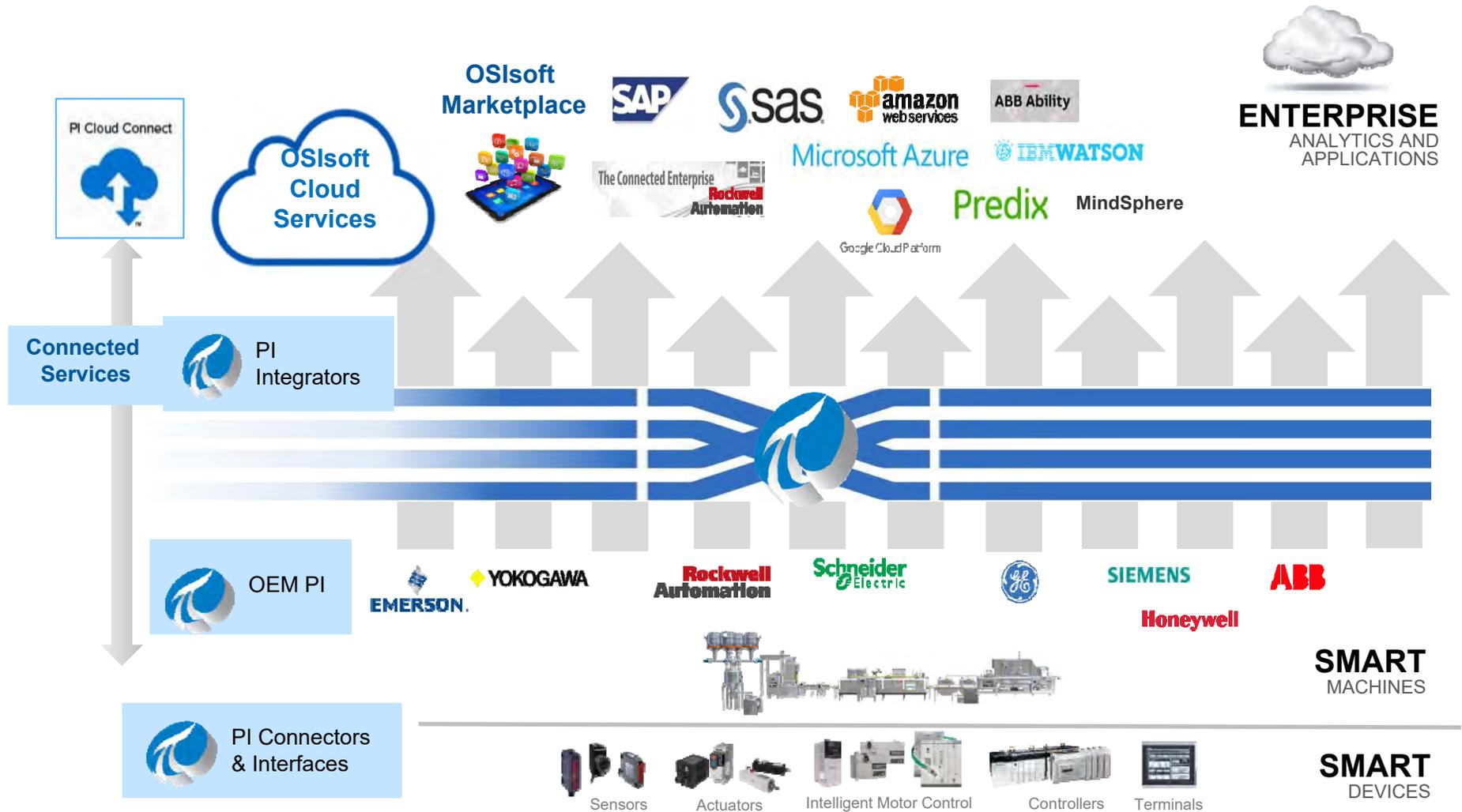
**1,300**  
Employees

**65%** of Global 500  
Process & Manufacturing

Makers of 1 Solution Infrastructure:  
**The PI System**  
Commercially Off-the-Shelf (COTS)



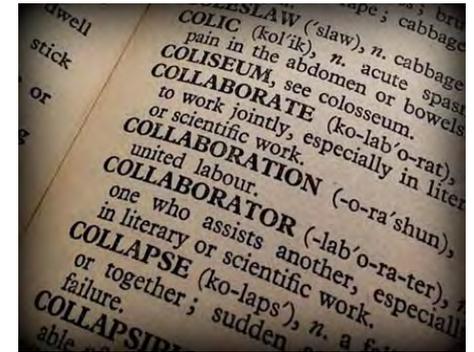
# An Infrastructure for Digital Transformation



Empowering Business in Real-Time.

© Copyright 2015 OSisoft, LLC

# Nuclear Industry Cybersecurity Program Development



## *Regulations and Standards*

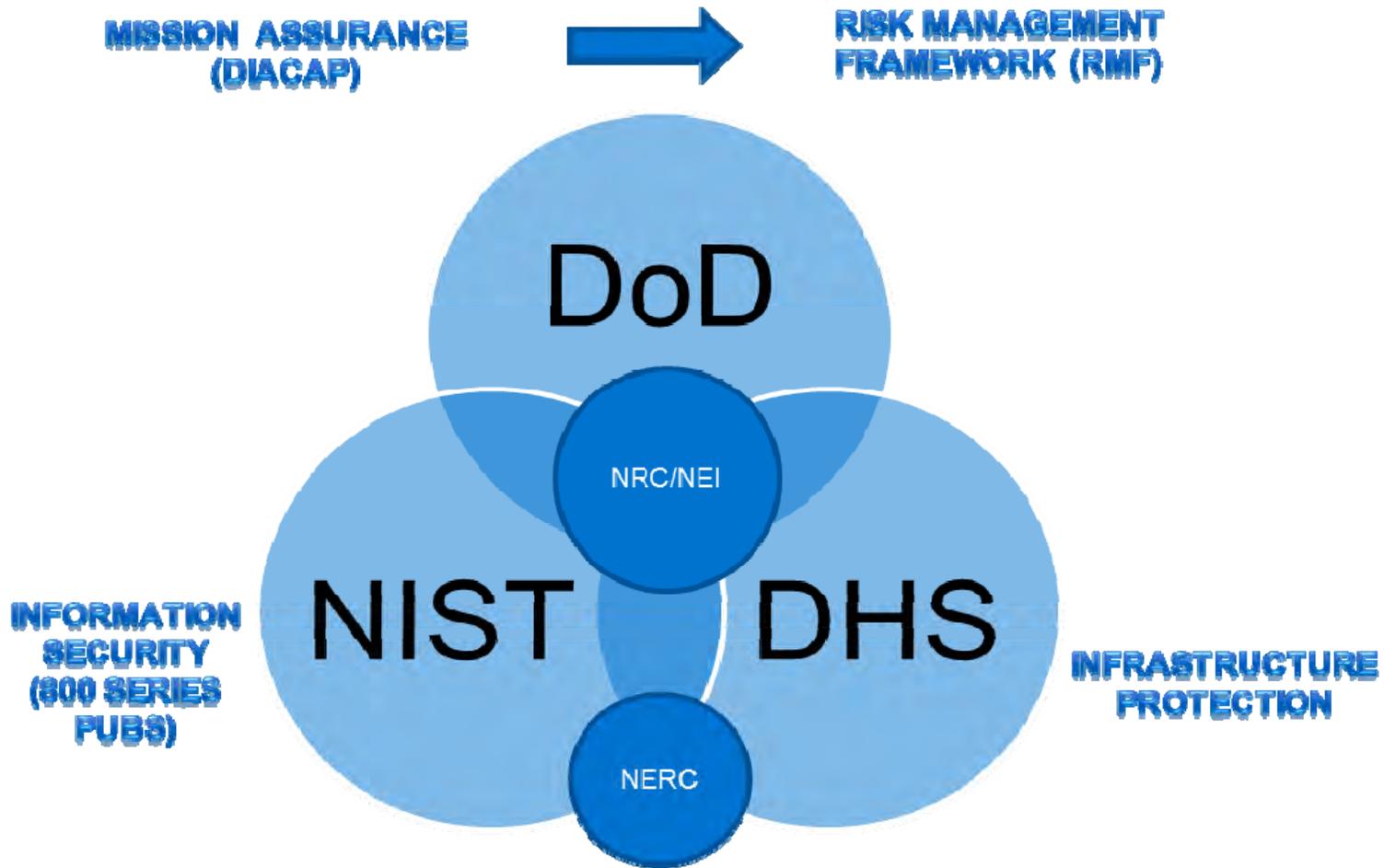
- **10CFR73.54** -- “Protection of digital computer and communication systems and networks”
- **NRC Reg. Guide 5.71** -- “Cyber security programs for nuclear facilities”
- **NIST 800-53** -- “Recommended security controls for federal information systems”
- **NIST 800-82** -- “Industrial control system security”
- **DHS Control Systems Security Program** -- “Secure architecture design”
- **NEI 08-09** -- “Cyber security plan for nuclear power reactors”
- **NERC Critical Infrastructure Protection**

## *Collaboration and Cooperation – Regulators and Industry*

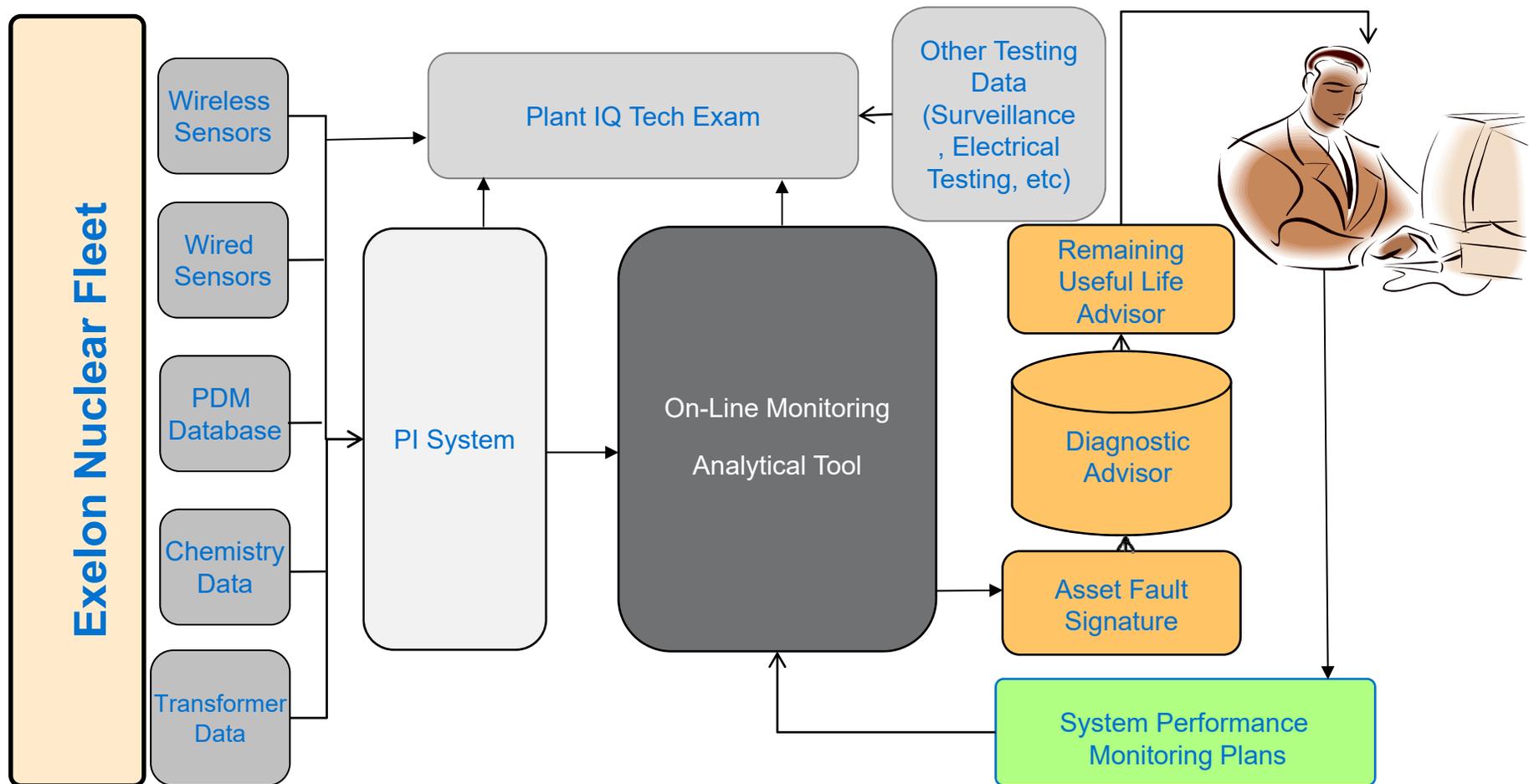
- **NRC – Regulator**
- **NEI – Industry Group**
- **NITSL – Nuclear Information Technology Strategic Leadership**
- **Nuclear Licensees**



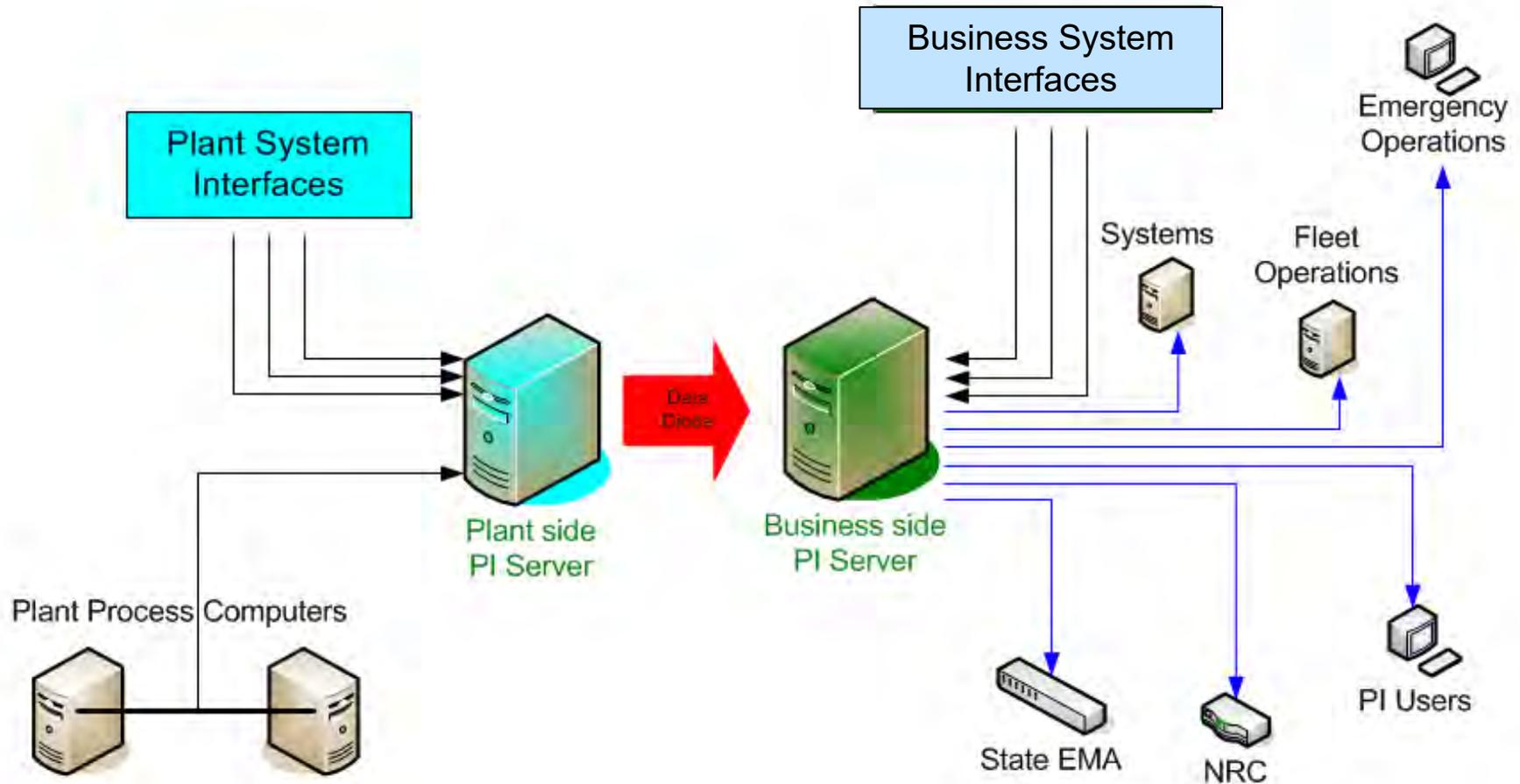
# Nuclear Industry Cybersecurity Program Development



# Exelon Nuclear Advanced Performance Monitoring



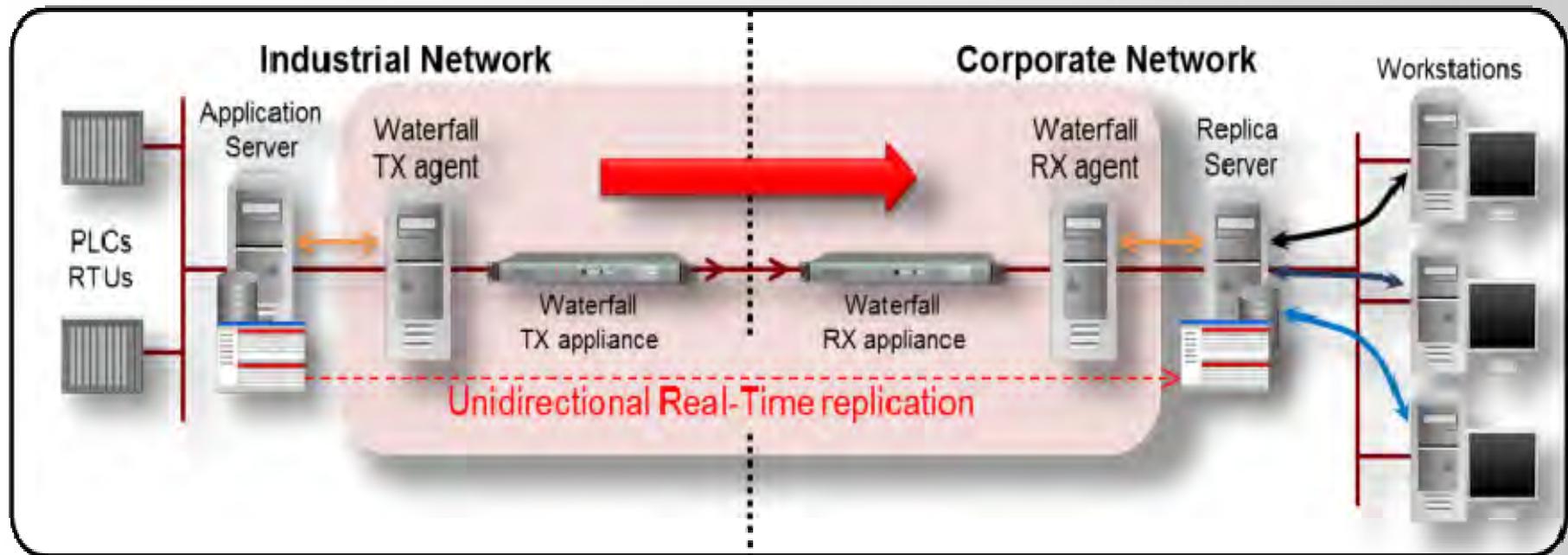
# Exelon Nuclear Architecture





## Unidirectional Security Gateways

- Hardware-enforced security
- Laser in TX, photocell in RX, fibre-optic cable – you can send data out, but *nothing* can get back in to protected network
- TX uses 2-way protocols to gather data from protected/industrial network
- RX uses 2-way protocols to publish data to external/corporate network



# Navy Smart Grid – Andy Knox, Naval Facilities Engineering Command, August 15<sup>th</sup>, 2017 (EE)

A regionally centralized, cyber secure monitoring and control system that analyzes building energy and utility data to generate actionable information or automatically adjust energy usage

## Facility & Utility Level

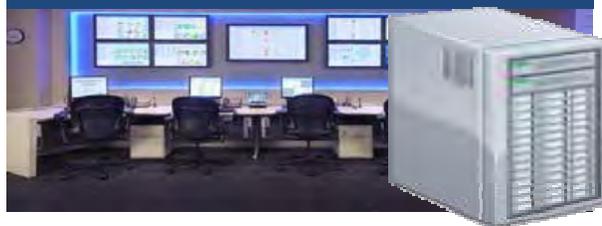


## Installation Level



## Regional Level

### Facility and Energy Operations Center (FEOC)



### Platform Enclave/ Navy-UMCS

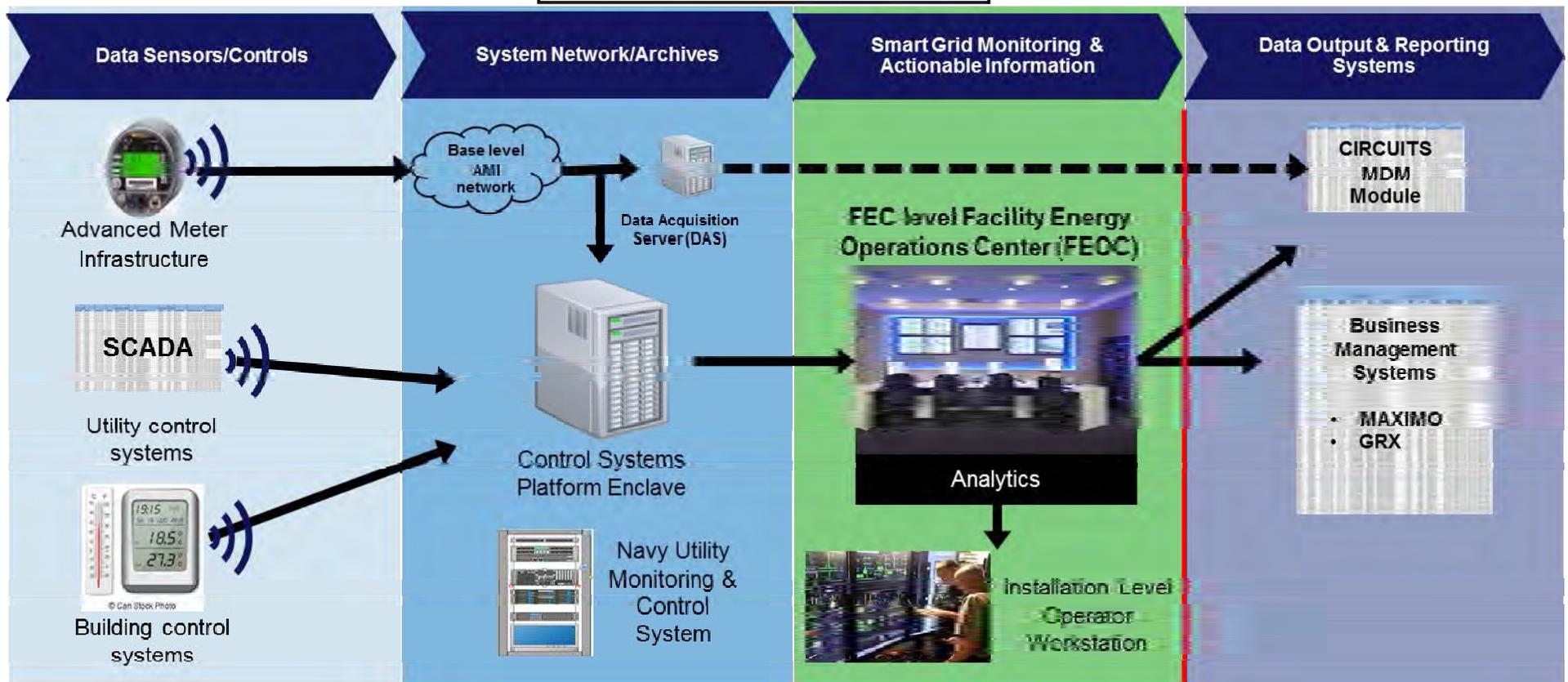
Secure technology platform that enables data exchange at all touch-points and hosts Smart Grid analytics

Secure Connection/Fiber

# Smart Grid in the Navy – Andy Knox

Navy's Smart Grid Program will deploy and sustain smart grids at all nine regionally-based locations

## Smart Grid Architecture



## Challenges and Lessons Learned – Andy Knox

- Cyber security – diverse control system accreditation
- Connection and integration of advanced metering infrastructure, building and utility control systems enables broader visibility
- Centralized analytic capability with actionable information accessible at field level
- Operations requiring coordination across traditional work units

# Success Factors in the Transfer of Commercial Cybersecurity Experience to Defense

- Leverage COTS (ATO expected before end of year)
- Leverage Commercial sector experience and industry investment (nuclear industry alone estimated at \$1B over last six years)
- Involve NEC (Federal IT folks) early
- Find Operational Technology (OT) experience with deep expertise in IT systems and networking technology
- Understand RMF process (lifecycle management, establish and maintain a 'process' - not a 'project')

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

State your  
**name & organization**

**Chris Crosby, Principal Advisor, Business Transformation**

[ccrosby@osisoft.com](mailto:ccrosby@osisoft.com)

Cell +1-843-323-2570

OSIsoft, LLC