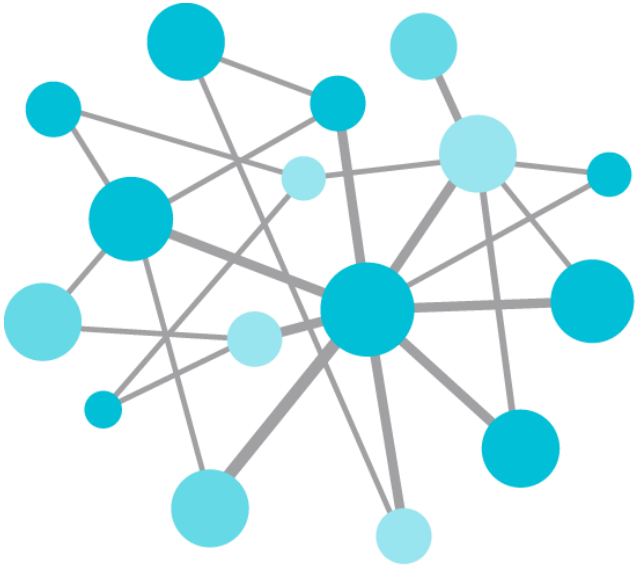


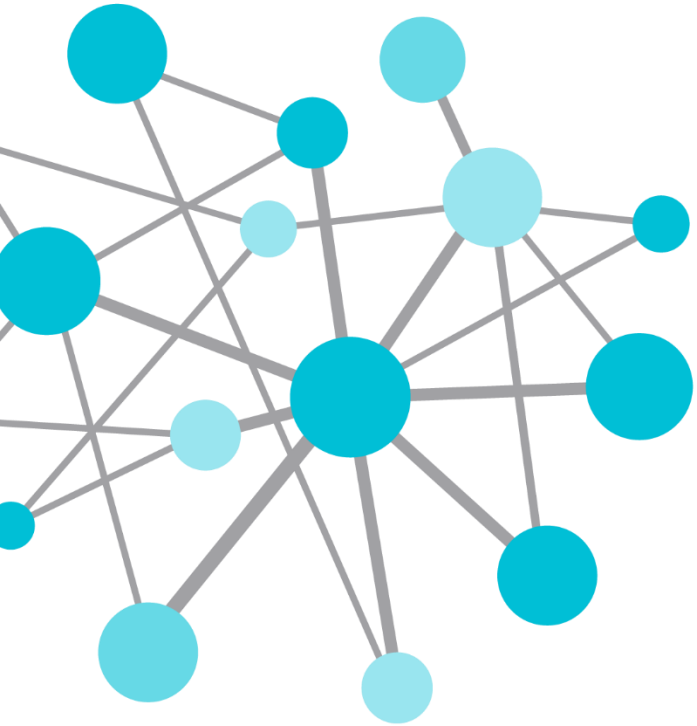
OSIsoft®

INDUSTRY SEMINAR 2014

The Power of Data

EMEA

DECISION READY IN REAL-TIME



New York ISO - Dynamic Data Response

Presented by **Matthew Musto**

NYISO – Dynamic Data Response

As the amount of information system operators, engineers and business units face continues to grow, we are working with OSIsoft and other industry partners to develop new ways of dynamically visualizing and delivering pertinent information to the user.

Business Challenge

- Information Overload
- Difficult to find information

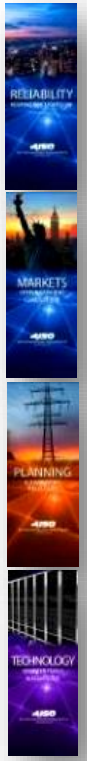
Solution

- PI Notifications and PI Event Frames leveraging AF allow data to ‘present itself’ to the user when it is pertinent

Results and Benefits

- Improved Situational Awareness
- Less burden on system operators

Roles of the New York ISO



Reliable operation of the bulk electricity grid

- *Managing the flow of power on 11,000 circuit-miles of transmission lines from more than 300 generating units*

Administration of open and competitive wholesale electricity markets

- *Bringing together buyers and sellers of energy and related products and services*

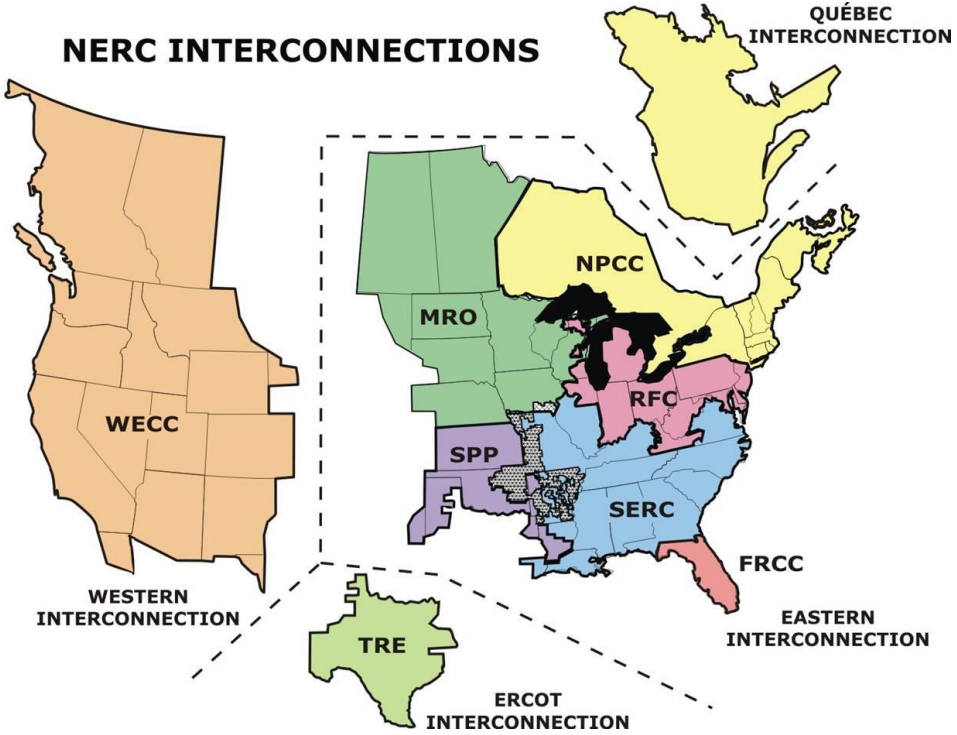
Planning for New York's energy future

- *Assessing needs over a 10-year horizon and evaluating projects proposed to meet those needs*

Advancing the technological infrastructure of the electric system

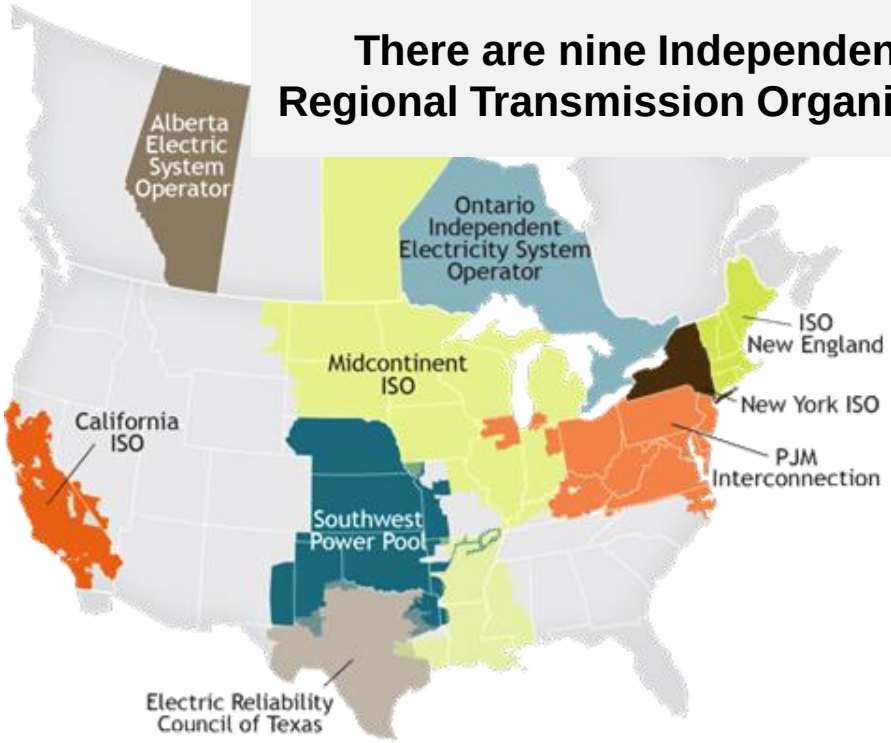
- *Developing and deploying information technology and tools to make the grid smarter*

North American Electric Grid



Four major interconnections serve the U.S. and Canada

ISOs & RTOs



There are nine Independent System Operators (ISOs) & Regional Transmission Organizations (RTOs) in North America

ISOs & RTOs serve approximately two-thirds of electricity consumers in the United States and one-half of Canada's population

Old Power Control Center

New York Power Pool
Power Control Center
1970

NYISO PI History

- PI System was first adopted at NYISO in 2001
  - *Began as EMS historian software (ICCP to PI, single server)*
- PI environment grew with SMD2 (RANGER) initiative 2003-2005
  - *Two collectives (Secure and Corporate)*
- High Frequency telemetry data historized beginning in 2006
  - *Standalone system*
- Provided new opportunities:
  - *Multiple data streams to multiple PI collectives*
  - *PI useful for real-time visualization*
  - *Engineering and operations teams engaged*

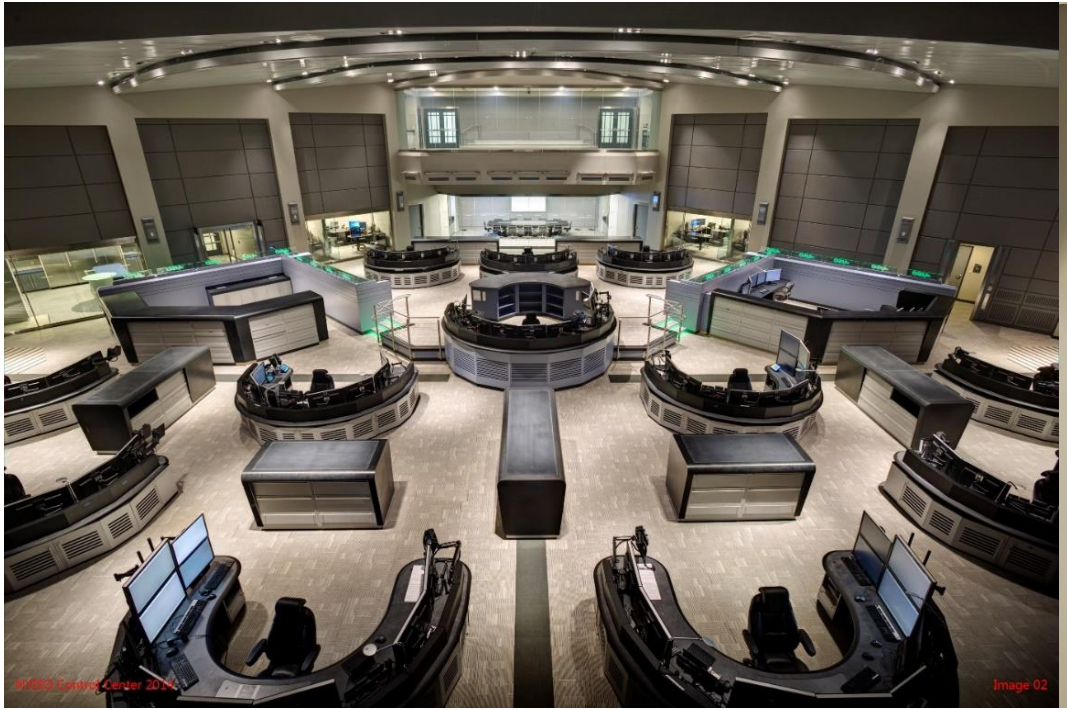
Historized NYISO Data

- EMS Measurements (RANGER)
- EMS Calculations (Performance Equations)
- Analog Telemetry Data
  - *100ms data acquired via Programmable Logic Controller (PLC) -> PI MODBUS Ethernet Interface*

Business Processes Served

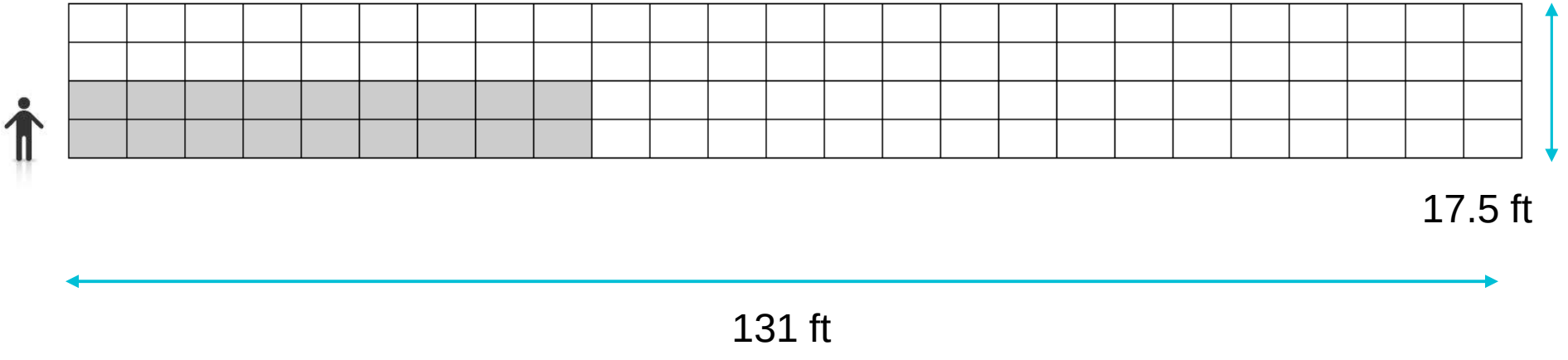
- Real Time Operations Visualization
- Engineering and Planning Data
  - *MS Excel and Process book*
- Billing and Settlements
  - *Custom Java application feeding Oracle Billing and Settlements System*
- Load Forecasting
  - *Diagnostics used for calibrating/validating real-time load data*
- Training/Simulation
  - *Integration with DTS to replay events in training*
- Web Applications

Building a New Control Center

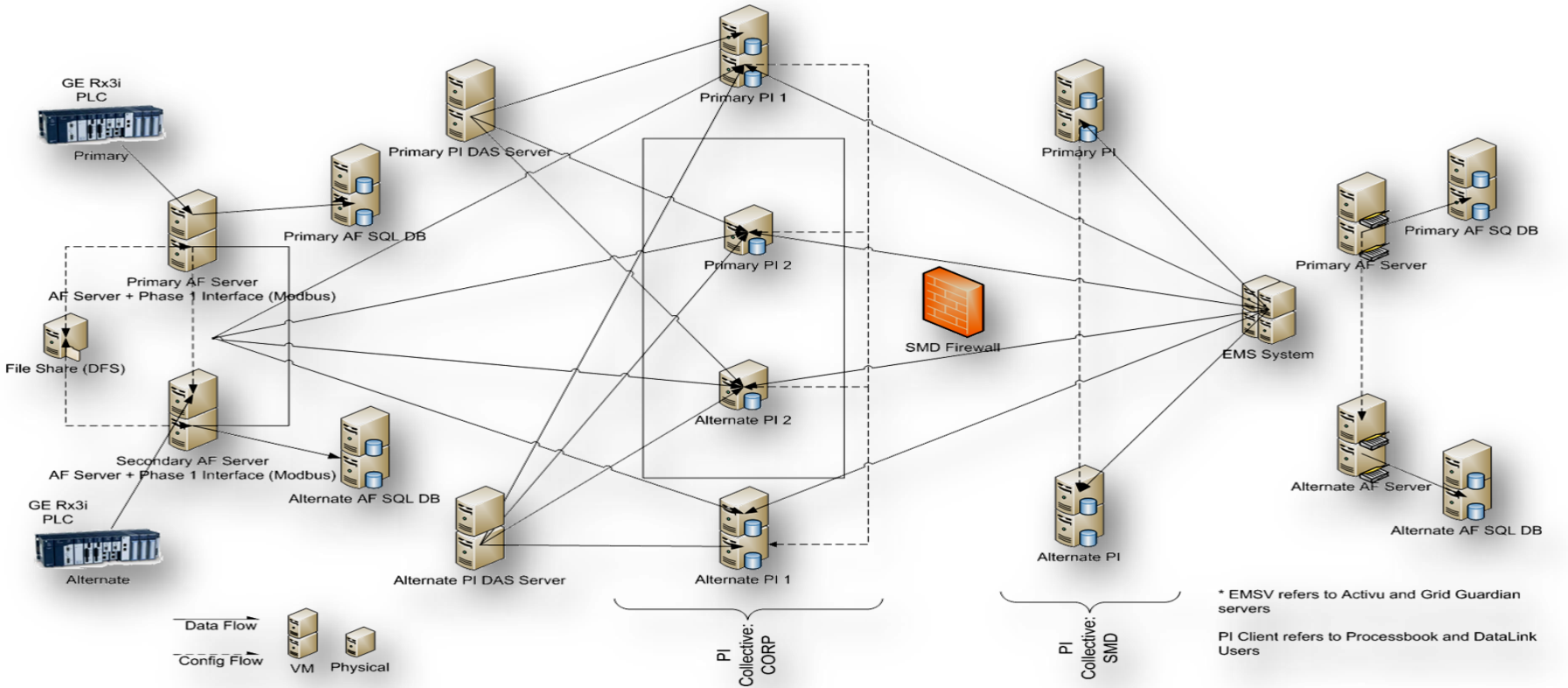


...An All Digital Control Center

- 100 - 80” Mitsubishi LED cubes
- 147 Megapixels of flexible canvas
- Fully redundant system with <100ms failover

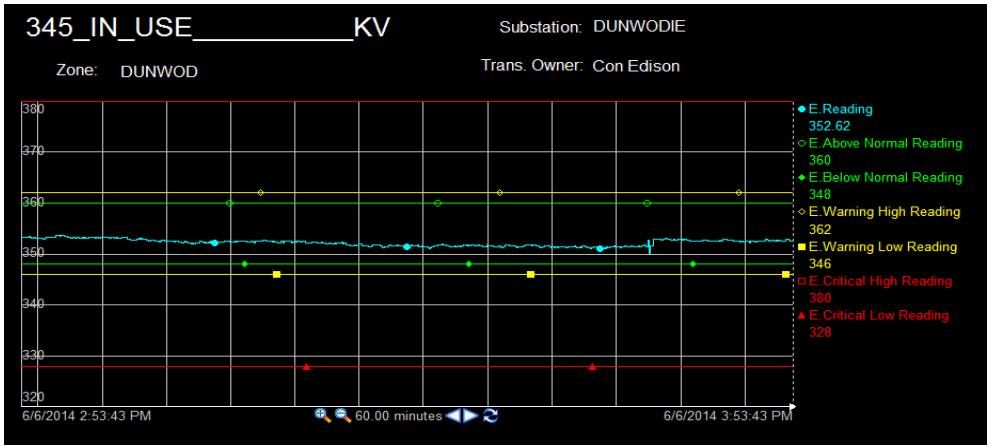


Robust HA Build Out



PI is the Dynamic Data Infrastructure

- Almost every display is or will be powered by PI data
- PI Notifications and PI Event Frames on top of PI AF are driving our dynamic visualization responses



Integration for Dynamic Data

- **Grid Guardian by Primate**
  - *Lighting strikes*
  - *Voltage spark charts*
- **Activu Video Wall Management**
  - *Desktop and video wall dynamic events*
  - *Voltages*
  - *Line and interface limits*
  - *Topology changes*
  - *Generator Tracking*

Integration for Dynamic Data

- AF Models
  - No ‘Big Bang’ model creation
  - Walk before you run!

In Conclusion

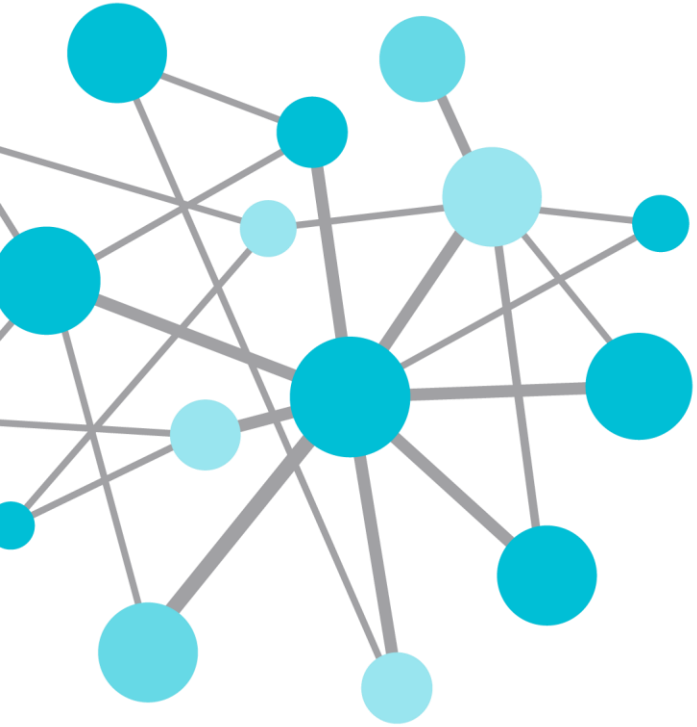
- Dynamic data delivery is the next big thing.
- We have lots of data, now we need to use it smarter!

The New York Independent System Operator (NYISO) is a not-for-profit corporation responsible for operating the state's bulk electricity grid, administering New York's competitive wholesale electricity markets, conducting comprehensive long-term planning for the state's electric power system, and advancing the technological infrastructure of the electric system serving the Empire State.

nyiso.com

Matthew Musto

- mmusto@nyiso.com
- **Senior Project Manager – Operations and Reliability Products**
- **New York Independent System Operator (NYISO)**



THANK YOU

Brought to you by OSIsoft.