

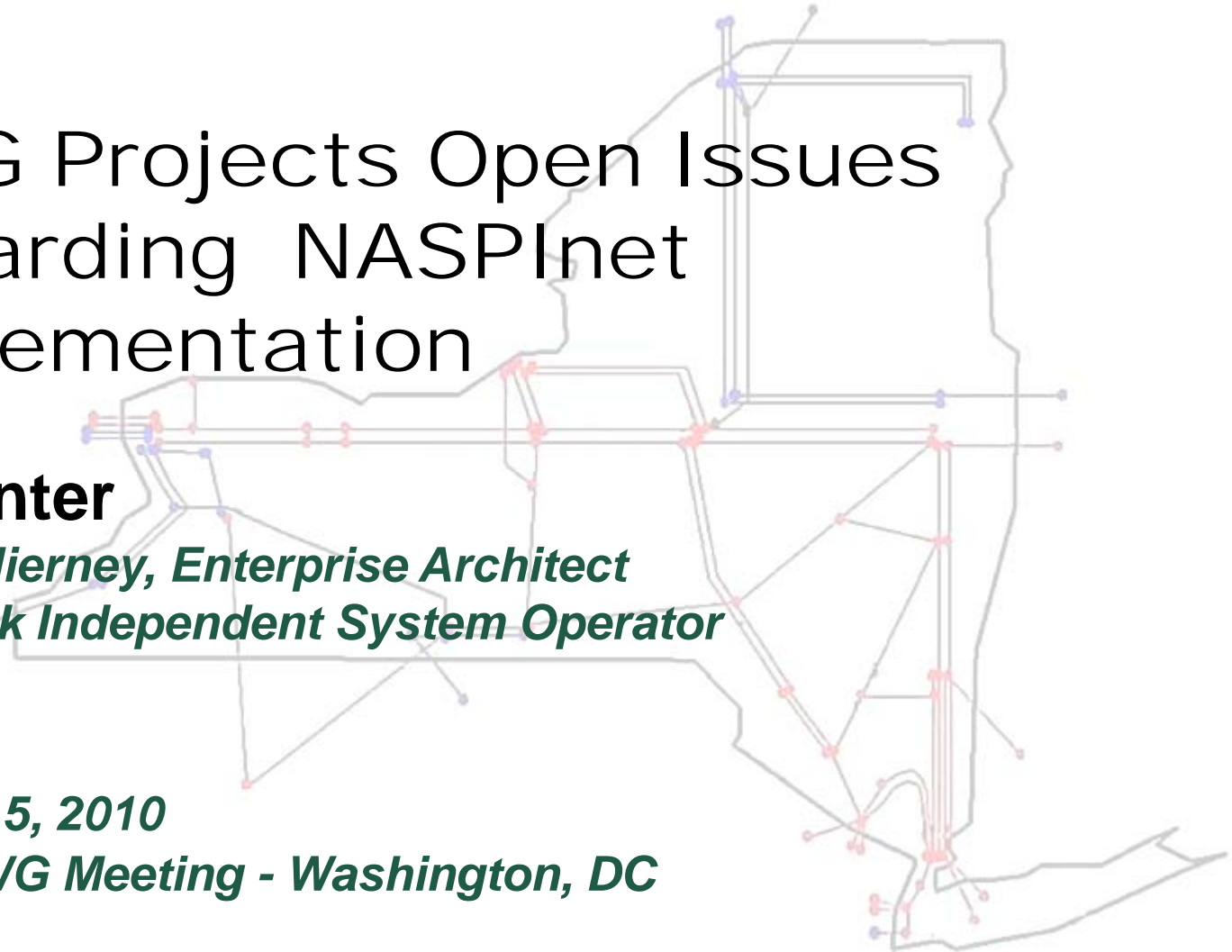
SGIG Projects Open Issues Regarding NASPInet Implementation

Presenter

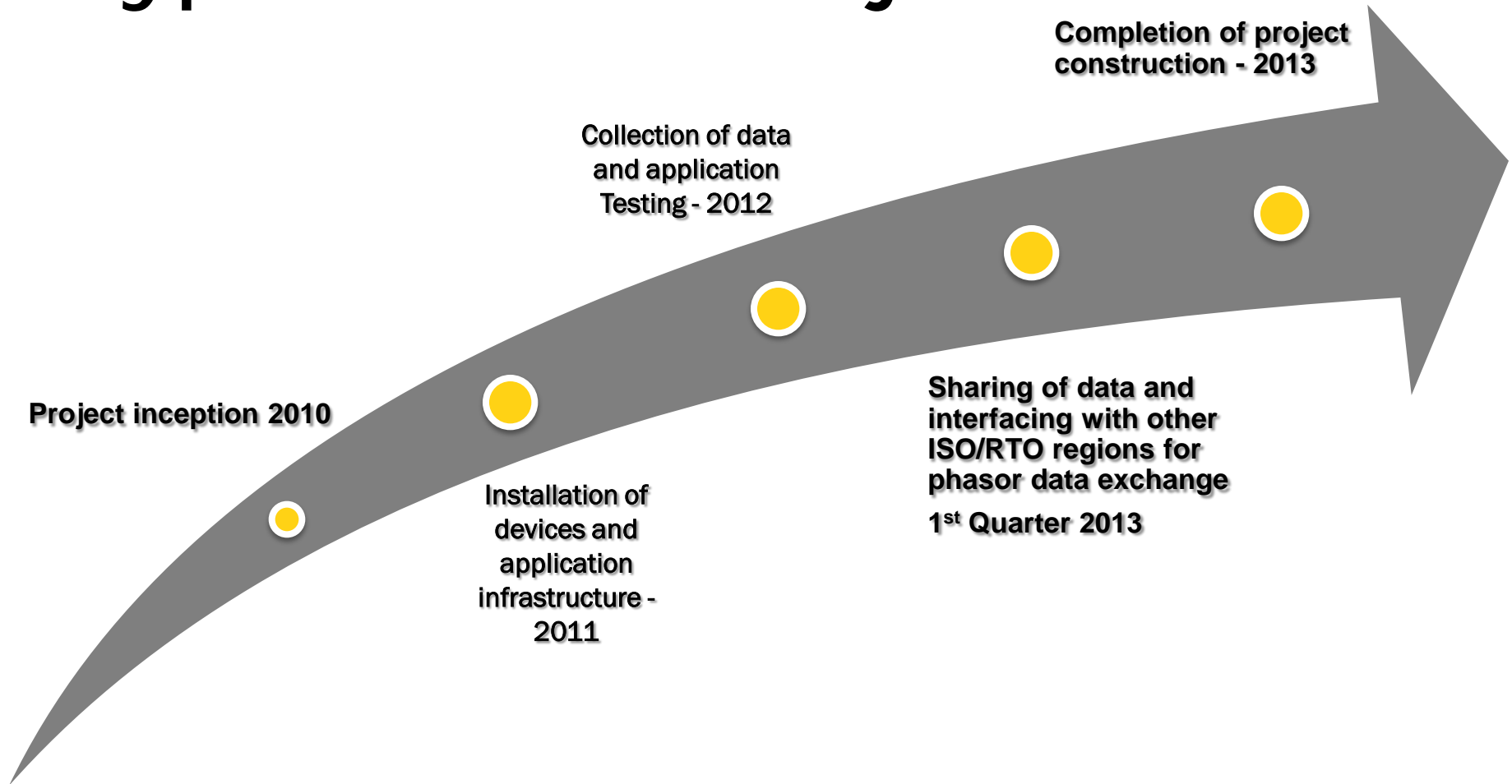
*Jim McNierney, Enterprise Architect
New York Independent System Operator*

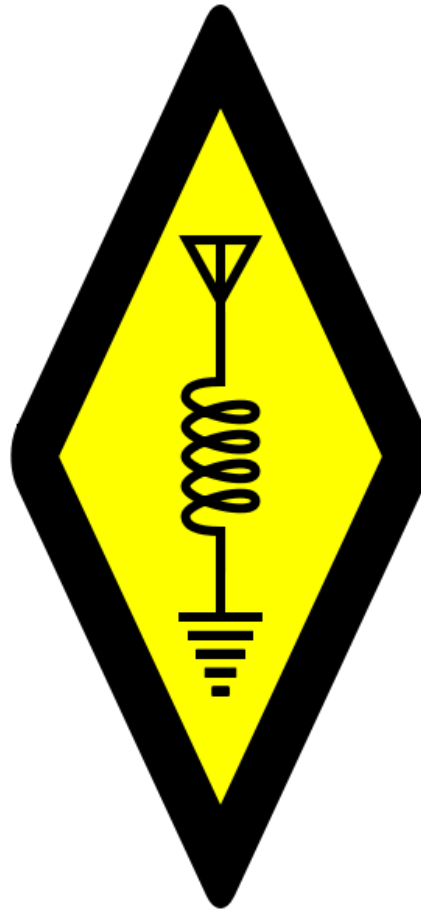
Event

*October 5, 2010
NASPI WG Meeting - Washington, DC*



Typical SGIG Project Goals





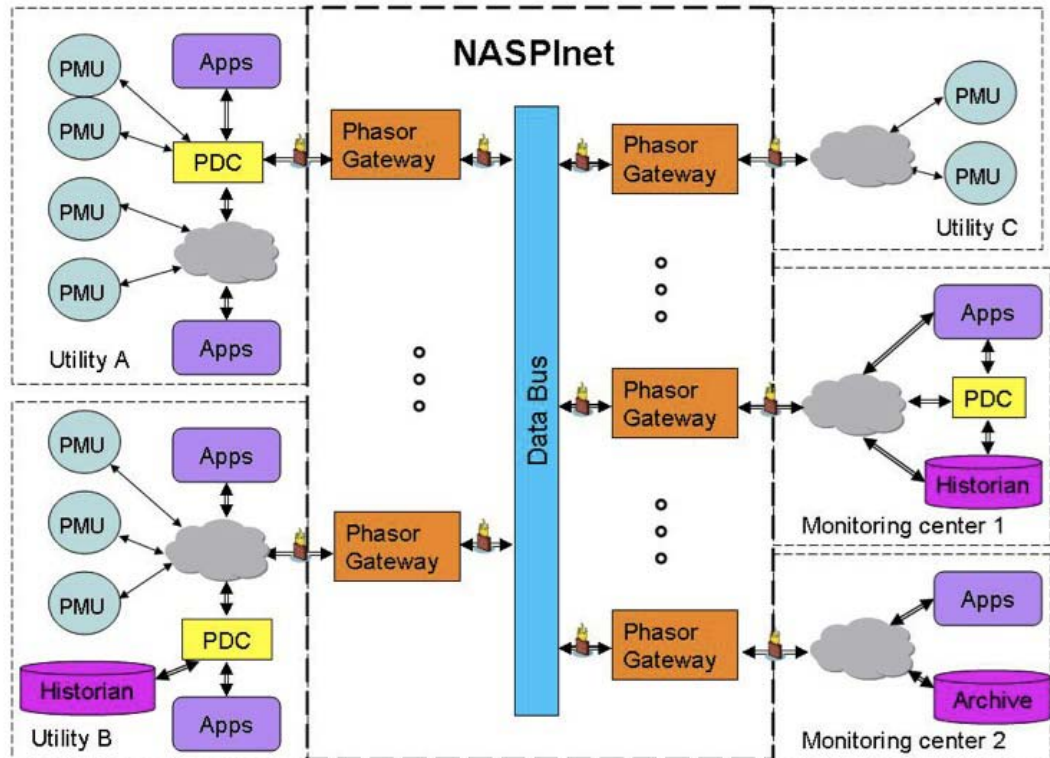
Project Challenges

Scope of NASPInet Network

Most ARRA SGIG project scopes included some means of exchanging phasor data between ISO/RTO regions (ala NASPInet).

With no clear implementation guidelines, project recipients will need to design some means to share Phasor data.

Consistency across projects could become an issue long term when integration at a national or North American level is desired.



NASPInet Conceptual Architecture

North American SynchroPhasor Initiative . (2009, May)
Phasor

Gateway Technical Specifications for North American
Synchro-Phasor

Initiative Network. [Online]. Available:

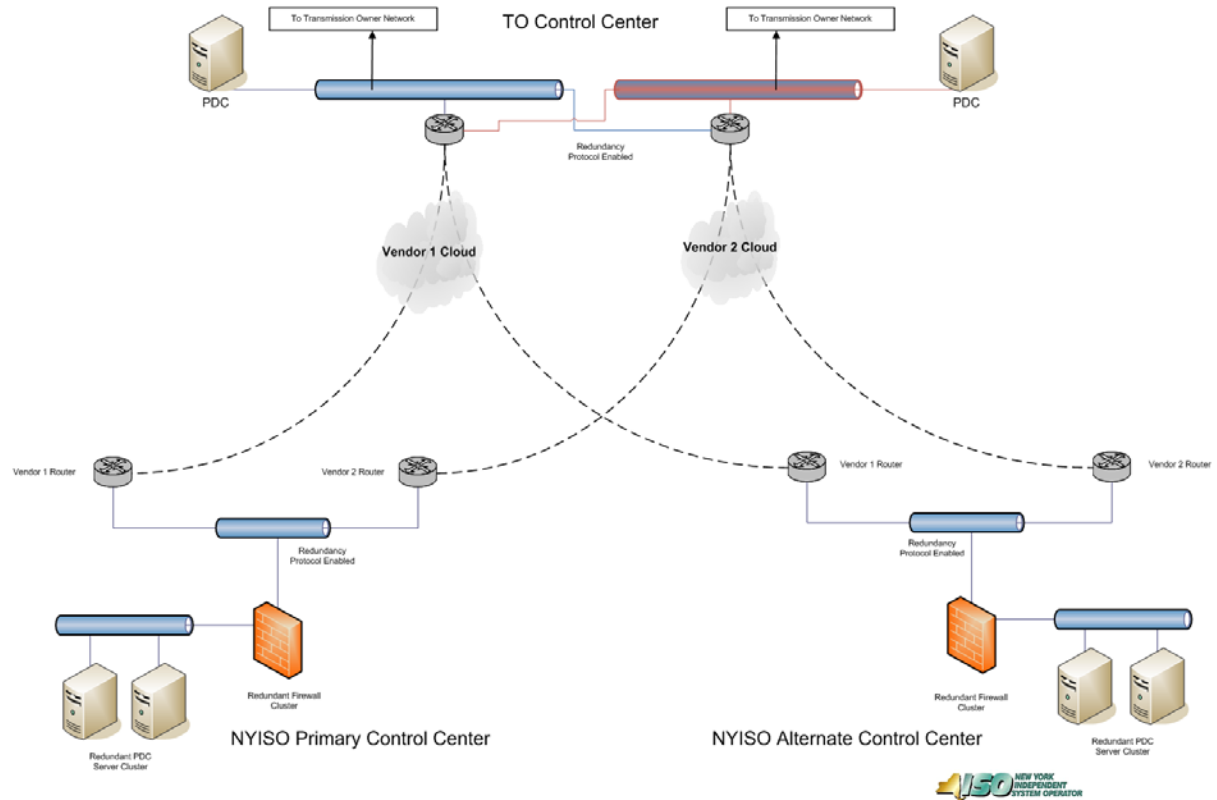
<http://www.naspi.org/resources/>

dnmtt/naspinet/naspinet phasor gateway final spec
20090529.pdf

NYISO Initial Networking Design

The initial assumption would be to provide for a redundant cloud based topology .

This would provide for a robust backbone for the exchange of phasor data between TO companies and the NYISO



NYISO WAN Conceptual Architecture

NYISO Initial Networking Design

- ◆ The communications paths from the TO control centers to the substations would likely be over a mixed bag of communications media.
- ◆ Some TO companies have invested in fiber based pathways to all substations while others have leased line connections.
- ◆ Once bandwidth and latency requirements for proposed applications are known, this might have to change

Networking Services

- ❑ Name/Directory services will need to be accommodated within specific SGIG projects for their participants and the applications they are installing.
 - ❑ *This is an important design element when the projects will be looking to share this collected data with other ISO/RTO consumers in other regions. Without adequate and agreed upon standards for tagging the data with specific attributes, it will be difficult for adjacent regions to use the data within their own applications to achieve a true wide area situational awareness function.*

- ❑ Security services need to be accounted for between regions. Without adequate and agreed upon security standards and practices, any exchange of data will be difficult if not impossible to manage.
 - ❑ *Attempting to provide for this on a connection by connection basis will most assuredly lead to inconsistency in design and subsequent sustainability issues. Provisions for encryption of data along with some vestige of Network Access Control (NAC) to support a publish / subscribe paradigm seems a minimum of security controls necessary to assure confidentiality, integrity and availability.*

Middleware / SaaS?

- ◆ In time, Phasor data will need to be integrated with other types of data from IEDs, with application-layer interoperability allowing data to flow cleanly between devices and applications.
- ◆ This issue is exacerbated when extended to regional, national and international networks.
- ◆ Can/Will NASPI net assist in providing an application layer data interface?
- ◆ Consistency of application interface could be assured by a centrally managed and common middleware tier.

Additional Challenges

- ❑ Changes within technology standards will provide additional risk to long term project success.

- ❑ Changes to regulatory requirements will also be a factor with the longer term project efforts.

- ❑ How are organizations going to maintain a registry of supplemental data outside of the CIM?

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.



www.nyiso.com