NASPI Sub-Group

NASPI SYNCHROPHASOR SIGNAL REGISTRY

GOALS

- History of registry in NASPI documents
- Define signal registry
  - Purpose and Use
- Short Term
  - Owner/Operator of Registry
  - Organized by RC
- Longer Term Vision
- Challenges

EFFORTS TO DATE

Registry Sub Group Formed March, 2011

SGIG Project work began
– 2nd Qtr 2010

SGIG Project winners announced
– 4th Qtr - 2009

DoE letter inviting comments on NASPInet architecture
– June 15, 2009

Discussed Need for Naming Service with NASPI ESG Feb, 2011

NASPI PMU Registry introduced
- 1st Qtr 2010

NASPI Compiled industry comments to DoE Request
– August 18, 2009

Data Bus / Phasor Gateway Tech Specs
– May 29, 2009

REGISTRY IN DATA BUS SPECIFICATIONS

- ✖ Name & Directory Service – this service shall enable the registry of services, components, processes, streams and other entities internal to the data bus for subsequent invocation.

- ✖ This service shall enable the system wide registry of phasor measurement devices as well as the services, components, processes and other entities required by the Phasor gateway and/or data bus components.

**-From NASPInet data bus final specifications document

REGISTRY IN DATA BUS SPECIFICATIONS

* Enterprise and streaming middleware internal registry – shall provide mechanisms within the data bus middleware that manage the registry and discovery of services offered by the Data Bus.

* Shall enable the system-wide registry of Phasor Gateways, Phasor measurement units, and IED devices as well as the services, components, processes and other entities required by the Phasor Gateway and/or Data Bus components.

**-From NASPInet data bus final specifications document

REGISTRY IN DATA BUS SPECIFICATIONS

✖ Sys-26. NDS shall enable the system-wide registry of Phasor Gateways, Phasor measurement units, Phasor Data concentrators, and IED devices and their associated signals as well as the services, components, processes and other entities required by the Phasor Gateway and/or Data Bus components.

✖ Sys-73. Name & Directory – This service shall enable the system-wide registry of Phasor Gateways, Phasor measurement Units, and IED devices as well as the services, components, processes and other entities required by the Phasor Gateway and/or Data bus components.

**-From NASPInet data bus final specifications document

REGISTRY IN PG SPECIFICATIONS

- Enterprise and Streaming Middleware Internal Registry – shall provide mechanisms within the Data Bus middleware that manage the registry and discovery of services offered by the Data Bus.

**-From NASPInet phasor gateway final specifications document

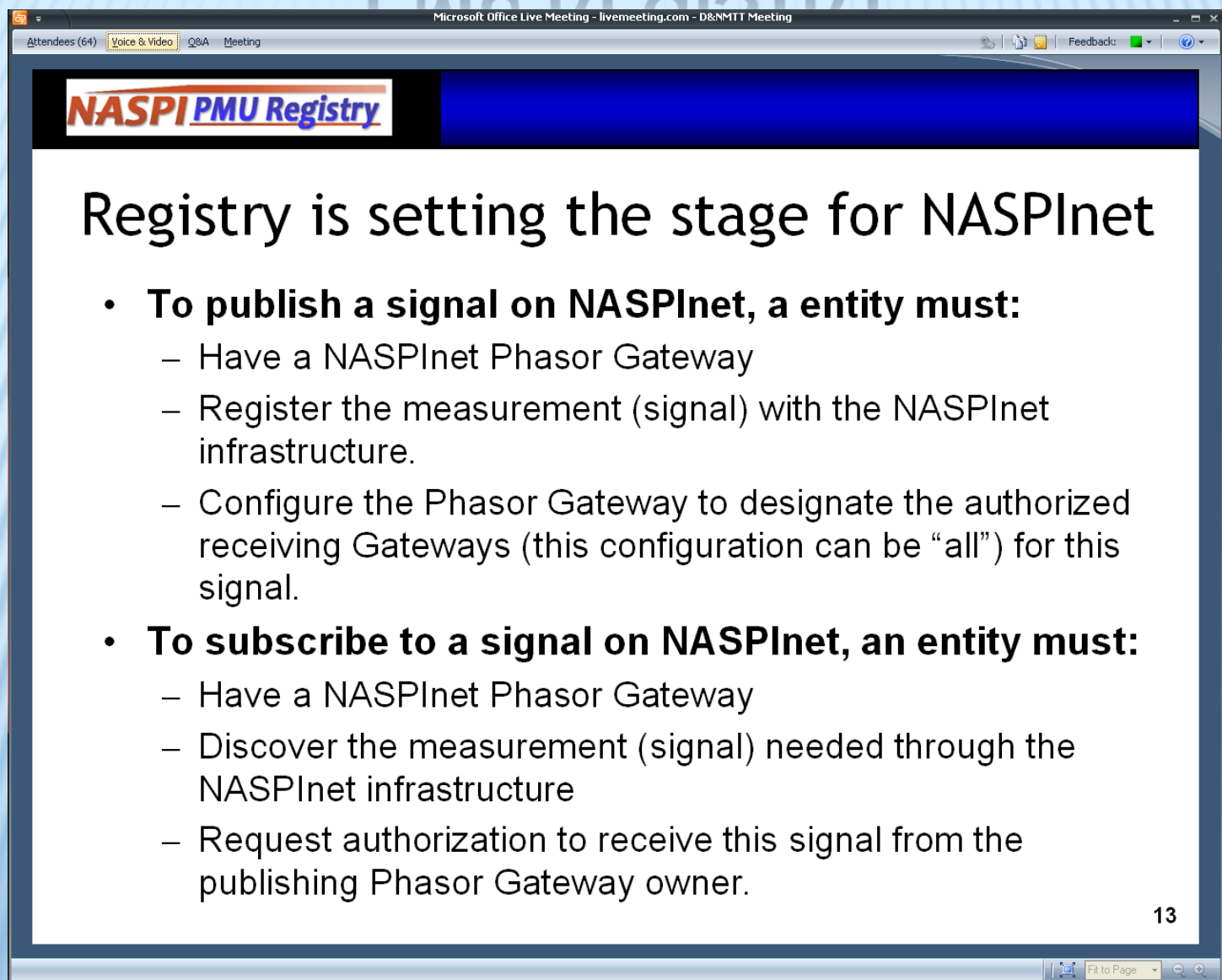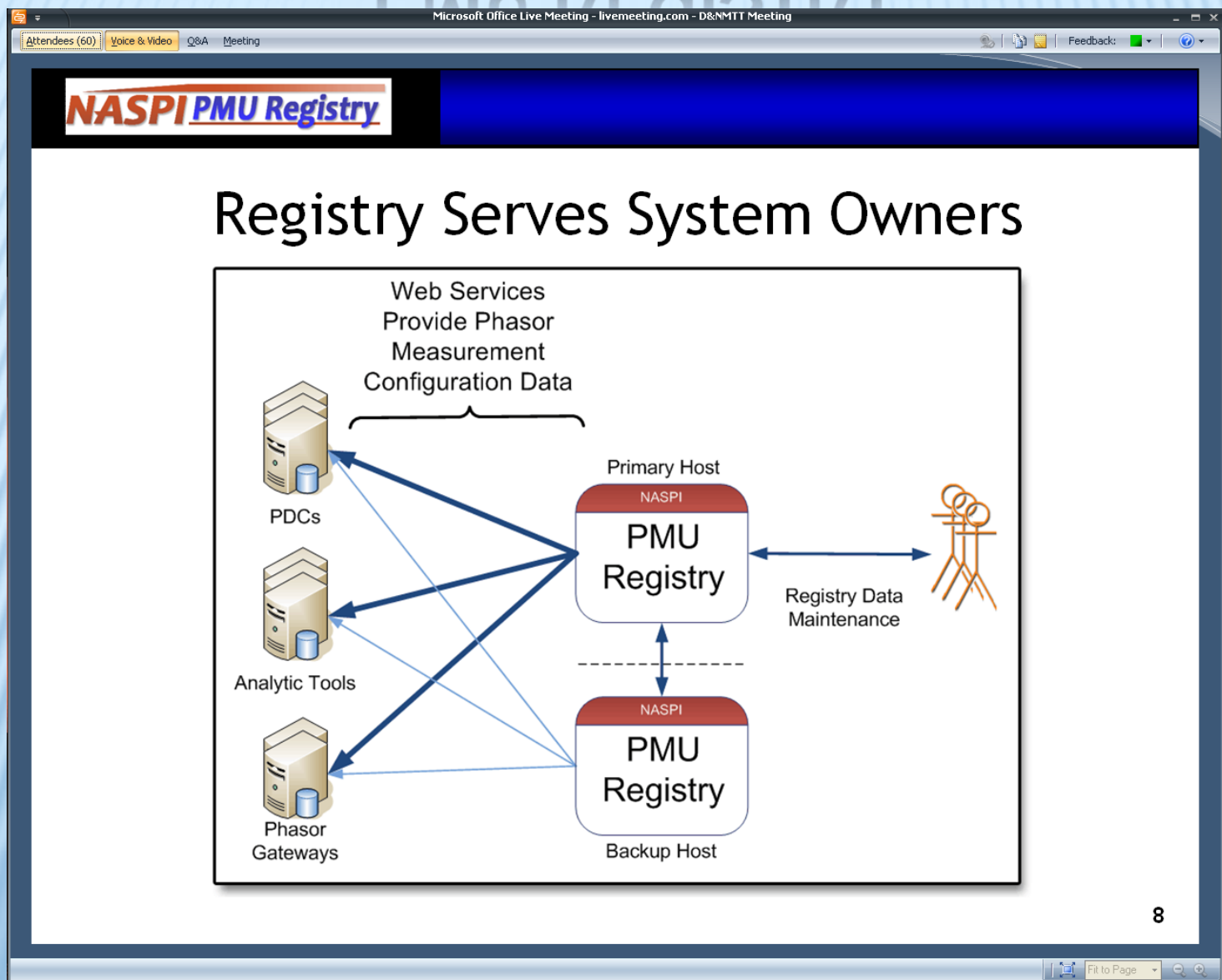# REGISTRY'S SCOPE AND USAGE

Figure 2-1: Use Case Example – Registering a Device in NASPinet
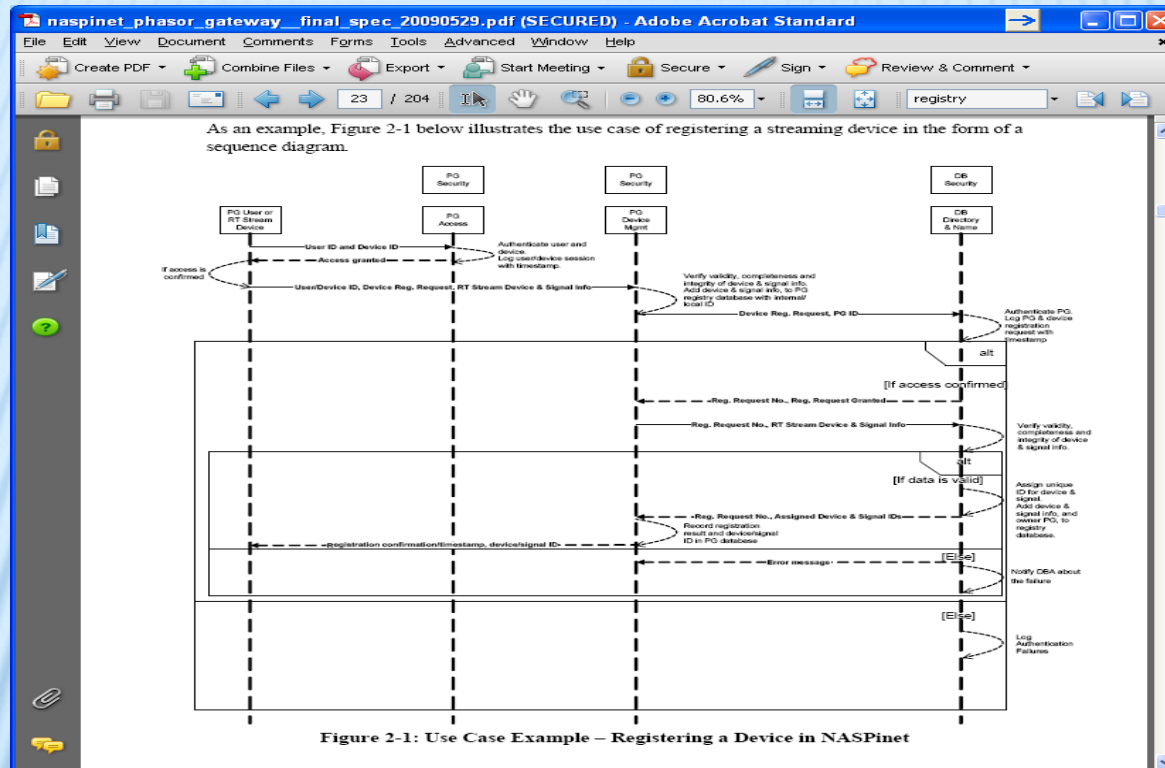
Process diagram (in PG Spec document) depicting Registry's role in the registration of a new PMU.

PMU REGISTRY

Registry is setting the stage for NASPInet

- **To publish a signal on NASPInet, a entity must:**
  - Have a NASPInet Phasor Gateway
  - Register the measurement (signal) with the NASPInet infrastructure.
  - Configure the Phasor Gateway to designate the authorized receiving Gateways (this configuration can be "all") for this signal.
- **To subscribe to a signal on NASPInet, an entity must:**
  - Have a NASPInet Phasor Gateway
  - Discover the measurement (signal) needed through the NASPInet infrastructure
  - Request authorization to receive this signal from the publishing Phasor Gateway owner.

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REDEFINE REGISTRY'S SCOPE AND USAGE

- ✖ Index of all signals available by region

- ✖ Include class of device (M-class, P-class) to aid in quality of signal assessment

- ✖ Utilized in a common fashion by all regions and entities that are participating within NASPInet

- ✖ Common query tool to select signal

- ✖ Contain unique ID needed to cross-reference for meta-data repository.

SHORT TERM / LONG TERM VISION

Short Term

- SGIG Project Timelines
- No Common Communications Medium (no NASPInet)
- No Governance Structure
- No Deployed Commercially Available Phasor Gateways
- PDC to PDC Communications
- Lean on some existing processes (ICCP data exchange)
- Lean on manual process for registry (DEWG)
- Reliance on good communications between project efforts

Mid Term

- Development of Governance rules
- Business Requirements (including security) Gathered / Documented
- Commitment for Resources to build and maintain
- Network infrastructure decided upon and migration path (from P2P) determined
- Implementation of Phasor Gateways set stage for (automated) publish/subscribe functions

Long Term

- Network infrastructure built and utilized
- Common Recognized Governance structure for management and maintenance

PROCESS (IN THE NEAR TERM)

* Lean on existing ICCP exchange/process

* Suggest strongly that the common network infrastructure be NERCnet (ISN)

* Propose NERC WG DEWG/TWG for governance of registry and network services

* Manual process okay for now, look to automate and refine process for easier administration and automation of publish/subscribe function