GridWise Interoperability Workshop

Cross-Cutting Issues Breakout

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The Issues
Prioritization – which need the most work

- *Discovery and configuration – added topology*
- *System Preservation*
- *Quality of Service – renamed, was P/R/S*
  - Network Management added in here
- *Data Management – NEW!*
- *Security*
- System evolution – scalability moved here
- Standards – NEW!
- Time synchronization – violent agreement
- Resource Identification – didn’t discuss
- Shared meaning of content – started to discuss
- Logging and Auditing – barely discussed
- Transaction and state management – didn’t discuss
General Notes for All Issues

- Use lists as opposed to lots of prose
  - Issue lists
  - Characteristics of architecture
  - Security in existing draft is a good start as an example – needs more – but has bullets
- Consider as services that support the architecture
- What parts of the framework does it touch? – maybe a matrix of some sort
System Preservation

- Managing unintended consequences due to complex interactions between systems
  - Ex – emergent chaotic behavior with pervasive distributed resources
  - Detect and mitigate when it occurs
  - No tools to address the problem now
Quality of Service

- Renamed from Performance, reliability, and scalability
- IT network performance
  - Metrics – speed, latency, security, quality
- Network Management
  - Large numbers of devices cannot be managed like we have been in the power industry
  - As the PI relies more on the II, the reliability of the II becomes increasingly critical and must be itself be managed.
  - Use GOOSE example versus cap bank controller – as needed QOS issue
Topology

○ Importance of topology?
  • E.g. – CIM models – can’t use it as a data source to do a load flow
  • A device exists within several topological frameworks – GIS, IT, pwr sys, management hierarchy
  • Accuracy is key

○ Many applications are dependent on topology information
  • Outage management (electrical and comms)
  • Hard (expensive) to fix after deployment – hence an architectural issue
  • Mechanism for capturing topological attributes must be designed into a new system at the beginning

○ Add to Discovery and Configuration section
Data Management

- Backup and disaster recovery, rollback
- Garbage in – garbage out
  - Integrity, trust, precision, accuracy, precision, verification, validation, methods of creating data, freshness, availability, trust, formats
Security

- Fundamentally at odds with concept of interoperability – security vs. openness
  - That statement is the extreme but points to the issue of what is appropriate in any context
  - Security has a usability aspect
- What are the key issues for the list
  - Policy specification, key management
  - Intrusion detection, prevention, and management (mitigation)
  - Add authentication to existing list
  - Credential federation – interoperability of the security measures themselves
- Should be built in at the start
- Recognize the need to manage legacy systems – facilitate migration
- Security measures must be upgradable
Time Sync

- What is in the framework doc?
  - High level requirements / concerns
    - Continuity
    - Choice of reference frame
    - Accuracy (skew, precision)
    - Conversion / presentment (user view)
  - Key reasons as to why it is important
    - Many applications are dependent on context appropriate time sync
    - It is a service that applications use in different ways

- What is in a detail paper on the topic?
  - Use cases?
  - Case studies?
  - Mapping application needs to technology using architecture as a guide
Standards

- Maturity
- Applicability to specific environments
- Evolution
- Identification – what’s missing
- Competing / contradictory
- Coordination between stds groups
- Quality assurance – conformance, testability
- Requirements evolution – stds must follow
- Change management
- Standards development challenges
  - In utility industry, all volunteer, long time constants, getting in the way – process is broken
  - By the time the standard is written, the problem has changed or no longer exists – addressed ad-hoc
Shared meaning of content

- Rename? Semantic Management
- How is this different from Category 4?
- How do we go about making new models?
- How do information models get mapped to the underlying technical meaning (e.g. voltage measurement – RMS, peak, average, integration period, etc.)
- Mapping of name spaces
Other notes

- How is the framework going to be used?
  - Multiple audiences
  - Use cases for the framework needed?
- Test for appropriateness of an issue – does it impact the contract between two parties exchanging information?
Other notes

- Where does a discussion of the following belong in the document?
  - Culture / societal
    - Undercutting issue
  - Financial
  - Keep in mind the need to coordinate with other industries – water, gas, telecom, pipelines, refineries, etc. – impact of failure of one CI on another. Infrastructure Coupling – mitigation measures
The Drill Down

○ What is in a detail paper on each topic?
  ● More detailed treatment of the topic (more prose to go with the bullets in the framework)
  ● Use cases?
  ● Case studies?
  ● Mapping application needs to technology using architecture as a guide
  ● References to existing standards, best practices

○ How does this get written?
  ● Call for papers for the conference?