



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?