

## **NASPInet Specification Review Meeting Notes on the Discussion on the Conceptual Framework Discussion**

The focus of the discussion was on the high level architecture and the necessary services.

### **Conceptual Framework**

The Review Team found that the Conceptual Framework and the high level architecture are satisfactory.

### **Middleware**

Commercial middleware may not be capable of doing what NASPInet needs to do. There was a discussion about whether other industries use this type of middleware, and whether it is being used in wide-area networks vs. enterprise networks. Quanta reported that Quanta performed a cursory look at network bandwidth requirements based on analysis of C37.118 traffic. Quanta believes the proposed architecture is achievable with technology available today. Quanta should develop the architecture and vision independently from any consideration of what's available today. First develop the architecture, then map to what COTS (commercially off-the-shelf technology) is available today. The mapping activity will reveal gaps between what is needed and what is available. A phased implementation approach/incremental deployment will most certainly be needed. The consensus is that the specification developed by Quanta should define the requirements for NASPInet, then NASPI/DOE would decide whether the specification could be bid upon immediately or be used to define a research initiative.

### **Service Classes**

The naming of Class C and D should be switched from the current definitions to allow for better grouping and mnemonics. Going forward, Class C should be Visualization, while Class D should be for Post Event (Disturbance Analysis.) Maybe we got the initial quantitative applications wrong, maybe class A, B, C should all be streaming, with class D for off-line disturbance data (switch C and D from the original list).

### **Security**

Security – we need more detail, analysis and justification. What are we trying to protect and why? The specification needs to have enough definition so that utilities can plan on developing network interconnects to support data traffic at a specific class level. Can we split integrity and confidentiality as separate requirements? (Reference slide #25). Gateway-gateway integrity is mandatory but confidentiality could be optional. Can the architecture support this? What is the scalability? How to you authenticate streaming data? Do all classes need all levels of security?

### **Data historian**

Since NASPInet will come after TVA Gen II, makes sense to leverage TVA Gen II and be consistent with its plan in this area.

### **Virtual Bus (e.g. reference bus)**

Who has the authority to publish a reference bus for the entire interconnection needs to be limited. Others can publish similar virtual data but would need to be named differently. The reference bus could be added to slide 10 for emphasis. The reference bus should be a redundant calculated quantity and is crucial for visualization application. The reference buses, name services, registration, etc., need to be distributed and not reliant on a centralized service.