Astro-RG

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• **Goals**
  ▪ Capture requirements from IVOA community and map to GGF services

• **Significant Events**
  ▪ Workshop held on May 10, 2006
  ▪ IVOA coordination meeting in Victoria, May 15, 2006
  ▪ IVOA development of:
    ▪ VOSpace specification
    ▪ Event notification specification

• **Concerns/Issues**
  ▪ Need Grid Service implementations that are robust and efficient
  ▪ IVOA implementations being done in parallel to Grid standards
  ▪ Grid standards are falling 2 generations behind
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**IVO/Astro Working Group Meeting**

- **Action items from AstroRG@GGF16**
  - Review the document
    - “Building IVOA Services for the Astrophysics Community”
  - Public comment is being sought
    - Document provides the perspective of the IVOA community for the areas of
      - Utility
      - Virtual Observatory requirements
      - Viability
    - Need an assessment from the GGF working groups on their expectations for providing services (both functionality and delivery date)
  - Concern is that IVOA will not wait, will implement before standard is finished.
- **Setup IVOA/GGF workshop - held May 10, 2006**
Building IVOA Services

• Two active service development efforts are underway in the IVOA Community
  ▪ VOSpace - provide naming convention for building shared collection
  ▪ VOEvent - provide rapid notification of astronomical events for action by other sites/observatories

• Development efforts are proceeding in parallel to GGF
VOSpace Specification

- Overlaps strongly with
  - OGSA Data Architecture working group
  - Grid File Systems working group naming

- Based on registration of links to images in other VOSpaces
  - Example of federation of name spaces through use of soft links
  - Assumes
    - Common authentication mechanism
    - Local control over authorization
    - Separate data transfer method
    - Standard state information maintained in each VOSpace
      - Owner
      - ACLs
      - Size
      - Creation date
    - Registry for maintaining unique names for VOSpaces
VOSpace: comments from the meeting

• WS-Naming
  ▪ Andrew Grimshaw - Guy Rixon contact
  ▪ Is WS-Naming a goer?
  ▪ Differentiation between naming authority (NA), the NA instance, the logical name that one references the file by.

• Relevance for Chemical Informatics Grid (ex G Fox)
  ▪ VOTable used there
Current Issues

• Definition of name space
  ▪ Separation of VOSpace registered identity from soft link naming

• Authentication done by home data grid
  ▪ Simplified management of user identity if Shiboleth style authentication is done.
  ▪ Requires establishment of trust between VOSpace instances so they can forward authentication requests to home VOSpace

• Standard state information for each soft link
  ▪ Checksum to validate integrity
  ▪ Timestamp on last validation of integrity
  ▪ Synchronization time stamp
  ▪ Descriptive metadata

• Standard operations that can be performed on the soft link
  ▪ Read / Write
  ▪ Metadata read / update
  ▪ Validation
VOEvent Specification

• Overlaps strongly with functionality of Information Dissemination Working Group
  ▪ Dependent on ability to interpret contents of event message
  ▪ Uses semantics defined for VO events
    ▪ Uniform Content Descriptors
    ▪ Space Time Coordinate ontology
    ▪ Unique IVO Resource Names for each event - IVORNs

• Implements infrastructure for managing distribution of events
  ▪ Author
  ▪ Publisher
  ▪ Repository
  ▪ Subscriber
  ▪ Broker/relay/filter
VOEvent Issues

- Schemas used to characterize event messages
  - VOEvent - contains an observation
  - VOEvent Publisher - describes how to subscribe, who is publishing
  - VOEvent Repository - describes whose events are being stored, how to query
  - Author Organization - contact information
  - What are corresponding GGF schema?

- Event Semantics based on
  - <Who> Author Identification
  - <What> Event Characterization
  - <WhereWhen> Space-Time Coordinates
  - <How> Instrument Configuration
  - <Why> Initial Scientific Assessment
  - <Citations> Follow-up Observations
  - <Description> Human Oriented Content
  - <Reference> External Content
VOEvent Challenges

• Existing event alert networks
  • ATEL: The Astronomer’s Telegram
    ▪ http://www.astronomerstelegram.org
  • CBAT: Central Bureau for Astronomical Telegrams
    ▪ http://cfa-www.harvard.edu/iau/cbat.html, or
    ▪ http://cfa-www.harvard.edu/iau/DiscoveryInfo.html (discovery schema)
  • eSTAR: eScience Telescopes for Astronomical Research
    ▪ http://www.estar.org.uk
  • GCN: The Gamma-Ray Burst Coordinates Network
    ▪ http://gcn.gsfc.nasa.gov
  • rtVO: The real-time Virtual Observatory
    ▪ http://www.rtvo.net
  • VOEventNet: US-VO Event network
    ▪ http://voeventnet.caltech.edu/
VOEvent: Comments from the meeting

• Use of stds for publish/subscribe
  ▪ WS-Notification (ex Globus)
    ▪ Brokered
    ▪ Check Apache
  ▪ WS-Eventing (ex MS)
    ▪ Not brokered
  ▪ OASIS (?) aim to reconcile the above two stds soon
  ▪ GGF probably do not have relevant stds in this area

• Advice: Geoffrey Fox --> look at the above
  ▪ Input via Roy Williams
  ▪ JMS
  ▪ Enterprise service bus – MULE (open source)
Steps to Requirements Document

- Need liaison for promoting response from each of the GGF working groups
  - Volunteers
- Need to update the list of active working groups
  - See following slides
GGF Services

- **Infrastructure Standards Groups**
  - Ipv6
  - Network Measurement
  - Data Transport
  - Grid High-Performance Networking
  - Network Measurement for Applications

- **Data Standards Groups**
  - Data Access and Integration Services
  - Grid File Systems
  - Data Format Description Language
  - GridFTP
  - Grid Storage Management
  - Information Dissemination
  - OGSA Data Replication Services
  - Transaction Management
  - OGSA Data
  - Byte IO

- **3Compute Standards Groups**
  - Grid Resource Allocation Agreement Protocol
  - Job Submission Description Language
  - Grid Scheduling Architecture
  - OGSA Basic Execution Services
GGF Services

• Architecture Standards Groups
  ▪ Open Grid Services Architecture
  ▪ Grid Protocol Architecture
  ▪ OGSA Naming

• Applications Standards Groups
  ▪ Grid Remote Procedure Call
  ▪ Grid Information Retrieval
  ▪ Distributed Resource management Application API
  ▪ Simple API for Grid Applications
  ▪ Grid Checkpoint Recovery

• Management Standards Groups
  ▪ Application Contents Service
  ▪ Configuration Description, Deployment, and Lifecycle Management
  ▪ Grid Economic Services Architecture
  ▪ OGSA Resource Usage Service
  ▪ Usage Record

• Security Standards Groups
  ▪ Open Grid Service Architecture Authorization
  ▪ OGSA-P2P-Security
  ▪ Firewall Issues
  ▪ Trusted Computing