Interoperating: Managing Jobs Discovering Resources

NeSC Breakout
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(M Hill)

Service Challenges

- What's a grid service anyway?
- Mostly using web services
- .NET & Java incompatible
- WSDL not quite standard enough (mostly namespace problems)
- Defining exchange documents (VOTable an attempt to make an exchange doc but denies full interface description)
- Inappropriate user skillbase (C, FORTRAN, Perl).
- Need appropriate API libraries
- Data conversions lose accuracy/type info

Workflow Challenges

- Too many workflow languages & execution systems.
- BPEL emerging standard but
  - not nec useful outside business.
  - Few execution services.

Challenges

- Got code need CPU

- Need load status – past as well as snapshot, for predictions -> human based load balancing

- NIMROD – deadline-centric scheduling

Connecting Challenges

- Need some standard way of describing inputs/outputs (eg AstroGrid CEA) to find specific values, their units, errors, etc.

- No known general solution/description for converting arbitrary outs to arbitrary ins

- Specific converter services usually sufficient

Discovery/Description Challenges

- Describing services
- No existing algorithm descriptions, ie 'what this service does'.
- Probably sufficient to combine text mining/keywords (for auto discovery) with user selection for algorithms
- Probably sufficient to 'uniquely name' standard algorithms/services

Discovering Services

- Journal trawlers + text mining -> discipline registries
- Single algorithm registry?
- scholars.google.com
- Emphasis: quick/easy vs fast (don't know yet in astronomy)
- 'Weighting' popular algorithms
- Related – 'if you like this, you might like...' – text mining – ontologies!

Available

- Triana – workflow builder + executor, proven with weka apps (FREE!)
- Taverna – workflow builder + executor, using SOAP Lab (FREE!)
- DiscoveryNet – workflow builder + executor, text mining (Partnership required)
- Globus DAG – workflow to condoor/globus
- GridMiner – OGSA-DAI querying/OLAP
- IVO – emerging infrastructure description & discovery
- AstroGrid – emerging application publishing methods

Actions

- AstroGrid with Triana & Taverna
- Triana working with Cactus
- Start some way of publishing algorithms. Once it's 'decent', publish to
  - conference journals
  - Algorithm makers
  - Flyers? Need a volunteer...
  - Web – eg NeSC UDDI, IVO registries, etc