Joint UR and RUS session

OGF20 Working Group Session

G. Netzer, R. Piro, M. Riedel (RUS-WG)
D. Fellows (UR-WG)
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Agenda

- Brief Introduction to UR
- Brief Introduction to RUS
- Relationship between RUS and UR
- Usage aggregation in RUS and UR
- Some requirements for large-scale projects (EGEE, OMII-EU, OSG ...)
- Beyond pure job usage records ...
- Review of some proposals (slides from GGF/OGF 18)
UR 1.0 is... (Wha’ it be an’ wha’ it bain’t!)

- Description of Resource Consumption by a **Simple Batch Job**
- Not an Aggregate!
- Not for Complex Jobs!
- Not for Jobs Unimagined 5 Years Ago!
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<tr>
<td>CpuDuration (user)</td>
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<tr>
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<tr>
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<tr>
<td>Host</td>
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Full UR Example

<UsageRecord xmlns="http://www.gridforum.org/2003/ur-wg"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xmlns:ds="http://www.w3.org/2000/09/xmldsig#"
    xmlns:ucrl="http://www.unicore.org/ajo/resources/log"
    xmlns:egb="http://www.eurogrid.org/billing"
    xsi:schemaLocation="http://www.psc.edu/~lfm/PSC/Grid/UR-WG/urwg-schema.11.xsd">
    <RecordIdentity urwg:createDate="2006-01-26T13:32:52Z"
        urwg:recordId="urn:eurogrid:billing:maisie.cs.man.ac.uk650123563113828237274794512"/>
    <JobIdentity>
        <LocalJobId>maisie.cs.man.ac.uk650123563113828237274794512</LocalJobId>
        <ProcessId>23565</ProcessId>
    </JobIdentity>
    <UserIdentity>
        <LocalUserId>zzcgudf</LocalUserId>
    </UserIdentity>
    <Status urwg:description="exit code">0</Status>
    <WallDuration>PT0S</WallDuration>
    <CpuDuration usageType="user">PT0.000S</CpuDuration>
    <CpuDuration usageType="system">PT0.000S</CpuDuration>
    <EndTime>2006-01-26T13:32:52Z</EndTime>
    <StartTime>2006-01-26T13:32:52Z</StartTime>
    <MachineName>maisie</MachineName>
    <Host primary="true">maisie</Host>
    <Resource urwg:description="ucrl:executableName">/bin/echo</Resource>
    <Resource urwg:description="ucrl:workingDirectory">/home/zzcgudf</Resource>
    <Resource urwg:description="ucrl:arguments">foobar</Resource>
</UsageRecord>
Brief introduction to RUS (1)

- The RUS-WG defines an Web Services interface to a Resource Usage Service, allowing for operations such as (current draft):
  - insertUsageRecords
    - in: list of URs; out: OperationResult
  - modify/deleteUsageRecords
    - in: XUpdate/XPath expression; out: OperationResult
  - replaceUsageRecords
    - in: RUSRecordIds, new URs; out: OperationResult
  - extractRUSUsageRecords
    - in: XPath/XQuery expression, out: list of RUS-URs
Brief introduction to RUS (2)

- Some features (current draft):
  - allows for keeping audit trail for record insertion/modification/deletion ...
    - currently: RUS-UR wraps UR + audit trail
  - allows to specify additional mandatory elements of the UR format, that a RUS implementation needs to be present in the stored UR instances
    - list of mandatory elements upon request
  - can return faults on specific operations:
    - RUSProcessingFault, RUSInsertFault, RUSUserNotAuthorisedFault, ...
RUS and UR

- RUS-WG <defines> RUS interface
- UR-WG <defines> <uses> UR format
RUS and UR

The division of tasks seems clear, but ...
Aggregation of Usage Records

• Why we need aggregation
  • RUS provides usage records upon request
  • What if you want to know the overall resource consumption of user X in year Y?
    • currently: transfer all URs and do aggregation on the client side ... obvious scalability problems
    • => RUS needs a format for reporting usage information that is aggregated on the server side.
    • => aggregation also interesting for exchange of accounting data between sites, projects, ...

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Aggregation of Usage Records

- We would rather not define a RUS-specific format for aggregated records
- A common standard defined in collaboration with the UR-WG can be of interested beyond UR and RUS ...
Aggregation of Usage Records

• Two basically different approaches
  • augmenting the UR format to make it flexible enough for the purpose of aggregation
    • e.g. add a NumberofJobs property
    • several properties might be allowed multiple times (host, site, user and job information ...)
  pro: no duplication of work; contra: UR too complex?

• defining a new distinct AUR format (see AUR specification proposed by Chen et al.)
  pro: allows distinct properties; contra: synchronization
Additional requirements

• Currently the UR format misses some important information required for many large-scale grid environments/projects (EGEE, OMII-EU, OSG, LCG, ...)

  • e.g. virtual organization and role of user
    • <Resource> extension framework of the UR allows the specification, but may potentially undermine interoperability
      • e.g. <Resource description="VO">...
        <Resource description="VOName">...

• see proposals made at GGF/OGF 18
Beyond Job Usage Records

- Growing interest in accounting of storage, service usage, ...
- The RUS-WG would be interested in allowing the storage and retrieval of more generic usage information (jobs, storage, service requests)
- Proposal made at GGF/OGF 18:
  - have a basic UsageRecord to derive JobUsageRecord, StorageUsageRecord, ...
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