

Joint UR and RUS session

OGF20 Working Group Session

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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!

UR Info Model

Name	Type	Value
RecordIdentity	string	urn:eurogrid:billing:maisie.cs.man.ac.uk650123563113828237274794512
CreateDate	dateTime	2006-01-26T13:32:52Z
LocalJobId	string	maisie.cs.man.ac.uk650123563113828237274794512
ProcessId	int	23565
LocalUserId	string	zzcgudf
Status (exit code)	string	0
WallDuration	duration	PT0S
CpuDuration (user)	duration	PT0.000S
CpuDuration (system)	duration	PT0.000S
EndTime	dateTime	2006-01-26T13:32:52Z
StartTime	dateTime	2006-01-26T13:32:52Z
MachineName	string	maisie
Host	string	maisie

Full UR Example

```
<UsageRecord xmlns="http://www.gridforum.org/2003/ur-wg"
  xmlns:urwg="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>
```

Extensions

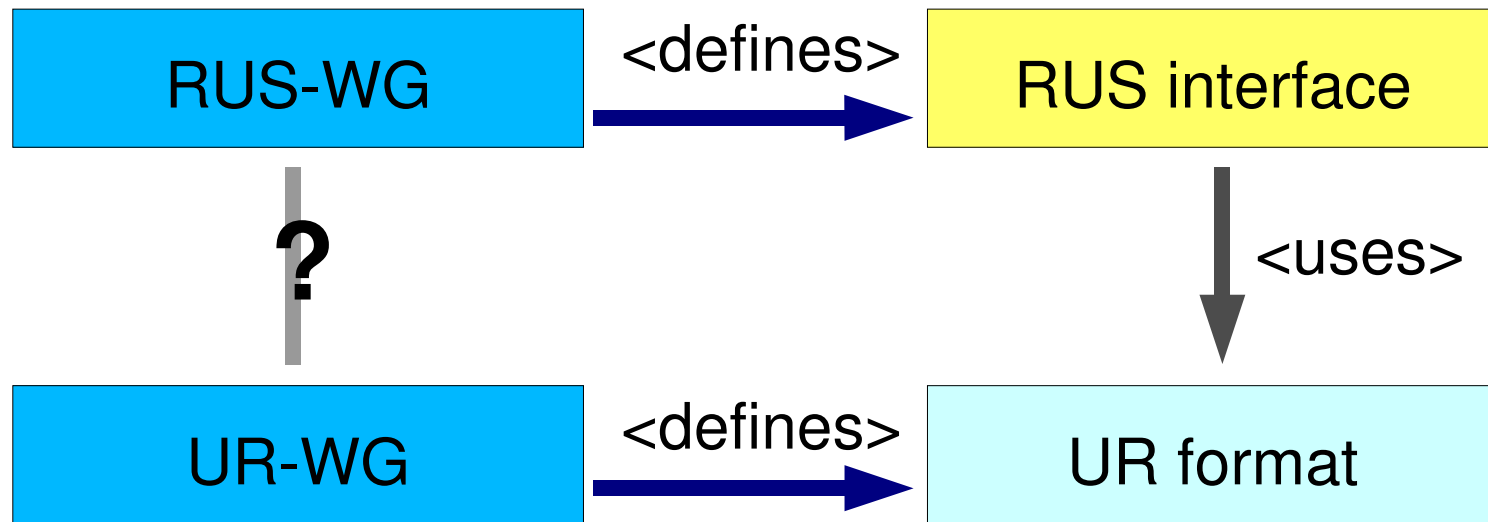
Brief introduction to RUS (1)

- 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

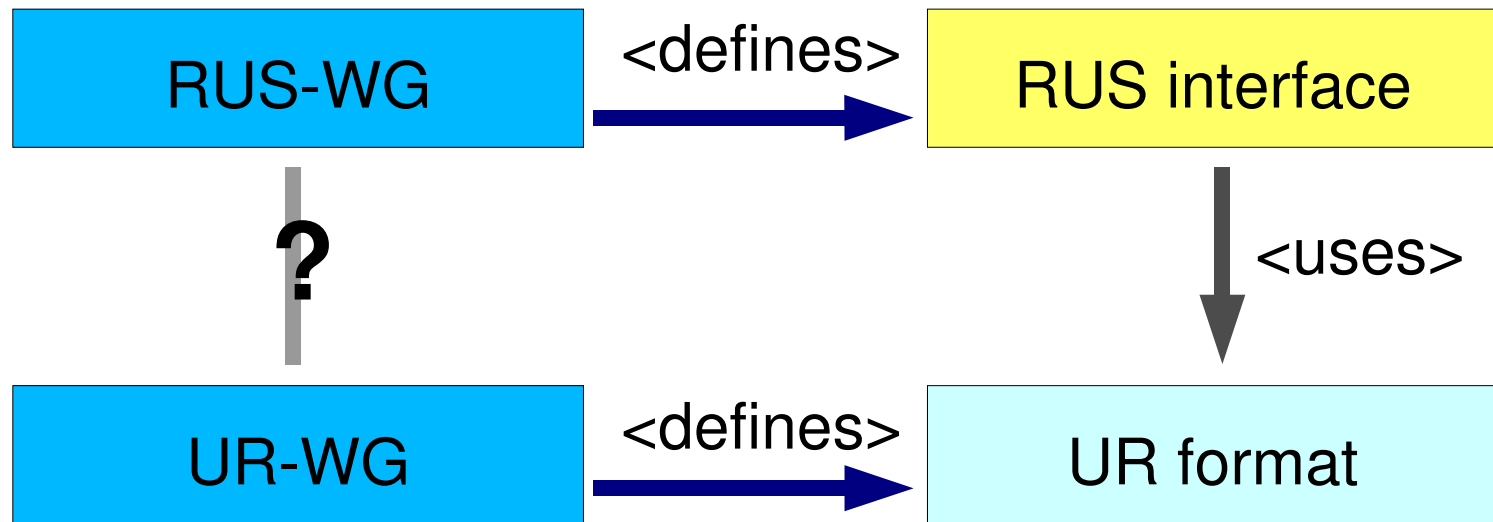
Brief introduction to RUS (2)

- 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 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, ...

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, OMI-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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