



Review of usage accounting and charge models in the UK NGS

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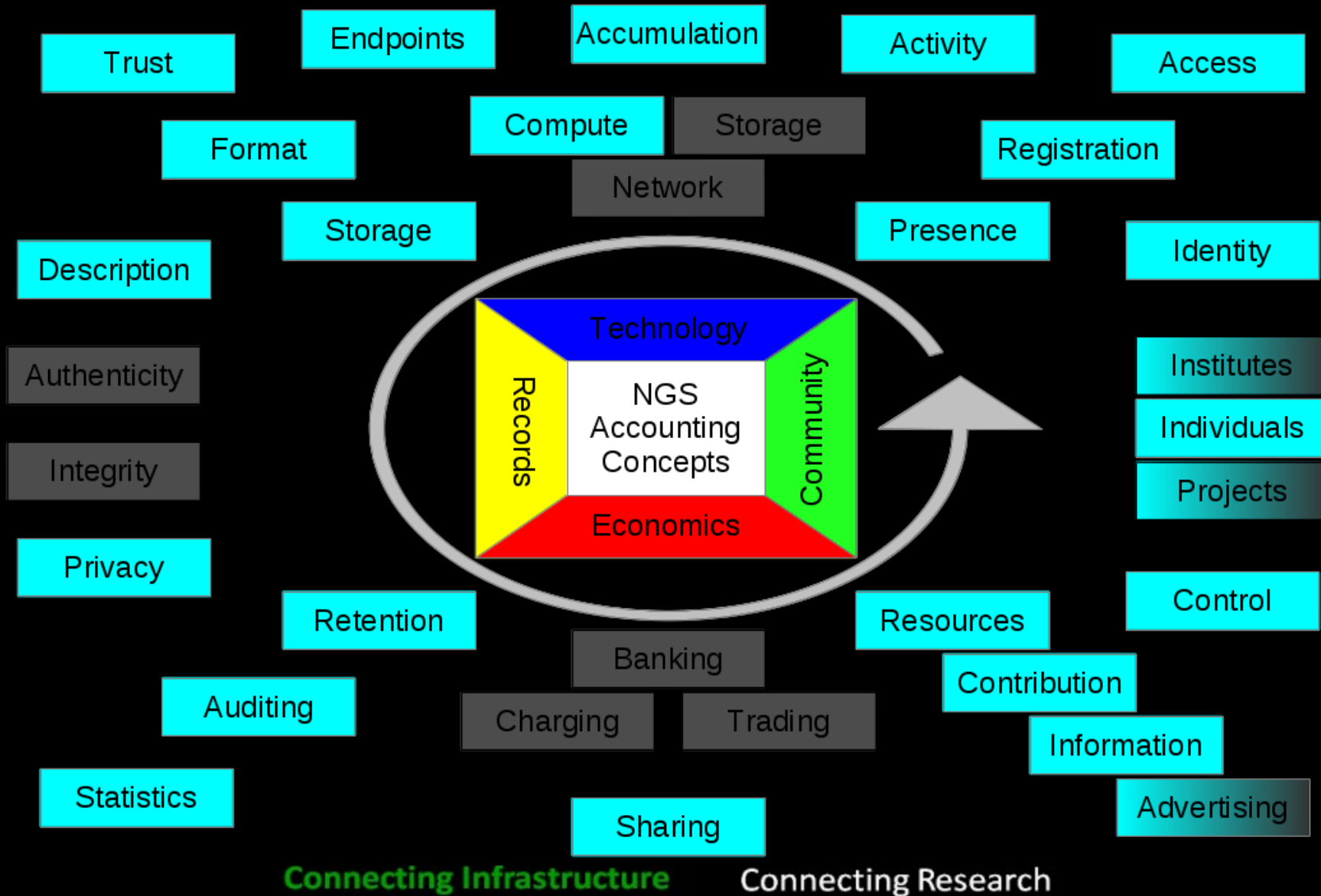
Connecting Infrastructure

Connecting Research



NES

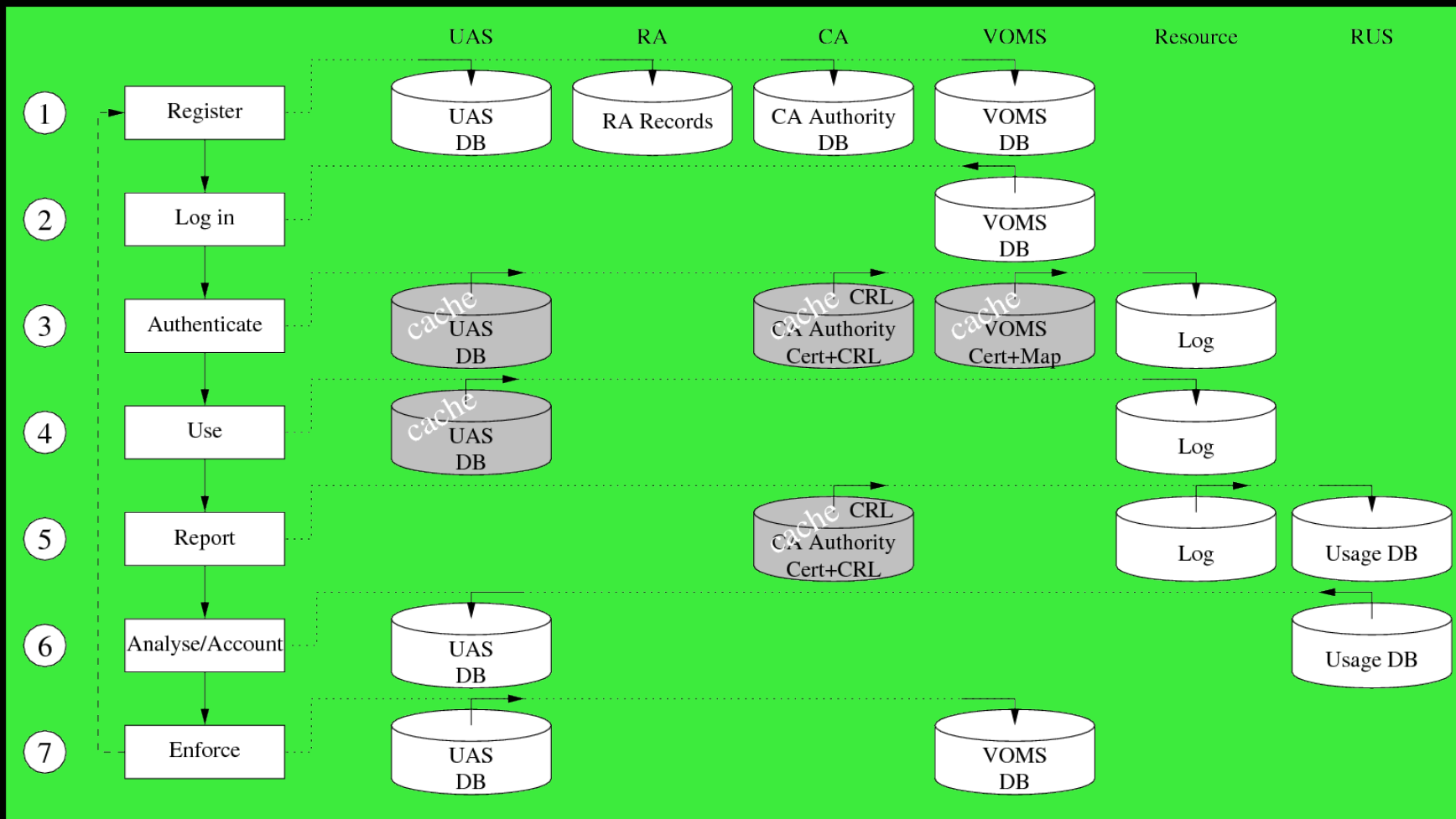
Overview





NES Draft Technical Info

<http://bit.ly/NGSAccounting>



Connecting Infrastructure

Connecting Research



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Registration (UAL)

- Identity Registration
 - ID Grounding
 - Certificate
 - VO Registration
 - Grant authority to use VO resources
 - Allocation of VO resource share
- > UAS



Access

- DN based
- VOMS based
- Negotiated
 - By individual
 - By VO

- Access to CPU
 - Via Globus and GRAM
 - Via GSISSH and local job submission
 - Via SSH and local job submission
- Access to disk
 - core nodes only
 - home space, DB, SRB
- Everything else not scoped



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Accumulation

- CPU usage
 - Gathered nightly from logs
- Disk usage
 - (not 'accounted') local disk quota set
- DB
 - Pre-arranged
- SRB
 - Managed via central mcat



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Accumulation

Accounting Source	Description/Mapping
PBS logs	Main batch system accounting
LSF logs	Main batch system accounting
Torque log	Main batch system accounting
Globus logs	gatekeeper and jobmanager
EGEE accounting log	EGEE account patch to globus pre-ws
LCAS VO logs	DN to Globus ID and VO info (Manchester's LCAS/LCMAPS plugin required)
EGEE mk-gridmap	Unix account to VO mapping
Gridmap pool dir	Pool account to DN mapping
Gridmap file	DN to Unix account mapping



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Endpoints & Uploads

- Activity reported to NGS RUS
 - Implementation of OFG draft RUS specification
- (NES now moving to APEL)



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Trust

- Any authorized host
 - IP filtered at firewall
 - DN checked in SSL handshake
 - DN checked in record



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Format

- Open Grid Forum Standard
 - Usage Record 1.0
 - Some glossing over



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Storage

- Oracle DB
 - RUS server consumes UR
 - Stores important data in table
 - Stored XML as blob



Description

```
"RUSID" NUMBER,  
"RECORDID" VARCHAR2(128),  
"LOCALJOBID" VARCHAR2(128),  
"X509SUBJECTNAME" VARCHAR2(256),  
*project* -> VO  
"JOBNAME" VARCHAR2(128),  
"STATUS" VARCHAR2(128),  
"WALLDURATION" NUMBER,  
"CPUDURATION" NUMBER,  
"PROCESSORS" NUMBER,  
"ENDTIME" DATE,  
"STARTTIME" DATE,  
"MACHINENAME" VARCHAR2(128),  
"SUBMITHOST" VARCHAR2(128),  
"WALLTIMEREQUESTED" NUMBER,  
"CPUTIMEREQUESTED" NUMBER,  
"TIMEQUEUED" DATE,  
"UPLOADX509SUBJECTNAME" VARCHAR2(256),  
"UPLOADTIMESTAMP" DATE,  
"LOCALUSERID" VARCHAR2(128),  
"TIMEGLOBUSSUBMITTED" DATE,  
"PBSLOGDATE" DATE,  
CONSTRAINT "RUS_RECORD_PK" PRIMARY KEY ("RUSID") ENABLE,  
CONSTRAINT "RUS_RECORD_UK1" UNIQUE ("RECORDID") ENABLE
```



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Authenticity

- By virtue of server



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Integrity

- By virtue of server



Privacy

- By virtue of server



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Statistics

- Balance kept in UAS
- Records available via minimal RUS



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Auditing

- Complete UR retained by RUS
- Rely upon trusted RUS service



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Retention

- No stipulation



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Advertising

- Resource ability
- Charge per CPU hour not implemented



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Sharing

- FATPOU requires metrics
- Stats accumulated compared with cost of running service



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Charging

- What are the implications within the academic infrastructures.



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Trading/banking

- Idea
 - tally usage by one VO against another



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Resource Contribution

- Allocate some portion of resource for
Grid usage



Information

- CPU
- Storage
- ...
- Cost



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Control

- When allocated resource used up
 - How to stop further usage
- VO membership suspension
 - Not Ideal



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O's and VOs

- Treat all entities as VOs
 - VOs can assign resource internally
- Aspiration
 - VOMS setup to describe all VOs and O's
 - Register all VOs and O's
 - Allow VOs and O's to trade