

Desktop Grids opening up to UNICORE

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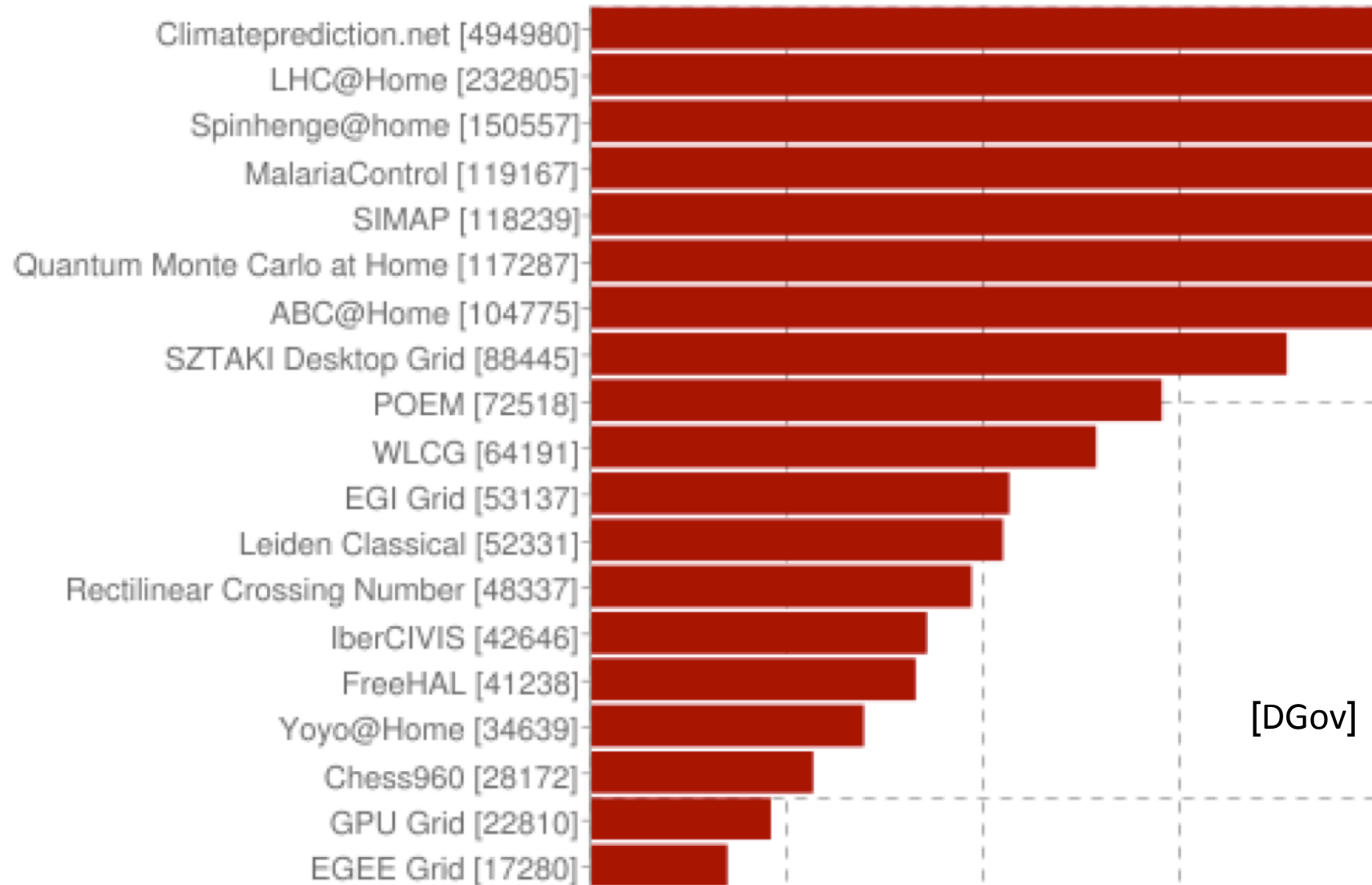
Agenda

- Desktop Grid
- EDGI Project
- Integration
- Plan

What are Desktop Grids?

- Variants
 - Volunteer grids like seti@home
 - Enterprise grids, e.g., in universities, companies
- Consolidate non utilized computing resources
 - Not dedicated, user has priority => less reliable
 - But very large
- Loosely coupled
 - rare communication
- Desktop Grid (DG) Middleware
 - BOINC, XtremWeb, Condor, OurGrid, ... (# = 17) [Taxo]

Popular Desktop Grids



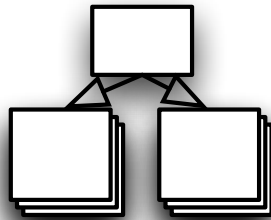
- **European Desktop Grid Initiative [EDGI]**
- Builds upon work of predecessor project EDGeS
- Extends Service Grids with Desktop Grids
 - glite, UNICORE, ARC
- Additionally utilizes Cloud Resources
- Worldwide DG dissemination
 - partner project [DEGISCO]
- More information... [Roadmap]

Both grids

Service Grids

glite

UNICORE

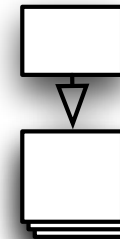


ARC

Desktop Grids

Xtrem-Web

BOINC

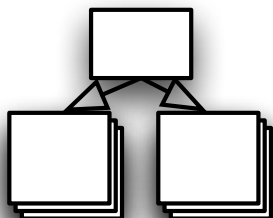


EDGI Components

Service Grids

glite

UNICORE



ARC

ATTIC Storage

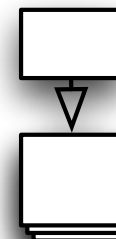
3G-Bridge

Application
Repository

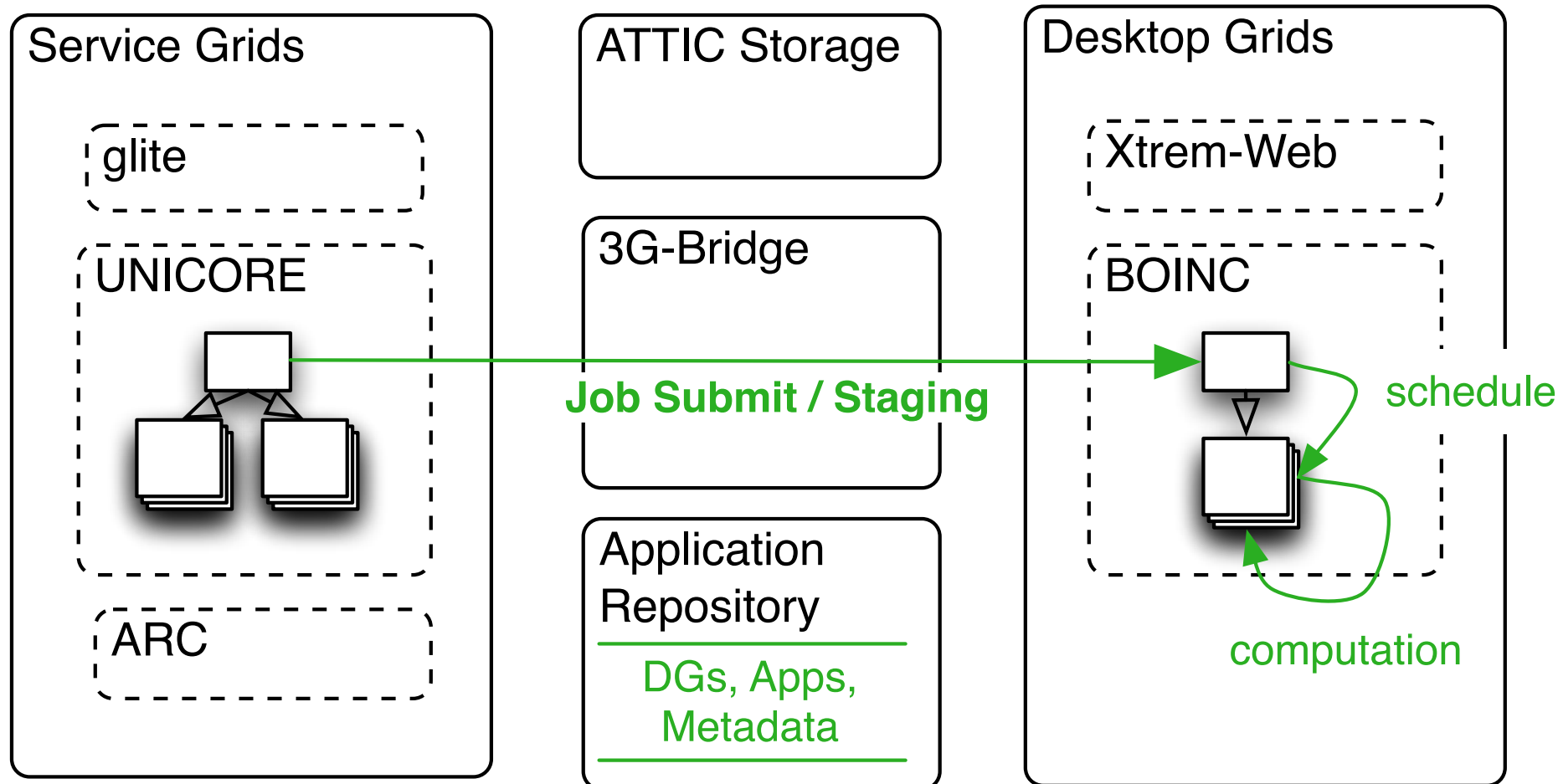
Desktop Grids

Xtrem-Web

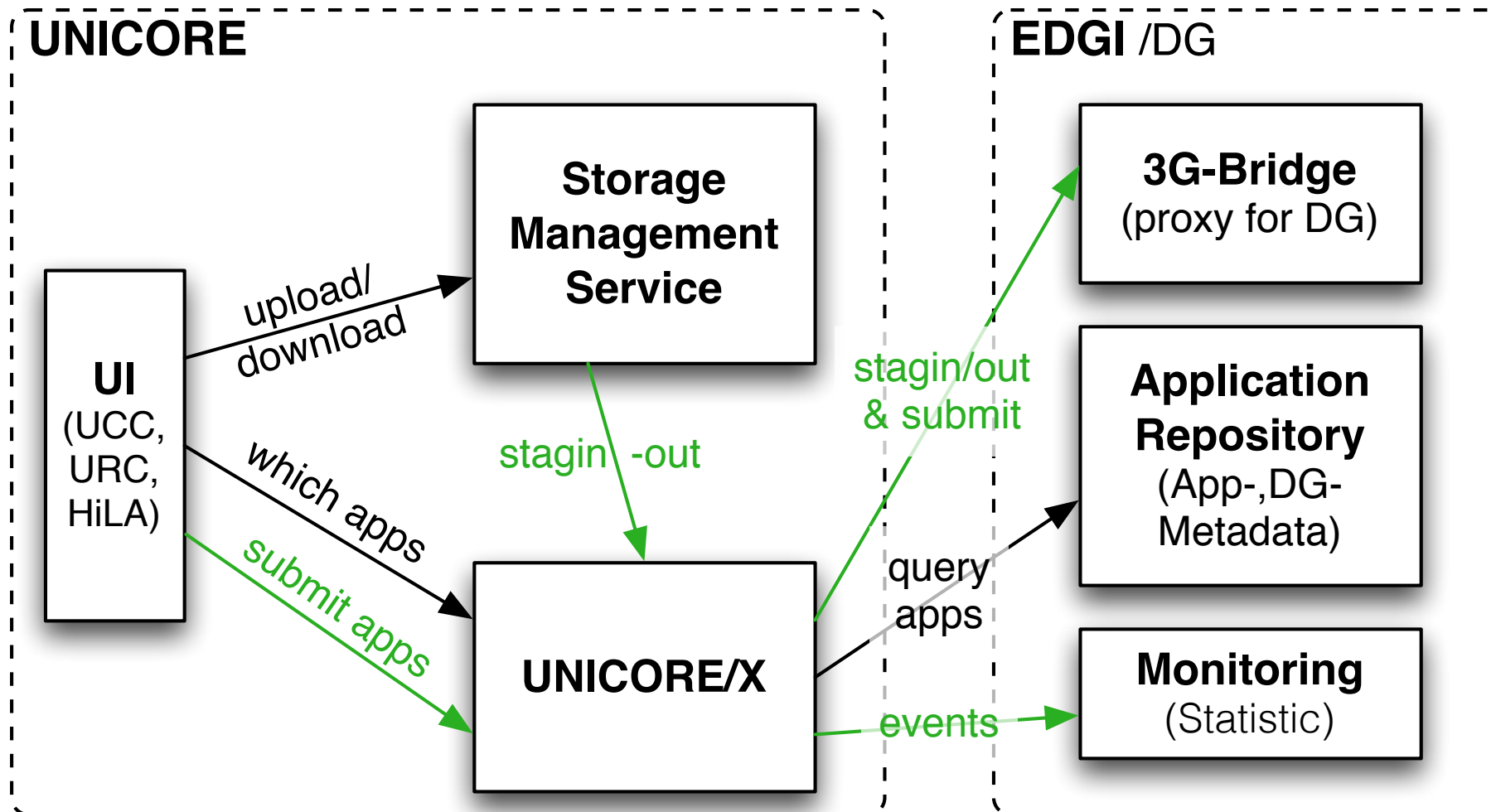
BOINC



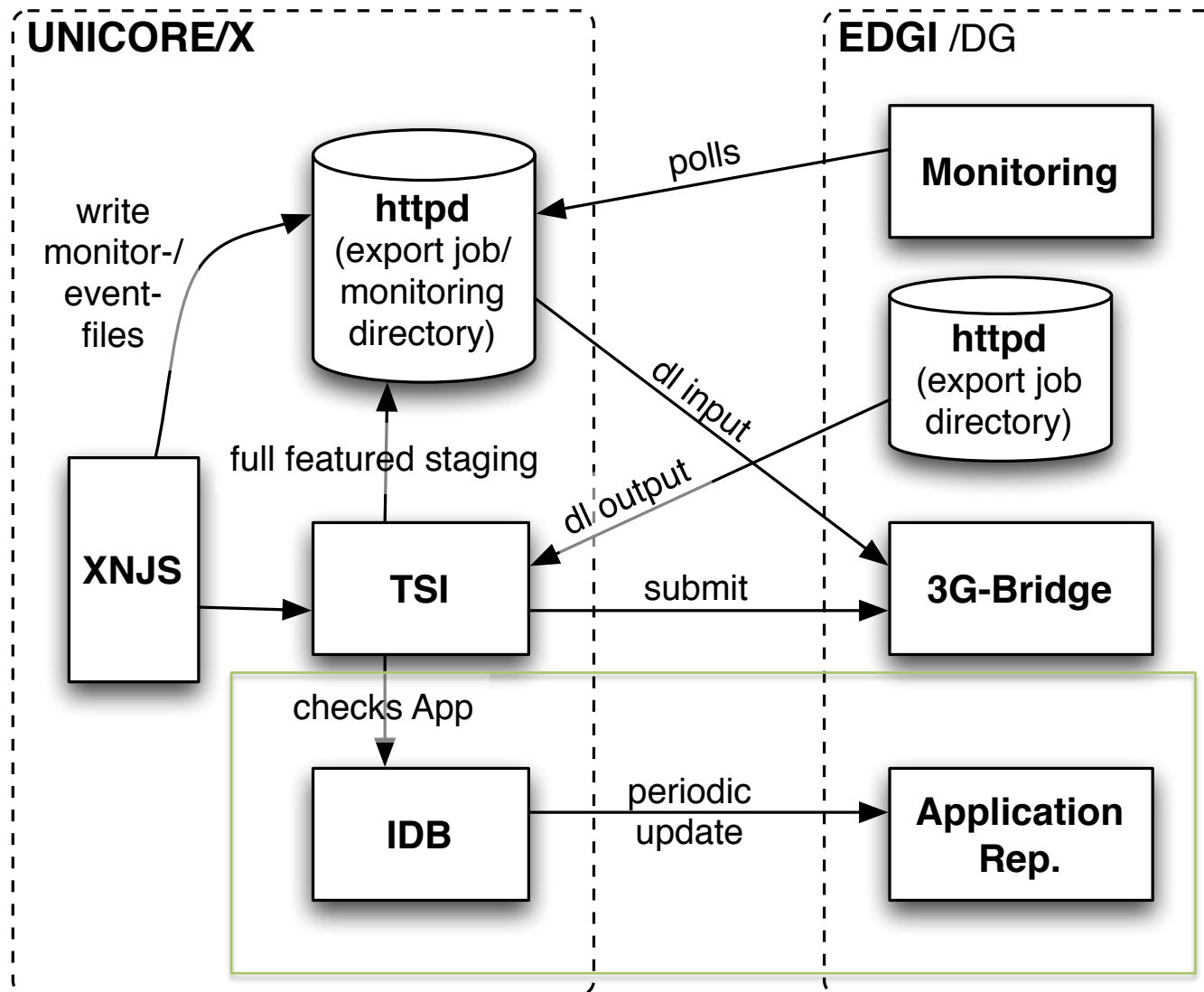
General Concept



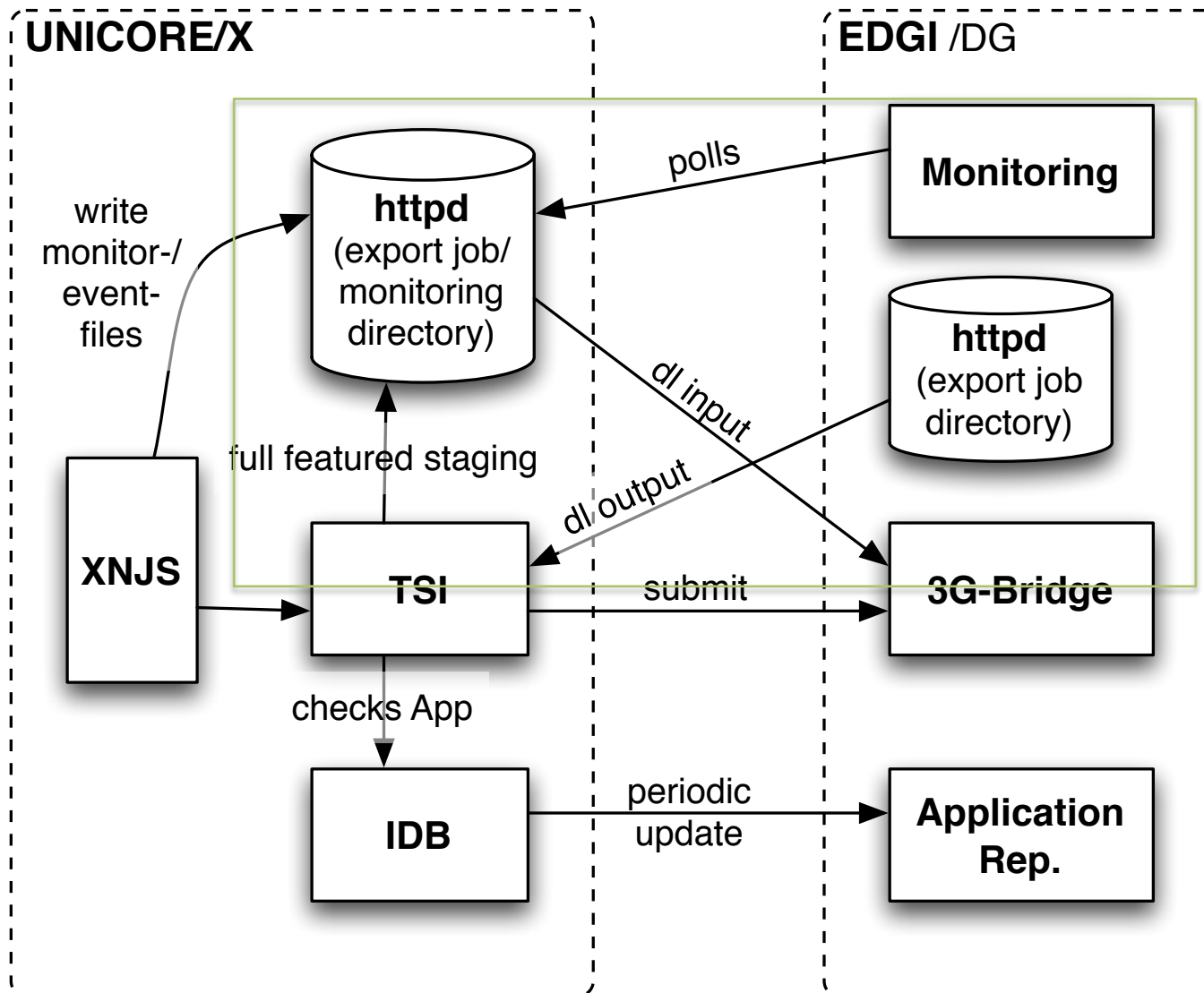
UNICORE



XNJS



XNJS



UNICORE impressions

```
unicore@edgi-unicore-alphatest:~/uas-desktopgrid-package$ ucc list-applications
```

```
Applications on target system <DG_JRA1_XTREMWEB>
```

```
dsp 1.0
```

```
BNBGrid 1.0
```

```
Applications on target system <DG_JRA1_BOINC>
```

```
Korn shell Version M 1993-12-28 q
```

```
C shell 6.14.00
```

```
Bash shell 3.1.16
```

```
Blender 2.42
```

```
POVRay 3.5
```

```
Python Script 2.4.2
```

```
Perl 5.8.8
```

```
Date 1.0
```

```
Custom executable 1.0
```

```
<?xml version="1.0"?>
<jSDL:JobDefinition xmlns:jSDL="http://schemas.g
<jSDL:JobDescription>
  <jSDL:DataStaging>
    <jSDL:FileName>pools.txt</jSDL:FileName>
    <jSDL:Source>
      <jSDL:URI>http://xw.lri.fr:4330/pools.txt</js
    </jSDL:Source>
  </jSDL:DataStaging>
  <jSDL:DataStaging>
    <jSDL:FileName>costs.txt</jSDL:FileName>
    <jSDL:Target>
      <jSDL:URI>file://tmp/costs.txt</jSDL:URI>
    </jSDL:Target>
  </jSDL:DataStaging>
<jSDL:Application>
  <jSDL:ApplicationName>dsp</jSDL:Applic
  <jSDL:ApplicationVersion>1.0</jSDL:Application
</jSDL:Application>
</jSDL:JobDescription>
</jSDL:JobDefinition>
```

```
cat /opt/unicore6/unicorex2/conf/xnjs_ar.xml
```

```
<!--
```

```
    DG XtremWeb HEP
```

```
-->
```

```
<eng:Property name="DGTSI.dg" value="xw.lri.fr"/>
```

```
<eng:Property name="DGTSI.url_3gbridge_submitter" value="http://xw.lri.fr:4322"/>
```

```
<eng:Property name="DGTSI.url_3gbridge_monitor" value=""/>
```

```
<eng:Property name="DGTSI.desktop_grid_queue_name" value="XW_LRI_DG"/>
```



Timeline

Past

- TSI extension, interaction with components, unittests

Current

- First alpha package
- EDGI alpha test host (WP JRA1)

Shortly

- UNICORE svn / buildserver
- EDGI test cycle (WP SA2)

Interm.

- Monitoring, URL-passthrough, user-tagging
- Bugfixing

Final

- EDGI productive system
- UNICORE distribution

UNICORE Aims

- Part of D-Grid eco system
 - Applications with few communication requirement not executed on special low latency interconnected hardware
- Part of Standard UNICORE distribution
- Communities & Users
 - Call for (UNICORE) Communities to participate
 - “free” access

References

- Flyer IDGF, PC²
- [Taxo]
 - A Taxonomy of Desktop Grids and its Mapping to State of the Art Systems, 2009, Choi, Sungjin and Buyya, Rajkumar and Kim, Hongsoo and Byun, Eunjoung and Gil, Joonmin
- [DGov] <http://knowledgebase.e-irg.eu>
- [EDGI] <http://edgi-project.eu>
- [DEGISCO] <http://degisco.eu>
- [Roadmap] <http://tinyurl.com/652ma9r>

Questions

UNICORE



Why UNICORE ...

- ... and not Desktop Grids directly?
- Learning one thing > UNICORE
- RichClient
 - vs CLI commands
- Nice application browsing
 - vs Application Repository searching and URL Copying
- UNICORE Storage
 - vs staging by hand
- Workflow Engine
 - unmatched

Hungary 3G-Bridge

- SOAP Interface for managing Jobs
 - Submit, delete, monitor
 - Minor security (no certificates, assertions)
- Plugin-Based
 - BOINC, XtremWeb
 - UNICORE, glite
 - ...?...
- Also used by P-Grade
- [3gb] <http://sourceforge.net/projects/edges-3g-bridge/>

New Communities

- A lot of **free** resources vs. confidentiality
- Application porting **efforts**
 - Bundling & execution
 - Support from EDGI, courses
 - Validation
 - Team & Infrastructure
- There is an application repository to browse