



15^a Scuola Estiva di **CALCOLO PARALLELO**

Grid Tools

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UNICORE

- European product initially developed as German project, then refinanced from the European Community within the projects EuroGrid, GRIP, OpenMolGrid, UniGrids.
- In UniGrids the production SW has been reengineered with technologies Web based (WebServices).

www.unigrids.org



Unicore: objectives

- To show in a uniform way to a user various architectures, operating systems, batch systems.
- Security in the communication between sites and single sign-on.
- Easy and guided creation of jobs, maintenance and monitoring of the same ones.



Unicore: constraints

- Its use does not have to involve modification of the sites :
 - User accounts
 - Administration policies
- The model of UNICORE security must be integrated with that one of the sites that uses it.



Unicore: provided services

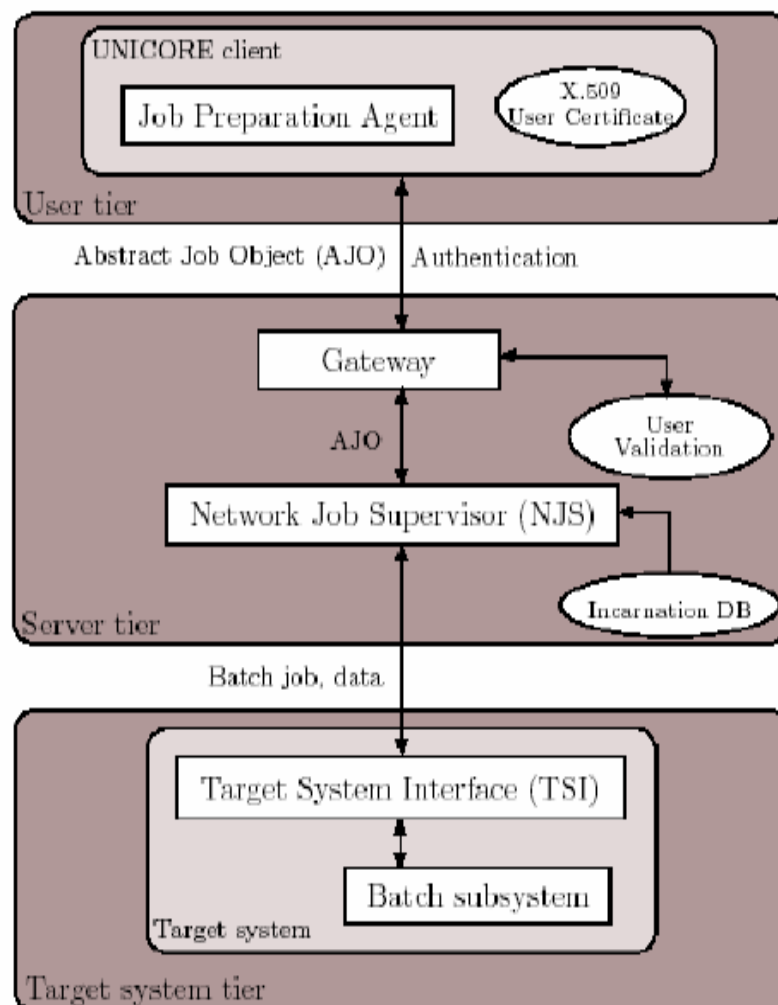
1. Job creation
2. Job management
3. Data management
4. Application support
5. Flow control
6. Interactive support
7. Single sign-on
8. Portability



Unicore: architecture

UNICORE is a three tiers architecture :

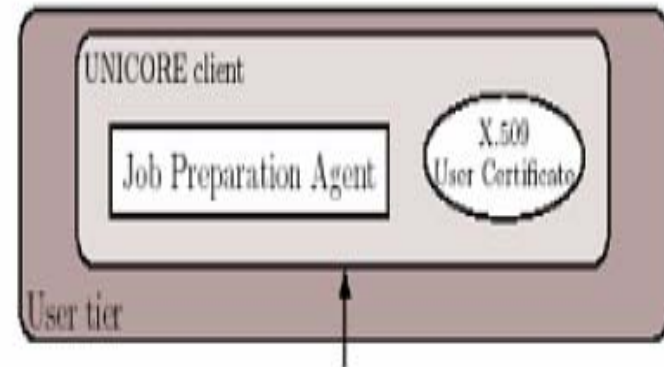
1. User tier
2. Server tier
3. Target system tier





Unicore: user tier

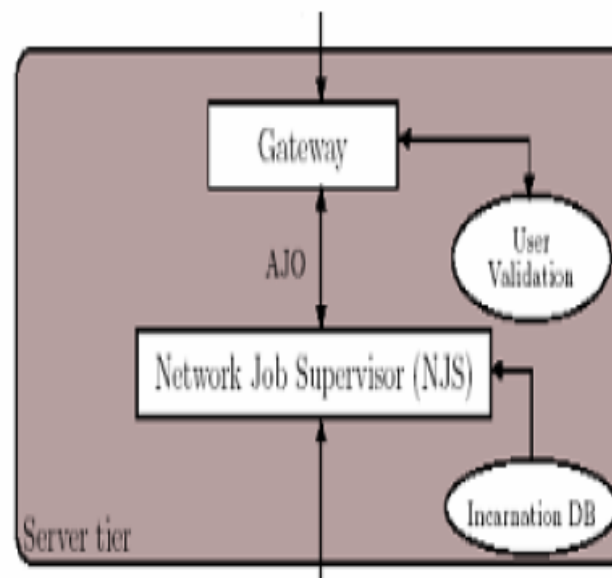
In this layer it is placed the graphical interface of UNICORE that guides the user in the process of creation of a complex job that it is represented by an object called Abstract Job Object(AJO); this is a Java class that can be serialized, and signed with the user credentials. This class allows the communication with the next layer of the architecture.





Unicore: server tier

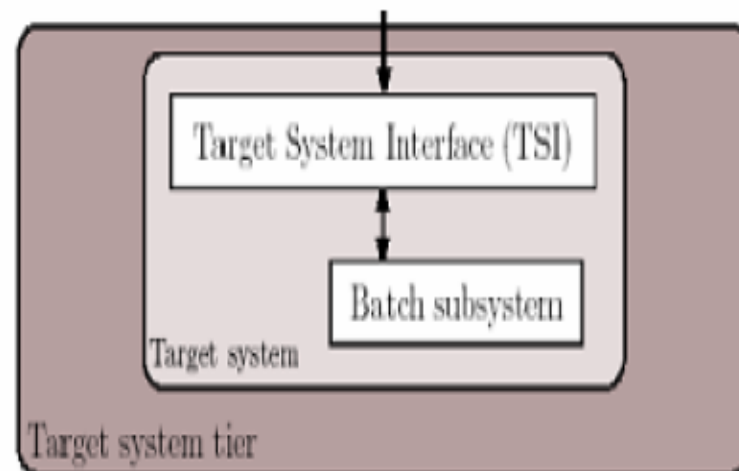
The server layer is composed of the Gateway and the Network Job Supervisor (NJS). The task of the Gateway is that one to collect the AJOs, to authenticate the user and to forward the requests to the various NJS parts of a complex job. The task of the NJS is to make concrete the requests of resources (process of incarnation) using a database called Incarnation Data Base (IDB). An IDB is different between one architecture and another and it contains the description of the resources available, giving information regarding the operating system, the number of processors, the memory per processor and so on.





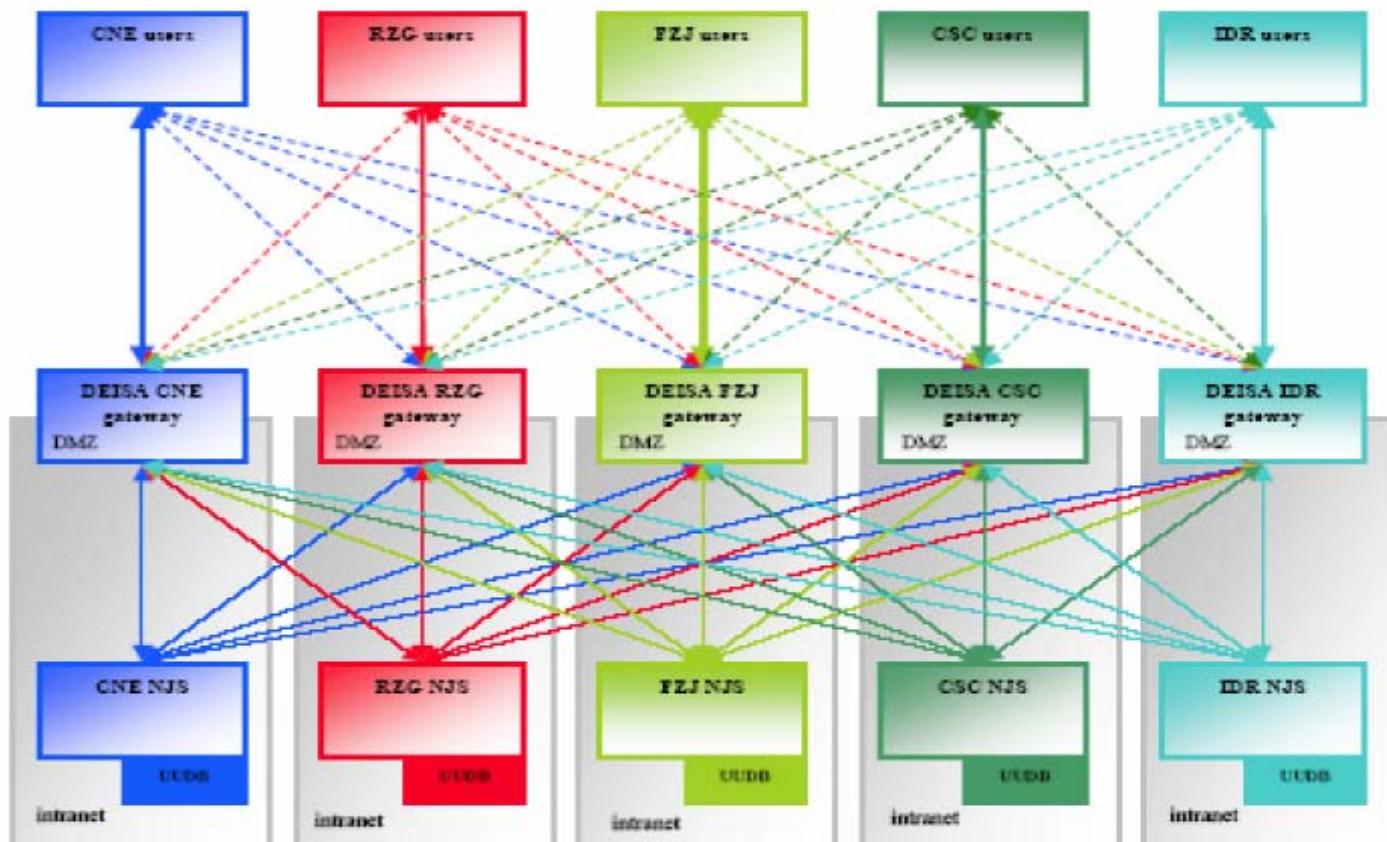
Unicore: target system tier

- This layer is based directly on the operating system and on the batch system.
- The implementation implies a demon that runs on the host and has the task to interact with the batch system. The demon is that agent who submits the jobs and controls them.
- It communicates with the NJS: it receives execution commands, related to TSI procedures apt to carry out particular tasks.





DEISA Unicore Infrastructure

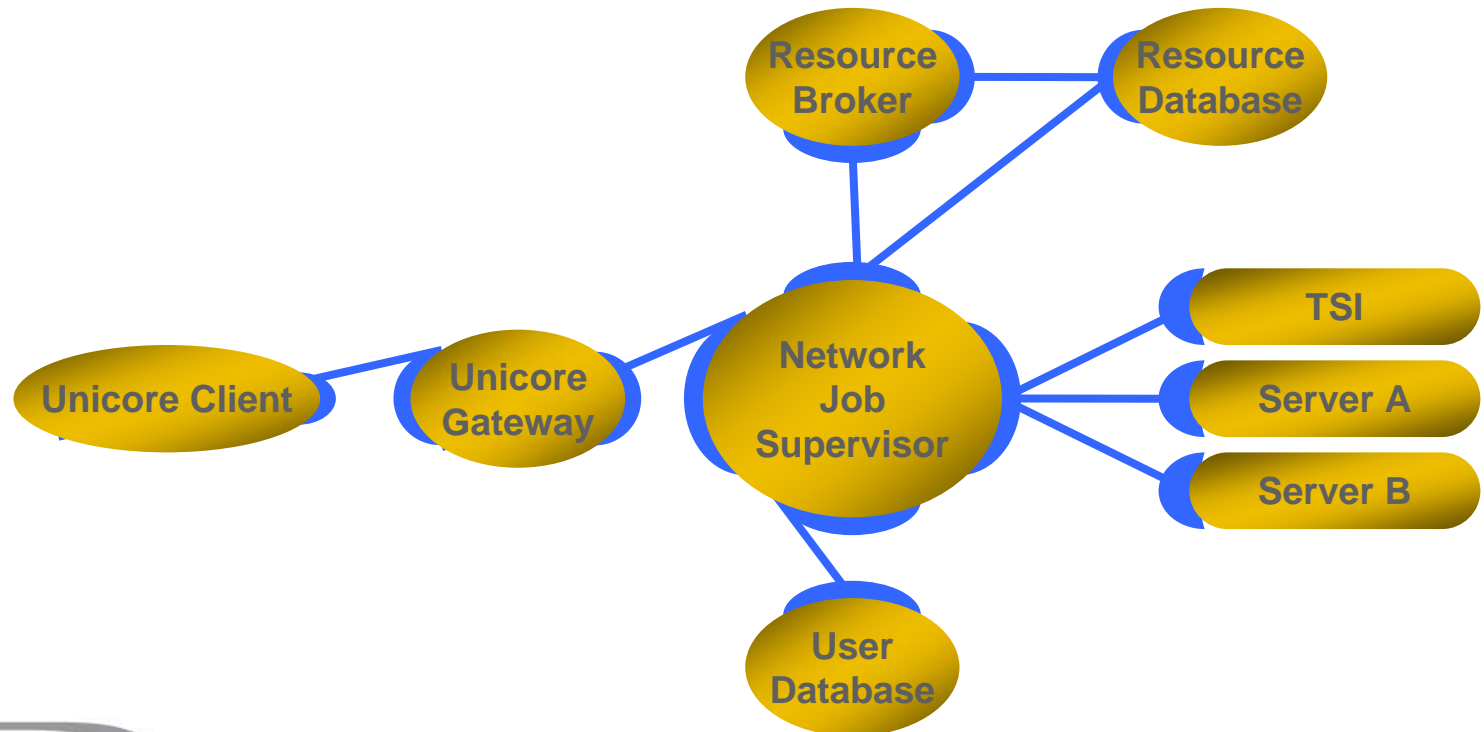




Unicore/GS

Unicore/GS consist of

- WSRF hosting environment
- Atomic services





Unicore/GS

Atomic services :

- TargetSystemFactory (TSF)
- TargetSystemService (TSS)
- JobManagementService (JMS)
- StorageManagementService (SMS)
- BaselineFileTransfer (BFT)

