Poznan Supercomputing and Networking Center

TERENA Networking Conference, 2003

MOBILE WORK ENVIRONMENT
FOR GRID USERS. TESTBED

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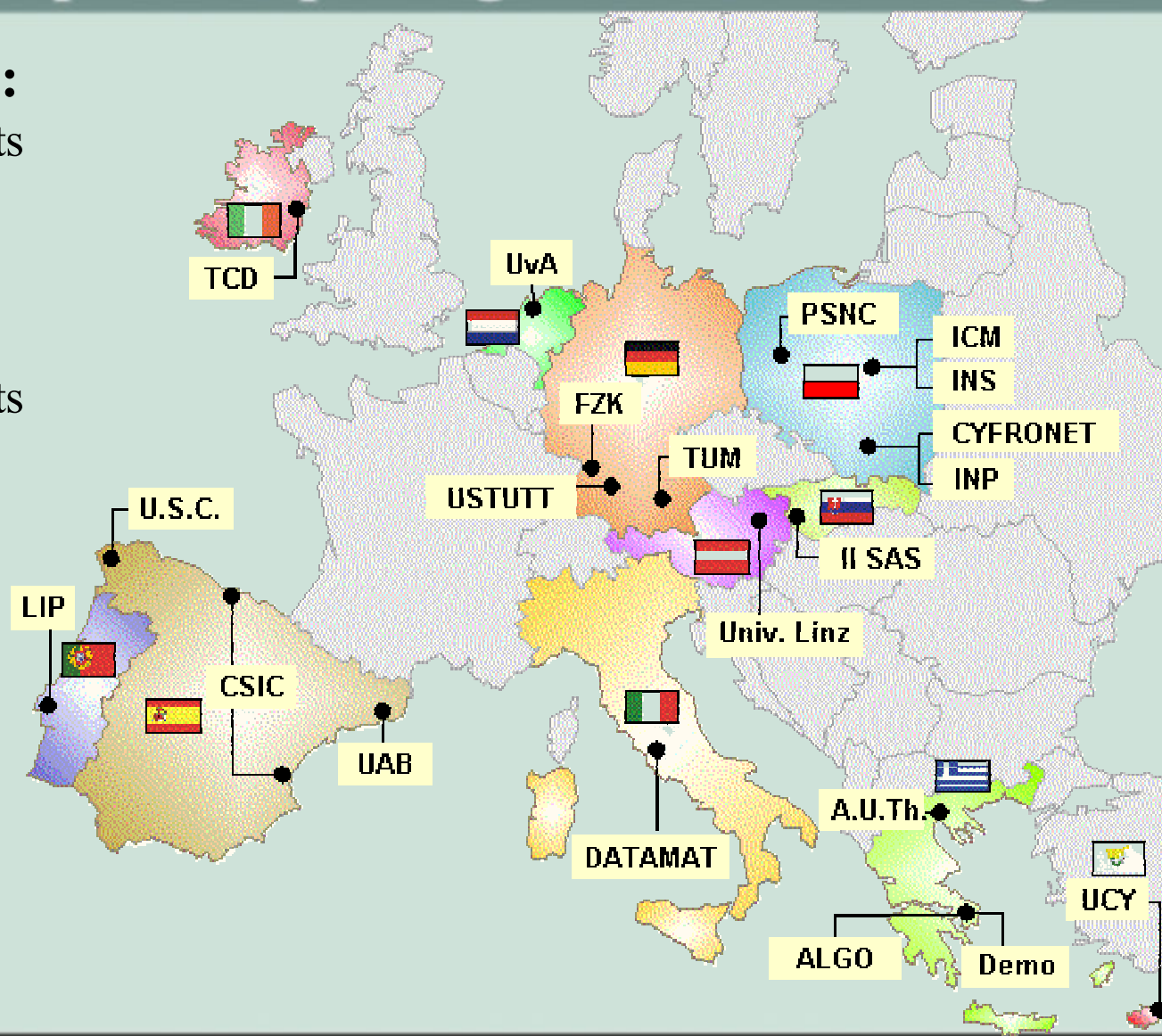Paweł Wolniewicz

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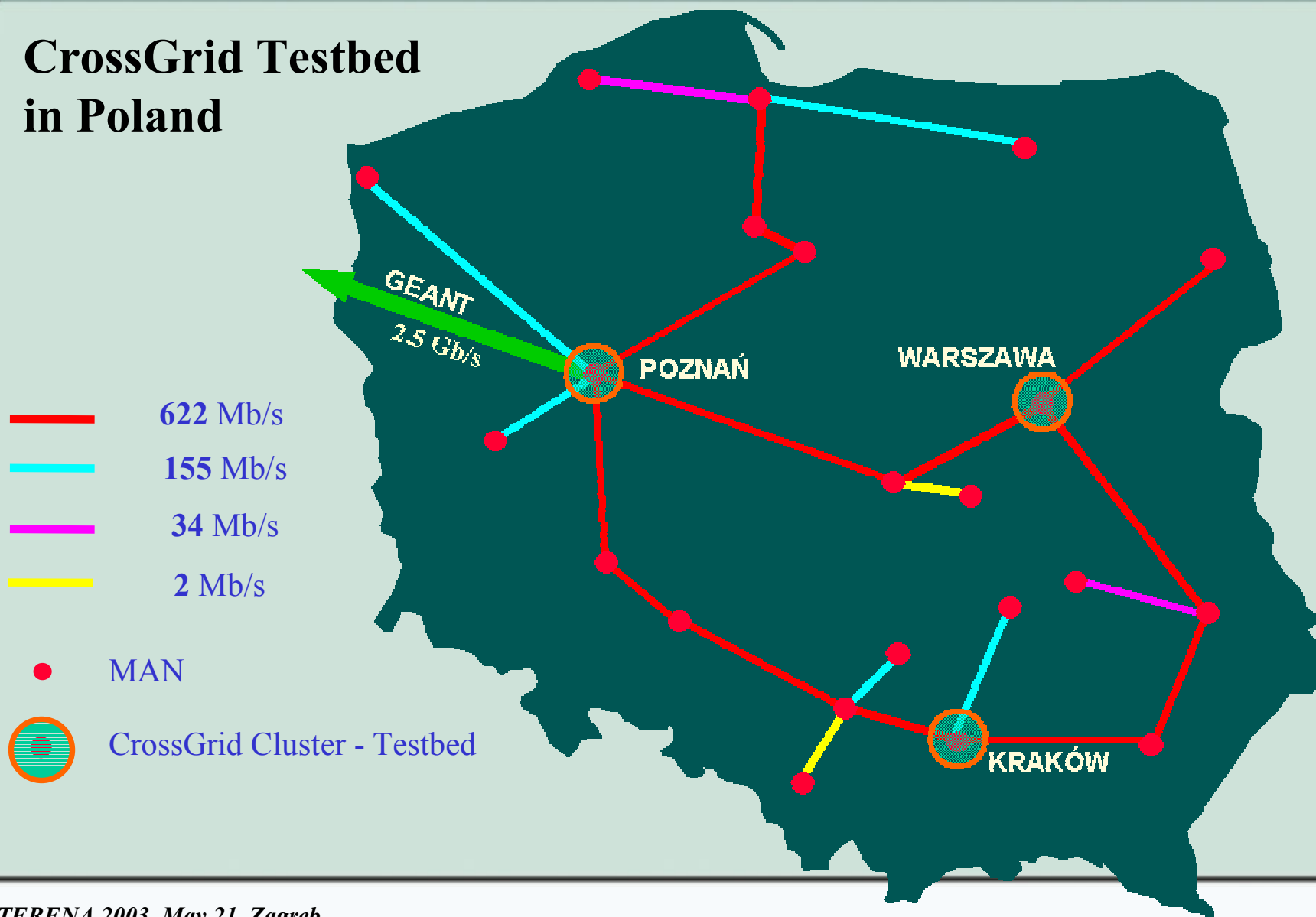**CrossGrid:**
21 participants
11 countries

Testbed:
16 participants

TCD
UvA
PSNC
ICM
INS
CYFRONET
INP
FZK
TUM
USTUTT
II SAS
U.S.C.
Univ. Linz
LIP
CSIC
UAB
DATAMAT
A.U.Th.
UCY
ALGO
Demo

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CrossGrid testbed resources

Production testbed		Validation testbed	
Computing Elements	15	Computing Elements	3
Worker nodes	69	Worker nodes	4
CPUs	115	CPUs	5
Storage elements	14	Storage Elements	3
Storage capacity	2.7TB	Storage capacity	1.2TB

Interfaces:
Fast Ethernet

Gigabit Ethernet

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Production Resource Broker

1. Job requests are submitted from remote UIs
2. Jobs are sent to the RB located at LIP
3. The RB uses site information in the matchmaking
4. The RB submits the job to a CE using GRAM

Any CrossGrid Remote site

Central site Lisbon

Any CrossGrid User Interface

Resource broker

JSS

II

1

2

3

4

JDL Job request

Athens

Cracow

Lisbon

Karlsruhe

Valencia

Bratislava

Poznan

Barcelona

Warsaw

Santiago

Thessaloniki

Dublin

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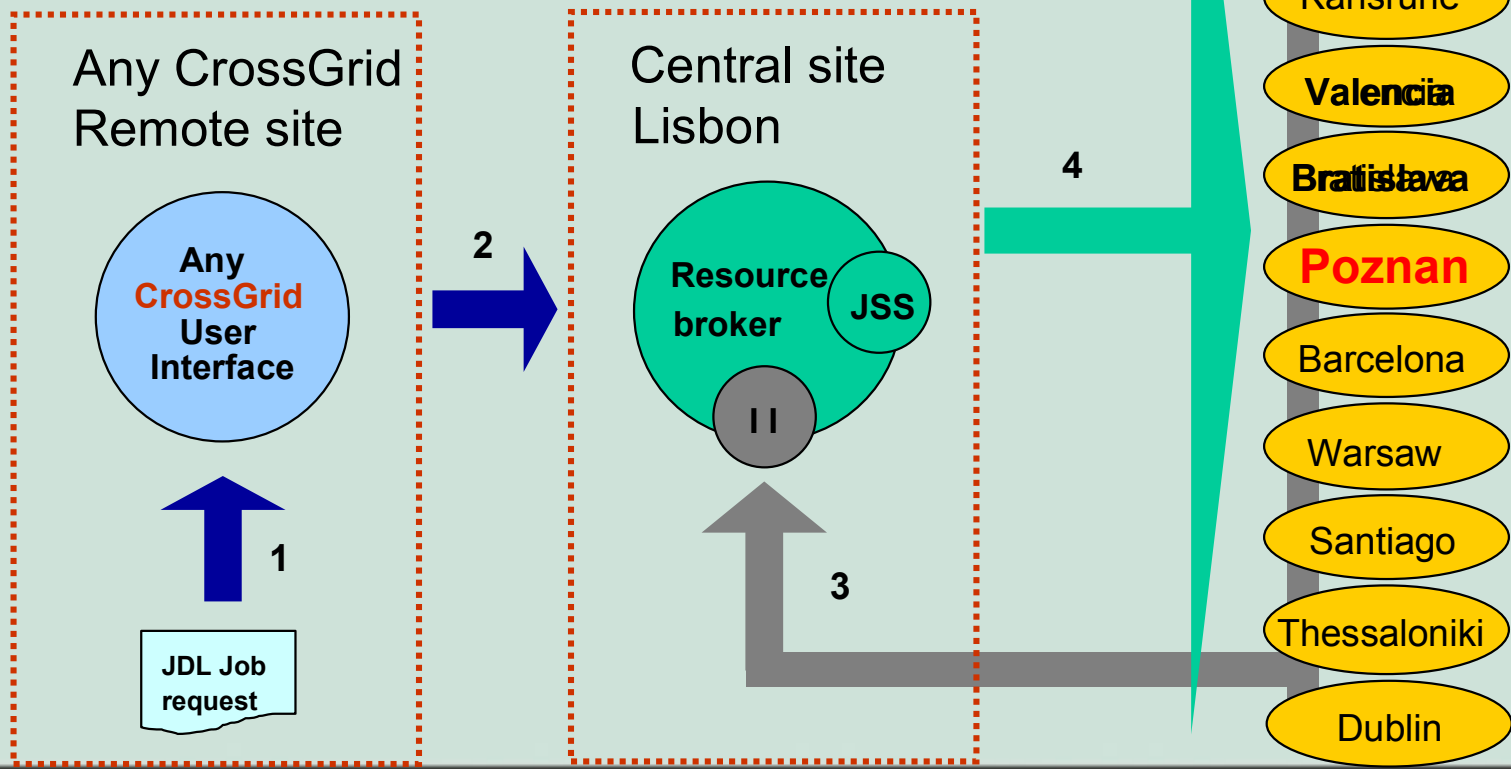
Production services

The CrossGrid production central services are located in Lisbon

MyProxy	: Certification proxy
RB	: Resource broker
RC	: Replica catalogue
VO	: Virtual organisation server
UI	: User interface
Monitoring	: Grid monitoring

LCFG

Central services
- **MyProxy**
- **RB**
- **RC**
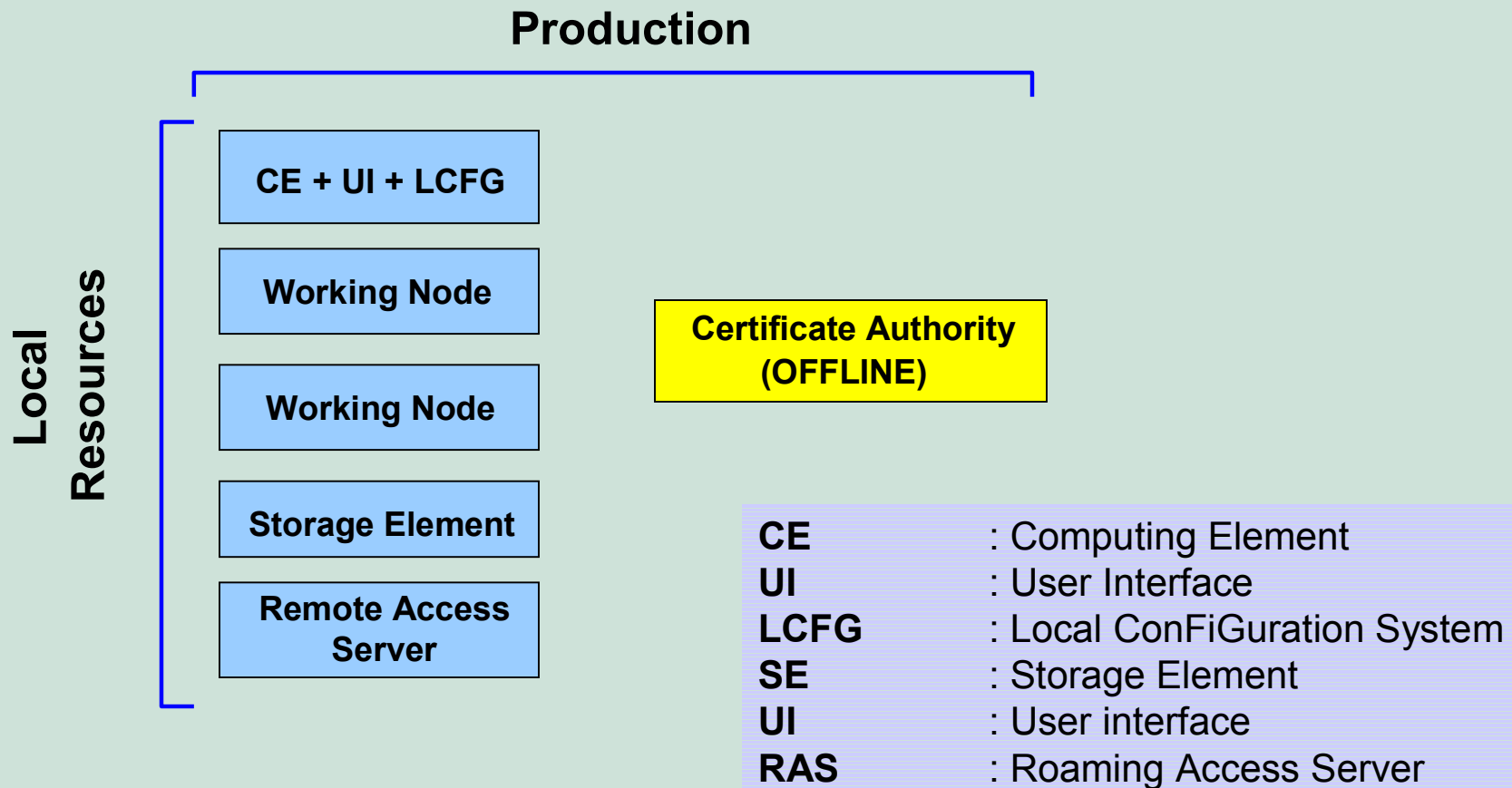- **VO**
- **Monitoring**

L I P Network → **Portuguese Research Network** → **GEANT Network**
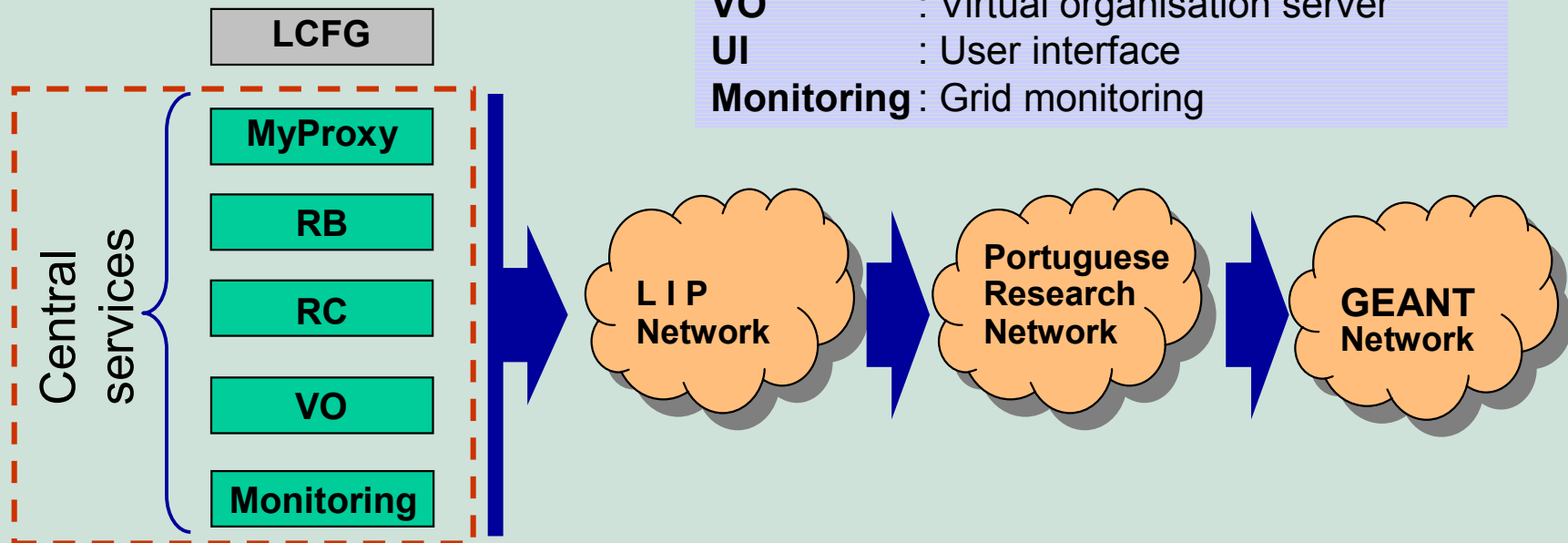
Available services

- **Resource Broker**
  - Matchmaking and load balancing scheduler.
  - Performs load sharing across CrossGrid sites.
- **Certificate Proxy server**
  - Short lived certificates for long lived processes.
  - Used by the applications portal and by the RB.
- **Virtual Organizations server**
  - Database for user authentication.
  - Is used to build the authorization databases of all CrossGrid sites.
- **Replica Catalogue**
  - Database for physical replica file location.
  - Central service to find the location of files in SEs.
- **Network and Grid Monitoring**
  - Early detection of problems in the CrossGrid testbed.

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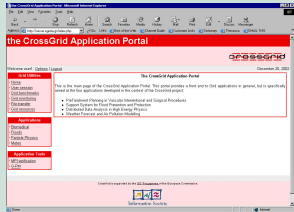## Production systems hosted at PSNC

Production

Local Resources

CE + UI + LCFG

Working Node

Working Node

Storage Element

Remote Access Server

Certificate Authority (OFFLINE)

CE	: Computing Element
UI	: User Interface
LCFG	: Local ConFiGuration System
SE	: Storage Element
UI	: User interface
RAS	: Roaming Access Server

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Portals and Roaming Access

POZMAN

PSNC

Application Portal

Grid Middleware

Migrating Desktop
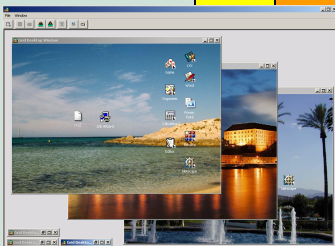
Crossgrid Graphical User Interfaces

Portal (CrossGrid Application Portal):
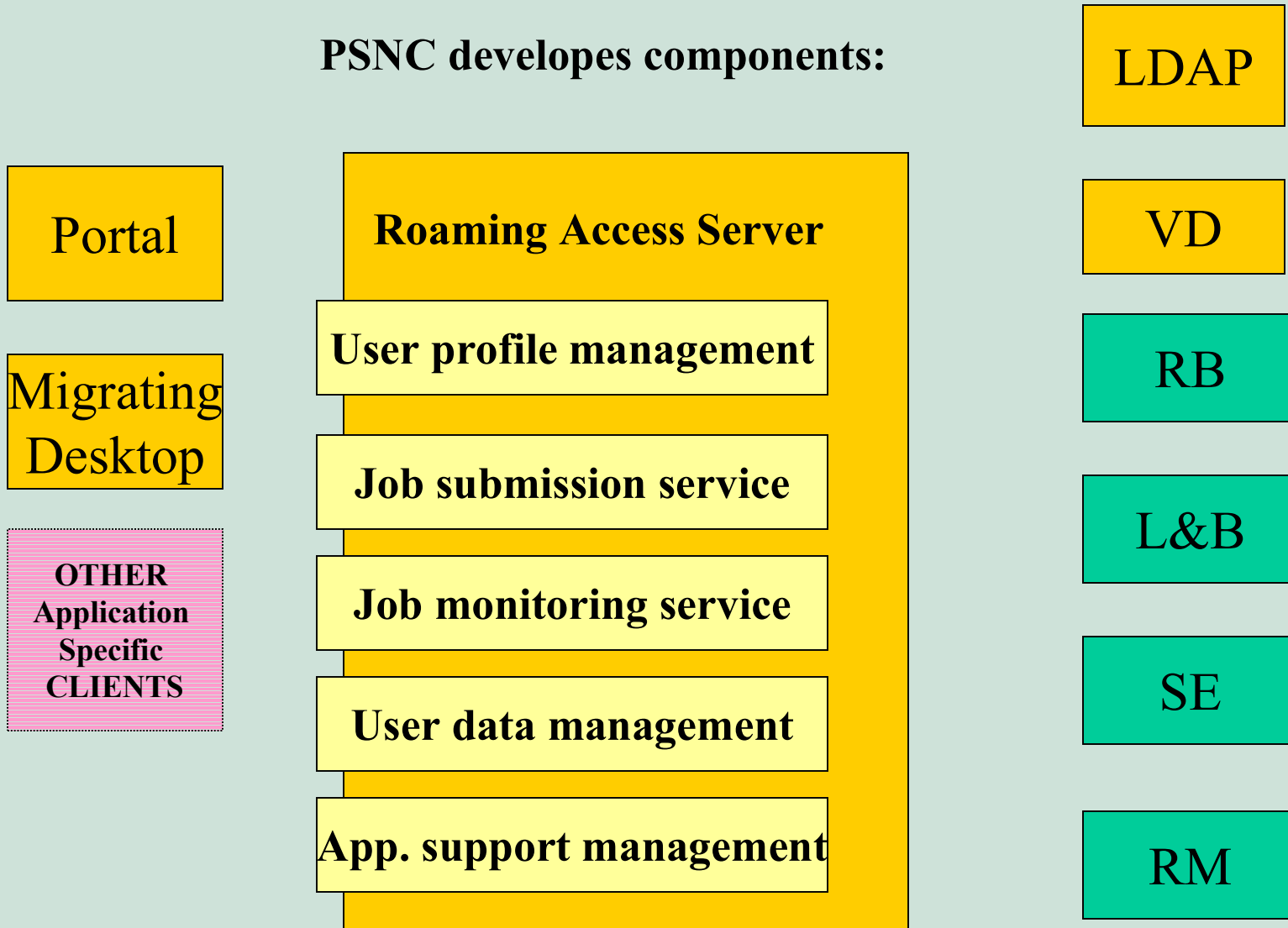- Specific application oriented GUI
- Only basic GUI functionality (html,php)
- Usage: system without java eg. internet cafe, airport
- Thin client

Migrating desktop:
- More sophisticated user friendly Java based GUI
- Whole environement for grid user (CrossGrid user)
- Possibility of working with many grids at once
- Integration of many crossgrid tools
- Local and grid application support
- Local and grid file management

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PSNC developes components:

Portal

Migrating Desktop

OTHER Application Specific CLIENTS

Roaming Access Server

User profile management

Job submission service

Job monitoring service

User data management

App. support management

LDAP

VD

RB

L&B

SE

RM

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Virtual Directory

Roaming Access Server

GFtp put

Upload Ack

Storage Element

X# Migrating Desktop

File   Window

Open

Virtual Directory Browser

- Mazurek
- NewDirectory
- RadekR
- RafalL
  - SVG Files
- applications
- eincomplete
- incomplete
- kat
- miron
- results
- szd
- test2
- try
- upload
- root
  - testDirectory_
  - SVG Files
- my812
- NewDirectory1
- my8

netvalues.svg
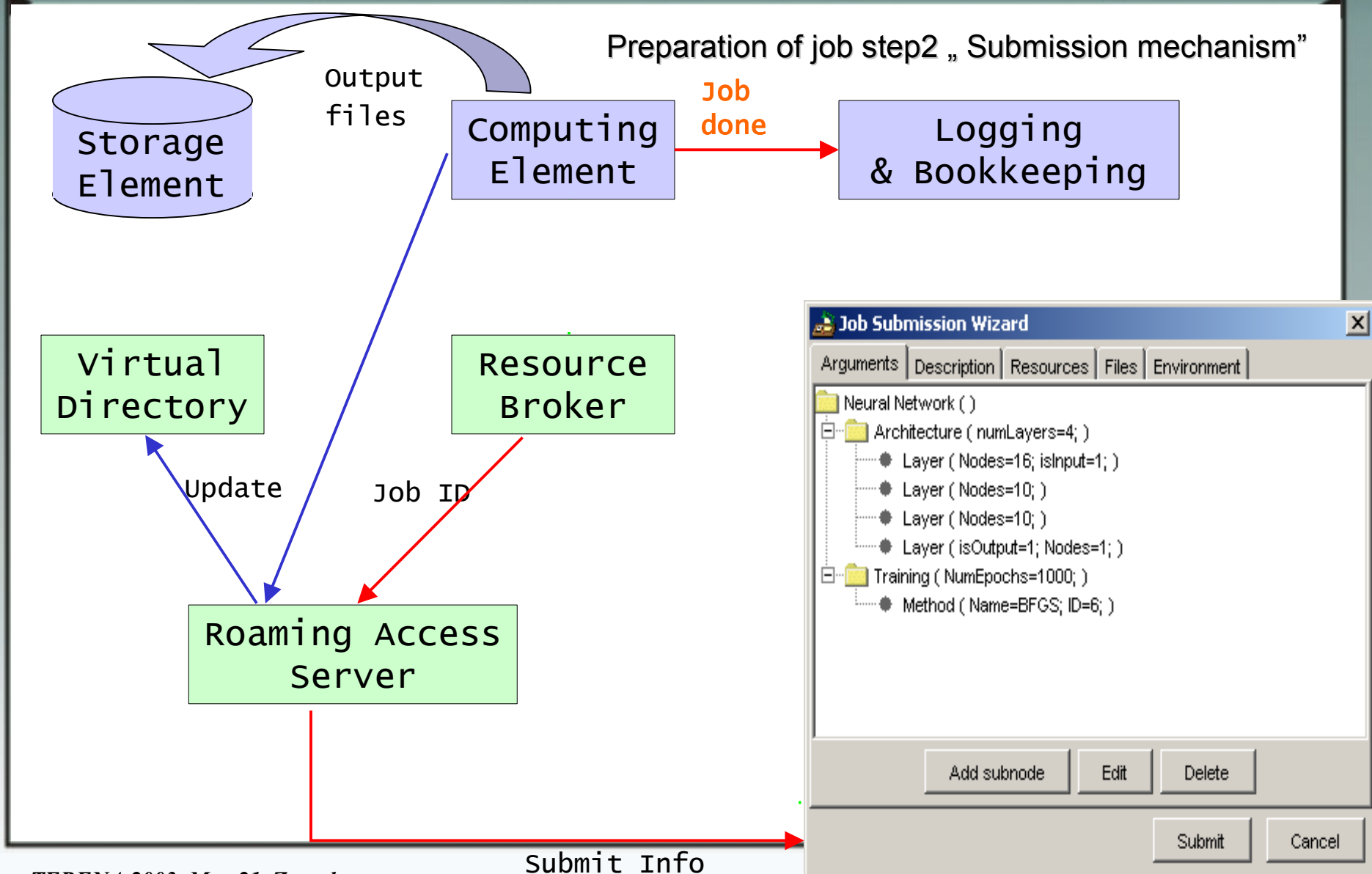NNErrorData.svg

File path: /root/SVG Files/netvalues.svg

OK   Cancel
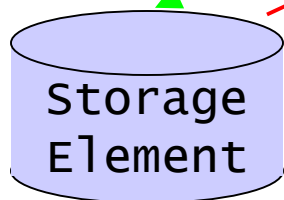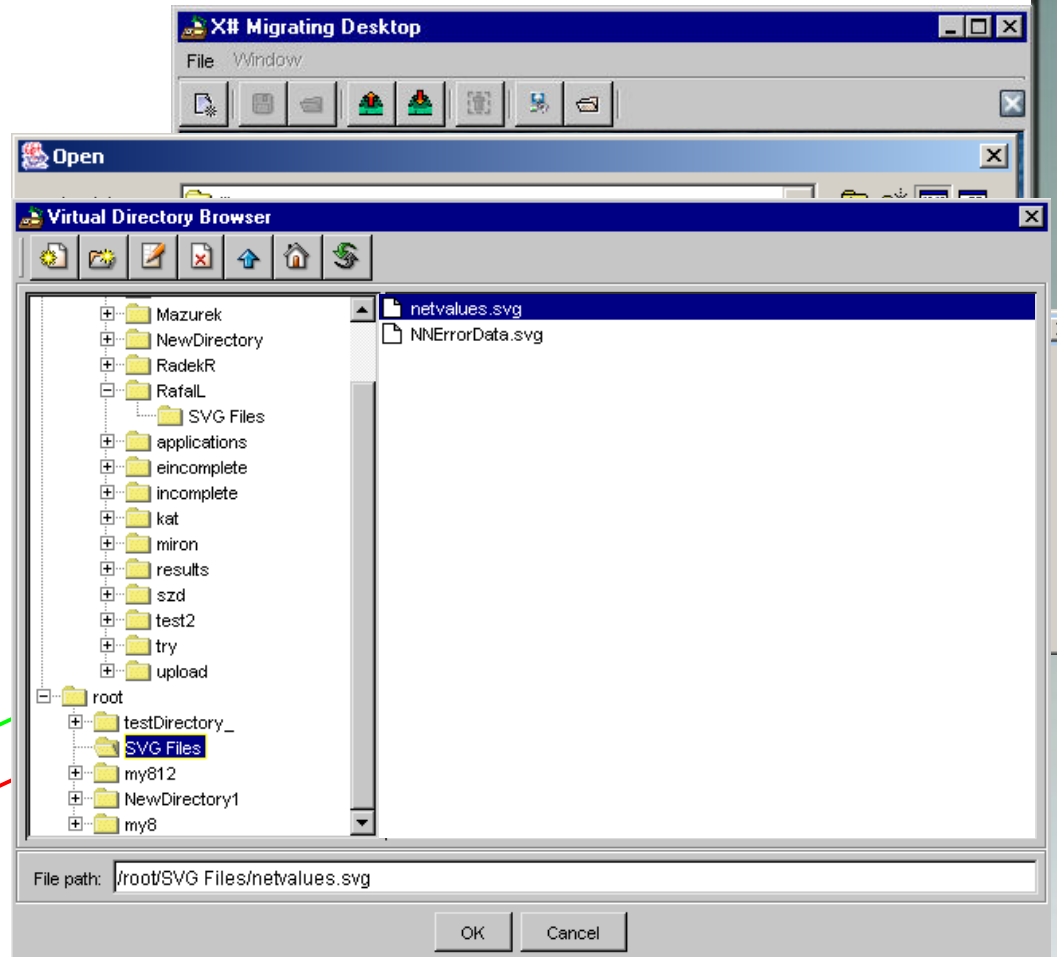
Preparation of job step1 „File transfer – upload"

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Preparation of job step2 „ Submission mechanism"

Storage Element

Output files

Computing Element

Job done

Logging & Bookkeeping

Virtual Directory

Resource Broker

Update

Job ID

Roaming Access Server

Submit Info

Job Submission Wizard

Arguments | Description | Resources | Files | Environment

Neural Network ( )
- Architecture (numLayers=4;)
  - Layer (Nodes=16; isInput=1;)
  - Layer (Nodes=10;)
  - Layer (Nodes=10;)
  - Layer (isOutput=1; Nodes=1;)
- Training (NumEpochs=1000;)
  - Method (Name=BFGS; ID=6;)

Add subnode | Edit | Delete

Submit | Cancel

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Job monitoring

Logging & Bookkeeping

All Jobs' Identifiers

query

Show My Jobs

States of my Jobs
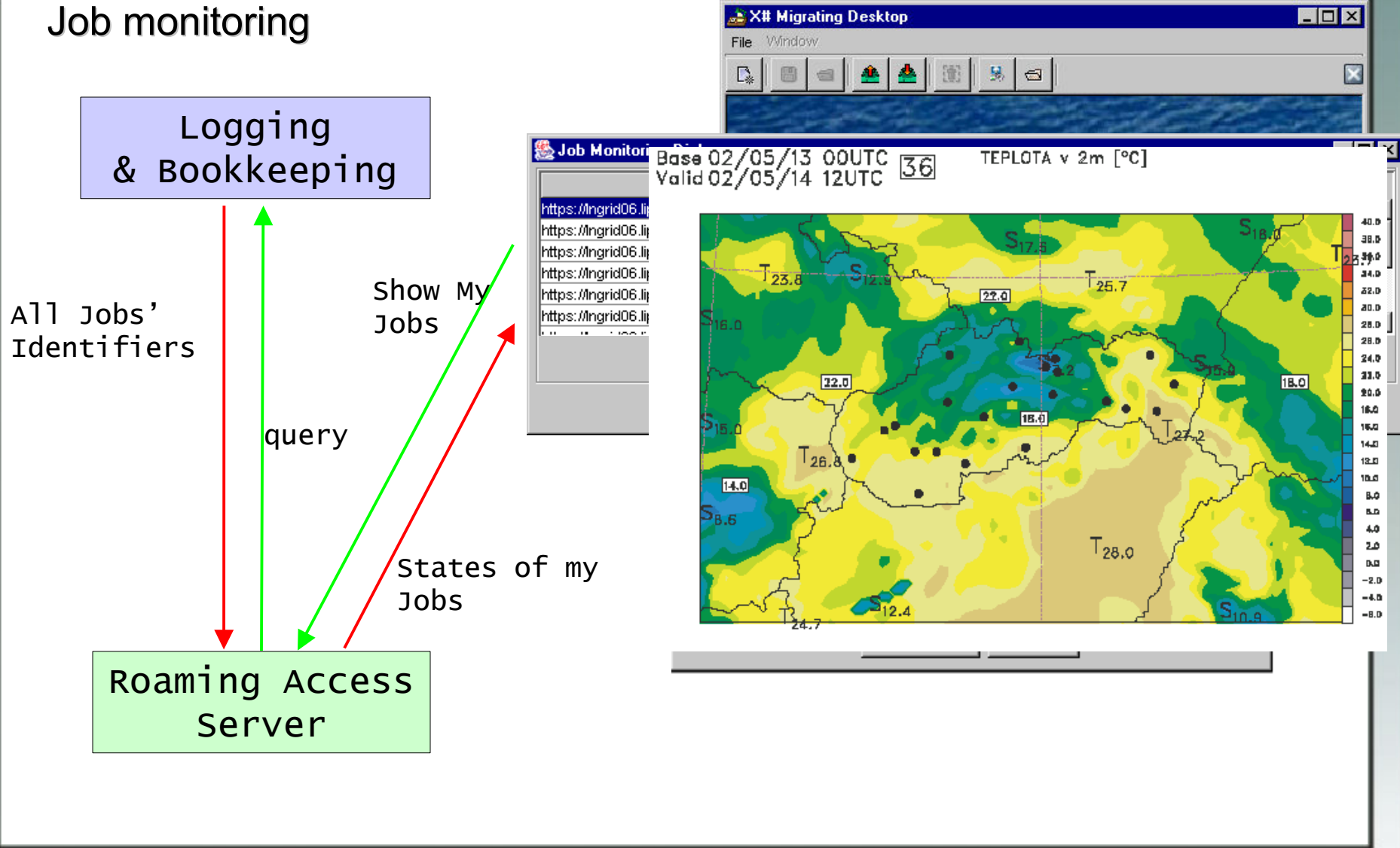
Roaming Access Server

Summary...

- We offer the new service for open network environment.

- It allows the restoring the user environment on every java enabled workstation.

- Support for grid applications.

- The project is co-funded by EU: IST-2001-32243

crossGrid

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Thank you

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