



Enabling Grids for E-science

perfSONAR-Lite TSS Troubleshooting Tools

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www.eu-egee.org



- **Introduction**
- **EGEE-III Requirements for Network Troubleshooting**
- **perfSONAR-based Plugin Architecture**
- **Authorization and Authentication**
- **Implementation**
- **Access to Test phase 1**
- **Examples**
- **perfSONAR-Lite TSS Wiki**
- **Contact**

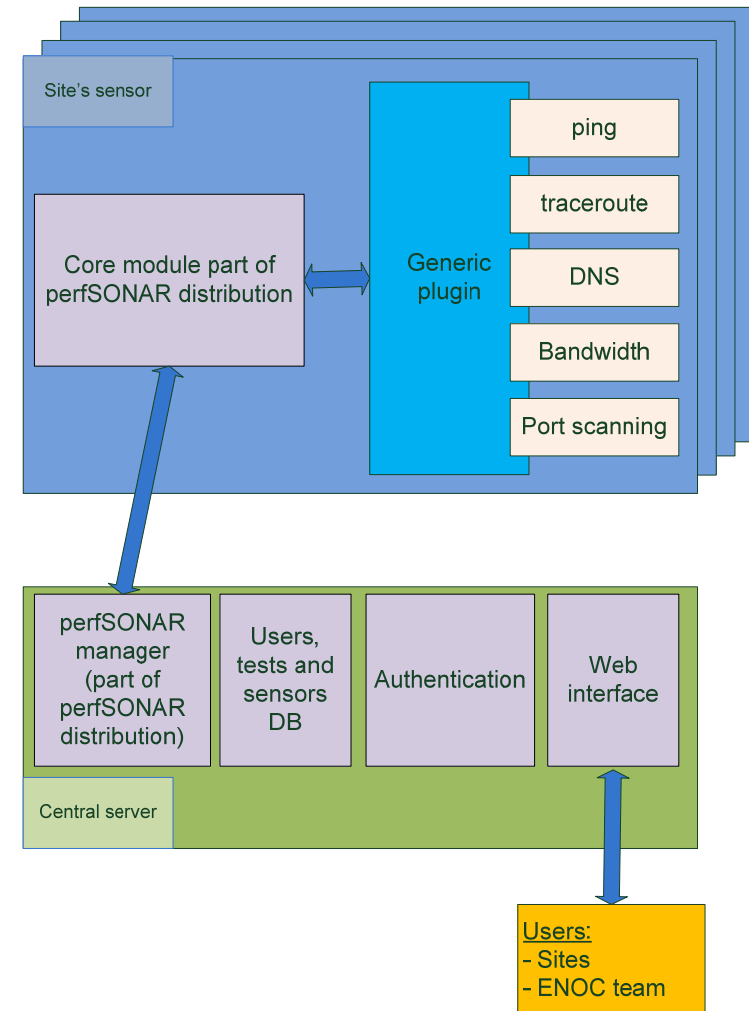
EGEE-III requirements for network troubleshooting:

- **measurements**
 - not continuous (no monitoring!)
 - but on-demand (to support troubleshooting)
- **a light-weight solution**
- **easy to deploy and upgrade**
- **portable to all sites / platform independent**
- **modules should have sustainability (use of perfSONAR common core interface)**
- **should offer requested EGEE troubleshooting tools**

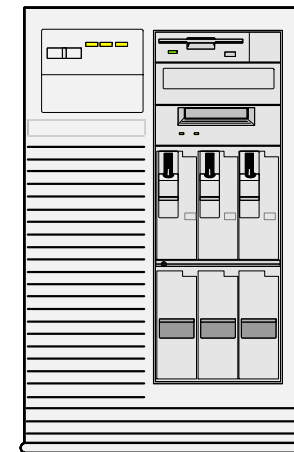
perfSONAR extensions for EGEE-III are necessary

- to enable light-weight on-demand measurements
- to offer additional service tools
 - Ping
 - Traceroute
 - DNS lookup and reverse lookup
 - BWCTL
 - port scan
- web service extensions for EGEE-III platform
- authorization / authentication for EGEE-III specifications
- EGEE-III specific visualization and archiving

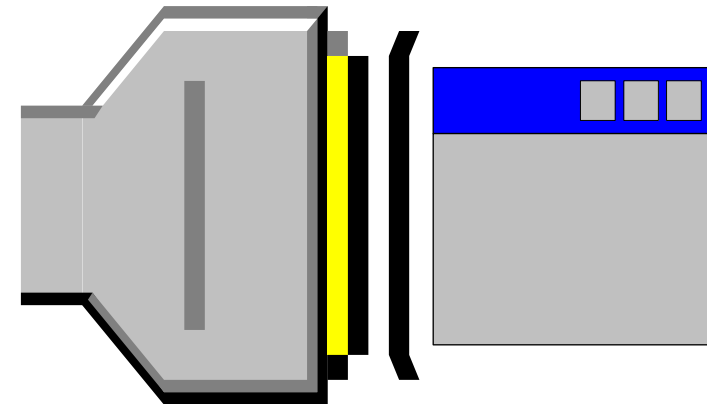
- central web server
- all access to measurements via central web server
- a light-weight client at each site
- basic service tools are activated via generic plugin
- generic plugin supplies input to perfSONAR core modules
- users: all sites, ENOC team



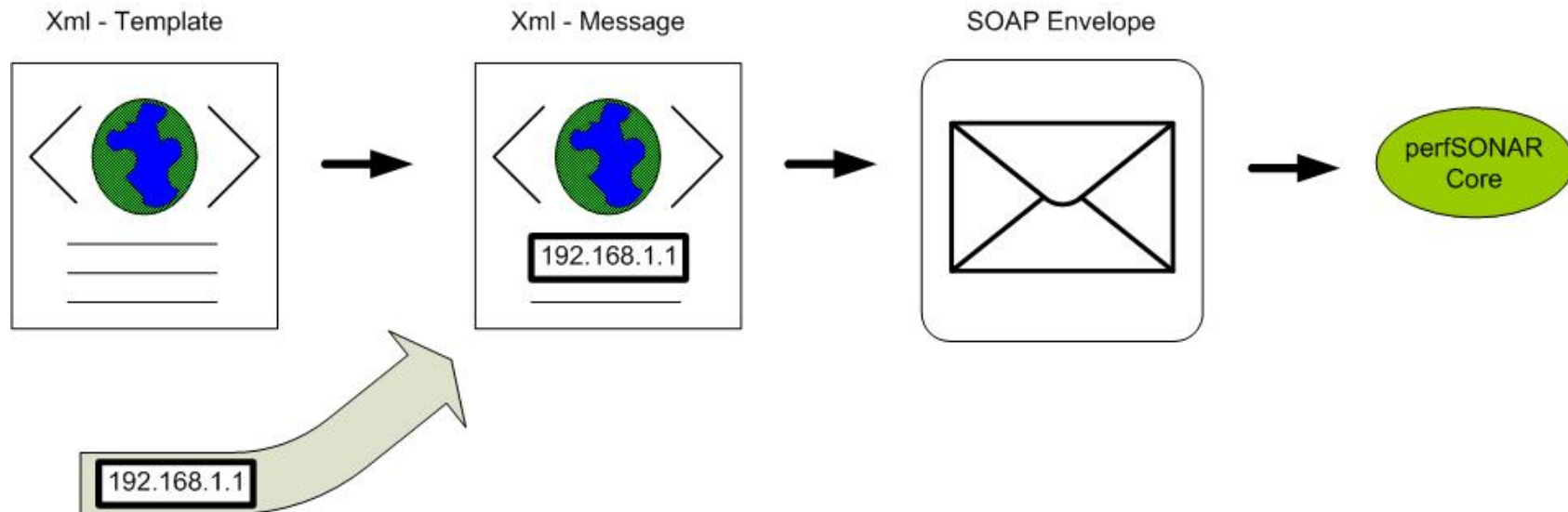
- **Key functions of the central web server will be:**
 - web-based user interface
 - authentication of users for tests
 - launching of test measurements requested by client site
 - collection of measured data and of results
 - data archiving
 - history of recent tests



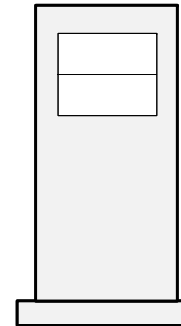
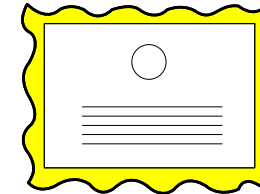
- translates requests from sites to perfSONAR common core module
- wrapper around basic service tools
- **basic function:**
 - get request
 - execute request
 - deliver results
- **offered benefits:**
 - platform independent
 - deployable to all 280+ sites



Generic plugin architecture (II)



- **Authorization via local administration and client registration**
- **Authentication on the central web server with X.509 certificates**
- **Managers can**
 - register / manage users and probes
 - assign / revoke access of users to probes
- **Managers must be listed in GOC-DB as**
 - Regional Manager
 - Site Administrator
 - Deputy Regional Manager
 - C-COD staff
 - C-COD Administrator
- **Users must have valid Grid certificate**



- **GOC-DB does not provide all required data**
 - e.g. some data fields exist, but data is missing
 - New data fields are required, e.g. IP address of a probe
- **It is not clear how GOC-DB will be used in EGI**
 - May not exist anymore at all
 - Some data formats may change considerably



Design of a local database

- **Local database will regularly be synchronized with GOC-DB**
 - Sites
 - Managers
 - ROCs

- **For comfortable management of user / probe data**
 - managers have access to a *management console*
- **Management console allows**
 - Add user
 - Edit user
 - Delete user
 - Add probe
 - Edit probe
 - Delete probe
 - Provide / revoke user access to probes
- **Manager has access to data of users / probes that he / she personally registered**
- **Registration is a one-time only process**

February 2009: Start of Test phase 1

- **Test phase 1 comprised**
 - Web server in Erlangen
 - Management console
 - Local database processing
 - Troubleshooting tools
 - Ping
 - Traceroute
 - DNS lookup
 - DNS reverse lookup
- **Examples and access information below**

Status quo: Transition to test phase 2

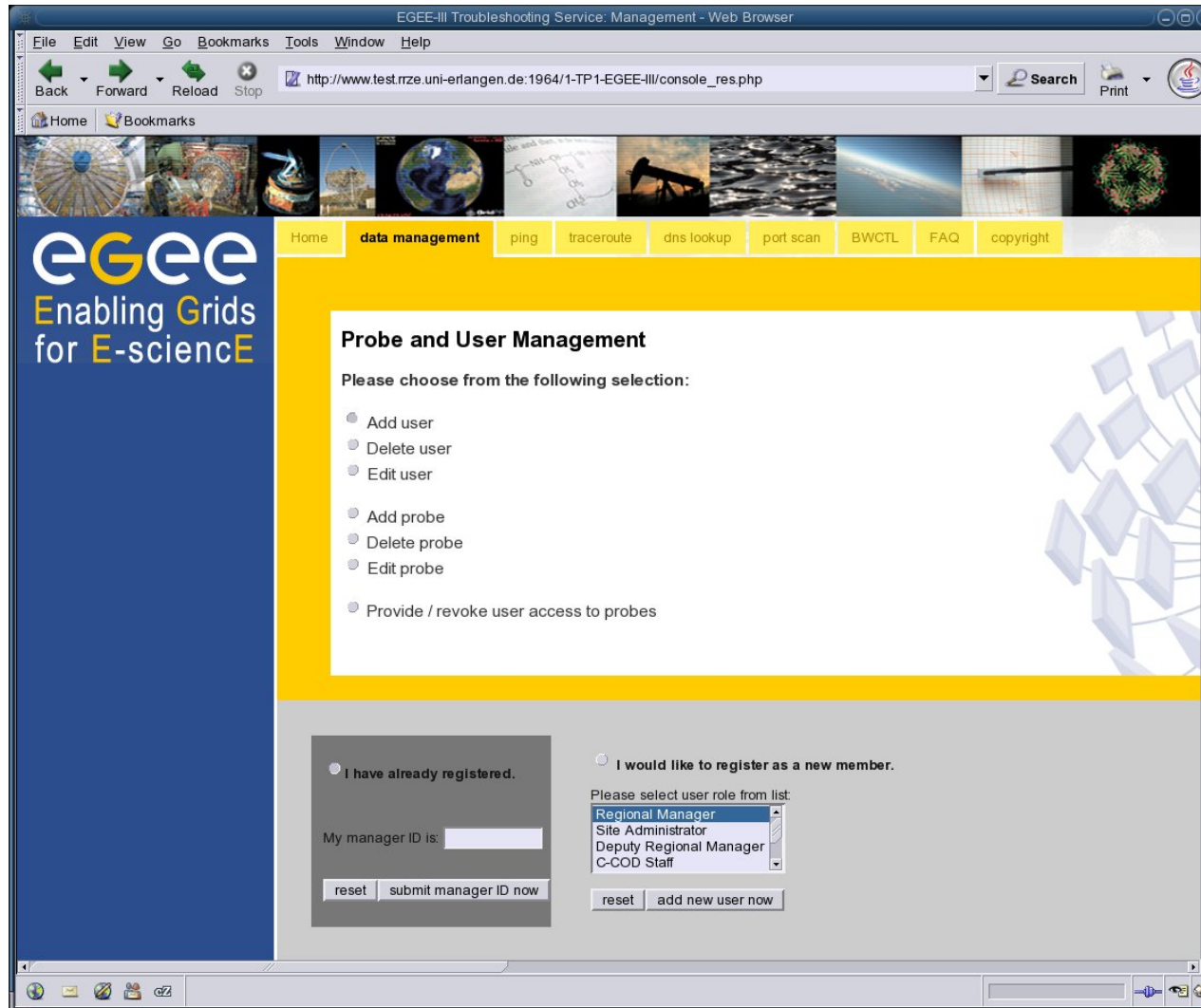
- **Test phase 2 will include**

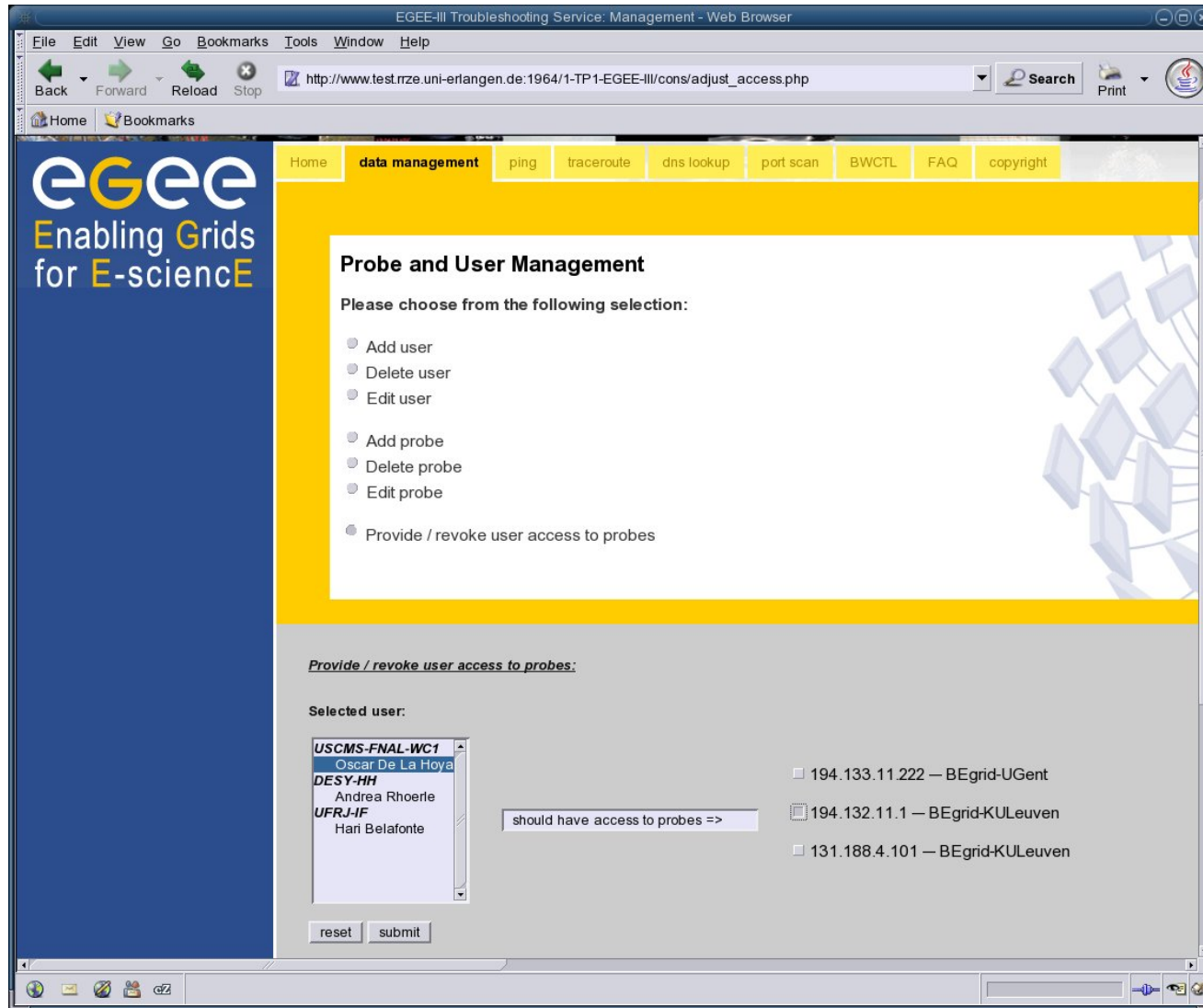
- Move to ENOC web server
- Troubleshooting tools
 - Port scan
 - BWCTL
- Manager synchronization with GOC-DB

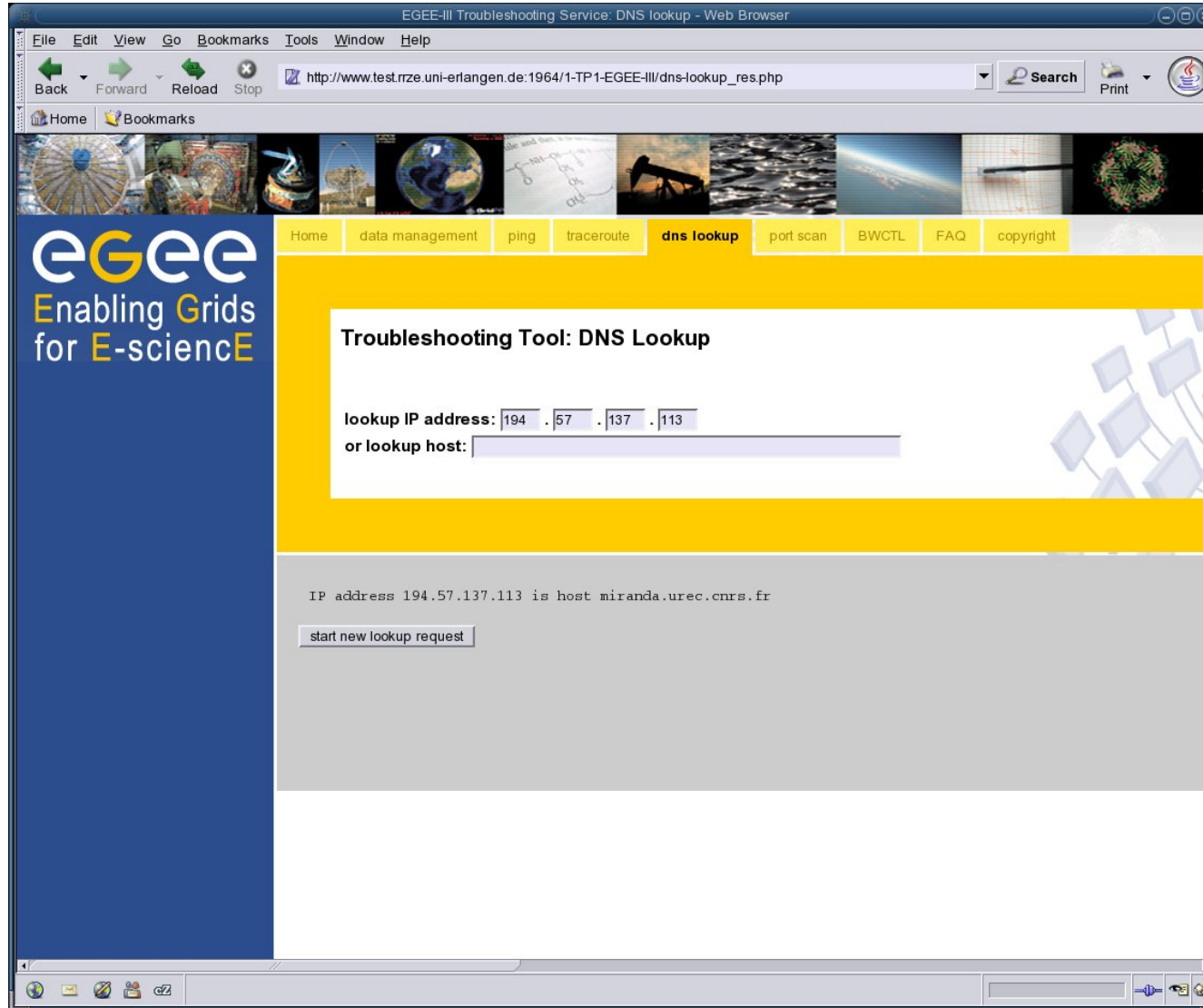
- **Outlook:**

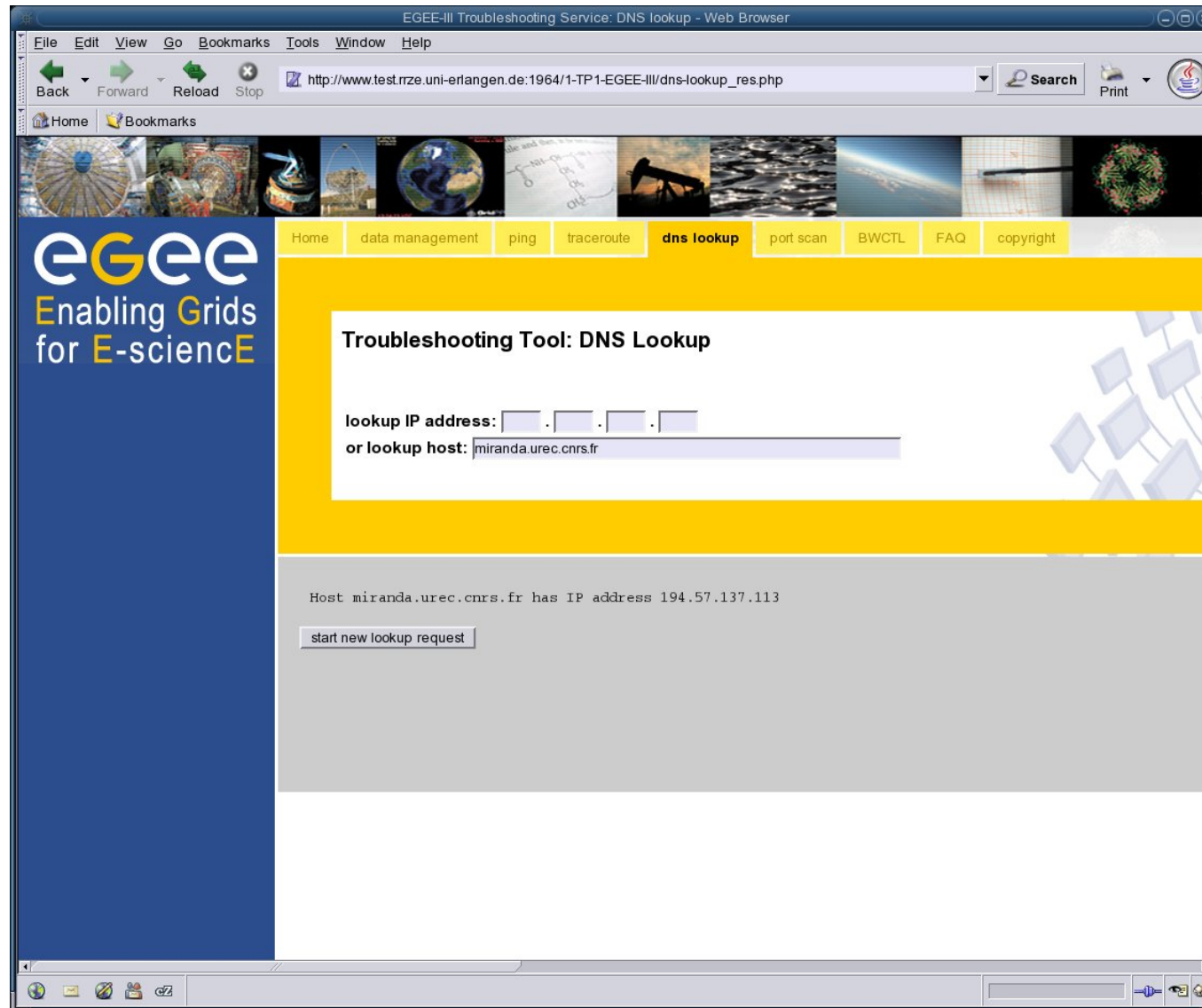
- Release of first beta version planned for May 2009

- **You can access test phase 1 platform via**
 - <http://www.test.rrze.uni-erlangen.de:1964/1-TP1-EGEE-III/EGEE-index.php>
 - Login, passwd
- **Current work around**
 - requires you to register yourself as manager first
 - remember manager ID
 - then register users and probes as you wish
 - test troubleshooting tools

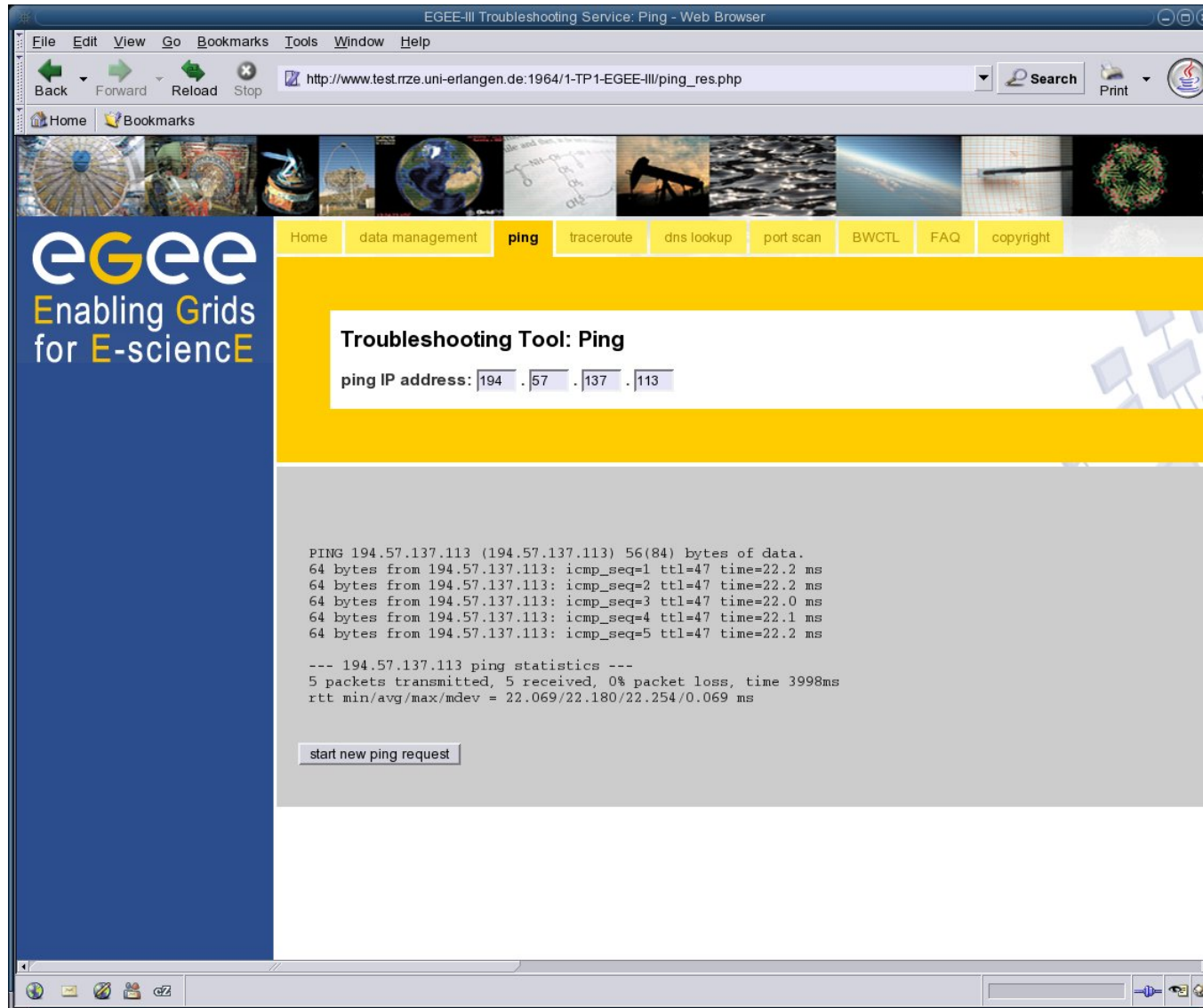








The screenshot shows a web browser window titled "EGEE-III Troubleshooting Service: DNS lookup - Web Browser". The address bar contains the URL "http://www.test.rze.uni-erlangen.de:1964/1-TP1-EGEE-III/dns-lookup_res.php". The browser interface includes a menu bar (File, Edit, View, Go, Bookmarks, Tools, Window, Help), navigation buttons (Back, Forward, Reload, Stop), and a search box. Below the browser window, the website content is displayed. On the left, there is a blue sidebar with the "EGEE Enabling Grids for E-science" logo. The main content area has a yellow header with a navigation menu containing "Home", "data management", "ping", "traceroute", "dns lookup", "port scan", "BWCTL", "FAQ", and "copyright". The "dns lookup" section is titled "Troubleshooting Tool: DNS Lookup" and features two input fields: "lookup IP address:" with a dotted pattern and "or lookup host:" with the text "miranda.urec.cnrs.fr". Below these fields, the result is displayed: "Host miranda.urec.cnrs.fr has IP address 194.57.137.113". A button labeled "start new lookup request" is positioned below the result.



EGEE-III Troubleshooting Service: Ping - Web Browser

File Edit View Go Bookmarks Tools Window Help

Back Forward Reload Stop http://www.test.rz.ee.uni-erlangen.de:1964/1-TP1-EGEE-III/ping_res.php Search Print

Home Bookmarks

Home data management ping traceroute dns lookup port scan BWCTL FAQ copyright

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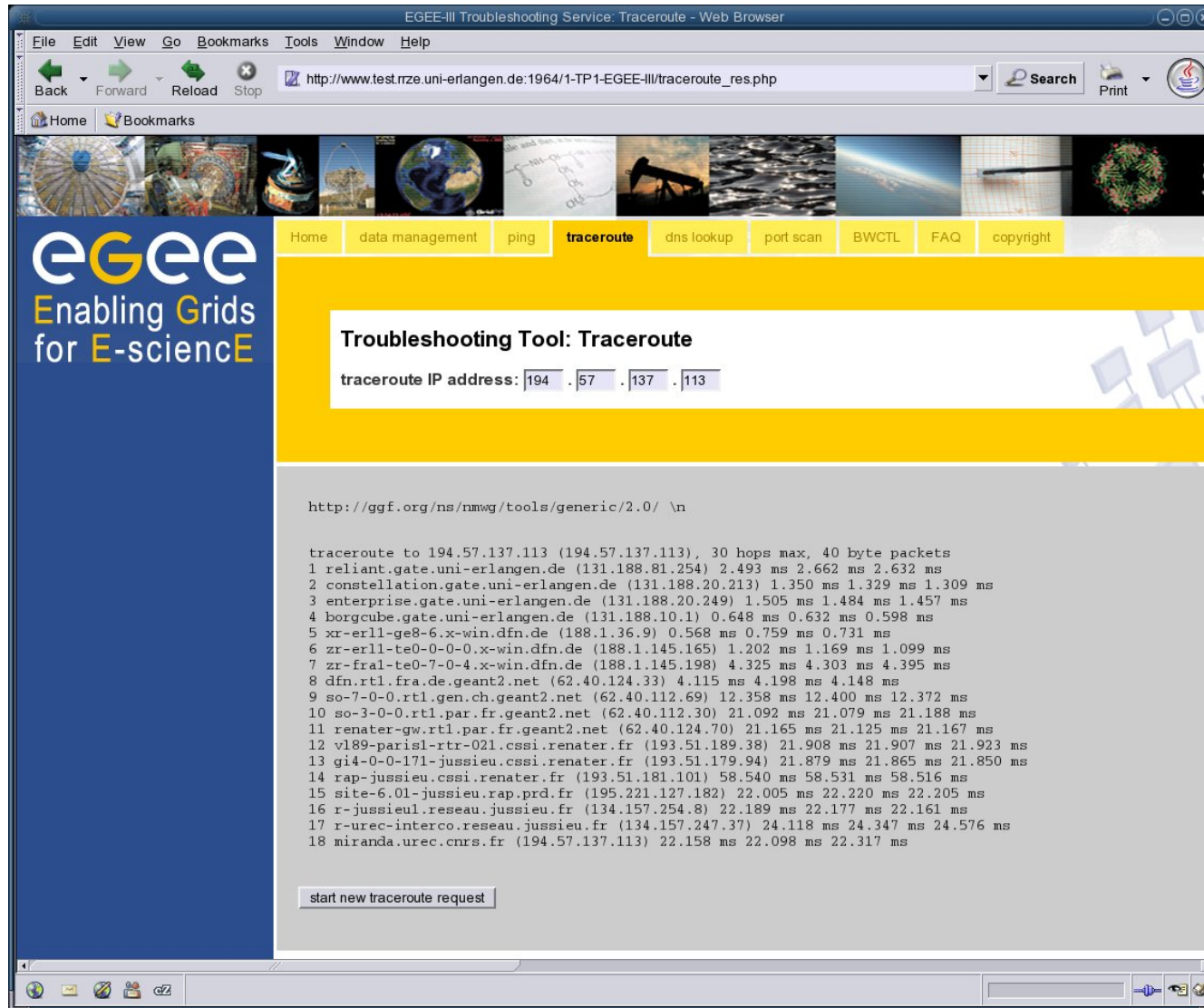
Troubleshooting Tool: Ping

ping IP address: . . .

```

PING 194.57.137.113 (194.57.137.113) 56(84) bytes of data.
64 bytes from 194.57.137.113: icmp_seq=1 ttl=47 time=22.2 ms
64 bytes from 194.57.137.113: icmp_seq=2 ttl=47 time=22.2 ms
64 bytes from 194.57.137.113: icmp_seq=3 ttl=47 time=22.0 ms
64 bytes from 194.57.137.113: icmp_seq=4 ttl=47 time=22.1 ms
64 bytes from 194.57.137.113: icmp_seq=5 ttl=47 time=22.2 ms

--- 194.57.137.113 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 3998ms
rtt min/avg/max/mdev = 22.069/22.180/22.254/0.069 ms
    
```



EGEE-III Troubleshooting Service: Traceroute - Web Browser

File Edit View Go Bookmarks Tools Window Help

Back Forward Reload Stop Search Print

Home Bookmarks

Home data management ping **traceroute** dns lookup port scan BWCTL FAQ copyright

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Troubleshooting Tool: Traceroute

traceroute IP address: . . .

[http://ggf.org/ns/nmwg/tools/generic/2.0/ \n](http://ggf.org/ns/nmwg/tools/generic/2.0/)

```

traceroute to 194.57.137.113 (194.57.137.113), 30 hops max, 40 byte packets
 1 reliant.gate.uni-erlangen.de (131.188.81.254) 2.493 ms 2.662 ms 2.632 ms
 2 constellation.gate.uni-erlangen.de (131.188.20.213) 1.350 ms 1.329 ms 1.309 ms
 3 enterprise.gate.uni-erlangen.de (131.188.20.249) 1.505 ms 1.484 ms 1.457 ms
 4 borgcube.gate.uni-erlangen.de (131.188.10.1) 0.648 ms 0.632 ms 0.598 ms
 5 xr-erll-ge8-6.x-win.dfn.de (188.1.36.9) 0.568 ms 0.759 ms 0.731 ms
 6 zr-erll-te0-0-0-0.x-win.dfn.de (188.1.145.165) 1.202 ms 1.169 ms 1.099 ms
 7 zr-fral-te0-7-0-4.x-win.dfn.de (188.1.145.198) 4.325 ms 4.303 ms 4.395 ms
 8 dfn.rtl.fra.de.geant2.net (62.40.124.33) 4.115 ms 4.198 ms 4.148 ms
 9 so-7-0-0.rtl.gen.ch.geant2.net (62.40.112.69) 12.358 ms 12.400 ms 12.372 ms
10 so-3-0-0.rtl.par.fr.geant2.net (62.40.112.30) 21.092 ms 21.079 ms 21.188 ms
11 renater-gw.rtl.par.fr.geant2.net (62.40.124.70) 21.165 ms 21.125 ms 21.167 ms
12 vl89-parisl-rtr-021.cssi.renater.fr (193.51.189.38) 21.908 ms 21.907 ms 21.923 ms
13 gi4-0-0-171-jussieu.cssi.renater.fr (193.51.179.94) 21.879 ms 21.865 ms 21.850 ms
14 rap-jussieu.cssi.renater.fr (193.51.181.101) 58.540 ms 58.531 ms 58.516 ms
15 site-6.01-jussieu.rap.prd.fr (195.221.127.182) 22.005 ms 22.220 ms 22.205 ms
16 r-jussieul.reseau.jussieu.fr (134.157.254.8) 22.189 ms 22.177 ms 22.161 ms
17 r-urec-interco.reseau.jussieu.fr (134.157.247.37) 24.118 ms 24.347 ms 24.576 ms
18 miranda.urec.cnrs.fr (194.57.137.113) 22.158 ms 22.098 ms 22.317 ms
    
```

- **Wiki platform to keep up with**
 - Concepts
 - Changes
 - Latest developments
- **Access via**
 - <http://www.egee.wiki.uni-erlangen.de>
 - Login, passwd

- [Susanne.Naegele-Jackson AT rrze.uni-erlangen.de](mailto:Susanne.Naegele-Jackson@rrze.uni-erlangen.de)
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- www.rrze.uni-erlangen.de
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