

Introducing
gss
grnet
storage
service
gss.grnet.gr

Kostas Koumantaros

TF-Storage

Dublin, February 2009

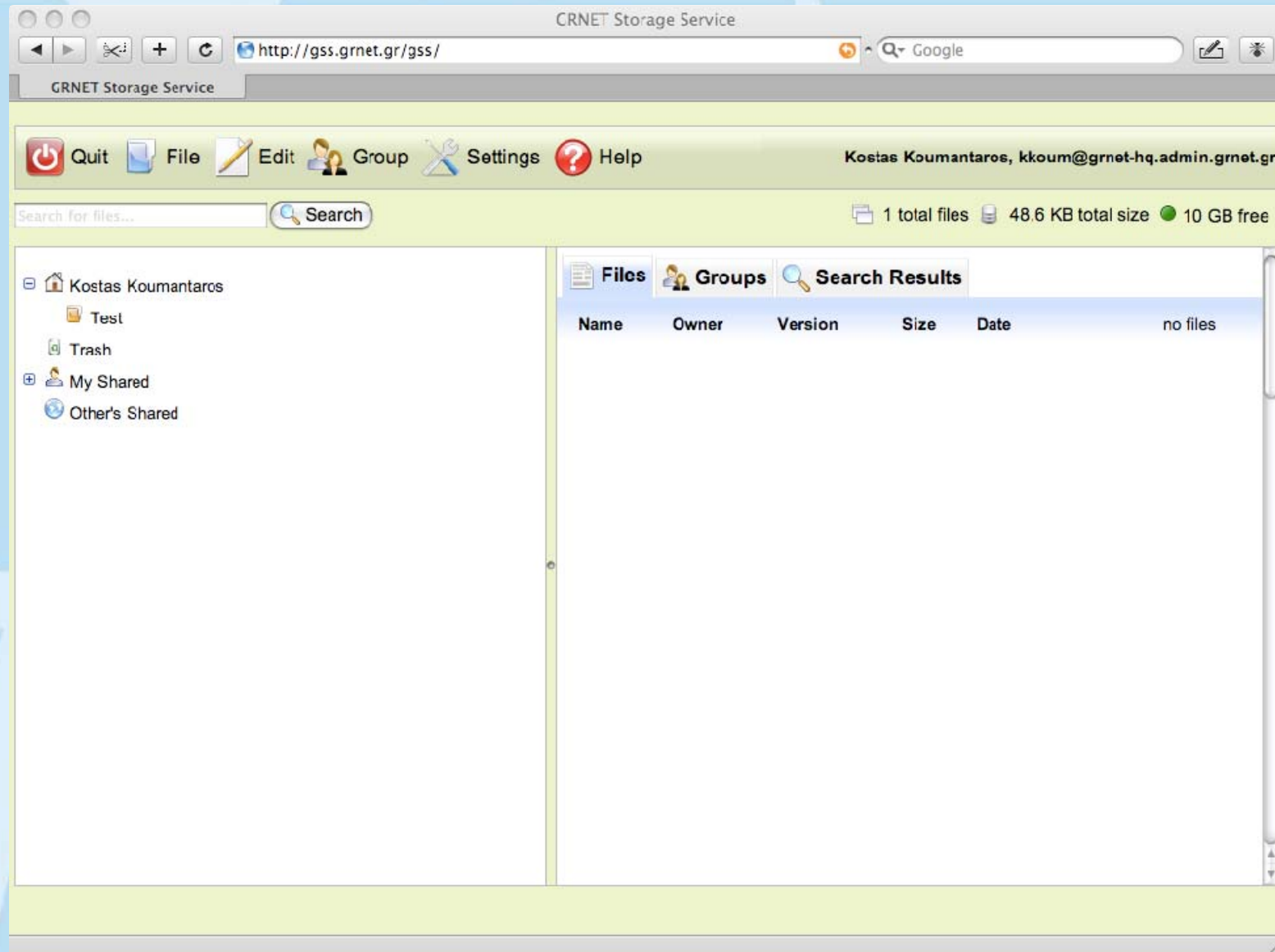
- An introduction to GSS
- Authorisation & Authentication
- User Functionality
- GUI Access
- API Access
- Storage Architecture
- Future steps

- GRNET Storage Service
- GSS will provide free storage for the Greek research & academic community; initially ~10 Gbytes for each person
- Users will be able to upload, share, and index their files
- 1st User Oriented service offered by GRNET
- Inspired by Amazon S3, but going beyond...

- GSS offers users a file system abstraction, complete with file/folder hierarchical structures
- All usual file system operations offered
- Users are able to share their files with selected other users, or defined user groups
- Users are able to delete files permanently, or use a trash can
- GSS enables users to version their files automatically
- Full text search is provided

- Thin & Thick GUI
- Design and Implementation by EBS
(<http://www.ebs.gr>)

- Direct API (REST) access, enabling third parties to build functionality on top
- Thin web client using AJAX
- Thick client using Tcl/Tk
- WebDAV access to enable integration with window managers
- All user interfaces will offer about the same set of functionality



The screenshot shows a web browser window titled "CRNET Storage Service" with the URL "http://gss.grnet.gr/gss/". The browser's address bar includes a search engine icon and the text "Google".

The application interface features a menu bar with the following items: Quit, File, Edit, Group, Settings, and Help. The user's name and email, "Kostas Koumantaros, kkoum@grnet-hq.admin.grnet.gr", are displayed on the right side of the menu bar.

Below the menu bar is a search bar with the placeholder text "Search for files..." and a "Search" button. To the right of the search bar, the status information reads: "1 total files", "48.6 KB total size", and "10 GB free".

The main content area is divided into two panes. The left pane shows a file tree structure under the user "Kostas Koumantaros":

- Test
- Trash
- My Shared
- Other's Shared

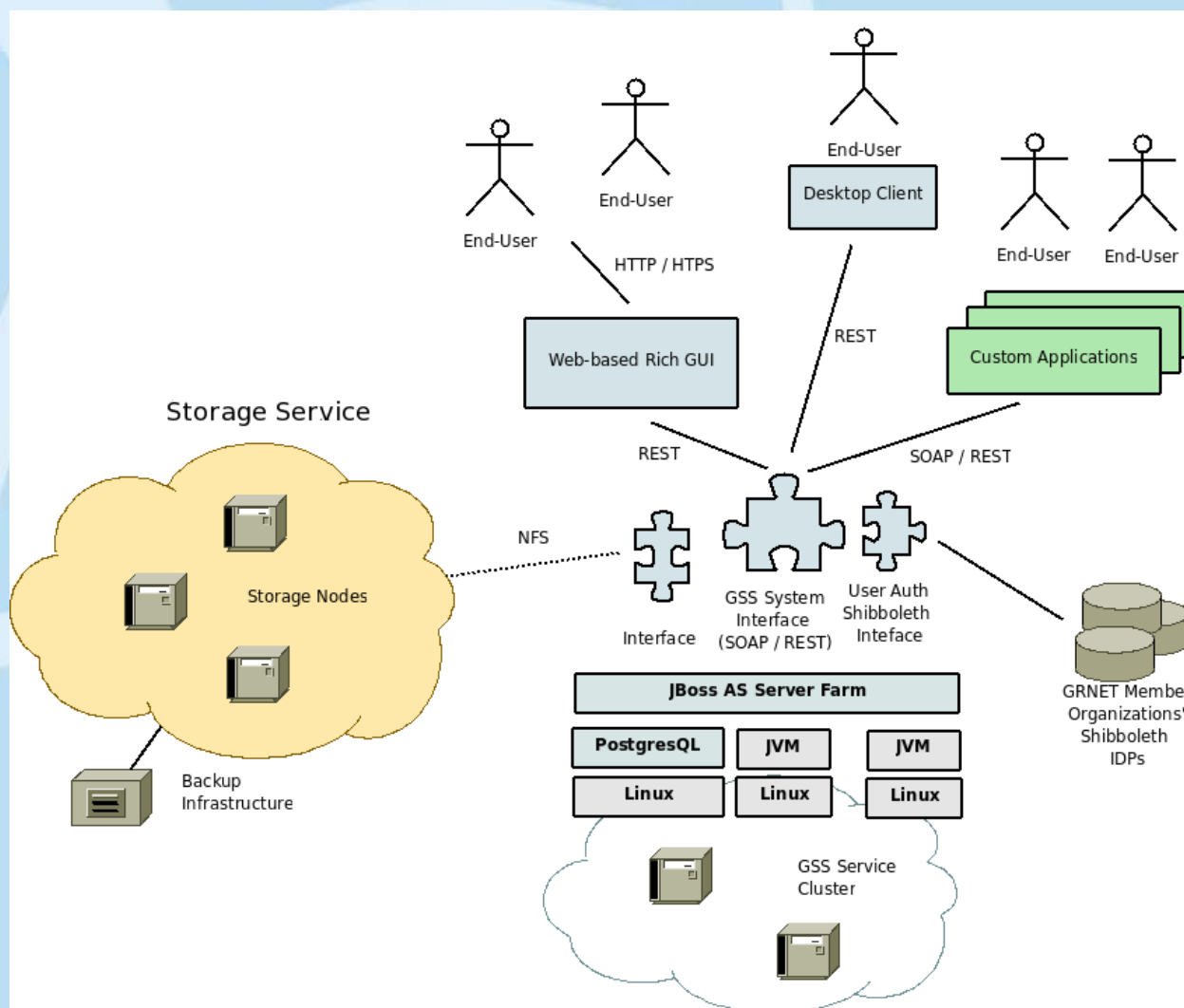
The right pane is titled "Files" and contains a table with the following columns: Name, Owner, Version, Size, Date, and a final column labeled "no files".

Name	Owner	Version	Size	Date	no files
no files					

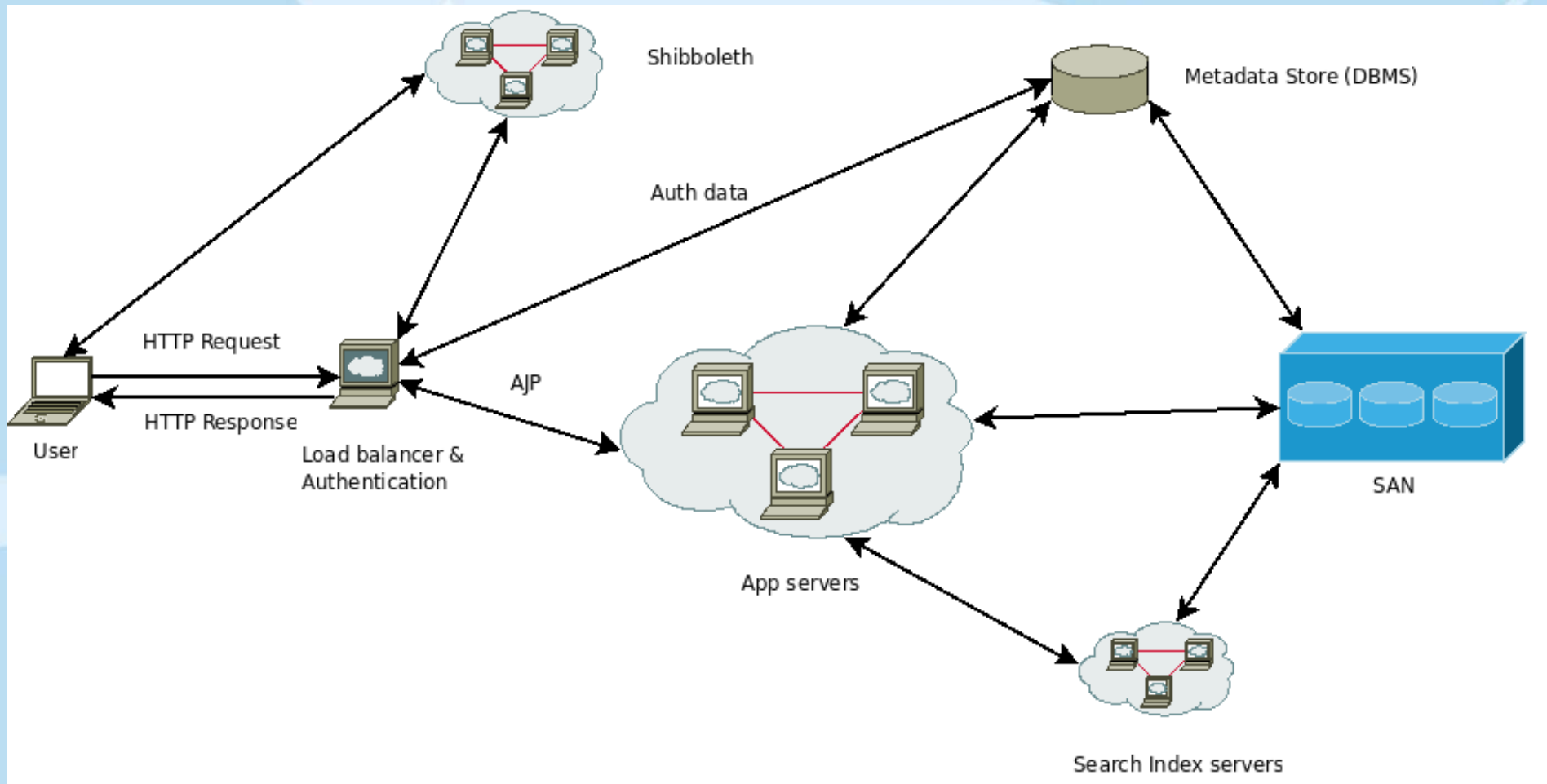
- REST API provides access to the full functionality of the system.
- Uses JSON representation for files/folders.
- Cache-friendly operation using ETags & Last-Modified headers.- Signed requests to thwart attacks.
- Full CRUD functionality (POST/PUT, GET/HEAD, POST, DELETE).
- Advanced operations (versioning, trash can, permissions, tags).
- Share files and retrieve files shared by others.
- Copy & move files and folders remotely.

- SATA disks on a SAN – around 140 Tbytes
 - Offered by a duo of IBM NS5300 (NetApp Fast 3040) each 70TB Raw Storage each
- 2x4 Gbe Connections for NFS for data transfer
- All GSS functionality provided on the application layer via application server farms
- IP Dual Stack supported (IPv6 Primary)
- Application layer implemented in Java

Logical Topology

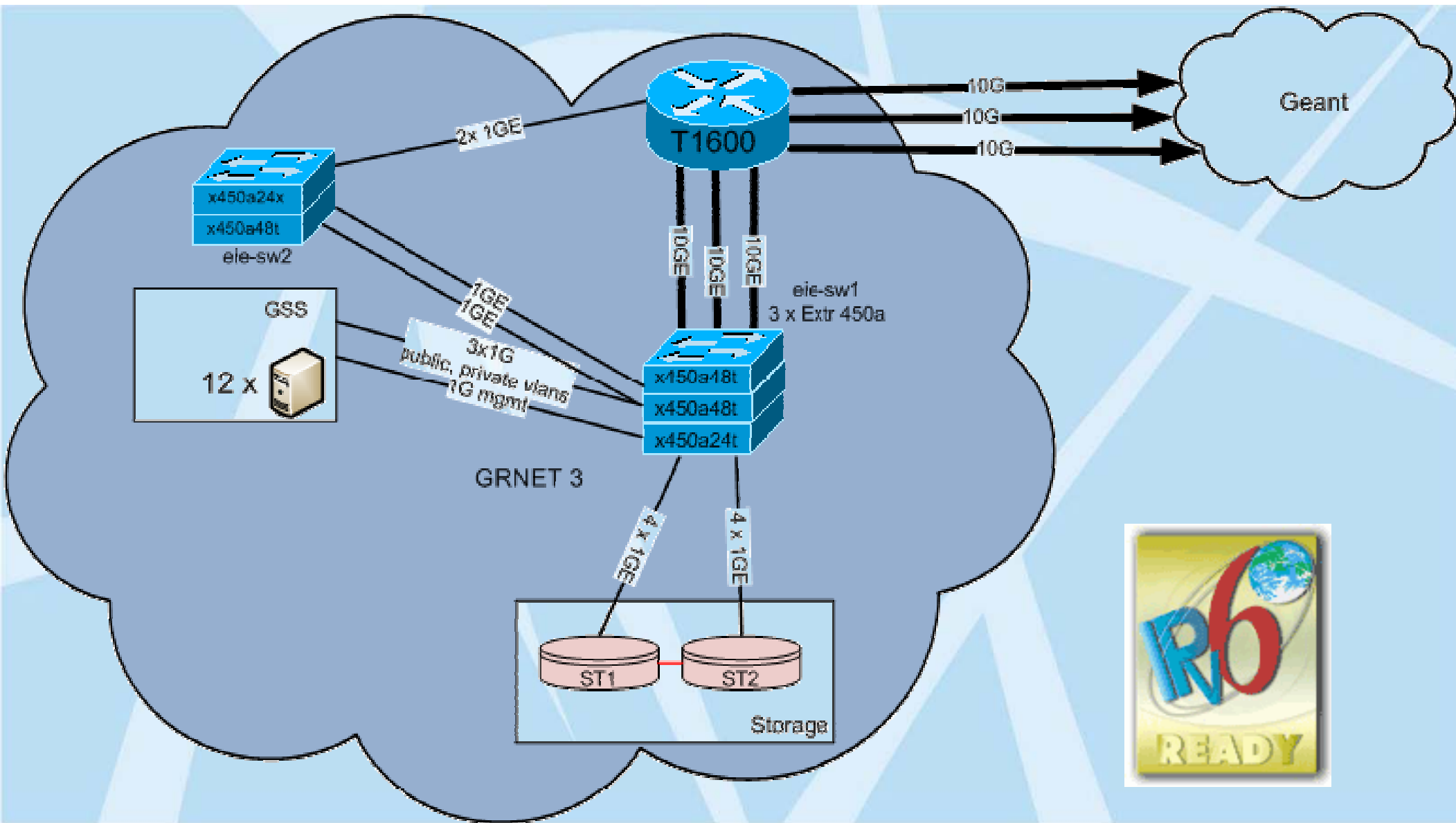


Request Interaction



gss Authentication & Authorisation (AA)

- GSS will use Shibboleth for AA
- GRNET has prepared a Shibboleth infrastructure for all institutions in Greece
- At the current stage, 22 universities have Shibbolethised their AA process: (total number of users > 300,000)
- 30,000 actual users estimated
- GSS will not offer other AA means (e.g., direct LDAP), but will be a carrot for other institutes to Shibbolethised their processes.
- Initially, all users will be equals



- Intellectual Property
- Abuse Policy
- Scalability
- Extensions
- Bug reports
- X509 infrastructure (roll out VeriSign Certs ?)

- Rollout complete application – currently at the beta level **(Soon in production mode)**
- Allow extra functionality on top of the initial one:
 - offering the capability to upload virtual machines so as to move from hosting storage to hosting computation elements
- Increase infrastructure depending on use
- Open to suggestions 😊