



MyProxy: An Online Credential Repository for the Grid

Jim Basney

jbasney@ncsa.uiuc.edu

<http://www.ncsa.uiuc.edu/~jbasney/>

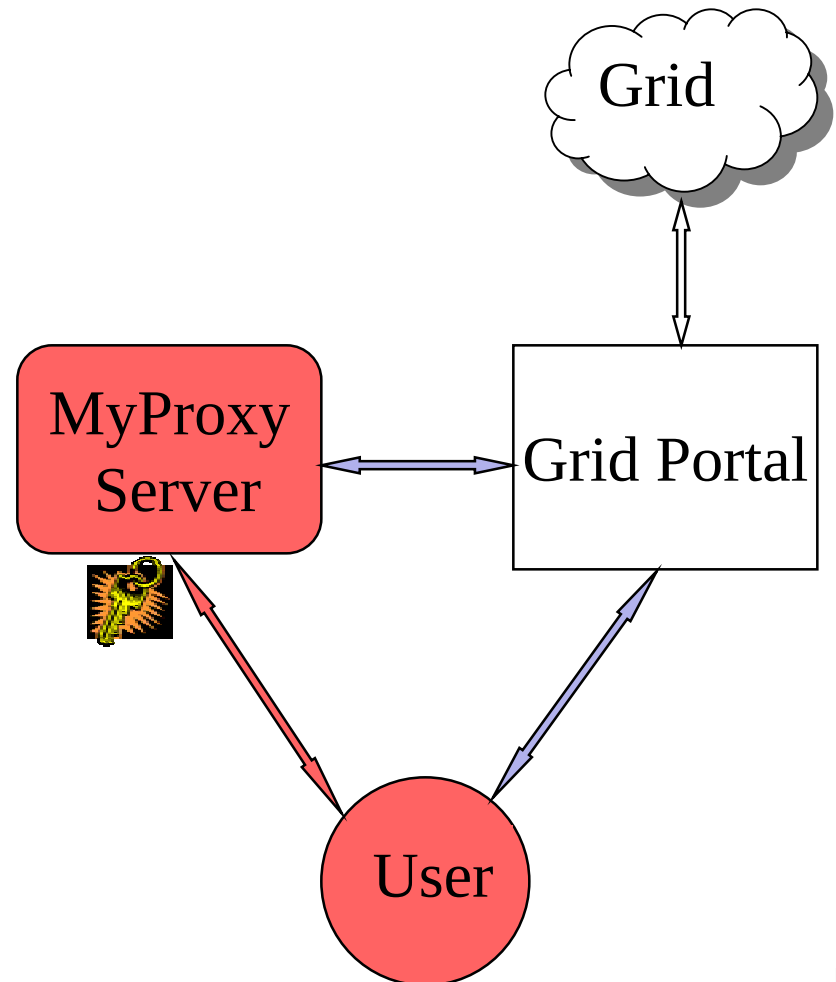
Grid Portals

- **Allow users to access Grid services using standard web browsers**
- **Need credentials to act on user's behalf**
 - Standard web browsers don't support credential delegation
 - The user's credentials may not be available on the web browser machine
 - Install credentials on each portal in advance?
 - Each portal must be trusted to manage credentials securely

- **Secured MyProxy server manages user's credentials**
 - Allows secure access to credentials from anywhere on the Grid
 - Delegates credentials to resources (like web portals) that don't already support delegation
 - Limits credential exposure with short-lived proxy credentials

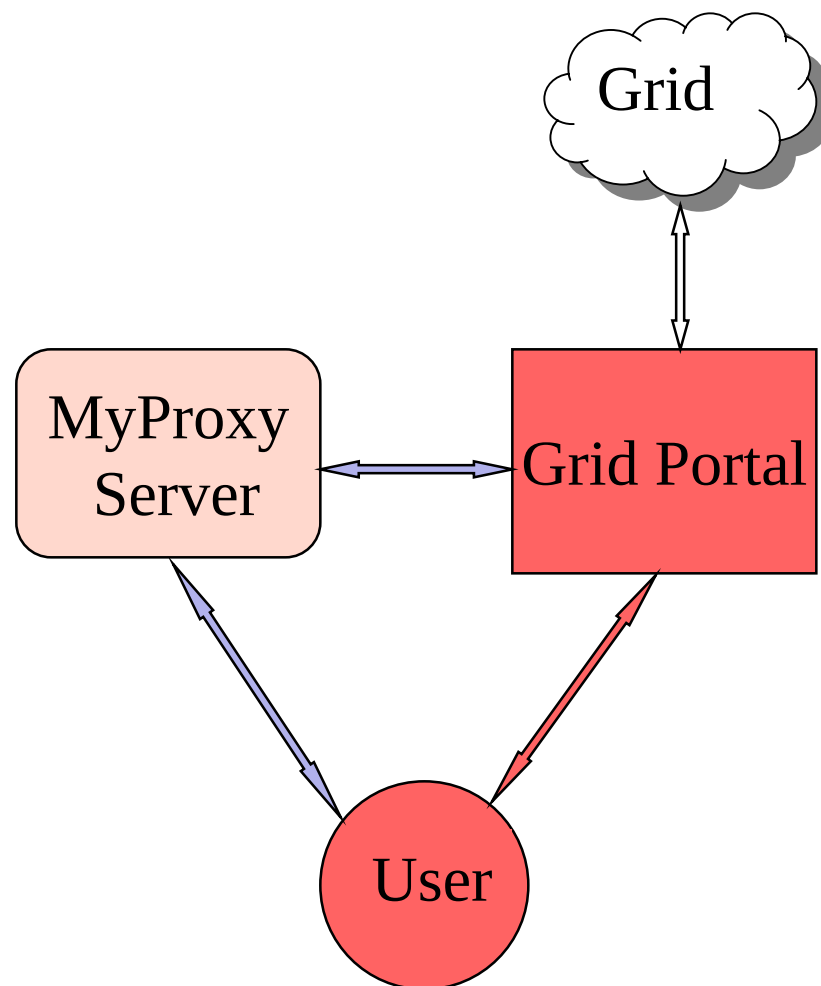
MyProxy Architecture

- User delegates credential to MyProxy server using MyProxy client program
- User chooses username and pass phrase for credential to protect against unauthorized retrieval
- User specifies lifetime of credential on MyProxy server and lifetime of credentials delegated to Grid Portals



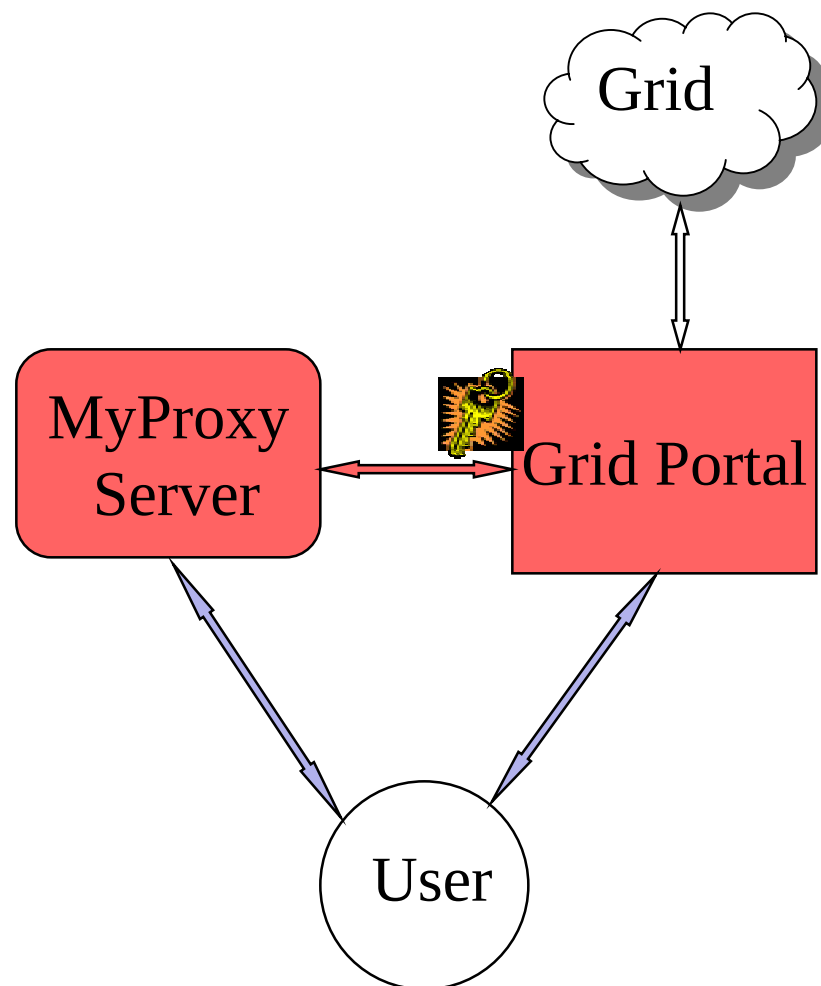
MyProxy Architecture

- User connects to the Web Portal at a later time using a standard web browser from any machine
- User provides MyProxy username and pass phrase to the Portal



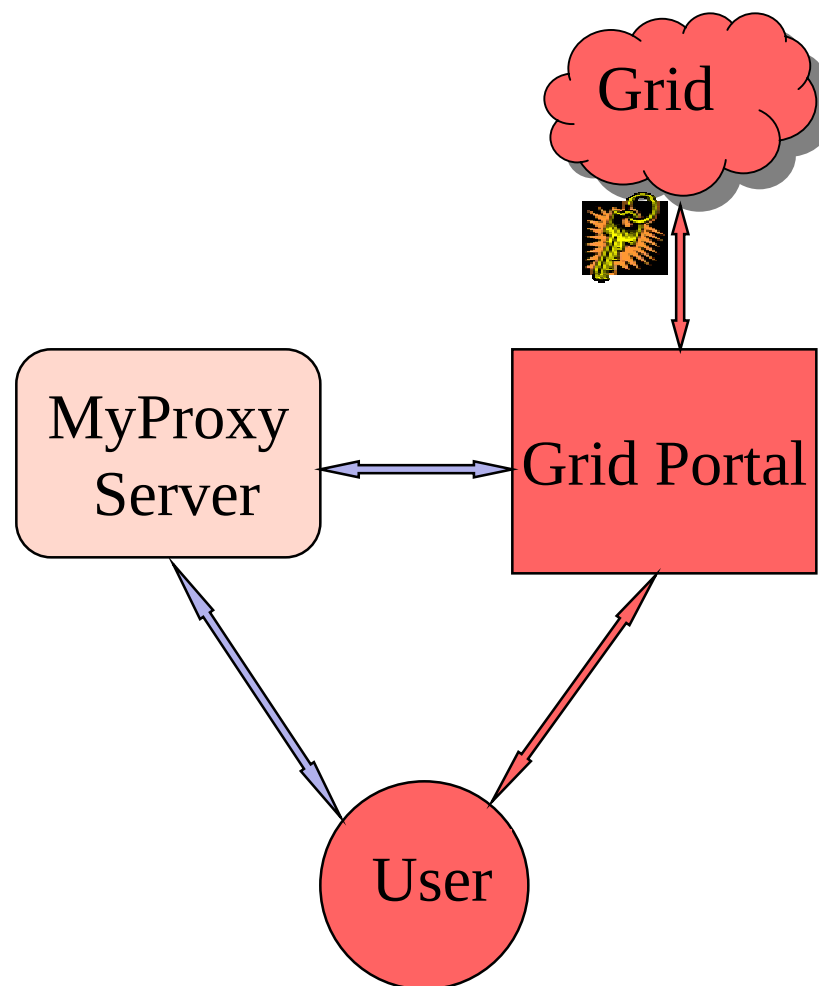
MyProxy Architecture

- Web Portal contacts MyProxy server and provides user's username and pass phrase
- MyProxy delegates short-term proxy credentials to Web Portal



MyProxy Architecture

- Web Portal uses the short-term proxy credential to access Grid resources on the user's behalf



MyProxy Implementations

- **C implementation of client and server**
 - <ftp://ftp.ncsa.uiuc.edu/aces/myproxy/>
- **Java Community Grid (CoG) toolkit client implementation**
 - <http://www.globus.org/cog/>
- **Grid Portal Development Kit**
 - <http://dast.nlanr.net/Projects/GridPortal/>

MyProxy Deployments

- **NCSA (Alliance User Portal, Gaussian portal, Chemical Engineering)**
- **NASA IPG (Launchpad user portal)**
- **University of Lecce, Italy (Grid Resource Broker)**
- **Poznan Supercomputing Center (Web-based resource broker)**
- **NPACI/SDSC (HotPage)**
- **UK HPC center**

Work in Progress

- **Convenient, secure access to credentials from multiple sites**
 - Without copying credential files by hand
- **Unattended proxy credential renewal**
 - Submit job to CondorG with pointer to MyProxy server to use for proxy renewal
 - CondorG authenticates to MyProxy server using the current user proxy before it expires
 - MyProxy delegates a new user proxy to CondorG

Work in Progress

- **Additional authentication mechanisms**
 - Kerberos (and others?)
- **More control over managed credentials**
 - Restricted delegation
 - Credential access control
 - Which identities can download credentials?
 - What authentication methods are trusted?
- **Multiple credentials per user**
 - Download the credential needed for the current task
- **Standardization**
 - Global Grid Forum and IETF

Work in Progress

- **CAS: Community Authorization Service**
 - Allows community members to access community owned/allocated resources
 - Users authenticate to CAS to obtain a “community credential” valid on a resource
 - Interface for community administrators to add/remove users, etc.

Demo

- **Alliance User Portal**
 - Built with Grid Portal Development Kit
 - <http://aup.ncsa.uiuc.edu>
- **NCSA MyProxy server**
 - myproxy.ncsa.uiuc.edu