Argonne NATIONAL LABORATORY

ALCF Globus Online Integration

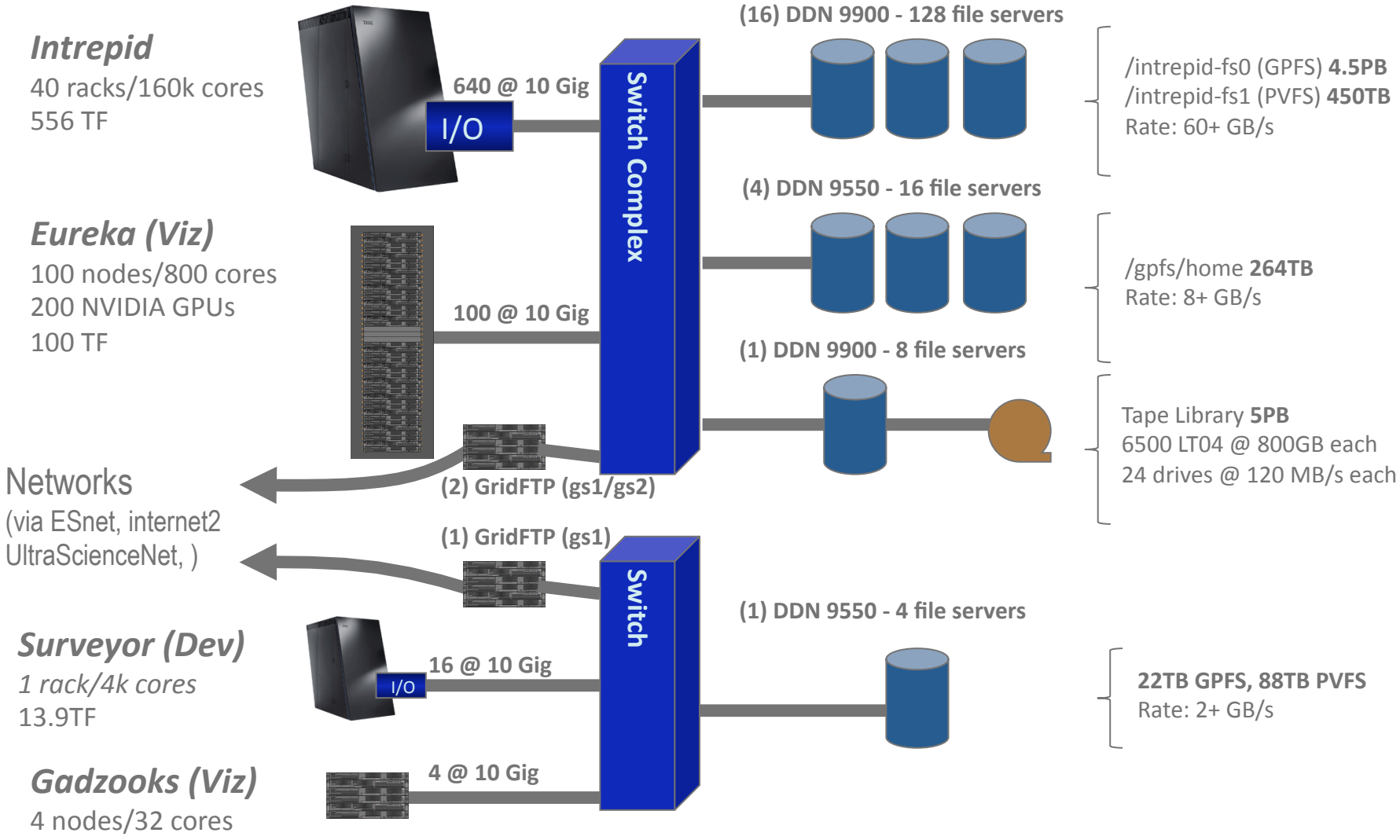
Andrew Cherry
Argonne Leadership Computing Facility
acherry@alcf.anl.gov

U.S. DEPARTMENT OF ENERGY

About ALCF

- ALCF was established in 2006 at Argonne to provide the computational science community with a leading-edge computing capability dedicated to breakthrough science and engineering
- One of two DOE national Leadership Computing Facilities (the other is the National Center for Computational Sciences at Oak Ridge National Laboratory)
- Supports the primary mission of DOE's Office of Science Advanced Scientific Computing Research (ASCR) program to discover, develop, and deploy the computational and networking tools that enable researchers in the scientific disciplines to analyze, model, simulate, and predict complex phenomena important to DOE.
- Primarily supports the DOE INCITE program – Innovative and Novel Computational Impact on Theory and Experiment
- Solicits large computationally intensive research projects, open to researchers worldwide.
- INCITE wants you! http://hpc.science.doe.gov

ALCF Resources



GridFTP at ALCF

- About 36 ALCF users have used GridFTP in some capacity over the past year (some of these are workshop attendees or support staff)
- 41% of those (15) have made significant use of the system (anywhere from 10GB to 63TB over the course of the year)
- 73% of those making significant data transfers are using Globus Online
- 47% of those making significant data transfers appear to be using Globus Online *exclusively* (no record of ever having used traditional GridFTP)
- This suggests that GO is bringing new users to GridFTP (users that may not have otherwise used the system)

MyProxy Service

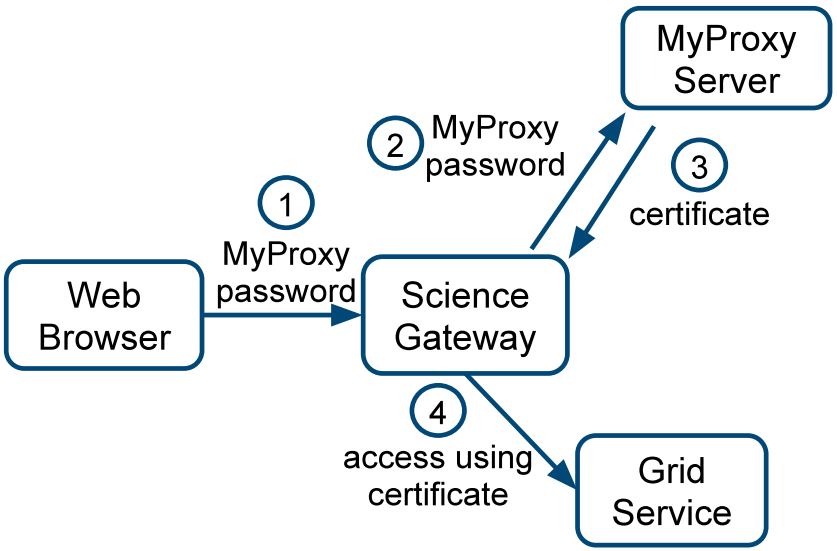
- Required for Globus Online (mostly!)
- Used only for issuing short-term proxy certificates
- ALCF users authenticate with CryptoCard OTP, via PAM
- We use scripts run out of cron to automatically update our grid-mapfile with the myproxy DNs for all of our users (even if they have not yet requested a proxy cert) – reduces administrative overhead. Changes are pushed out to GridFTP servers via bcfg2

Oauth Gateway

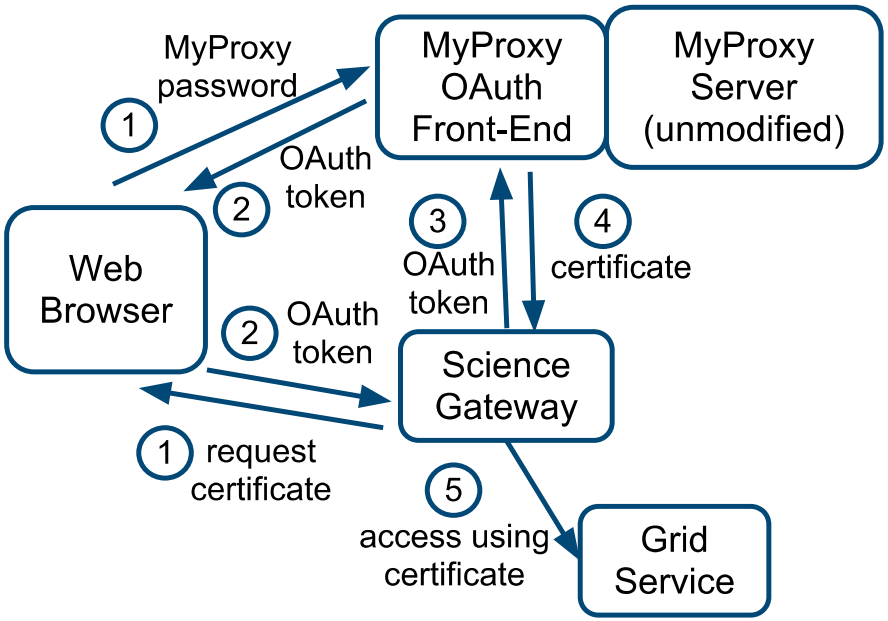
- Allows us to control credential collection without exposing those credentials to GO
- Required for compliance to ALCF security policy
- Places authentication under local control
- Consists of:
  - Java servlet (runs in Tomcat, accessed via https)
  - Small local database (for storing server registration andprotocol transaction state)
- Requirements:
  - Tomcat 5.5 – 6.0 (SSL enabled)
  - Java 1.6 or above
  - Java Mail
  - Maven 2.2 (for build)
  - Persistent storage (file system, MySQL, or PostgresQL – we used MySQL)
- We host ours on a VM

MyProxy Oauth in a Nutshell

Without Oauth



With OAuth



TODO

- Need to find a way to get wider acceptance of our myproxy CA
- More documentation
- How do we enable Globus Online for Surveyor with minimal fuss? Most Surveyor users don't have CryptoCard tokens, which are needed to authenticate against our myproxy server.
- Encourage people to use it!

Finis

References:

MyProxy:
http://grid.ncsa.illinois.edu/myproxy/

OAuth for MyProxy:
http://www.sciencegatewaysecurity.org/oauth-for-myproxy

Questions?
Andrew Cherry < acherry@alcf.anl.gov >
ALCF Support < support@alcf.anl.gov >