PRAGMA-UCSD CA

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APGrid PMA Meeting

Beijing

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SDSC

Overview of San Diego Supercomputer Center

- Founded in 1985
  - Non-military access to supercomputers
- Over 400 employees
- Mission: Innovate, develop, and deploy technology to advance science
- Recognized as an international leader in:
  - Data Management
  - High Performance Computing
  - Grid and Cluster Computing
  - Networking
  - Visualization
- Primarily funded by NSF
- SDSC is part of TAG PMA

PRAGMA Grid

- ◆ Approximately 20 institutions.
- ◆ Not Production level CA trust
  - ⮑ Simple CA is widely used
  - ⮑ Some sites have no CA
  - ⮑ Cross-issuing of certificates is common
- ◆ SDSC CA system is not usable for us
  - ⮑ Policy restrictions
  - ⮑ Manageability
  - ⮑ DN naming issues (not de facto standard format)
  - ⮑ Strictly for NSF Accounted users
  - ⮑ We need to issue certificates for foreign collaborators (both host and user)
- ◆ PRAGMA needs a Grid wide CA for sites without there own production level systems (catch all system)

QuickTime™ and a
TIFF (LZW) decompressor
are needed to see this picture.

Bottom-up Grid
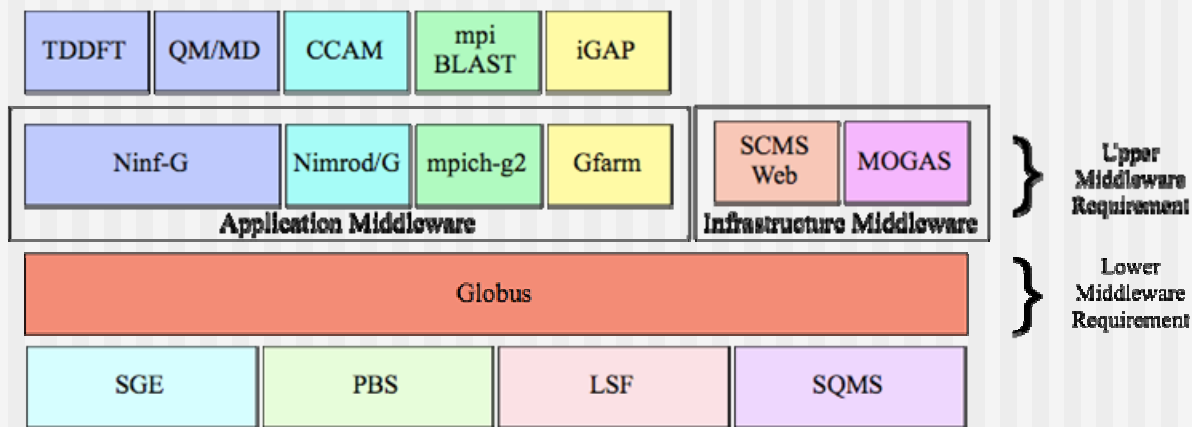
- ◆ Bottom-up Grid
  - ➲ Globus 2.4 (soon GT4) is the only requirement
  - ➲ Too many institutions to mandate complete software stack (very different from grid like TeraGrid)
- ◆ Applications create their own sub-grids
  - ➲ Each with unique application requirements
  - ➲ Application drivers enforce these requirements
  - ➲ Common application requirement may become common middleware requirements (e.g. ninf-g, gfarm)
- ◆ CA Policy
  - ➲ None, we trust everyone within PRAGMA (even the old Globus CA)
  - ➲ Right method to get started
  - ➲ Wrong method to continue

Grid Account Management Architecture (GAMA)

- GSI credential management solution.
- For web/grid portals and web service clients.
- Automatically install and configure components using Rocks.
  - CA System (CACL)
  - MyProxy (Credential Repository)
  - Globus (GSI libraries)
  - Axis web services wrappers
  - Tomcat containers hosting Axis services.
- K. Bhaitia, S. Chandra, K. Mueller, "GAMA: Grid Account Management Architecture", IEEE International Conference on e-Science and Grid Computing, Melbourne Australia, Dec 2005.
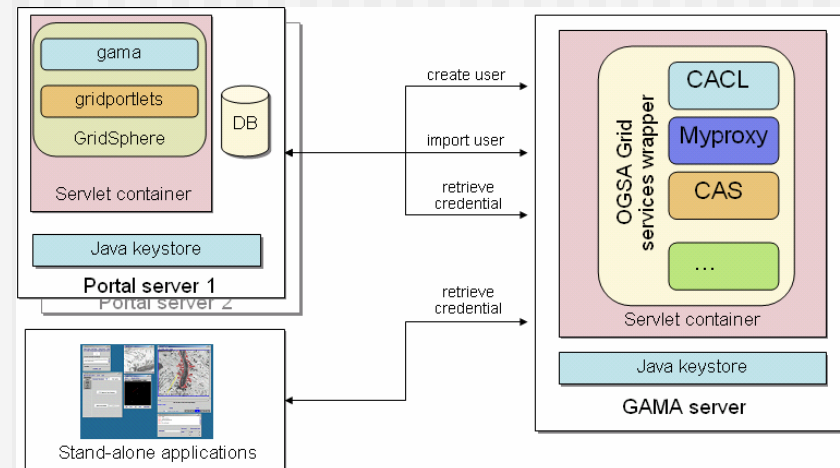
GAMA Roll and Rocks

- ◆ Rocks is a leading open source clustering distribution
  - ➲ Top-to-bottom software stack
- ◆ Rolls are optional components
  - ➲ Grid (GT4)
  - ➲ Gama (CA)
  - ➲ Dozens of others
- ◆ Goal is to build turnkey systems
  - ➲ Insert CDs
  - ➲ Answer a few questions
  - ➲ Done
  - ➲ Systems can be
    - • Computational Clusters
    - • Visualization Clusters
    - • Web Servers
    - • CA Systems (GAMA)
- ◆ www.rocksclusters.org

GAMA and NAREGI CA

- ◆ GAMA has made the CA system an optional component
  - ➲ CACL (for SDSC)
  - ➲ Simple CA
  - ➲ NAREGI CA
- ◆ Required changes to both GAMA and NAREGI CA
- ◆ Software release is planned for January 2006

CA Plans

- ◆ Usage
  - ➲ All UCSD related PRAGMA projects
    - • PRAGMA
    - • OptIPuter
    - • NBCR
  - ➲ Any institution within PRAGMA without a regional PMA accredited CA system
- ◆ Timeline
  - ➲ 01-06 GAMA / NAREGI CA integration complete
  - ➲ 02-06 CA deployment
  - ➲ 03-06 PRAGMA meeting (Australia) to discuss CA usage policies
  - ➲ 04-06 Procedures/Policy documented and application for APGrid PMA accreditation
  - ➲ 12-06 All PRAGMA user/host certificates to be issued by an accredited regional PMA. Removal of all non-accredited CA from PRAGMA

Issues / Questions

- ◆ System to be online
  - ➲ For MyProxy access
  - ➲ For requesting certificates
- ◆ Security
  - ➲ Nothing but GAMA access allowed
  - ➲ No user logins
  - ➲ Root access restricted using RSA dongles
- ◆ Physical machine access
  - ➲ How to restrict?
  - ➲ NAREGI system is in a locked cage
- ◆ User identity confirmation
  - ➲ Only issue certificates at PRAGMA (or other face-to-face) meetings?
  - ➲ Can a existing user verify another unknown user (RAOs)
- ◆ I'm here to learn from you.

Credits

◆ GAMA Developers
  ➲ Sandeep Chandra (SDSC)
  ➲ Kurt Mueller (SDSC)

◆ NAREGI CA Developers
  ➲ Shinichi Mineo (NEC)
  ➲ Takuto Okuno (NEC)

◆ PRAGMA
  ➲ Cindy Zheng (SDSC)
  ➲ Bill Link - CACL support (SDSC)