Open OnDemand:
Current Status and Future Plans

David Hudak, Doug Johnson, Kate Cahill,

Karen Tomko, Anita Orendt and Susan Litzinger

www.osc.edu

Outline

- Current Status
  - Project
  - Features
  - Technical Details
- Site Integration Stories
- User Training
- Future Plans

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Current Status: Open OnDemand Project

- Open source software project launched in 2015
  - Currently funded by NSF (2015-2018)
- Simplifying access to supercomputers with web interfaces
- Beginning to see adoption at a number of sites
  - If you are using OnDemand, please let us know!
  - It helps with our funding!

https://github.com/OSC/Open-OnDemand

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Current Status: Open OnDemand Features

- Interactive Demo here…
- Files
- MyJobs and ActiveJobs
- Shells
- Desktops

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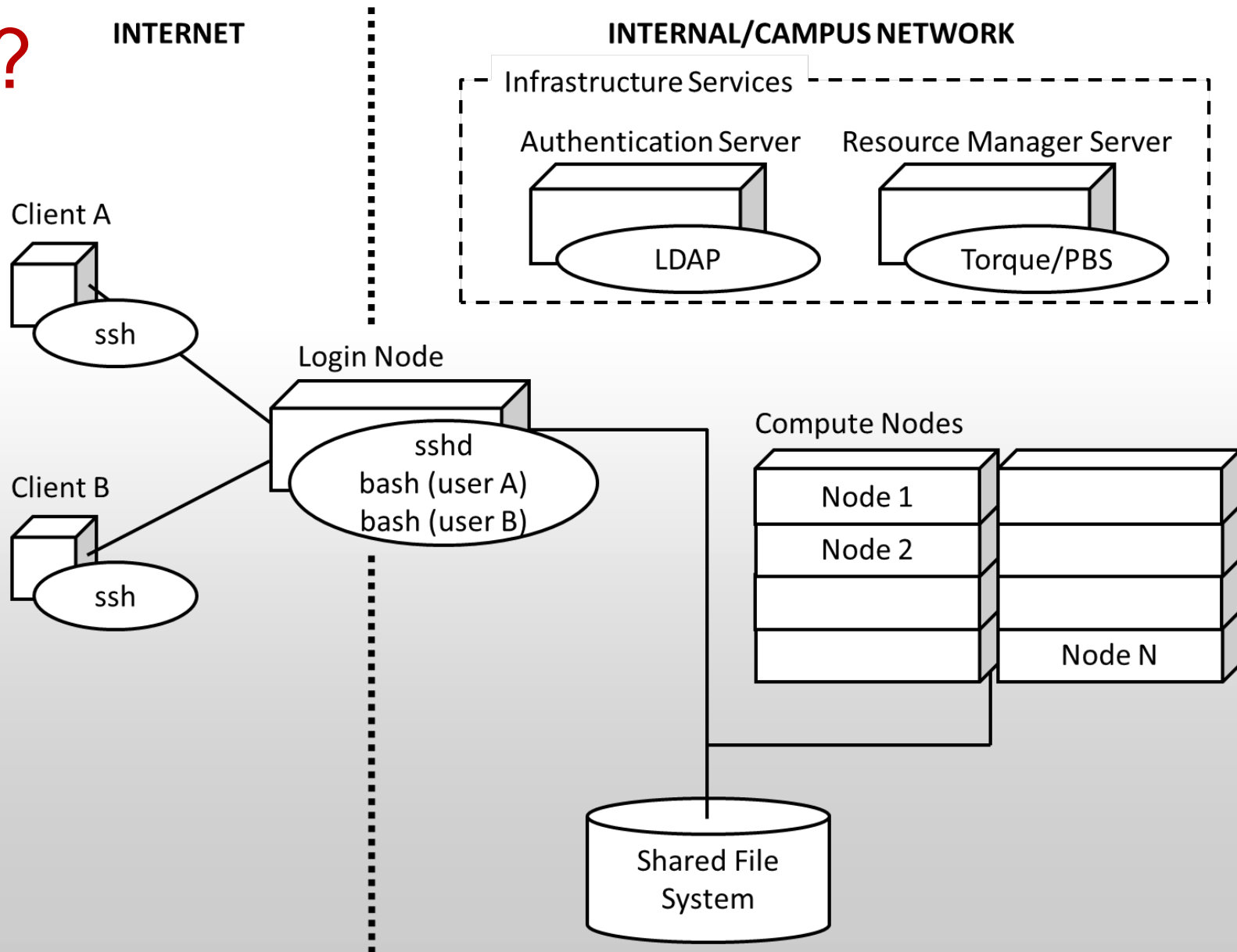
Current Status: Technical Details

- Architecture, how does it work?
- Installation overview
- Requirements
  - Authentication
  - Job scheduler
  - Monitoring (metric collection)
- Site customization

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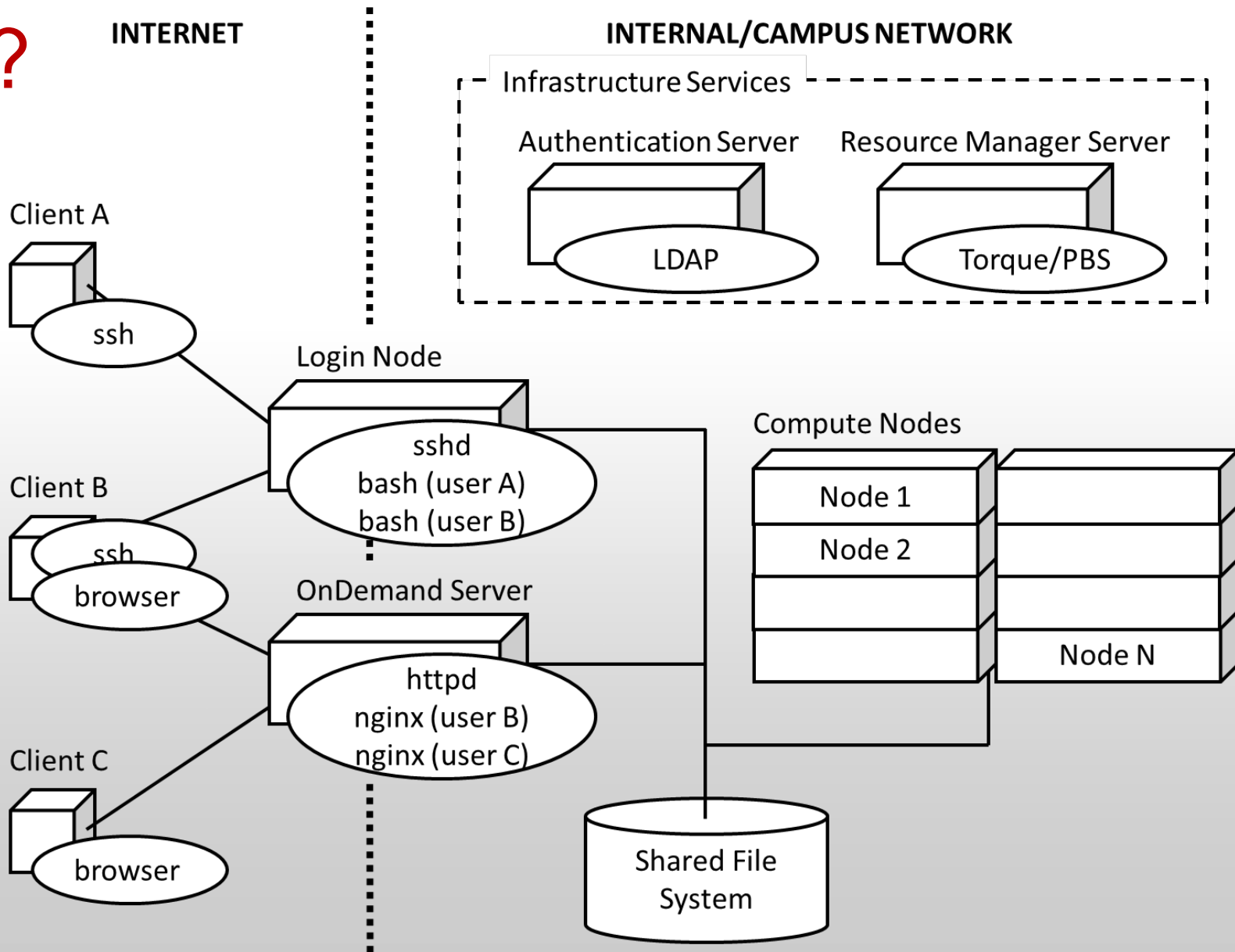
How does it work?

Our View of the World

- Clients connect to login node through SSH

- Interact with batch system and shared file system through the "bash" user process

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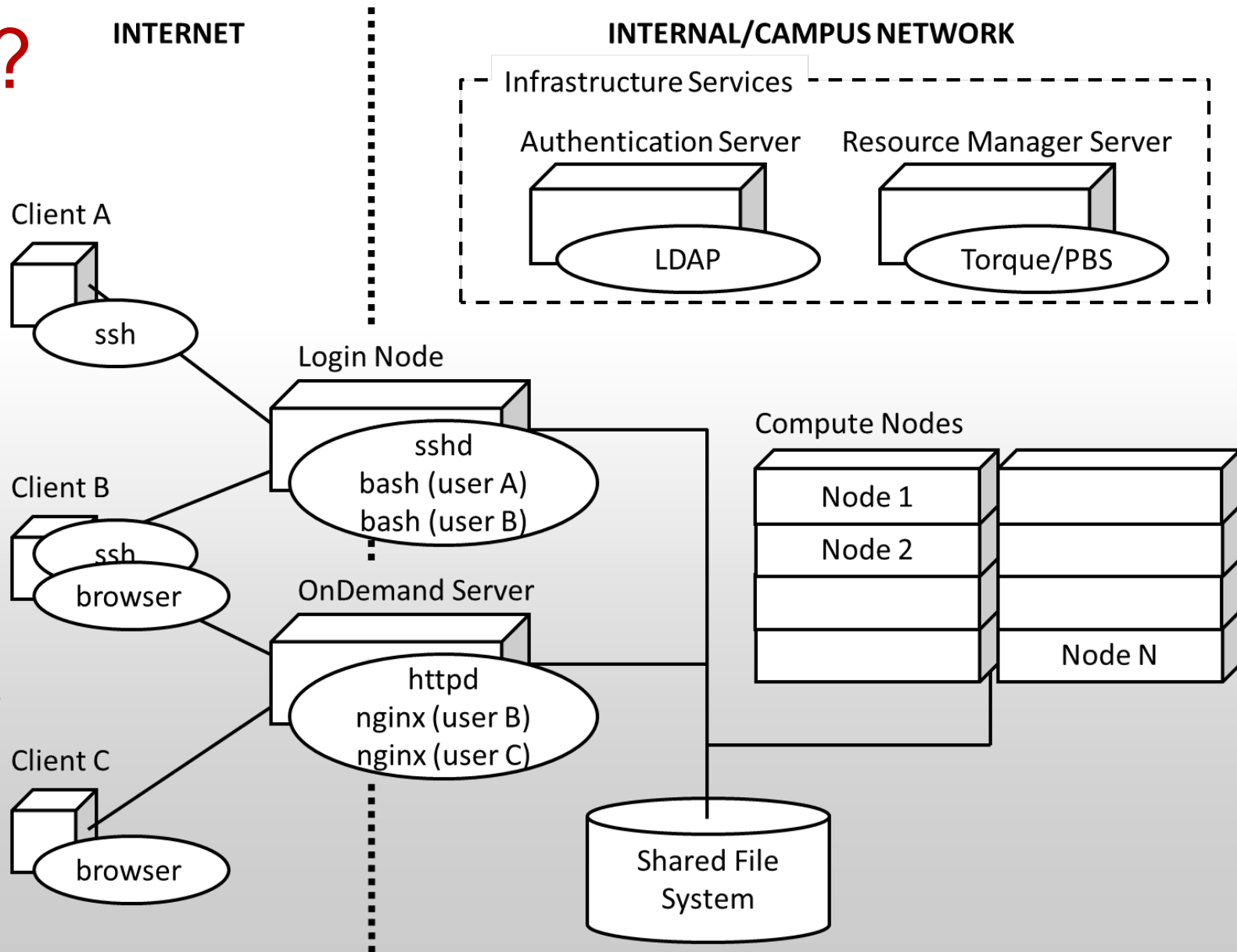A Division of the **Ohio Department of Higher Education**

How does it work?

- We introduced an "OnDemand" server
  - Similar to a traditional login node
  - Same authentication
  - Talks to the same resource manager
  - Mounts the same shared file system

How does it work?

- Now clients may also connect to OnDemand server through browser

- The "httpd" proxy starts up a per-user nginx (PUN) process for each user

- The PUN launches apps as children processes

Installation Procedure

Installation steps limited to OnDemand server

- Install system dependencies
  - Apache, Ruby, NodeJS, Passenger, Lua, git (we use Red Hat Software Collections)
  - Client libraries for authentication, resource manager, and shared file system access (like any login node)

- Install Open OnDemand infrastructure from GitHub
  - Sets up web server to run apps

- Install Open OnDemand apps from GitHub
  - Dashboard, Shell, Files, Editor, Active Jobs, My Jobs

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Requirements

- Authentication setup
  - Connect to existing user directory (LDAP)
  - Federated authentication (CILogon)
  - OpenID Connect (CILogon, Keycloak)
  - Shibboleth
- Batch setup
  - PBS/TORQUE, SLURM and LSF supported
- System metrics
  - Ganglia supported

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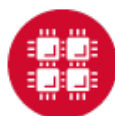A Division of the Ohio Department of Higher Education

Site Customization

- Interactive jobs
  - Job scheduling latency
  - Extending interactive frameworks (Jupyter, RStudio)
- Resource manager abstractions
- Metrics system abstractions

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Getting Open OnDemand Installed at your Center

- If you're already run Red Hat EL/CentOS, and PBS/TORQUE/LSF/SLURM, you can download and install Open OnDemand now and try for yourself
- VM image available
- If not, then we can try to work with you to get Open OnDemand extended to support your setup
  - Tell us how we can help!

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Site Integration Stories

- How long did installation take? Any notable problems?
- Are you tracking usage? Any user feedback?
- Any features you'd like to see?

Current Status: User Training

- OSC uses OnDemand for new user training
  - No installation of PuTTY and FileZilla
- https://www.osc.edu/resources/online_portals/ondemand
- New How-to videos available for OSC OnDemand
  - Introduction to Online Portal
  - File Transfer and Management
  - Job Management

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Future Plans

- App development
  - Graphical desktop applications
    - Paraview, MATLAB
    - Abaqus, ANSYS Workbench, COMSOL Multiphysics
  - Interactive web applications
    - Jupyter, RStudio Server, COMSOL Server
  - New and customized apps
- Globus Online Integration
- Others?

Staying in Touch

- We plan to stay active in the community
  - Let us know what you'd like to learn about next
- Visit our website
  - https://osc.github.io/Open-OnDemand/
- Join our mailing list
  - https://lists.osu.edu/mailman/listinfo/ood-users
- Get Open OnDemand!
  - https://github.com/OSC/Open-OnDemand

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