

# Eos Center-wide File Systems



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## Outline

- 1 Available Center-wide File Systems
- 2 New Lustre File System
- 3 Data Transfer



U.S. DEPARTMENT OF  
**ENERGY**

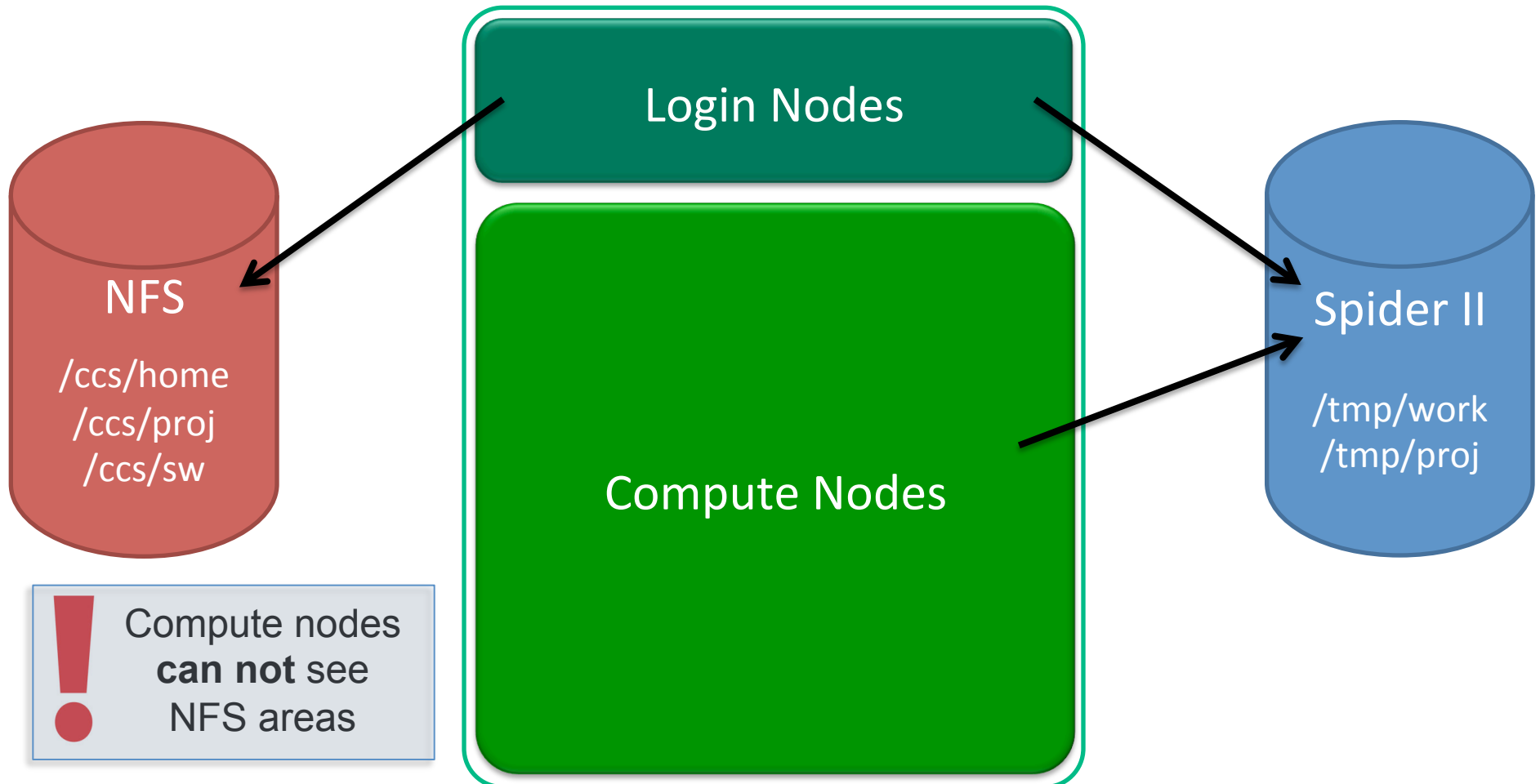


**OAK RIDGE NATIONAL LABORATORY**

MANAGED BY UT-BATTELLE FOR THE DEPARTMENT OF ENERGY

# Eos Center-wide File Systems

## Eos



# Eos Center-wide File Systems

- NFS (/ccs)
  - OLCF-wide; same as mounted on other OLCF systems
  - Backed-up
  - Frequently used items such as source code, binaries, and scripts
  - **Not** available from compute nodes

## /ccs/home/<usrid>

- 10GB default quota
- Login directory
- \$HOME

## /ccs/proj/<projid>

- 50GB default quota
- Sharing within project

## /ccs/sw/xc30

- 3<sup>rd</sup> party software
- Also /sw/xc30

# Eos Center-wide File Systems

- Spider
  - Center-wide scratch space\*
  - Temporary; not backed-up
  - Available from compute nodes
  - Fast access to job-related temporary files and for staging large files to and from archival storage
  - Contains multiple Lustre file systems

\* Eos only mounts new Spider II file system



# Spider I v/s Spider II

## Spider I

Widow [1-3]

- 240 GB/s
- 10 PB
- 3 MDS
- 192 OSS
- 1,344 OST
- Current Center-wide Scratch
- Not Mounted on Eos
- Decommissioned Early 2014

## Spider II

Atlas [1-2]

- 1 TB/s
- 32 PB
- 2 MDS
- 288 OSS
- 2,016 OST
- Currently Mounted Only on Eos
- Available on Additional OLCF Systems Soon

# Spider II Change Overview

Before using Spider II, please note the following:

## 1. New directory structure

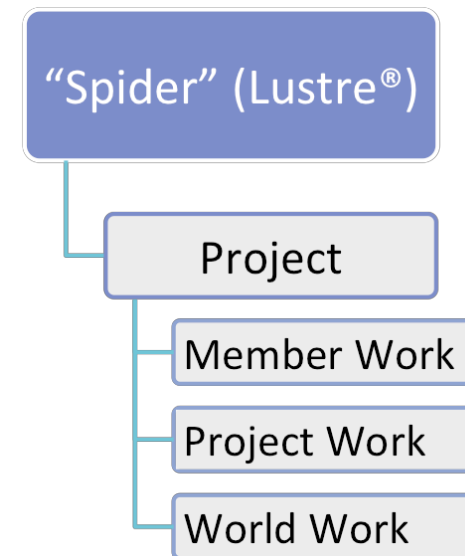
- Organized by project
- Each project given a directory on one of the atlas filesystems
- \$WORKDIR now within project areas
  - » You may have multiple \$WORKDIRs
  - » \* Requires Change

## 2. Quota increases

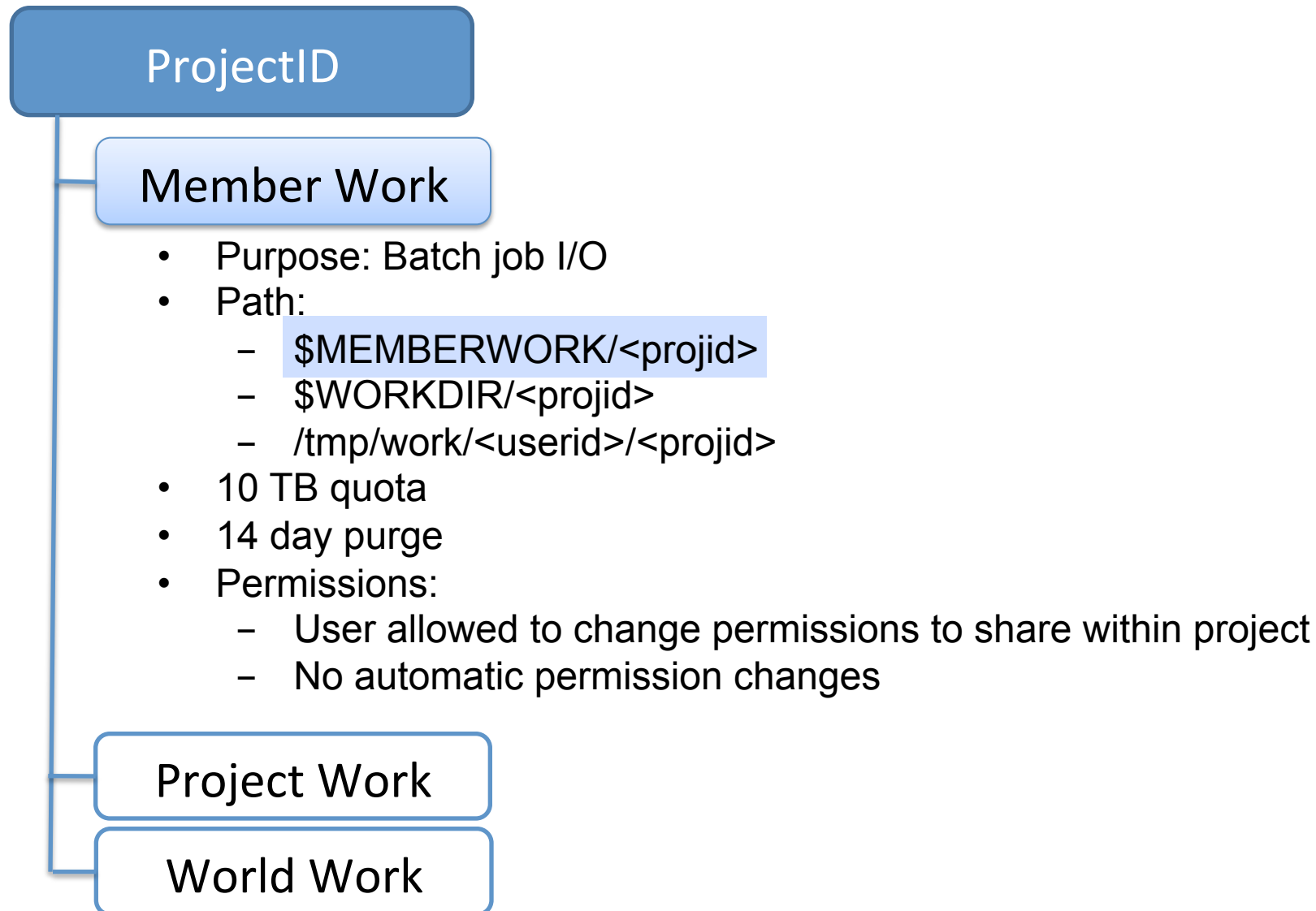
- Increased file system size allows for increased quotas

## 3. All areas purged

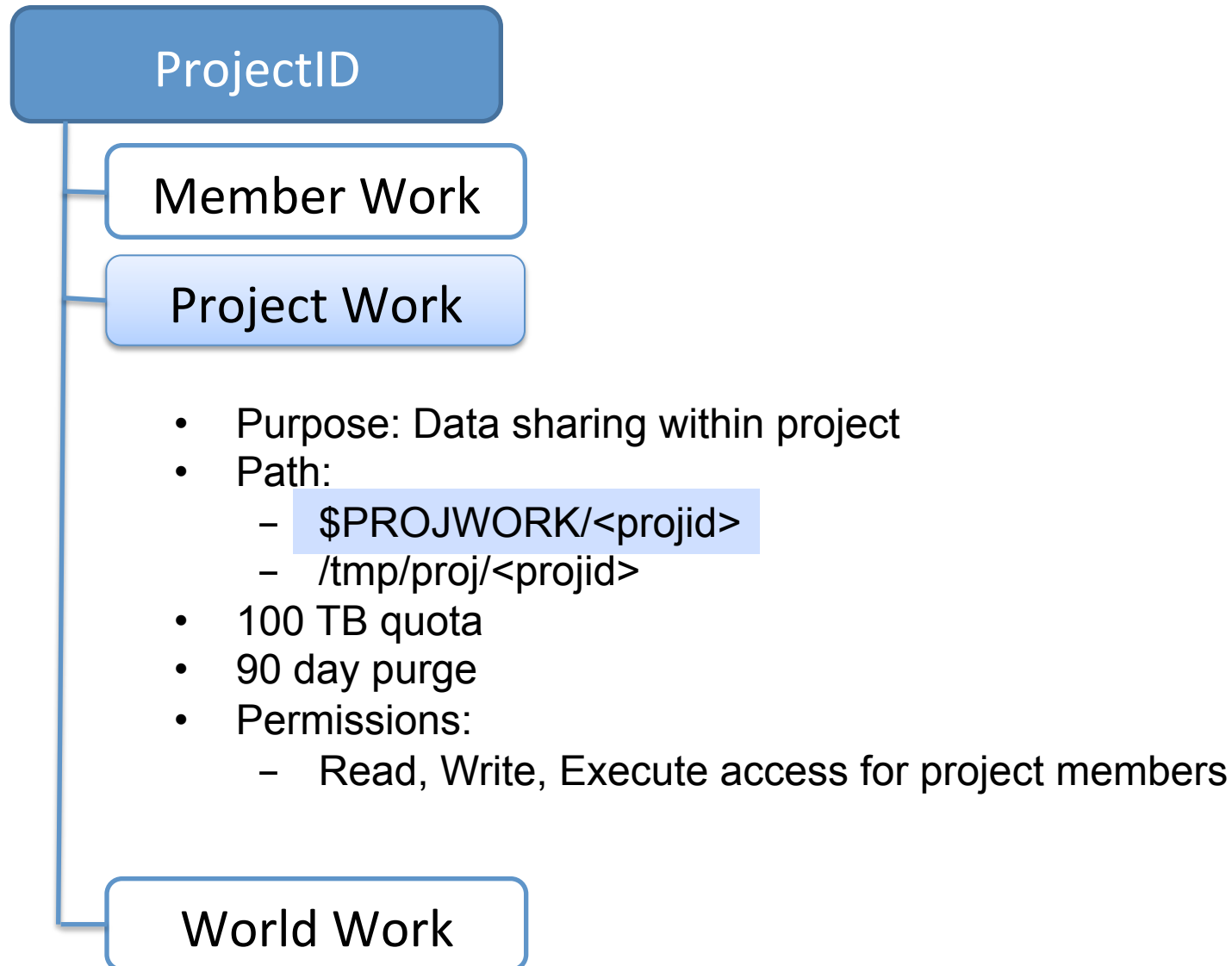
- To help ensure space available for all projects



# Spider II Directory Structure

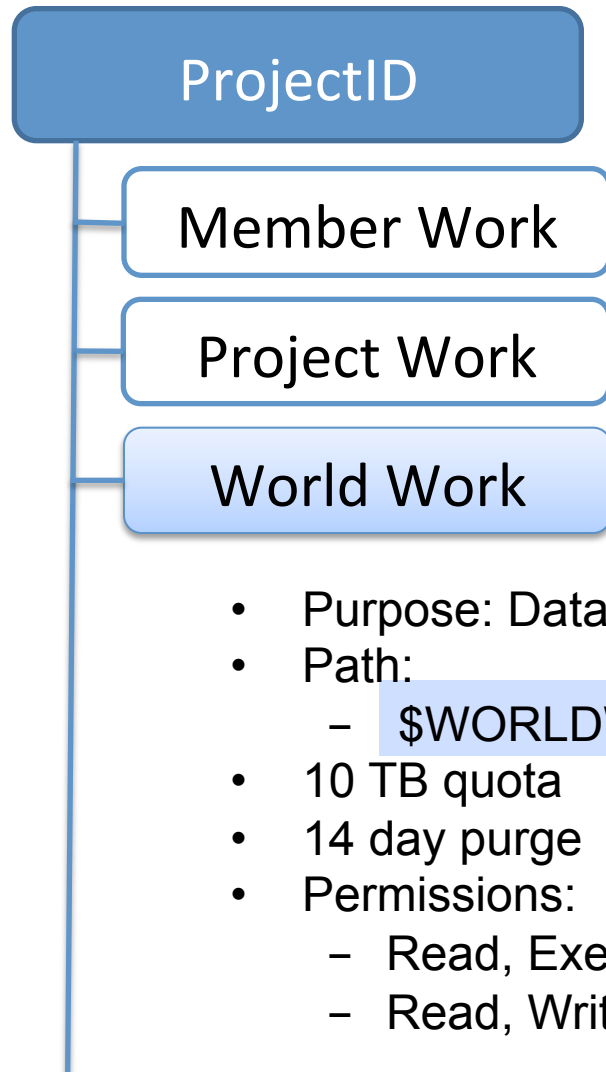


# Spider II Directory Structure





# Spider II Directory Structure



- Purpose: Data sharing with users who are not members of project
- Path:
  - `$WORLDWORK/<projid>`
- 10 TB quota
- 14 day purge
- Permissions:
  - Read, Execute for world
  - Read, Write, Execute for project

# Spider II Directory Structure

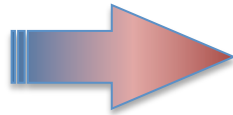
```
[projid]/
  scratch/[userid]/      (aka "Member Work")
  proj-shared/           (aka "Project Work")
  world-shared/          (aka "World Work")
```

	Member Work	Project Work	World Work
<b>Description</b>	Each project member has a scratch directory within the project's directory.	Each project directory contains a scratch directory for sharing data within the project.	Each project categorized as not containing export control or proprietary data contains a scratch directory for sharing data outside the project.
<b>Location</b>	<code>\$MEMBERWORK/[projid]</code>	<code>\$PROJWORK/[projid]</code>	<code>\$WORLDWORK/[projid]</code>
<b>Purpose</b>	Batch job output/input	Data sharing within the project	Data sharing outside the project
<b>Access</b>	Users have the ability to control permissions on their scratch directory to share data within the project, but not outside the project.	The project shared directory is accessible by project members only. Users are not able to alter permissions on the project shared directory.	The world shared directory is accessible by all users. Users are not able to alter permissions on the world shared directory.
<b>Quota</b>	10TB	100TB	10TB
<b>Purge</b>	14 day	90 day	14 day

# Before Using New File System on Eos

- Modify scripts to point to new directory structure

- /tmp/work/\$USER
- \$WORKDIR



- /tmp/work/\$USER/<projid>
- \$WORKDIR/<projid>
- \$MEMBERWORK/<projid>

/tmp/proj/<projid>

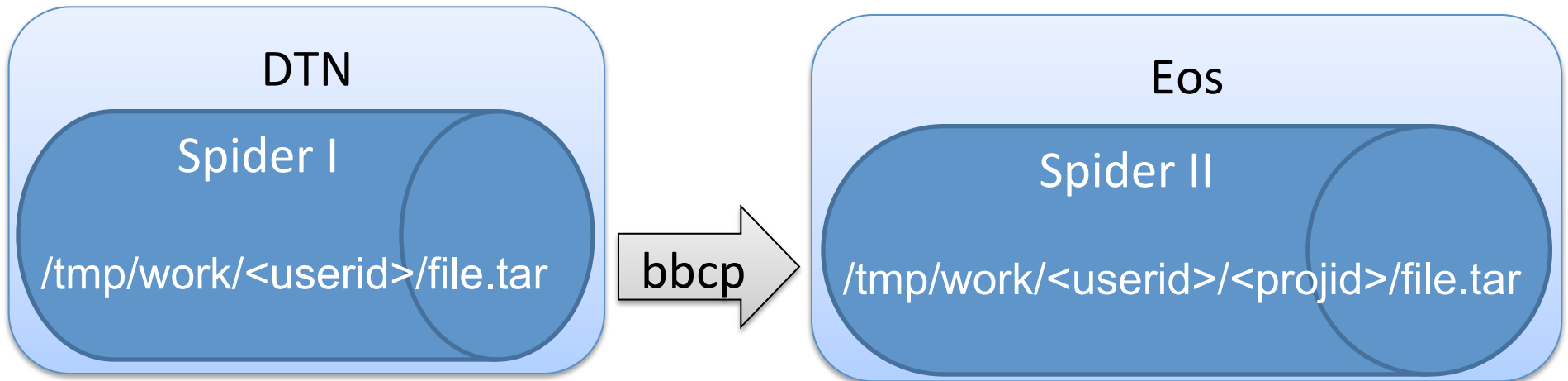
No change required

- Migrate data
  - Eos does not mount Spider I (widow)
  - You will need to transfer needed data onto Spider II (atlas)

# Data Migration from Spider I to Spider II

- Currently only Eos mounts Spider II (atlas)
  - Eos does not mount Spider I (widow)
1. Common file system or archive
    - NFS (/ccs)
      - Small amounts of data
    - HPSS
      - Retrieve already archived data
      - Please do not transfer data to HPSS with only purpose to retrieve onto Spider II
  2. Remote data transfer
    - Copy data from remote system that mounts Spider I
    - scp
      - Small amounts of data
    - bbcp
      - Multi-streaming
      - Larger amounts of data

# Data Migration from Spider I to Spider II



Eos command line:

```
$ bbcp -P 2 -v -w 8m -s 16 dtn04:/tmp/work/[userid]/file.tar /tmp/work/[userid]/[projid]/file.tar
```

**Note:** Environment variables are not available through remote copy utilities, should use path or `/tmp/work`, `/tmp/proj` links

# Questions?

- More information:
  - [www.olcf.ornl.gov/support/system-user-guides/eos-user-guide/](http://www.olcf.ornl.gov/support/system-user-guides/eos-user-guide/)
- Email:
  - [help@olcf.ornl.gov](mailto:help@olcf.ornl.gov)