



**COLORADO STATE  
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# Advancements in Data Transfer and Storage

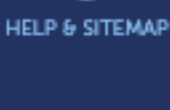
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Research IT, October 24, 2024



# Quick Globus Primer

- <https://app.globus.org>
- GridFTP is the workhorse for transfers
  - Multi-process
  - Multi-connection
- Why bother with Globus?
  - Negotiates transfer settings
  - Consolidates credentials in a pseudo-Federation
  - Allows grouping and granting access to anyone with a Globus account
  - Maintains metadata about registered endpoints
  - Can be used to maintain regularly scheduled transfers
  - User-friendly web interface



# File Manager

Panels

Collection

Path

Start

Transfer & Timer Options

Start

select all up one folder refresh list filter

view

select all up one folder refresh list filter

view

NAME	LAST MODIFIED
100G.dat	3/28/2023, 11:54 AM
100M.dat	3/28/2023, 12:08 PM
10G.dat	3/28/2023, 11:55 AM
10M.dat	3/28/2023, 12:09 PM
1G.dat	3/28/2023, 11:59 AM
1M.dat	3/28/2023, 12:09 PM
500G.dat	3/28/2023, 12:11 PM
500GB-in-large-files	3/28/2023, 11:46 AM
50G.dat	3/28/2023, 11:52 AM
50GB-in-medium-files	3/28/2023, 11:46 AM

- Share
- Transfer or Sync to...
- New Folder
- Rename
- Delete Selected
- Download
- Open
- Upload
- Get Link
- Show Hidden Items
- Manage Consent

NAME	LAST MODIFIED	SIZE
100G.dat	10/11/2024, 09:40 AM	100 GB
1G.dat	10/11/2024, 09:27 AM	1 GB
1M.dat	10/8/2024, 01:26 PM	1 MB
500G.dat	10/23/2024, 04:43 PM	500 GB
500GB-in-large-files	10/23/2024, 04:27 PM	—
mytest	10/11/2024, 09:33 AM	—

# Significant Advancements in Reliability & Accessibility

- Data Transfer Nodes: Enhanced reliability for seamless operations
- Versatile Storage Options: Integration with multiple storage solutions

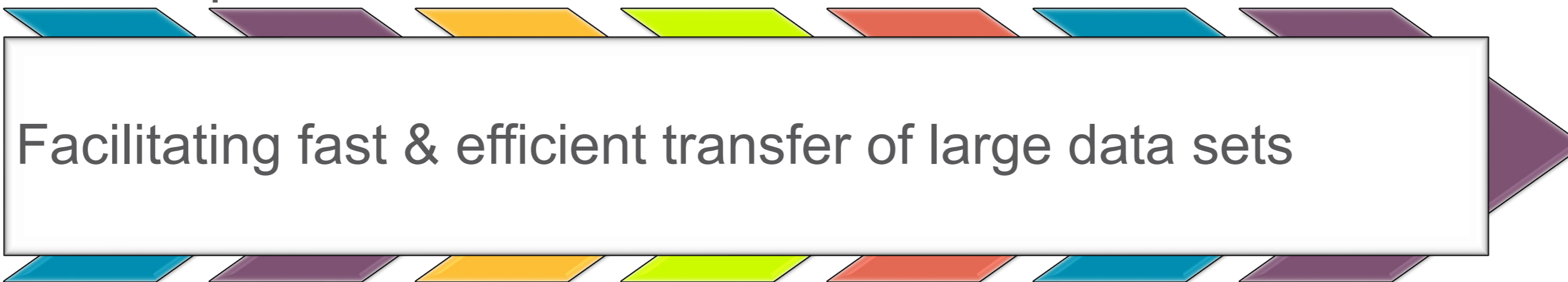


# High-Speed Data Transfers

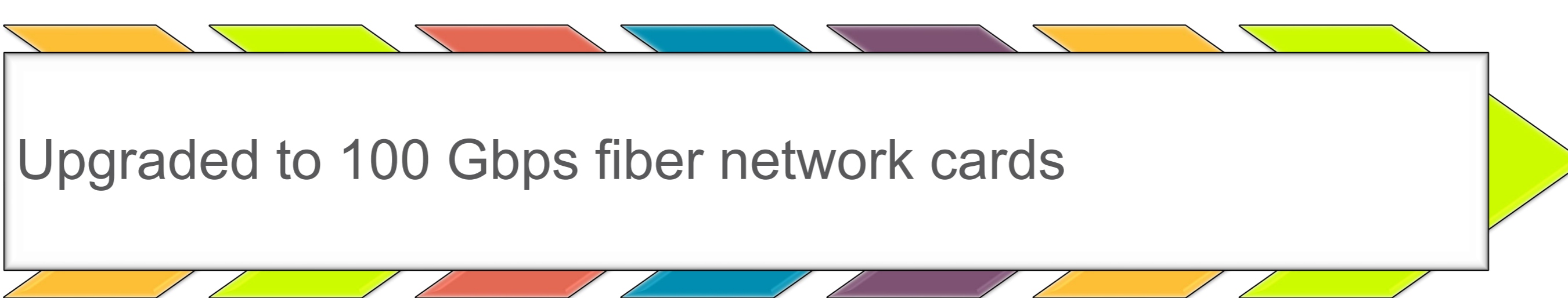
Research DMZ Upgrade



100 Gbps Switch



Server Enhancements





# Redundancy and Load Balancing

Multiple  
DTNs

- Ensuring load-balanced services
- If one fails, the second remains operational

Parallel  
Processing

- Capable of much greater throughput

## Solid State Drives

Current Capacity  
167 TiB

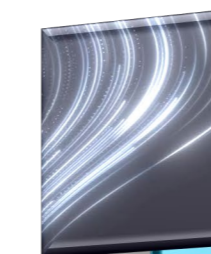
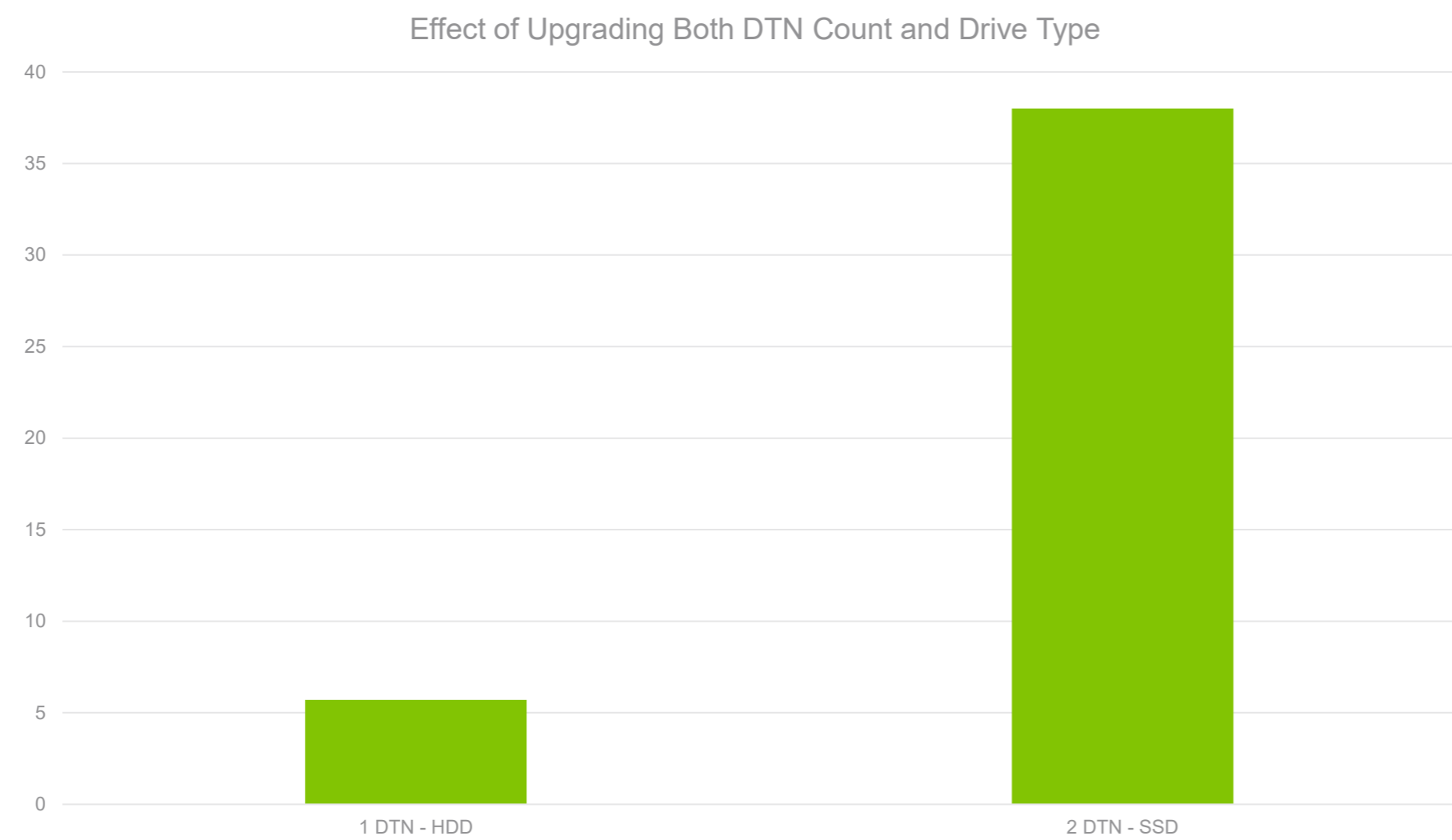
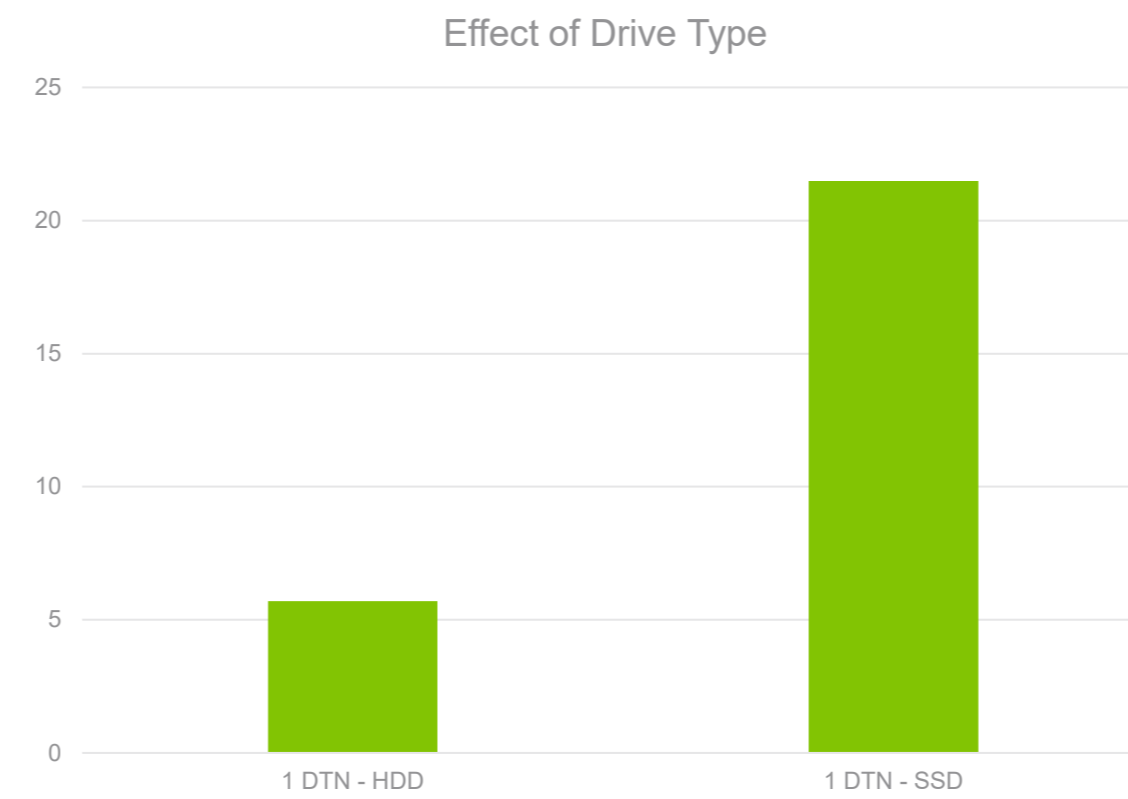
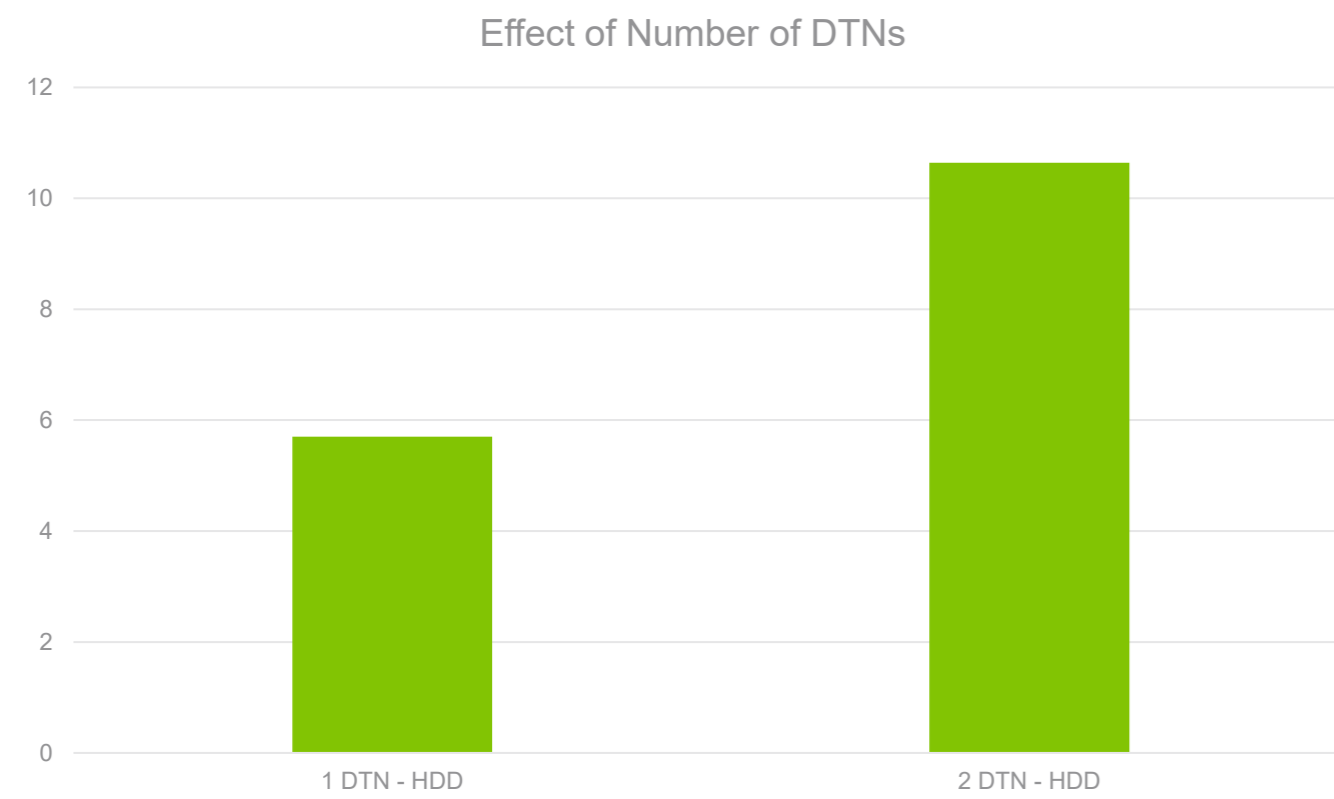
Plans for  
Expansion with  
demand

## Enterprise NVME TLC Drives

Achieving  
Throughput  
exceeding  
10,000 MiB/s

High-Performance  
Storage Solutions

# Effective Transfer Speeds



External Globus Endpoints

- 5-38 Gbps
- 1 TB from ESnet Denver in just over 3.5 mins
- ~38 Gbps



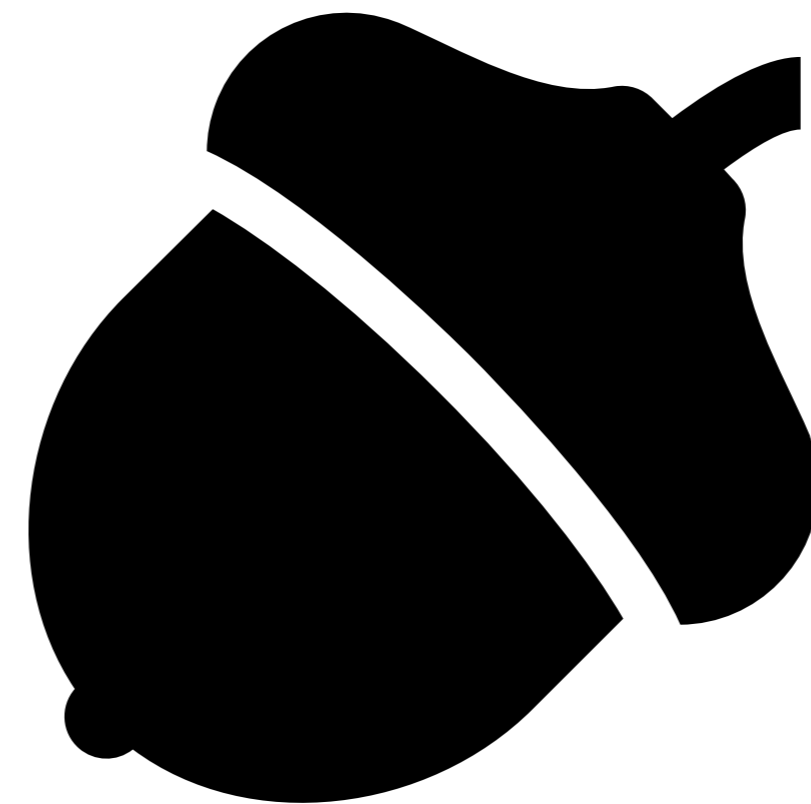
Testing Highlights

- Reliability
- Very Performant
- Tuning Configuration
- Superior level of service

\* Effective Transfer Speeds in Gbps

In a nutshell:

New architecture can move over 400 TB of data in a 24-hour period!



## SMB RStor

Configurable  
integration with  
existing  
systems

Other storage  
systems

## Efficient Data Transfers

Quick Setup  
w/College IT &  
Researchers

Seamless  
connectivity to  
HPC-Alpine  
and CSU

Integration  
Capabilities

## Getting Started

## Support : VPR Research IT Service Desk

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- Create a Globus Setup Request
- <https://vprservicefreshservice.com/support/home>
- Solutions in our IT Service Desk will be updated based on usage and feedback

## Cost

## No Charge FY25!

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- Monitoring Usage of Service
- Will be requesting feedback on proposed FY26 billing model in Spring 2025

How to get started?

Cost?



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