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## Experiment Data Management

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# Experiment data management

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GEFI workshop 2018



# Motivations

- ▶ **Do the right thing:**  
Proper sharing of research artifacts is a requirement for reproducibility
  - ◆ Details of SuT
  - ◆ Experiment orchestration code
  - ◆ Input & output data
- ▶ **Hype** around *Open Science*
  - ◆ Publications of course, but also data
- ▶ **Policies**
  - ◆ Requirements for Data Management Plans
  - ◆ *Generated data volume* as a metric for the usefulness of RIs

# Requirements

- ▶ Storing data *during* experiments  $\leadsto$  usually on nodes
- ▶ Storing data *between* experiments
- ▶ Archiving data after experiments
  - ◆ With a stable reference (DOI)
  - ◆ On the very long-term
- ▶ Data Management Plan

# Status

## Data Management Plan:

- ▶ *Testbed X does not produce data itself (not a telescope). User experiments do, they should be the ones with a DMP.*
  - ◆ Hard sell in the Research Infrastructures community

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## Archiving:

- ▶ De-facto standard: GitHub (and not very well done – commit hash?)
- ▶ What we should probably explore: data repositories
  - ◆ Public instances: Zenodo, Figshare, Driad, KNB, ICPSR  
Limitations: size, no statistics
  - ◆ Self-hosted: Dataverse, CKAN, Fedora Commons (usually hosted by universities – useful to have instances for testbeds or federations?)

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## Storage:

- ▶ ChameleonCloud: Swift-based object store
- ▶ Emulab: per-project NFS dir (no quotas on Virtual Wall, 100 GB on CloudLab)
- ▶ Grid'5000:
  - ◆ NFS directory per user (now with more security)
  - ◆ **Disk reservation**

# Disk reservation on Grid'5000<sup>1</sup>

## Target experiments:

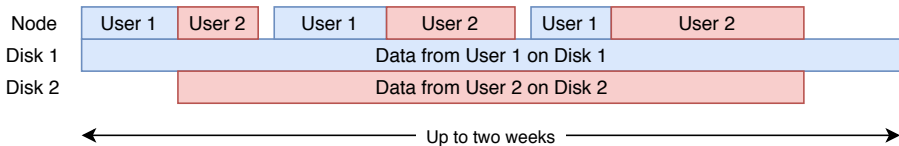
- ▶ Evaluation/use of Big Data solutions

## Problem:

- ▶ Moving data to/from nodes is time-consuming
- ▶ Amplified by our short reservation policy (one night / one week-end)

## Solution:

- ▶ Make it possible to leave data on nodes (using additional disks)



- ▶ Implemented by enabling/disabled disks in the RAID controller based on who reserved the node
  - ◆ Disks are not visible by other users

<sup>1</sup>Joint work with Florent Didier and Pierre Neyron