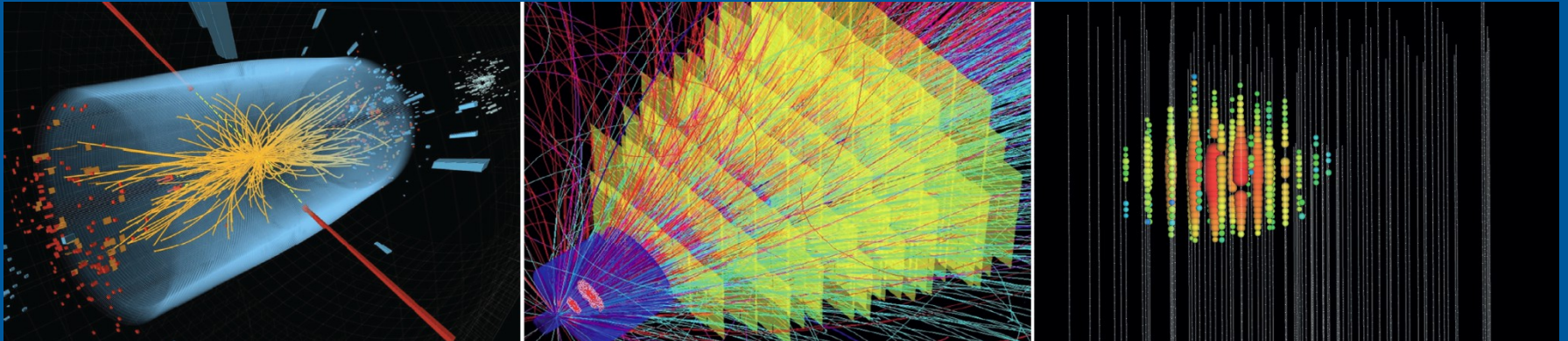


LK I — DESY IT developments for HEP



Paul Millar — DESY

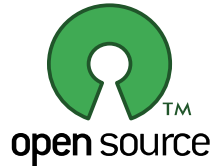
Introduction

This talk introduces **LK I* IT developments**:

- Big Data solutions with dCache,
- Network connections,
- Complete data life-cycle,
- High Performance Computing (HPC).

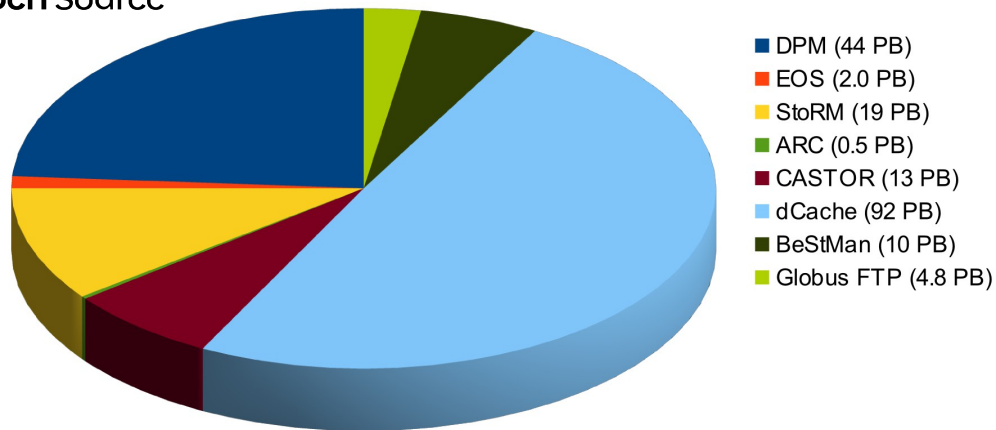
* The LK II large scale facility is covered in the plenary talk later.

dCache: open-source, managed storage



WLCG data stored outside of CERN

Source: BDII published data (2014-01-27)



Student mentor programme

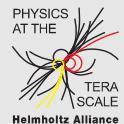


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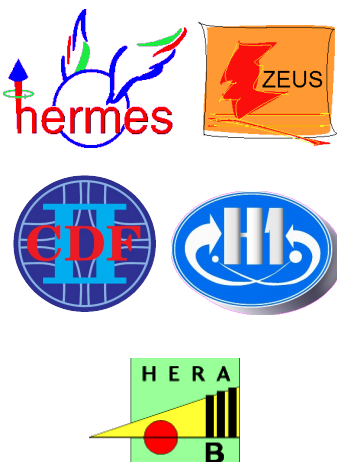



Core development team



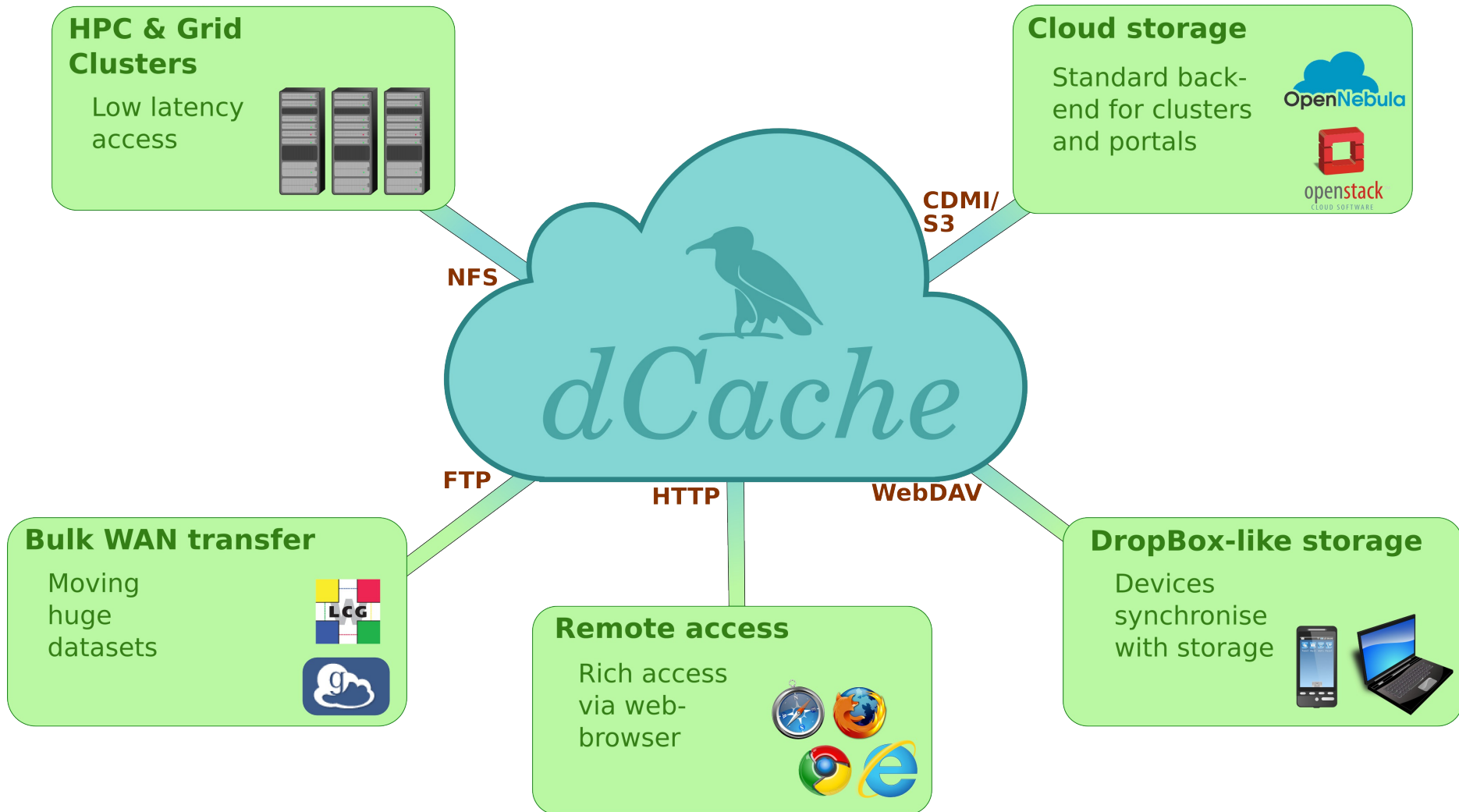
Collaborations



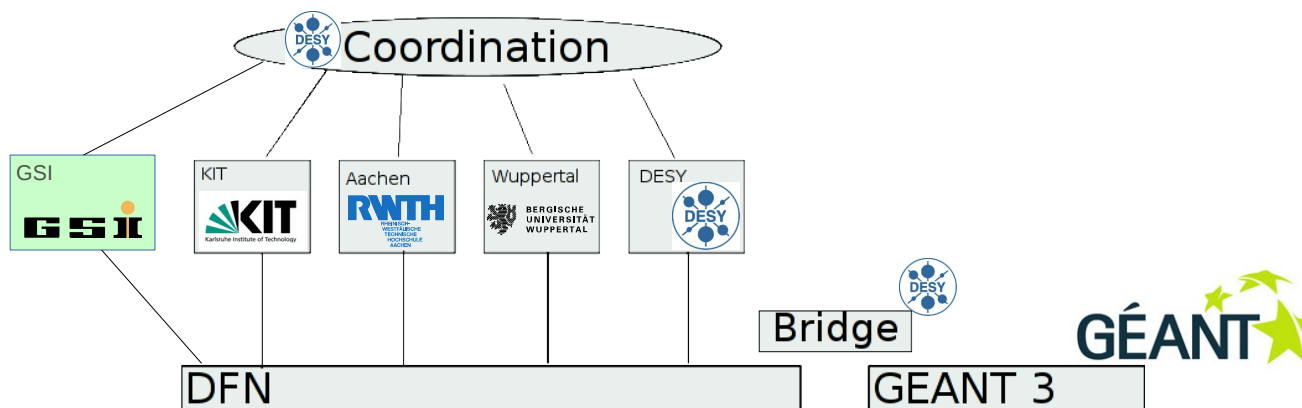
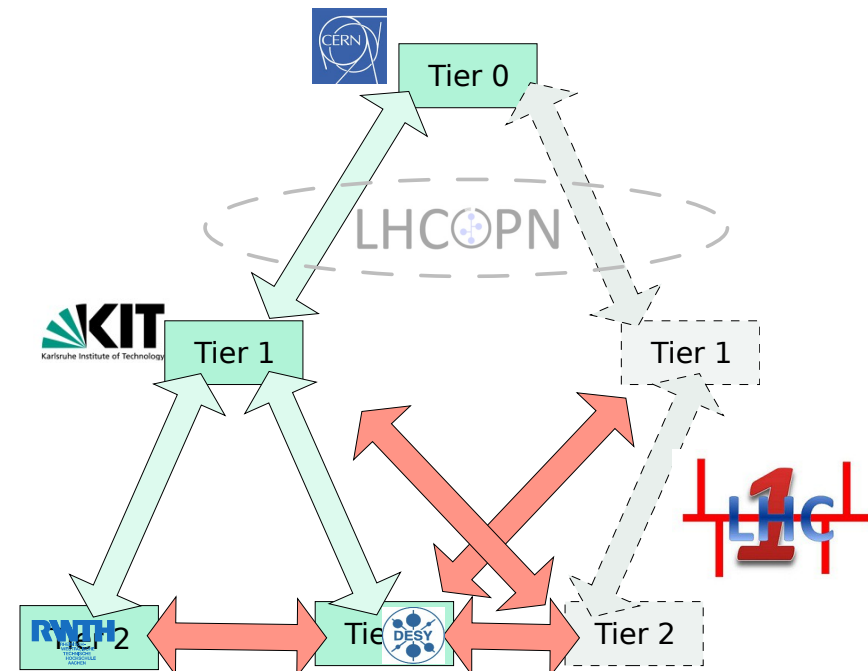
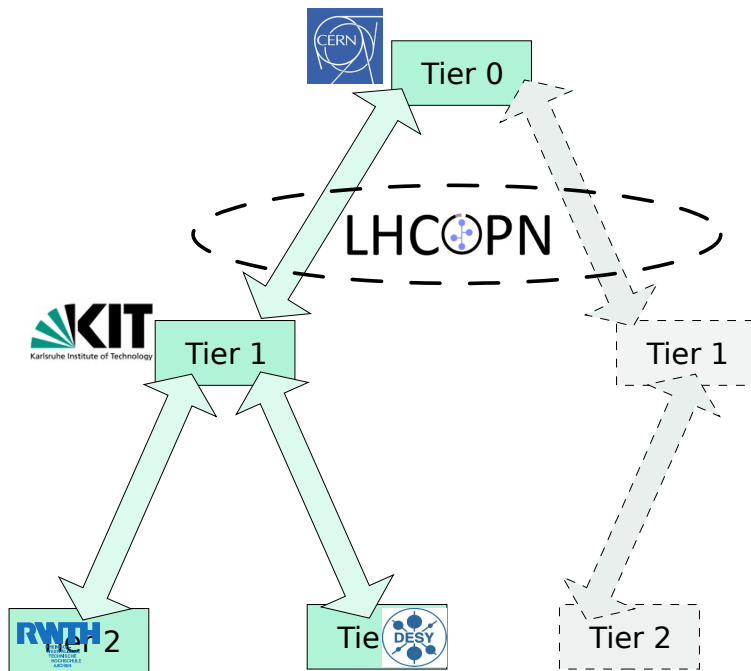
dCache evolution for Big Data and Cloud

| Era | Disk cache | Grid Storage | Generic Storage | Cloud Storage |
|---------------------------|---|---|---|---|
| Additional Communities |  |  |  |  |
| Additional Authentication | Trusted host | X.509, Kerberos | Username+PW | SAML, OpenID, OAuth, Token, ... |

Big Data Strategy

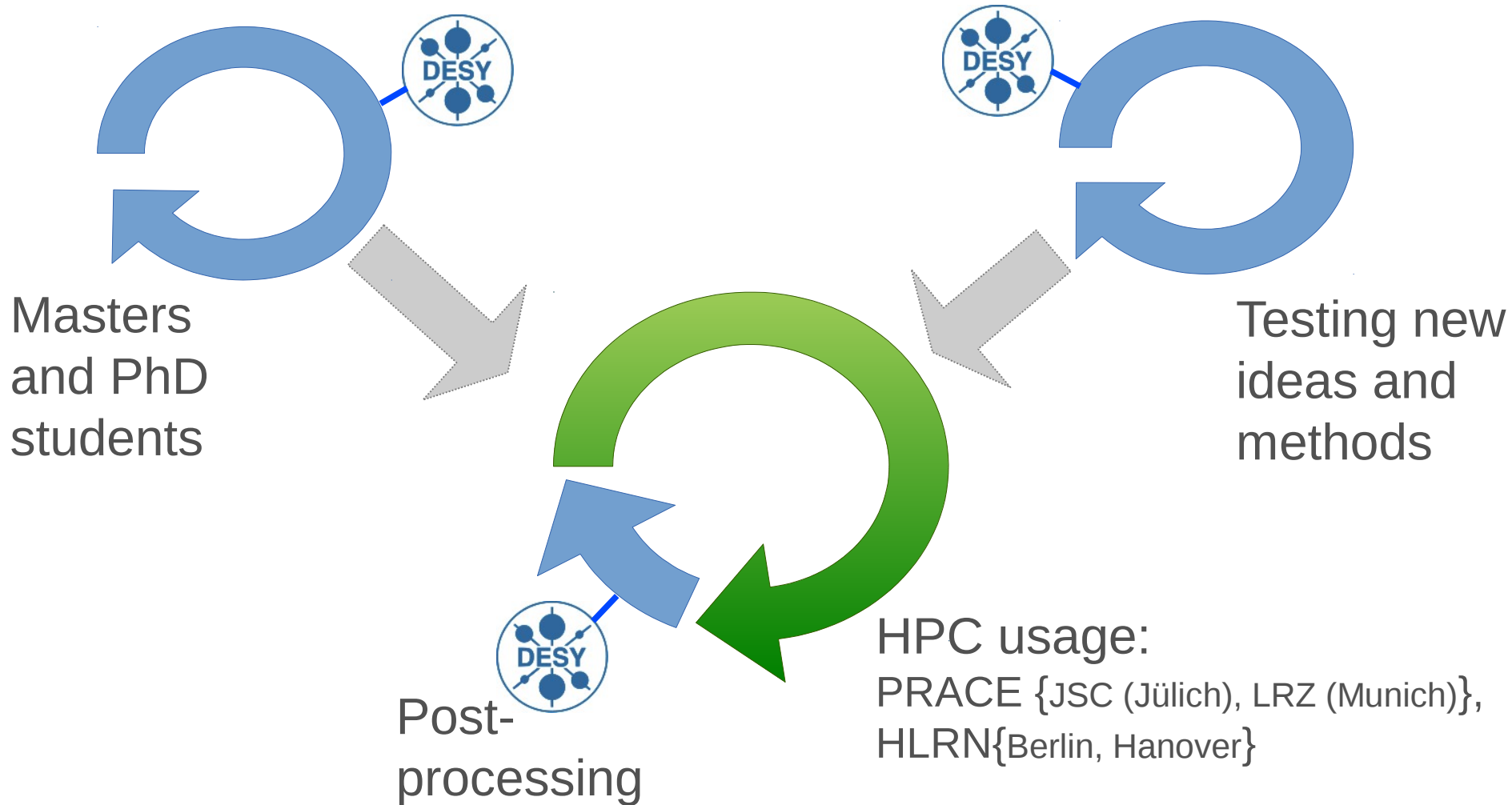


LHCone: Advances in networking

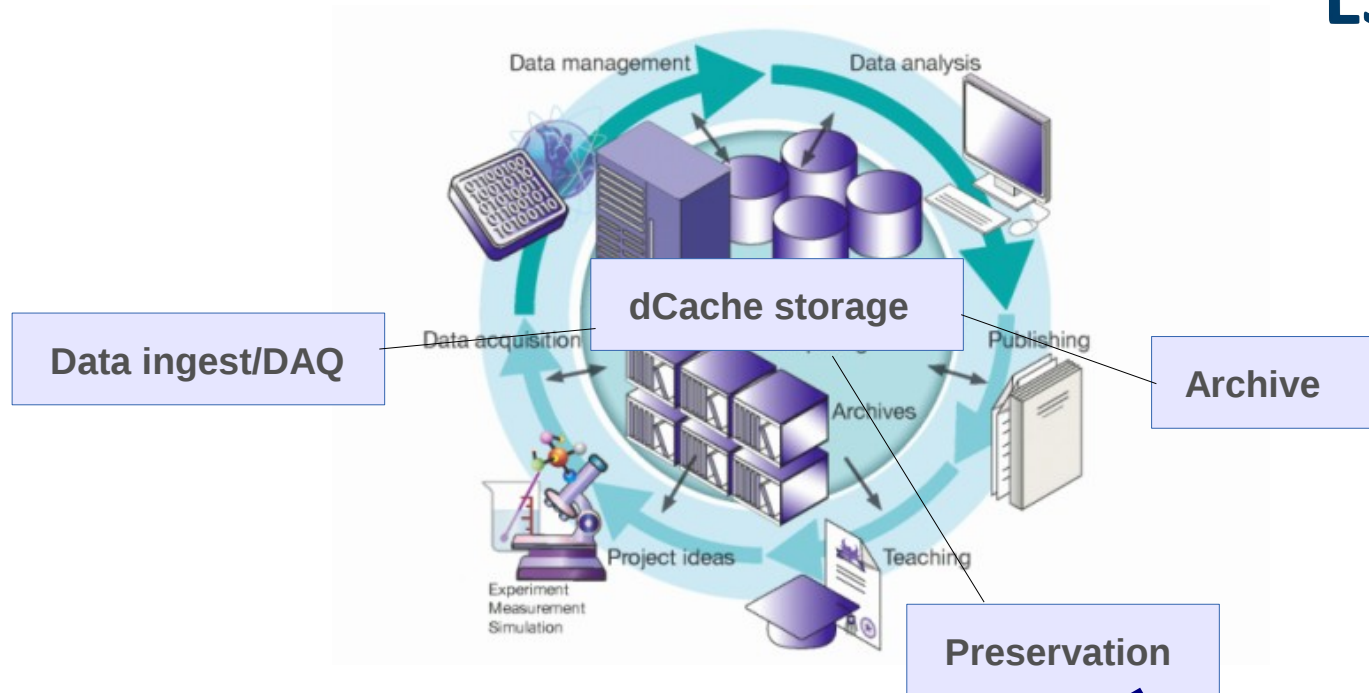


Supporting Heavy HPC users:

Lattice QCD, Simulation for Photon Science, Plasma, ...



Handling the complete data life-cycle



Bit preservation



DP-HEP: HERA

DP-HEP Collaboration

Preservation



HORIZON 2020

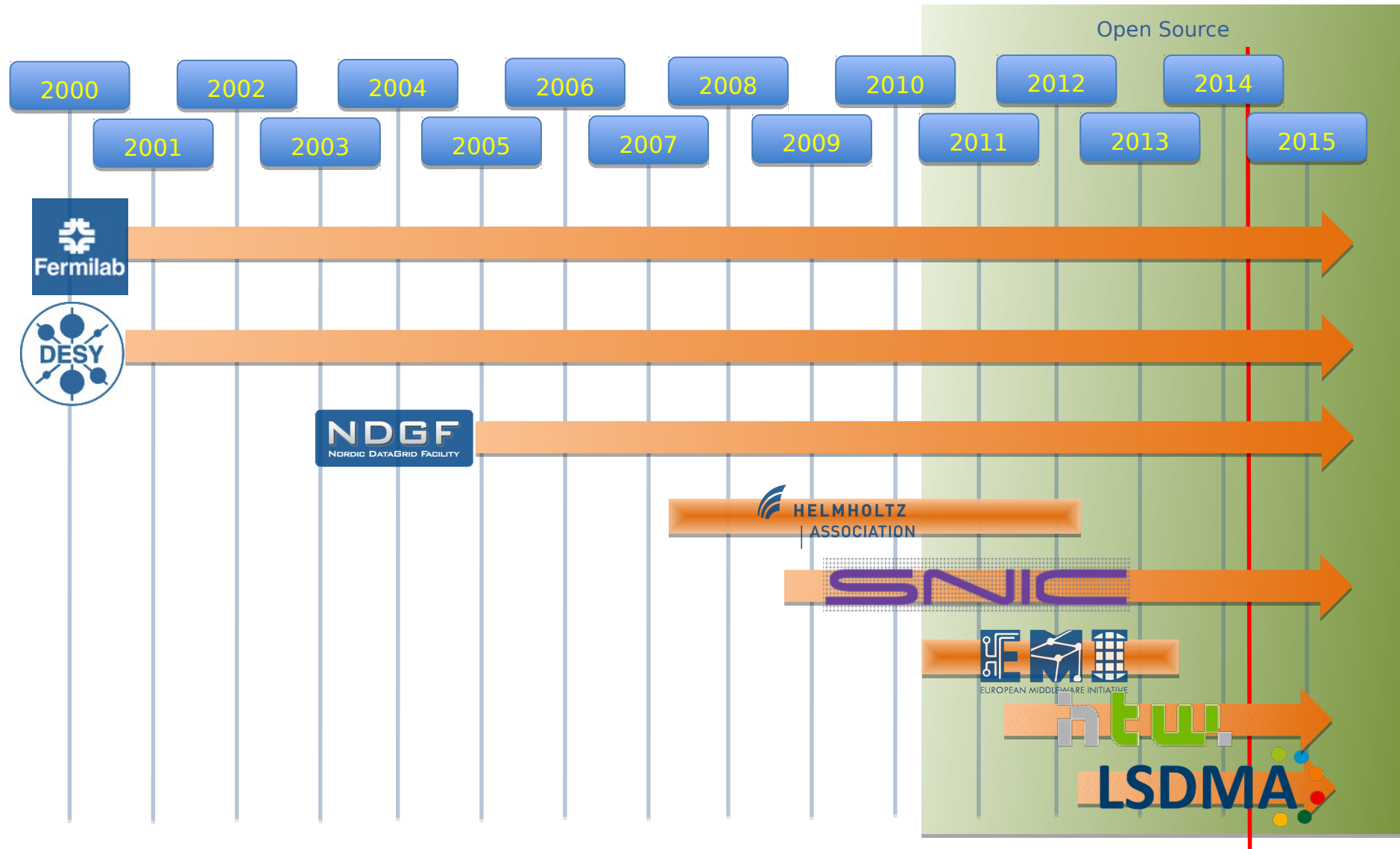
Strategic outlook

DESY is advancing IT by

- Developing Big Data solutions,
- Pushing network connections,
- Supporting the complete data life-cycle:
 - Supporting fast data ingest from DAQs,
 - Managing data archives,
 - Exploring bit-preservation.

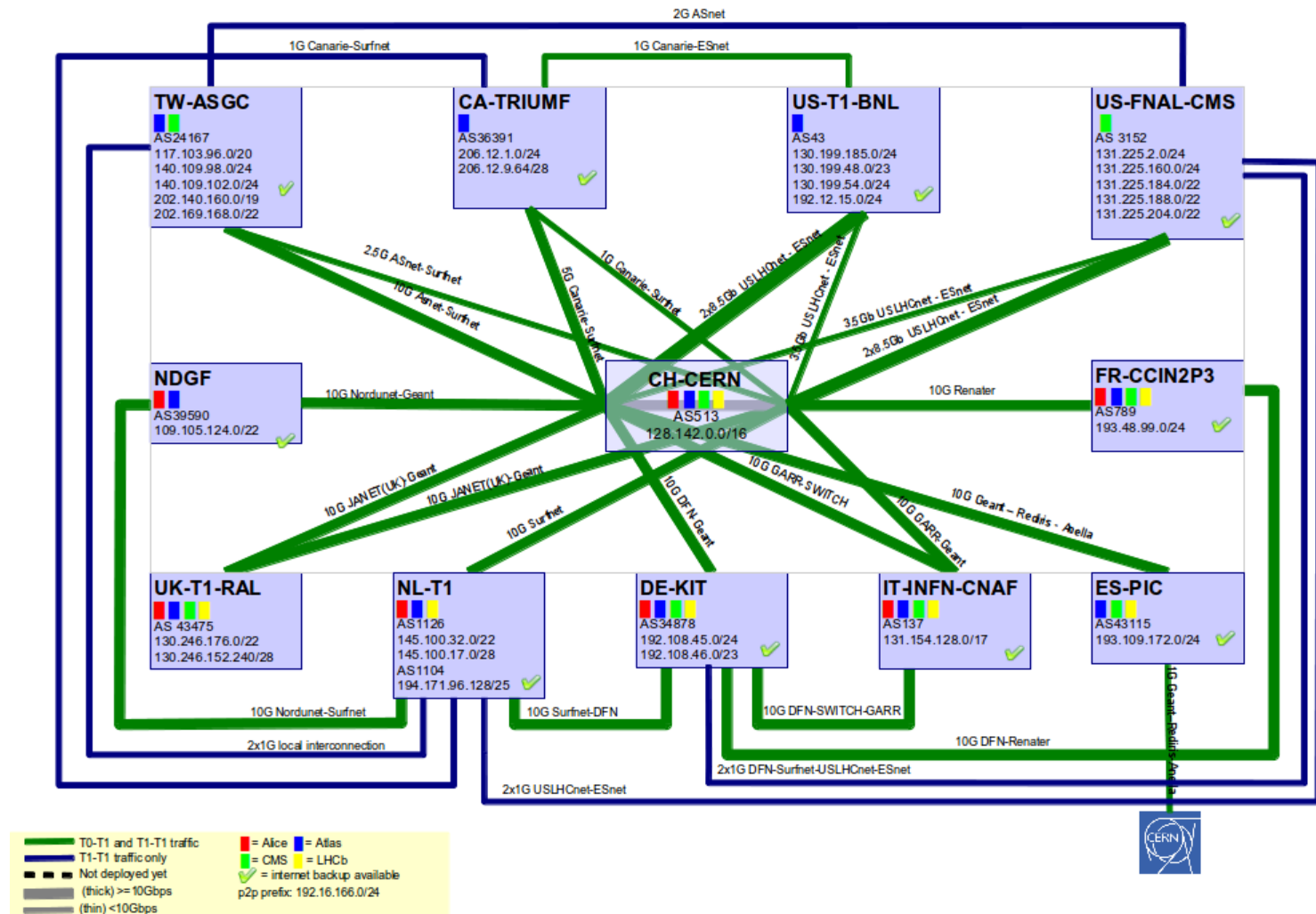
Backup slides

Collaboration and funding for dCache



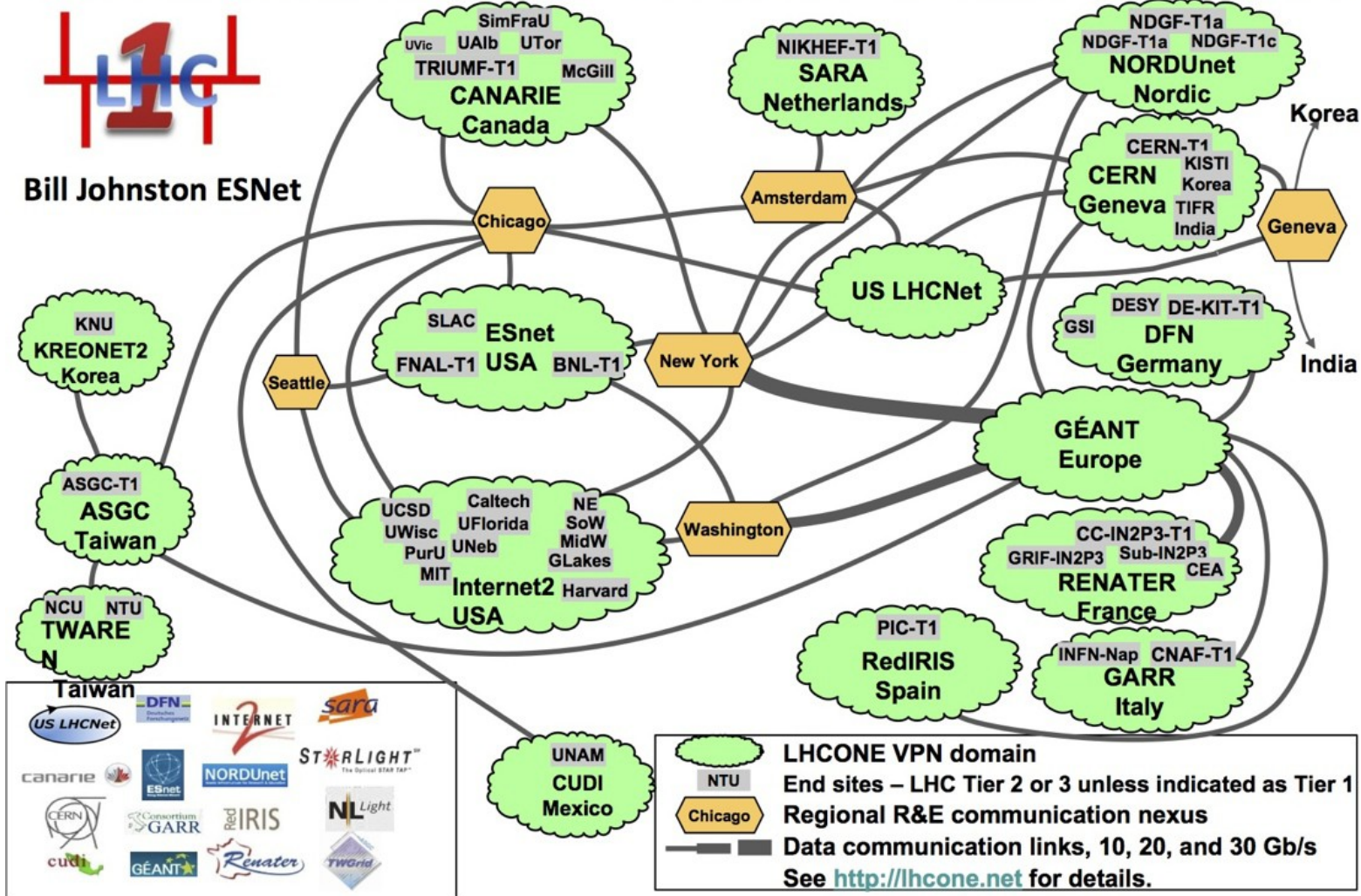
Advances in networking

LHCOPN



Advances in networking

LHCONE: A global infrastructure for the LHC Tier1 Data Center – Tier 2 Analysis Center Connectivity



Curation of Hera data

