Status and plans

INDIGO - DataCloud

Patrick Fuhrmann

On behave of the project team

dCache.org

Fermilab

NDGF
NORDIC DATAGRID FACILITY

DESY

HELMHOLTZ
ASSOCIATION

Federal Ministry
of Education
and Research

neic

LSDMA
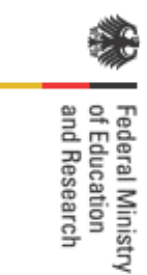
Non-technical news

dCache.org

News on the team composition

Some changes at DESY

– Karsten left for a better job in industry

– New people

- Marina (RESTful service and release mgnt)

- Anupam (AAI)

- Femi (GUI and Web 2 applications)

- Jürgen (QoS in Storage and Release mgnt)

- New person (N.A.) starting an about 2 m

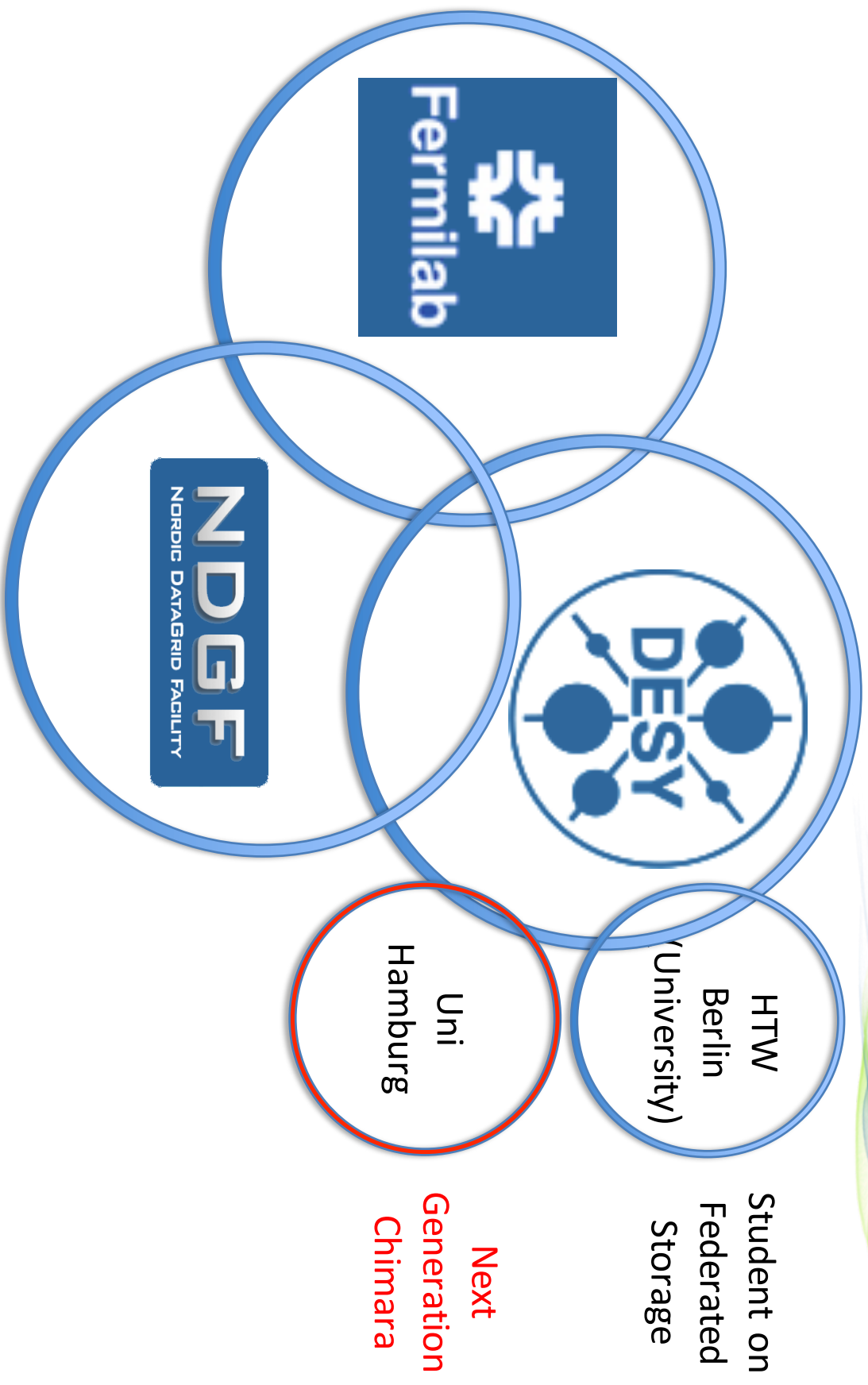dCache.org

More new people

Dr. Millar and Baby Ben

Benjamin joined
2016-03-23, at 08:47

dCache.org

Reminder : Our collaboration

dCache.org

dCache.org

Fermilab

NDGF
NORDIC DATAGRID FACILITY

DESY

Uni
Hamburg

Next
Generation
Chimara

HTW
Berlin
(University)

Student on
Federated
Storage

On funding

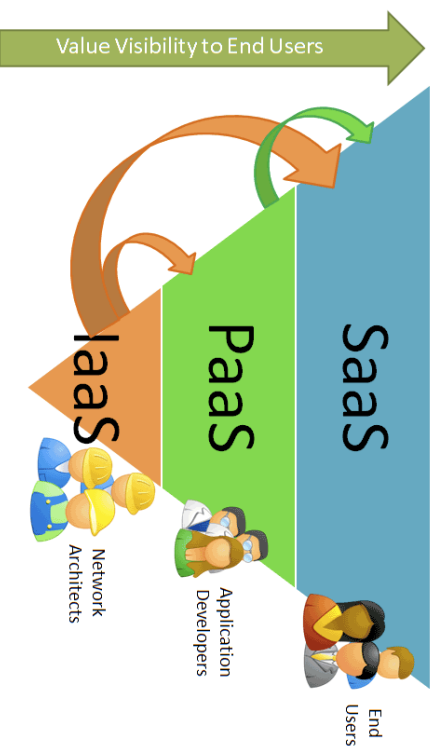dCache.org

INDIGO-DataCloud
Cheat-Sheet

dCache.org

- Horizon 2020 project started April 2015
- Project led by INFN Italy
- Budget 11.1 Million Euros (800.000 for dCache)
- 26 Partners = 11 European Countries
- Duration 30 months (about 15 left now)
- The project aims for an Open Source Data and Computing platform targeted at scientific communities, deployable on multiple hardware, and provisioned over private and public e-infrastructures.

INDIGO in a nutshell

1. **Self-service, on-demand**
2. **Access through the network**
3. **Resource pooling**
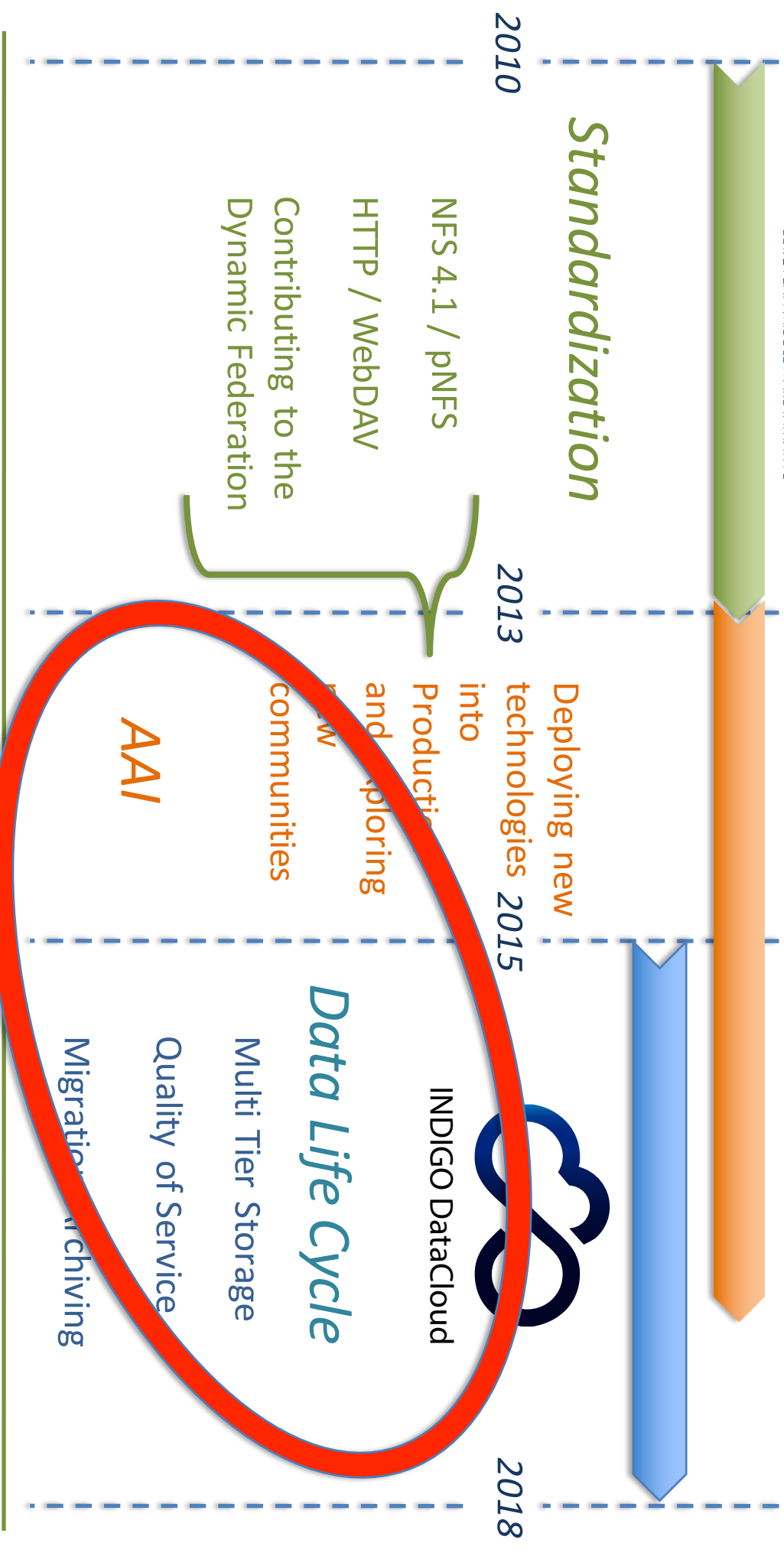4. **Elasticity (with *infinite resources*)**
5. **Pay as you go**

In the end,
Applications Rule.

dCache.org

Value Visibility to End Users

IaaS
PaaS
SaaS

Network Architects
Application Developers
End Users

You manage

Networking | Storage | Servers | Virtualization | O/S | Middleware | Runtime | Data | Applications

Managed by vendor

Infrastructure
(as a Service)

You manage

Networking | Storage | Servers | Virtualization | O/S | Middleware | Runtime | Data | Applications

Managed by vendor

Platform
(as a Service)

Networking | Storage | Servers | Virtualization | O/S | Middleware | Runtime | Data | Applications

Managed by vendor

Software
(as a Service)

Funding and technology directions

dCache.org

Funding influences dCache development topics

dCache.org

Standardization

2010

NFS 4.1 / pNFS

HTTP / WebDAV

Contributing to the
Dynamic Federation

2013

Deploying new
technologies 2015
into
Production
and exploring
new
communities

AAI

Data Life Cycle

INDIGO DataCloud

Multi Tier Storage

Quality of Service

Migration
Archiving

2018

EUROPEAN MIDDLEWARE INITIATIVE

LSDMA

High level technical overview

dCache.org

New Technologies in dCache

Web based authentication and delegation

(Open Id Connect and Macaroons)

Unlimited hierarchical
Storage Space
NFS 4.1

SSDs

Spinning Disks

Tape, Blue Ray ...

ceph

dCache.org

New approaches in dCache

dFace

Data Access

RESTful Service & WebDAV

Multi Tier Control

Your own Apps

dCache.org

New approaches in dCache

dFace

RESTful Service & WebDAV

(Select your storage class)

Quality of Service

Class A

Class B

Class C

Class D

Your own Apps
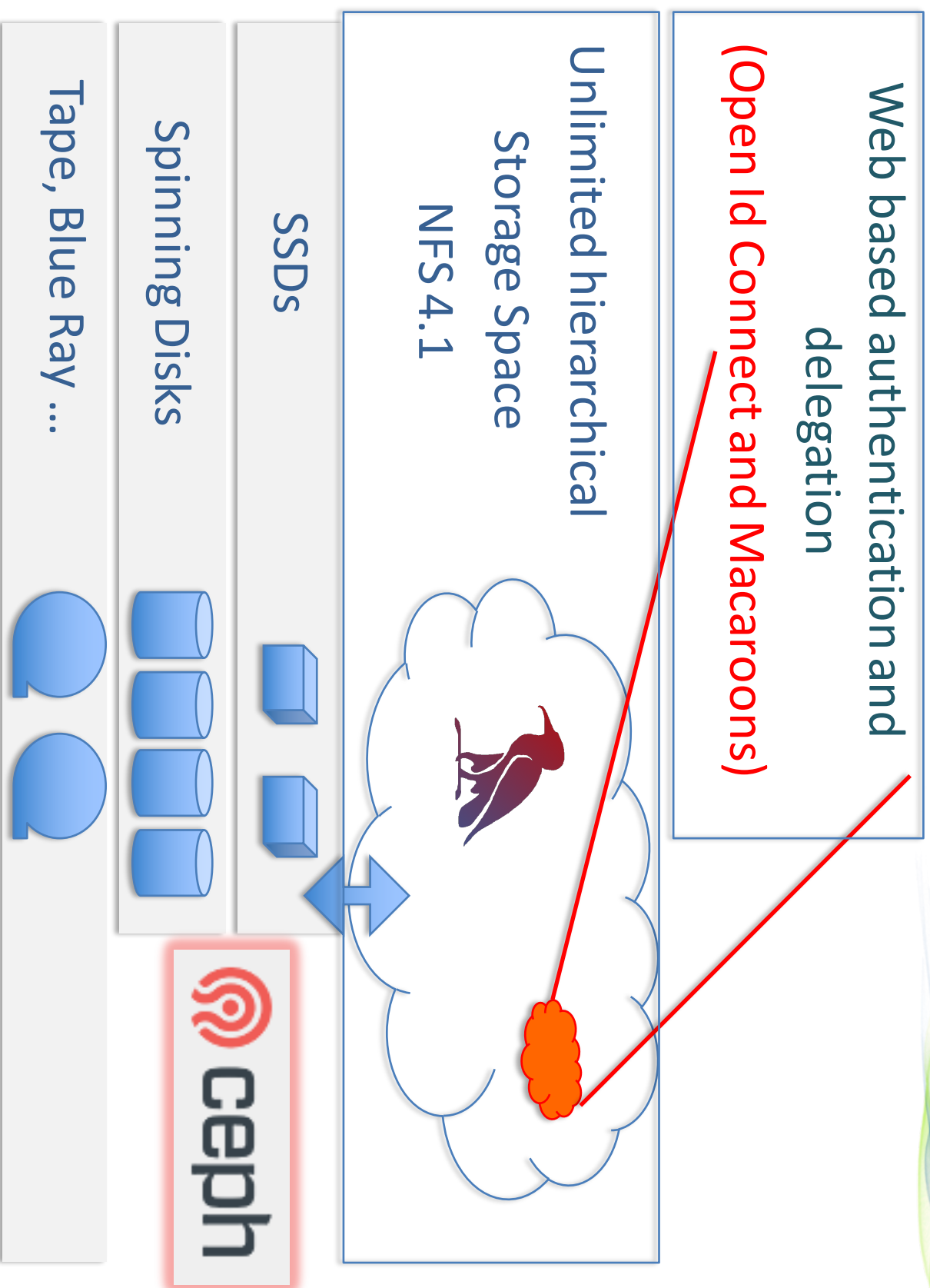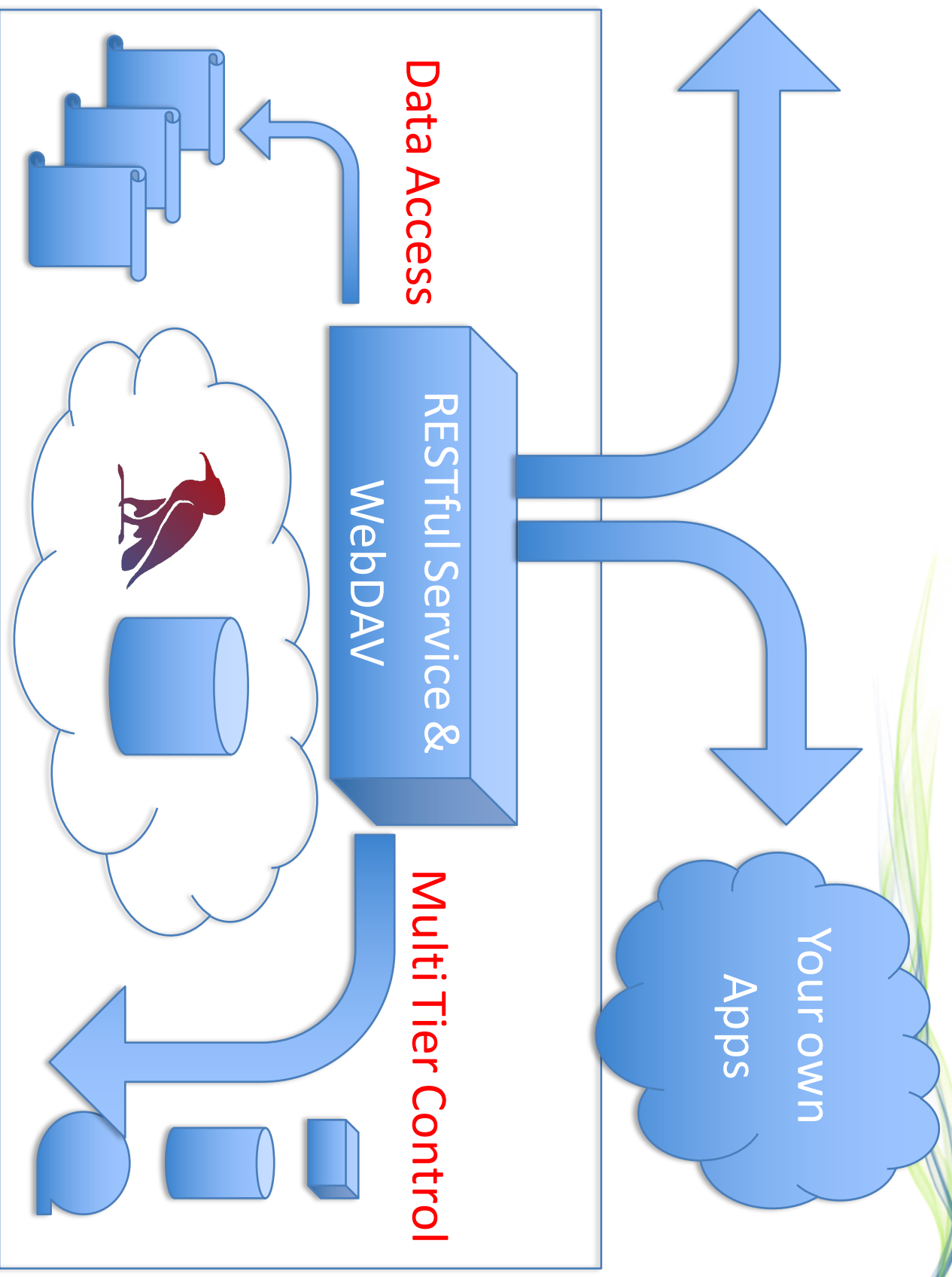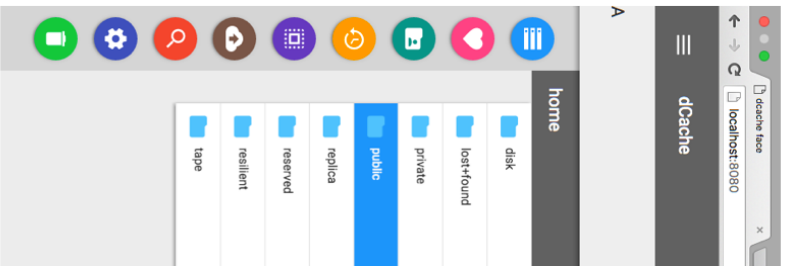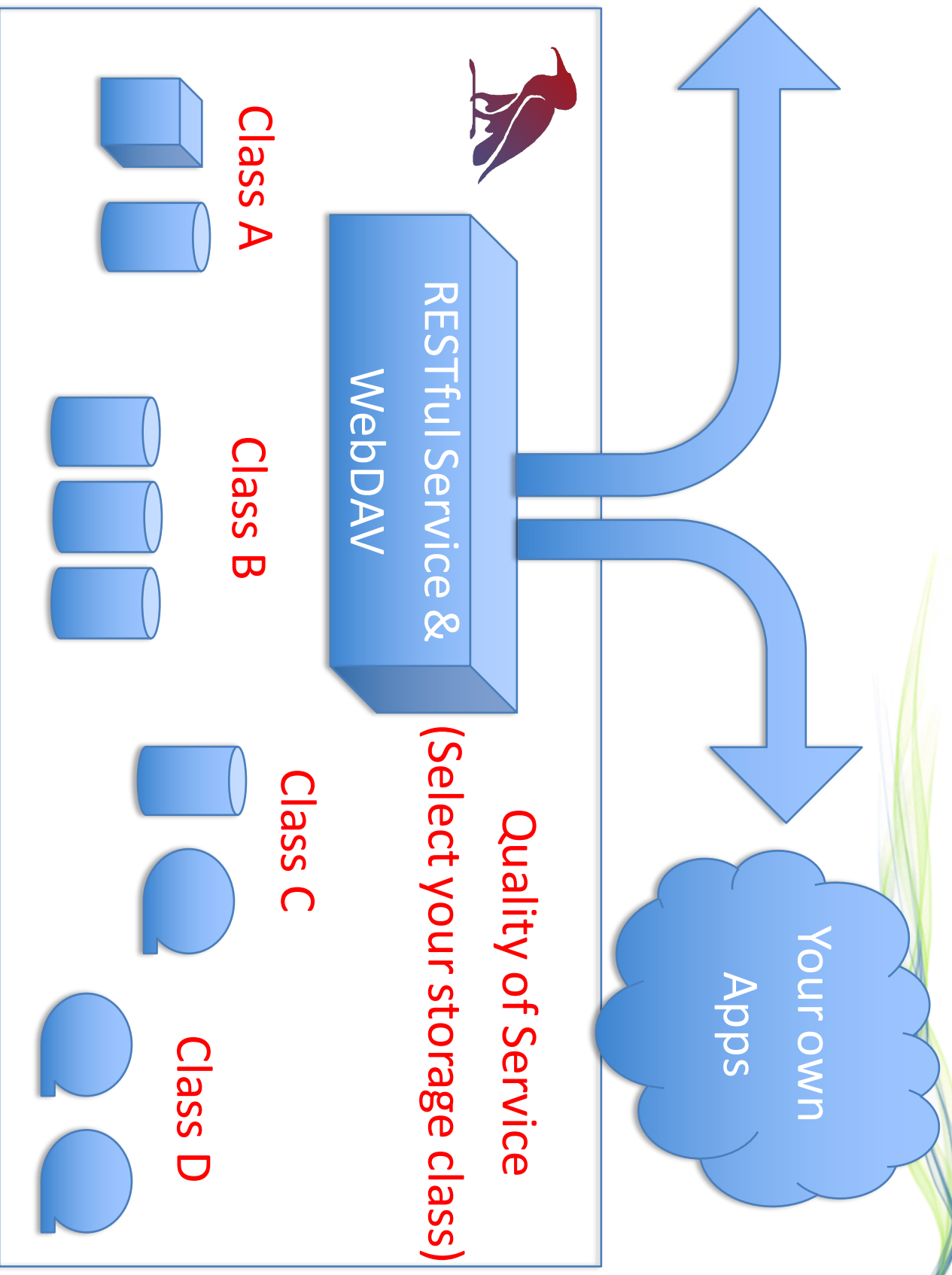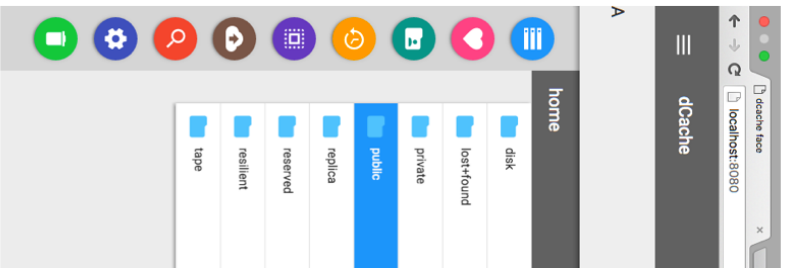
dCache.org

And many more things afoot …

dCache.org

On the meeting today and tomorrow
(resorted agenda)

dCache.org

We'll talk about (cont.)

- What's new in dCache (Gerd)
- dCache Release Process (Marina and Jürgen)
- dCache Operations
  - Puppet : (Oleg, Christina)
  - dCache in Docker (Tigran)
  - Ganeti (Ulf)
  - Multi VO SRM in dCache (Marc)

dCache.org

We'll talk about

- Ongoing development
  - DEMO on the resilient manager (Dmitry)
  - RESTful API into dCache (Marina)
  - New Graphical Interface (Femi)
  - New Authentication Mechanisms (Anupam)
  - dCache Lab's:
    - Trying out dCache for local use at Nikhef (Andrew)
    - Zookeeper in dCache (Gerd)
    - Adapting new storage interfaces, CEPH (Tigran)
    - Delegated Authorization (me)
    - Sharing directly in dCache and QoS (me too)

dCache.org

Special Contributions

- Dave Fellinger
  "Exploring the Efficiencies of Operating dCache in a Virtual Environment On a Mass Storage System"

- Lightning Talks
  – Whatever you think is worth mentioning in terms of storage technolgies ... or something really funny. (according to Christian)

- Special Announcement by Mattias

dCache.org

dCache.org
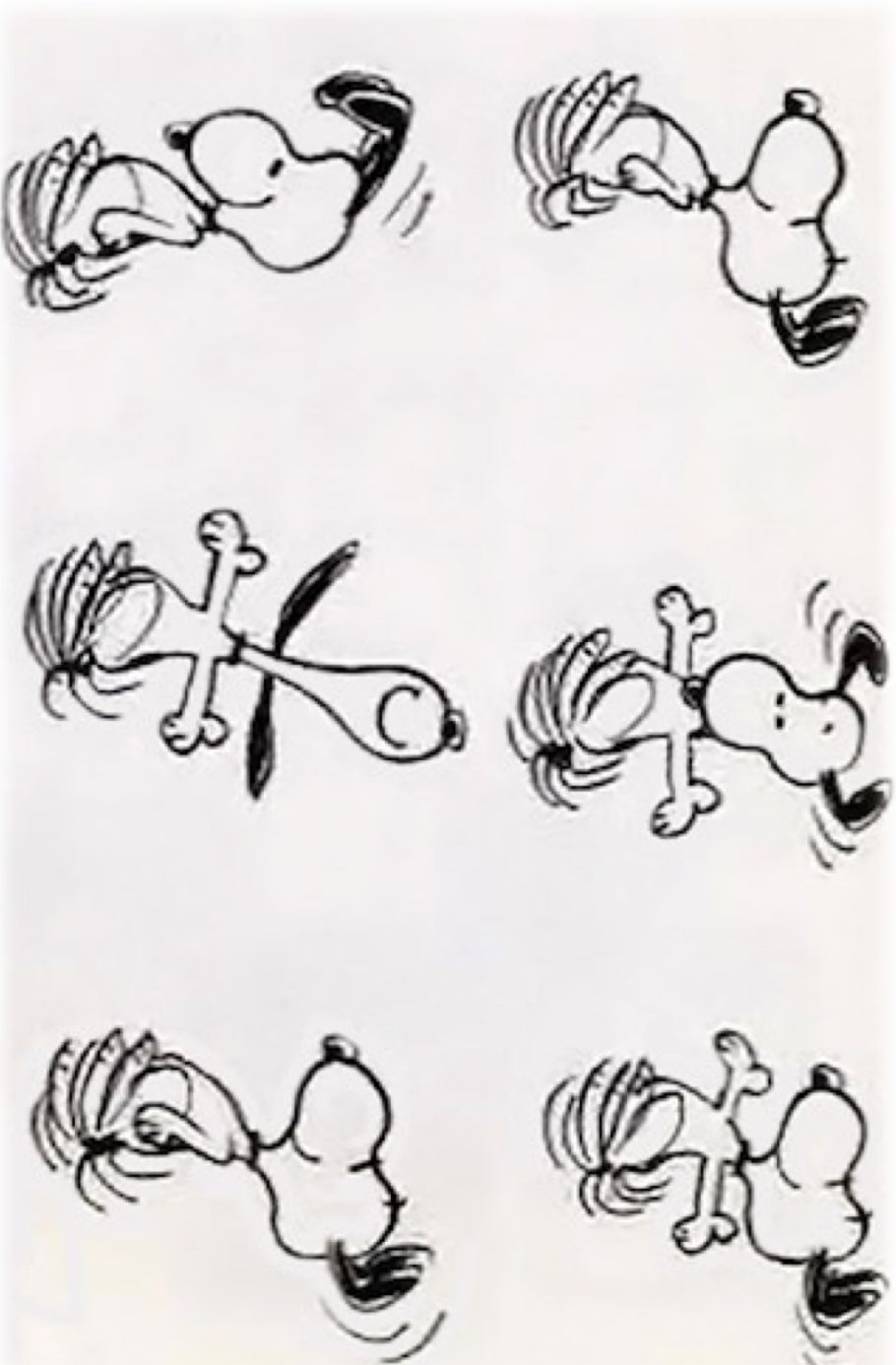
dCache is well prepared

Historically dCache supports multi-tier storage and the corresponding transition.
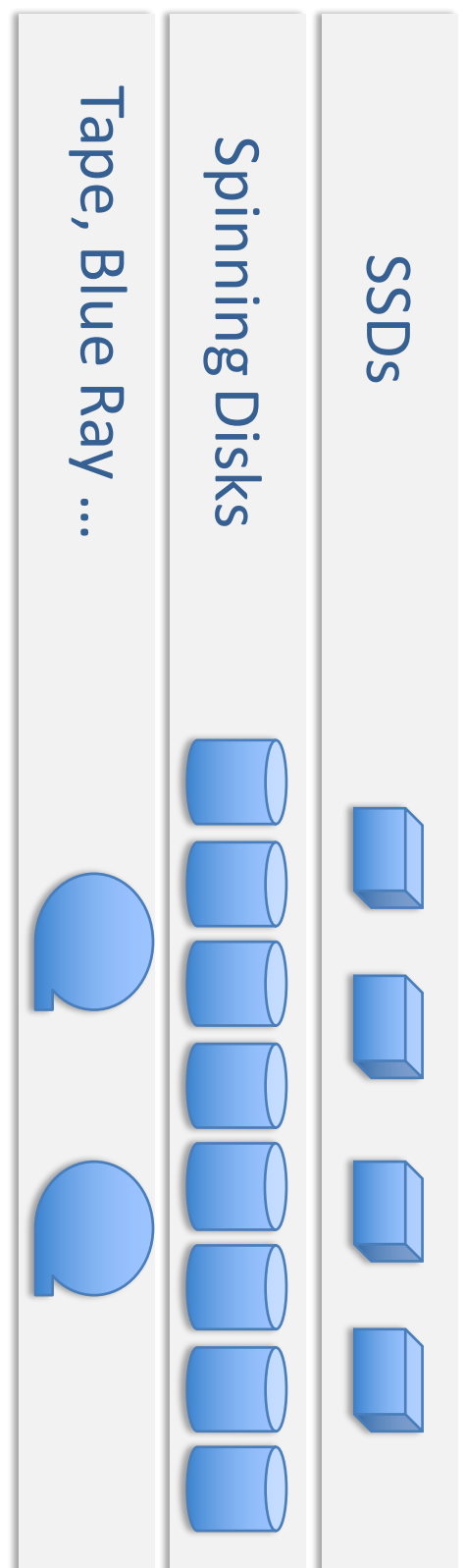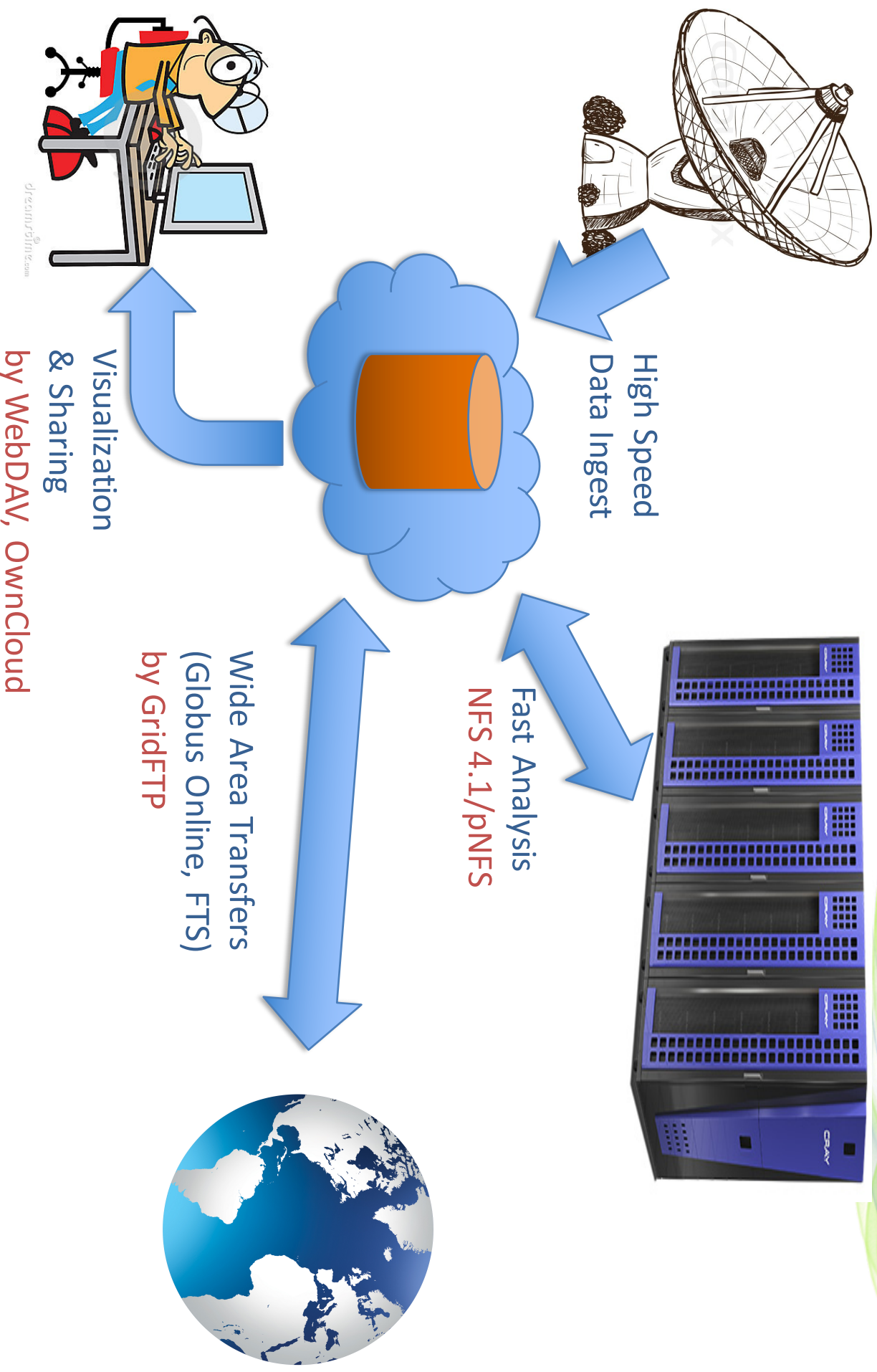
NFS/pNFS   httpWebDAV   gridFTP   xRootd/dCap

Automatic   and   Manual   Media transitions

Virtual File-system Layer

SSDs

Spinning Disks

Tape, Blue Ray ...

dCache.org

Scientific Data Lifecycle

High Speed
Data Ingest

Fast Analysis
NFS 4.1/pNFS

Wide Area Transfers
(Globus Online, FTS)
by GridFTP

Visualization
& Sharing
by WebDAV, OwnCloud

dCache.org

The END

further reading

www.dCache.org

dCache.org