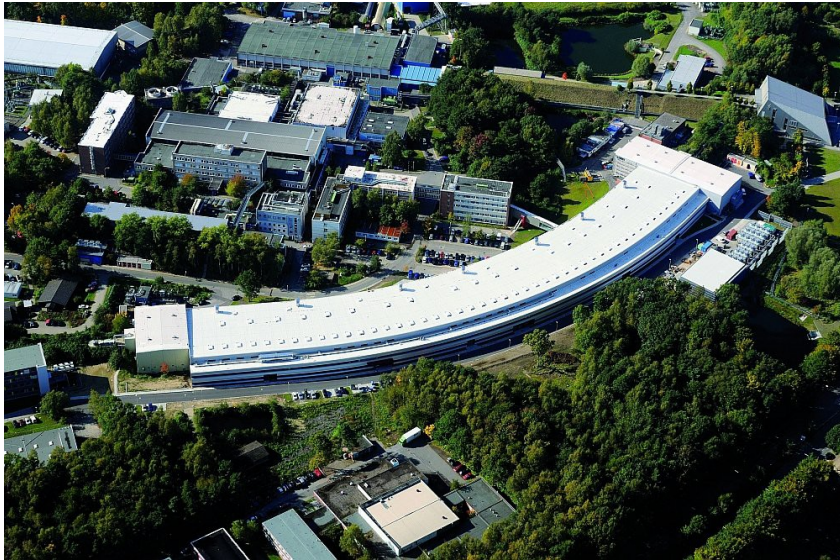


IT Infrastructure at DESY

The IT infrastructure for the PETRA III synchrotron

Eugen Wintersberger
IT infrastructure at DESY
BNL, 26.05.2016

The PETRA III synchrotron at DESY



Diverse Environment

- ***Various kinds of research***
- ***Different techniques***
- ***Multiple kinds of analysis***

Deutsches Elektronen-Synchrotron

Helmholtz-Zentrum Geesthacht Centre for Materials and Coastal Research

European Molecular Biology Laboratory

Beamline status: user operation

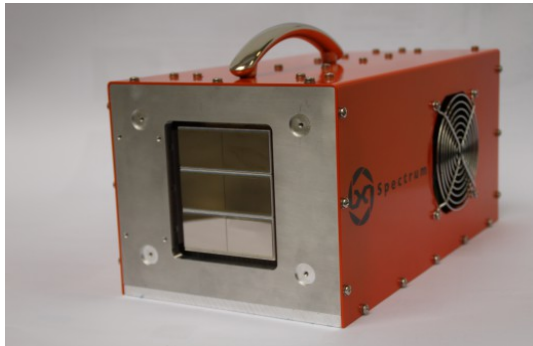
1. High resolution dynamics beamline
2. Hard x-ray diffraction beamline for time-resolved studies
3. Micro- and nanofocus x-ray scattering
4. Variable polarization XUV
5. HZG/DESY: Imaging
6. Hard x-ray micro/nano probe
7. HZG: High energy materials science
8. High resolution diffraction
9. Resonant scattering and diffraction
10. Coherence applications
11. MPI/HZIR/DESY: Protein crystallography and Bio-Imaging
12. EMBL: BioSAXS
13. EMBL: Macromolecular crystallography I
14. EMBL: Macromolecular crystallography II



Detectors used at PETRA III beamlines



Dectris Pilatus and Eiger systems



Lambda systems

- 750k – 2.7GB/s
- 2M – 3x2.7GB/s



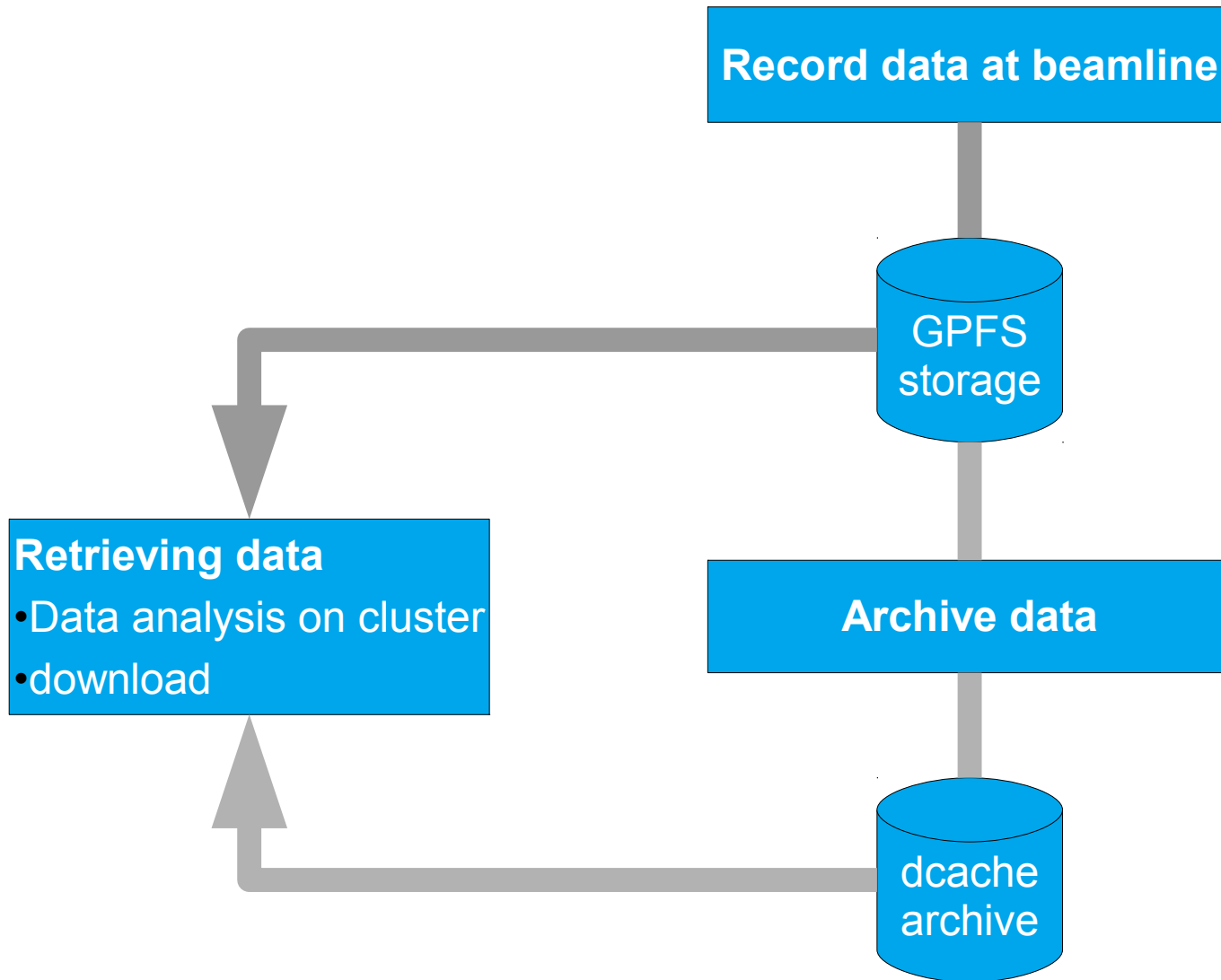
PCO Edge (~1GB/s) and Perkin Elmer (240MB/s) systems

Network Computing center – synchrotron facility

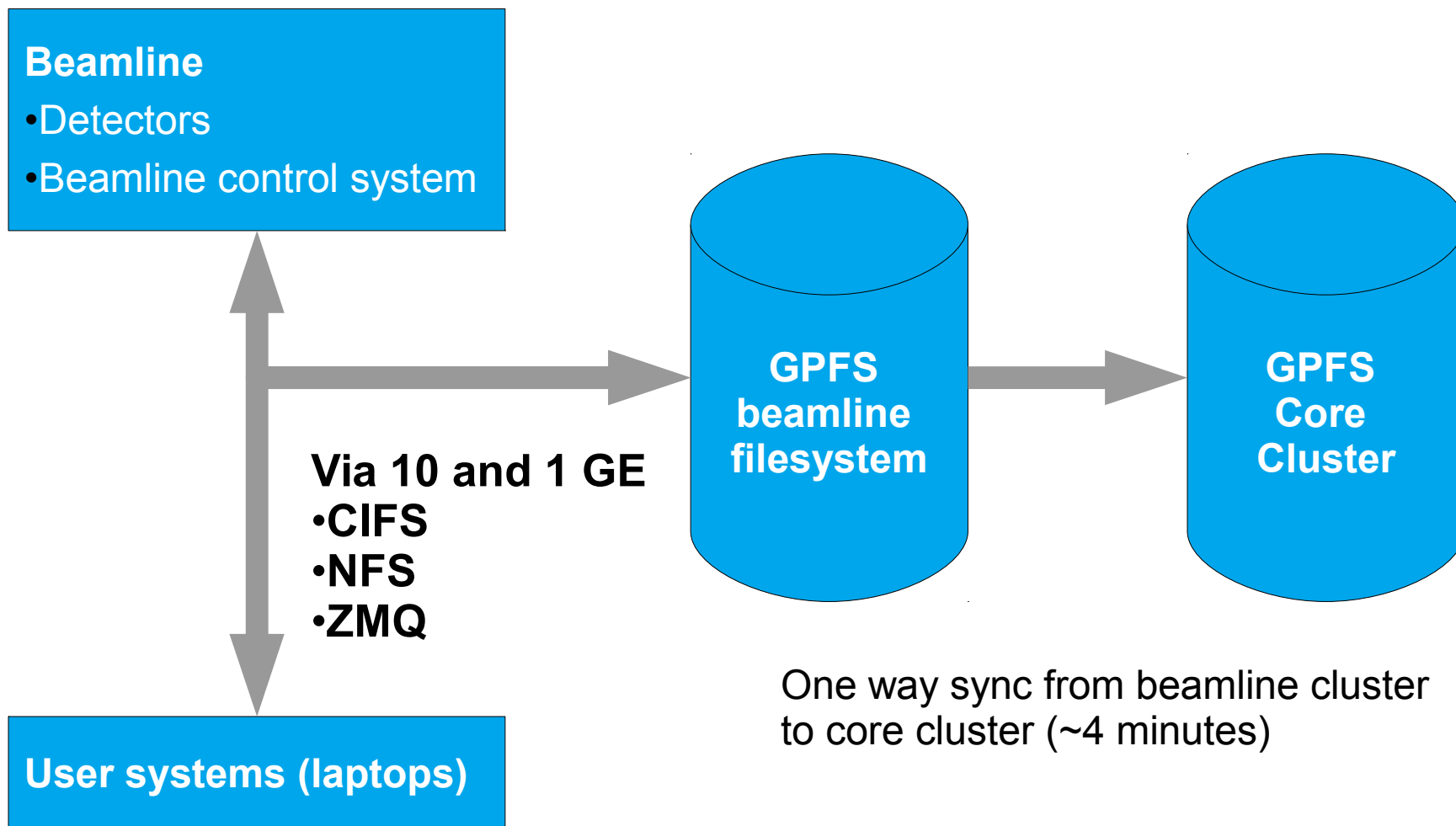


- 3 Arista switches with 2x40GE (fibre) each in the hall
- Total bandwidth 240 GE
- Can double bandwidth easily

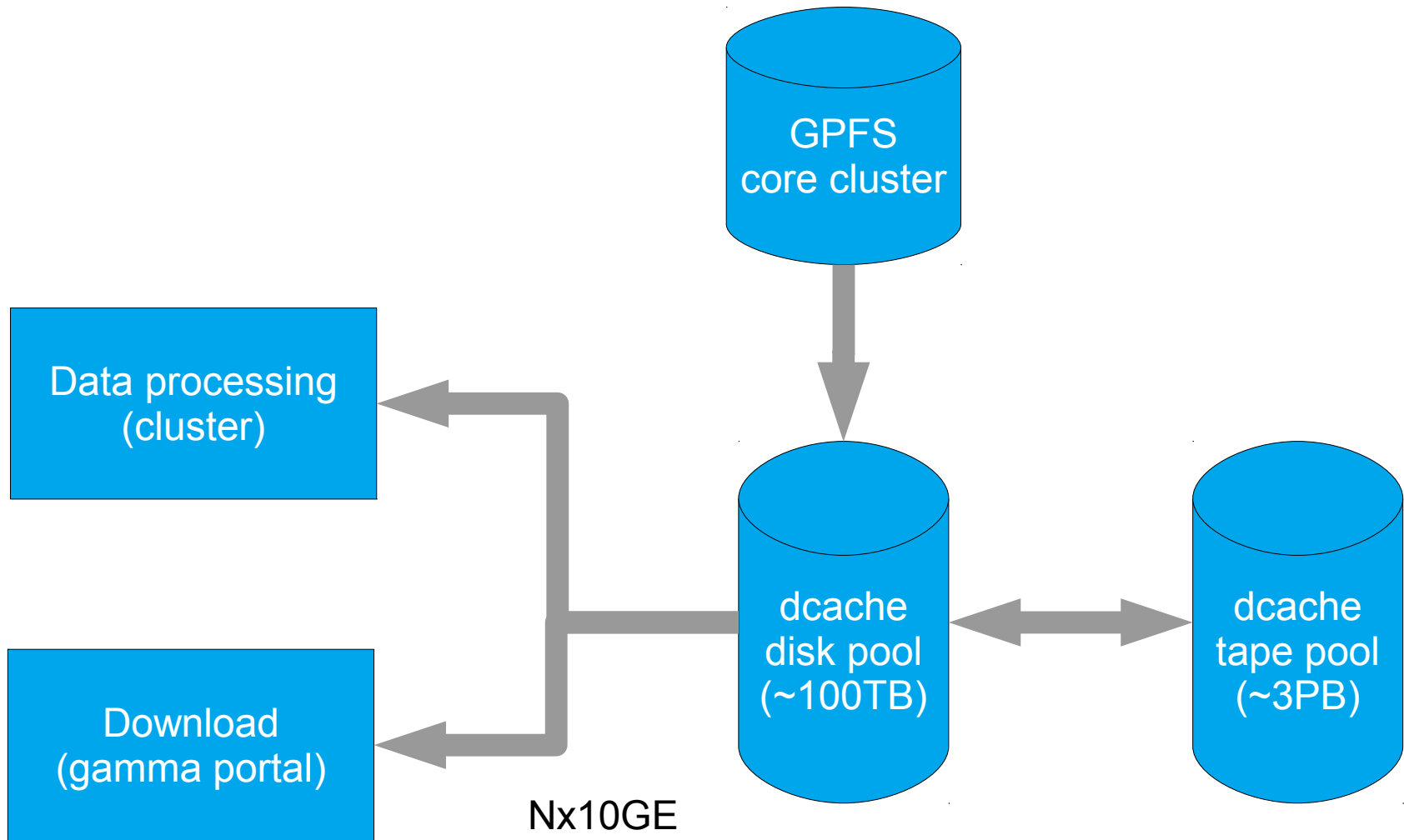
Data lifecycle



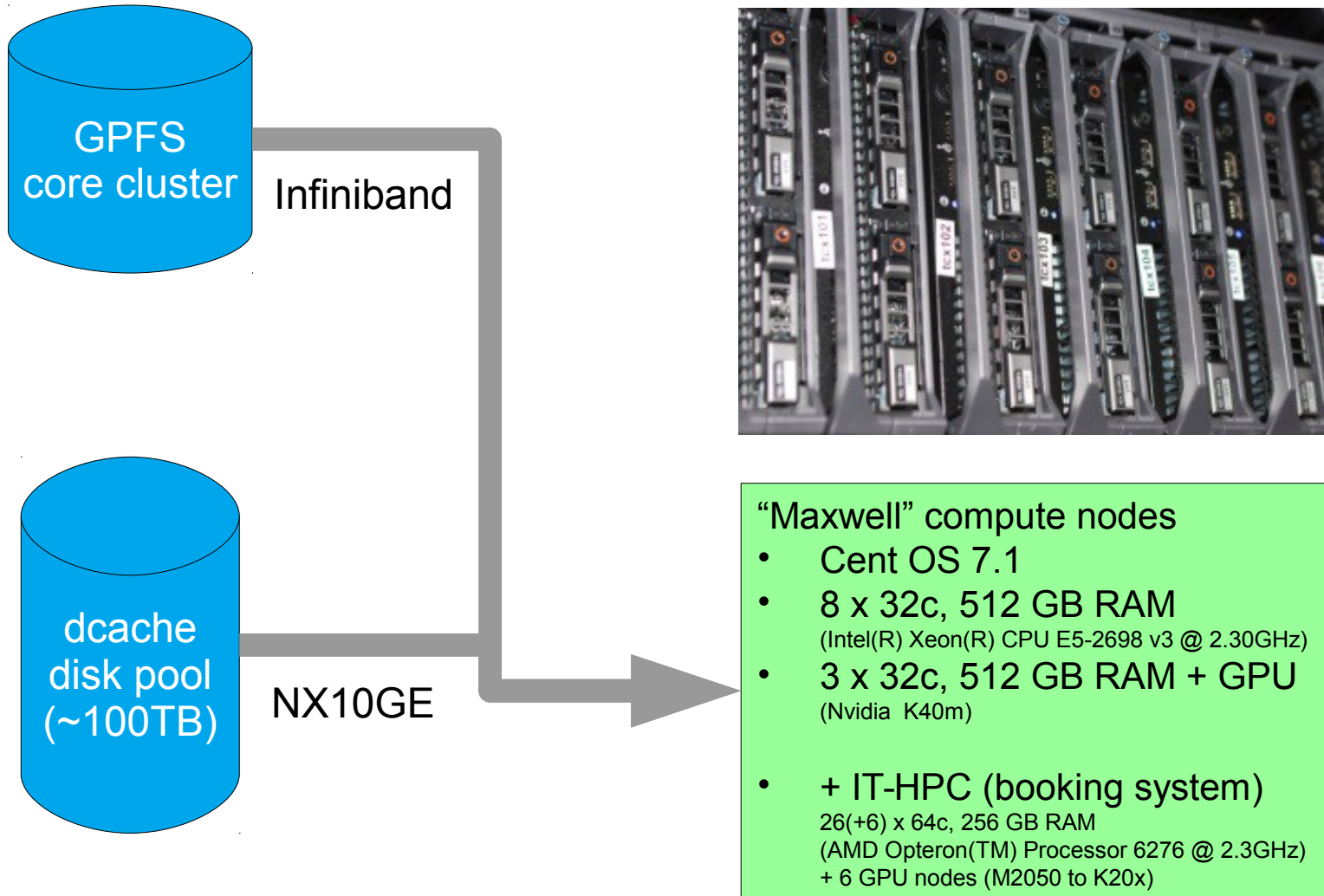
Beamline storage



Long time archive (dcache)



Supercomputing and storage



Data transfer to user facilities: Gamma-Portal

The image displays two screenshots of the Gamma-Portal web interface, illustrating data transfer to user facilities.

Left Screenshot (Details View):

- Page Title: Details - Mozilla Firefox
- URL: <https://gamma-portal.desy.de>
- Navigation: Home, Browse archive, -Details, Staging status, Migration status
- Section: Browse Archive / Details
- Metadata:
 - Period: from 11-DEC-06 to 13-DEC-06
 - Beamtime: 10000002
 - Leader: Mr. [REDACTED]
 - Applicant: Jg. [REDACTED]
 - Participants: [REDACTED]
- Search: [Search Box] [Go] [Actions]
- Table: Archived Directory, Format, Size in Mb, Archived Date

Archived Directory	Format	Size in Mb	Archived Date
<input type="checkbox"/> experiment3	tar	0.01	06-FEB-2013
<input type="checkbox"/> experiment3/kupfer	tar	0.01	06-FEB-2013
<input type="checkbox"/> experiment3/protein1	tar	0.01	06-FEB-2013

- Buttons: [Stage] [Download]
- Footnote: * Stage means to copy multiple datasets to DESY disk space

Right Screenshot (edit_door_users View):

- Page Title: edit_door_users - Mozilla Firefox
- URL: <https://gamma-portal.desy.de>
- Navigation: Home, Browse archive, -Users/ACLs, Staging status, Migration status
- Section: Browse Archive / Users
- Metadata:
 - Period: from 11-OCT-12 to 18-OCT-12
 - Beamtime: 10009200
- Table: Door Account, Lastname, Firstname, User Role, Access Permission, Create Date, Change Date

Door Account	Lastname	Firstname	User Role	Access Permission	Create Date	Change Date
<input type="checkbox"/> rothkirc	Rothkirc	Andre	applicant	download/stage	27-FEB-2013 15:14	27-FEB-2013 15:14
<input type="checkbox"/> wroblewt	Wroblewski	Thomas	leader	download/stage	27-FEB-2013 15:14	27-FEB-2013 15:14

- Buttons: [Save] [Delete] [Cancel]
- Section: ADD DOOR USER TO EXPERIMENT FOR DATA ACCESS
- Form: Door account [Text Box] [Add User]
- Section: ACL MANAGEMENT
- Buttons: [Update Acis] [Show Acis]
- Footer: AR_TEST ADMIN en

- Different views
- Locate data by keyword search in metadata
- Download & stage
- Project leader & applicant can manage ACLs