**Content**

**WP1**
- GSI: GSI Web Services accessible via IdP credentials
- GSI: Plan to integrate with UNITY (setting up a unity server at GSI)
- DESY: dCache, Globus Transfer (online). SAML Translation
- KIT: LDAP Facade
- KIT: Non Web Login using federated identity systems.
- Jülich: UNITY
- DESY and KIT part of INDIGO-DataCloud project management with AAI and Storage (WP4)

**WP2**
- Jülich: "Database access in UNICORE" (Master Thesis completed)
- GSI: Lustre evaluation
- KIT: Something with data transfers by Jos (request pending)
- DESY: CDMI in dCache (Master Thesis Completed, Jana)
- DESY: Small Files for tape access (In production for ‘friendly users’)  
- DESY: OwnCloud integration with dCache (In production for IT people)
- DESY: Fast ingest for dCache (good progress)
- DESY: Dynamic Federation: Production system (adopted by LHCb and Intesity Frontier)
- Bits and Pieces
  - FedFS: no further interest
  - We would be able to offer FTS3 (but no interest yet). Globus Transfer is easier.
Publications

- Combining the X.509 and the SAML Federated Identity Management Systems, 2014
  - Recent Trends in Computer Networks and Distributed Systems Security
  - M Hardt, A Hayrapetyan, A Memon, P Millar,
- Evaluating the Performance and Scalability of the Ceph Distributed Storage System
  - IEEE Big Data 2014
  - D Gudu, M Hardt, A Streit

Master Thesis Work

- Implementierung eines Cloud Interfaces in dCache
  - HTW Berlin (Jana Weschenfelder)
- Database Access in UNICORE
  - Forschungszentrum Jülich
Presentations

- 5.5.2014 Patrick: Berlin Cloud Event on dCache/OwnCloud
- 16.6.2014 LSDMA Demo in Berlin (all of us)
  - Please check indico for details
- 2.9.2014 Paul: GridKA School presentation on AAI
- 24.9.2014 Patrick: EGI Storage Session
- 14.10.2014 Patrick: KM3Net @ Paris
WP1 Federated Identity (Management)

- GSI
  - Setting up an IdP at GSI which will be connected to the DFN AAI federation
  - Getting the LSDMA Wiki at GSI to work with the German IdPs
  - Support GSI customers in working towards accepting SAML for their services

- DESY
  - Getting the DESY IdP to work with the DFN Federation
  - Using Globus Transfer against storage services with DFN SLCS service

- KIT
  - Credential translation for Web SSO and ECP.
  - Getting login service (non web services) to work

- Jülich
  - UNITY support
GSI

- Dennis is preparing GSI enabling Web Based usage of SAML.
- The plan is to establish a test-bed to allow the distributed communities that GSI supports to understand Fed Identity and to see if integrating it makes sense for them.
- A testbed IdP and to support GSI communities in adding SAML support to their services.
  - Technically things are prepared
  - Still waiting for the documents to be signed.
- Plans: Setting up a UNITY server at GSI for
  - Group Management
  - Running UNITY as IdP including for homeless users
- Once GSI joins DFN production AAI, Dennis will install the AAI plug-in on the main wiki. With this, anyone from DFN-AAI can use the Wiki by authenticating with their local IdP.
BTW: In case you plan to do the same ….

What you need:

- DFN Documentation
  - https://www.aai.dfn.de/dokumentation/identity-provider/konfiguration/
- Shibboleth documentation (wiki.shibboleth.net)
- DFN Test SP
  - https://testsp2.aai.dfn.de/
    - Provides log files for debugging
- Ask DSIT for help
The DFN Test SP in action

Test Service
https://testsp2.aai.dfn.de/

DFN-AAI: Attribute
Die vom IdP übermittelten Attribute:

mail="patrick.fuhrmann@desy.de"
uid="patrick"

Click for Session-Details
Logout (IdP v.2.4.x, please refer to Shibboleth wiki)

Select your Home Organization
In order to access a resource on ‘testsp2.aai.dfn.de’ you must authenticate yourself.

[ ] DESY - WOF Test2 IDP
[ ] Remember selection for this web browser session.
[ ] Remember selection permanently and bypass WAYF from now on.

About AAI
About DFN

Our Identity Provider
IdP @ DESY
Log in to SP2 der DFN Testumgebung

Login
Bureaucratic part

• Sign an agreement with the DFN AAI federation.
• You agree to fulfill a certain number of requirements concerning your IdP policies. (Basic and enhanced)
  • Identify of an entity (user) within the IdP has to be verified by a well specified procedure.
  • Guarantee decommissioning
  • etc
KIT:

- **High Level Objective**: Ssh login with SAML credentials

![Diagram showing the process of Ssh login with SAML credentials](image-url)
KIT and DESY:

- **High Level Objective**: Using DFN credential translation service to allow users to utilize X509 based resources through your local IdP. Two use cases
  - Arsen: X509 credential is used directly (user to service)
  - Paul: X509 credential is given to a portal. The portal acts on behalf of the user.
- Requires: Arsen tries to get the DFN Short Lived Credential Service (SLCS) to work for him.
  - Turned out the DFN doesn’t support ECP (Extended Client or Proxy)
  - Arsen in heavy contact with DFN to get this fixed.
  - Seems he has to build a system first before the upgrade their Shibboleth instance. (mimicking their setup to provide ECP)
- Please check our Arsens and Pauls Demos from the meeting in Berlin.
  - [https://indico.desy.de/conferenceDisplay.py?confId=10101](https://indico.desy.de/conferenceDisplay.py?confId=10101)
Credential translation for user and portals

- User starts with SAML federated Identity (IdP)
- Service needs an X.509 Certificate
- Service is either directly accessed by user or via a portal
WP2 Federated Storage

and whatever has to do with storage and data access.

- Database access from UNICORE (Master Thesis)
- Cloud protocol evaluation and implementation (Master Thesis)
- Dynamic Federation
- Scientific Storage Cloud
  - Fast Ingest
  - Sync-n-share interface
  - Media Aware Storage (e.g. Tape access for small files)
  - CDMI cloud protocol
  - New Customer (Jade)
Jülich: Database access in UNICORE

• At Jülich, a master thesis on "Database Access in UNICORE" was completed.
• The service supports SQL databases (e.g. MySQL) and Cassandra as an example for a NoSQL database. The security details such as database usernames and passwords are configured by the administrator, so the user has a seamless experience.
• The code is currently under review and will be included in the next major UNICORE release (early 2015). The service will be available both via a SOAP/WSRF interface and a RESTful interface.
DESY/HTW Berlin: CDMI Server in dCache

- Result: CDMI (w/o metadata) integrated into the dCache code repository.
- We became member of the Storage Network Industry Association (SNIA) to be able to feed back our code into the main stream SNIA repository.
- Code needs to be revised and will become available in one of the next feature releases.
- Next Step:
  - Add meta data operations.
  - Bernd is now considering to integrate the CDMI client into UNICORE so that we have a sparing partner.
The dynamic storage federations
Reminder: DynFed use case (Berlin DEMO)
Dynamic Federation

• Technology “Production ready”
• Was presented at the Berlin LSDMA Demo Meeting
• 9. Sep :
  • Quote by Fabrizio Furano: “LHCb starts today setting up WebDAV everywhere”
  • This is a basis for using DynFed for LHCb.
• Next Candidate: Intensity Frontier at FERMILab
• No customers found in LSDMA yet
dCache : The Scientific Storage Cloud

- Improving fast ingest of data into dCache
- Adding sync-n-share as regular door to dCache (Own Cloud)
- Improving media-awareness of dCache concerning tape (small files)
- New Customer for dCache
dCache: The Scientific Storage Cloud

- High Speed Data Ingest
- Resilient Mgr Small Files
- Sync & Share by WebDAV
- Fast Analysis NFS 4.1/pNFS
- Wide Area Transfers (Globus Online, FTS) by GridFTP
- Data Ingest
Fast data ingest into dCache

• Name space operations for ingesting data into dCache could be significantly improved.
• We now seem to be limited by Postgres Performance

![Graph showing file creates per second for namespace operations only. The x-axis represents the number of clients (each on a different machine), and the y-axis represents the number of file creates per second. The graph compares two servers: one with 8 cores and another with 16 cores using hyper-threading. The data is stolen from Tigran.]
OwnCloud dCache integration into infrastructure

OwnCloud owner: patrick

dCache owner: patrick

LDAP
dCache scientific cloud (dCache-Own Cloud)

- Own Cloud software running on top of dCache
- All sync-n-share advantages of OwnCloud
  - Syncing with all kind of mobile devices and OS
  - Easy sharing of files and folders with ‘identified users’ or public
  - In use by a variety of sites.
- All dCache ‘managed storage’ advantages of dCache.
  - Different quality of services (scratch/regular/high resiliency/tape)
  - Extends access to more protocols (nfs/WebDAV/GridFTP)
- Moved into production for DESY IT people.
- Photons science (CFEL) customers following soon.
Small File support dCache media-awareness

- dCache bundles small files when data is scheduled to be migrated to tape system.
- Restore to disk happens transparently.
- Namespace only shows original files. User not bothered with file collections.
- Already second improved version available for photon science customers.
- In production for ‘friendly’ customers.
New customer for the scientific storage cloud

- Jade project within “Supercomputing and Modeling for Human Brain, SMHB”, Jülich.
- Storage collaboration with Aachen
- Using dCache features for
  - File hopping between Jülich and Aachen
  - Using GridFTP for wide area
  - pNFS (NFS4.1) for direct access
  - WebDAV
  - Tape access for achieving
  - Multi Tier access (SSD)
- Waiting for
  - Own Cloud integration becoming part of dCache distribution
  - SAML or SLCS integration

Slides by Bastian Tweddell
The SMHB Jade Project

- Supported access protocols
  - WebDAV
    - World-wide accessible
    - Supported by nearly every operating system
    - Authenticated rw-access: https://jade01.zam.kfa-juelich.de:2880
    - Anonymous ro-access: https://jade01.zam.kfa-juelich.de:2881
  - ftp
    - World-wide accessible
    - Caution: No encryption of the transmitted data
    - ftp anonymous:anonymous access: ftp://jade01.zam.kfa-juelich.de:22126
- pNFS
  - Only within JSC internal network
  - Outlook:
    - Availability on SC frontend nodes
    - Authorization bound to person, not to project id
- Identity Management (IDM)
  - Manual user management by admin
  - Outlook:
    - Integration into existing IDM
      - HBP
      - JSC

"The Internet"
Bits and Pieces

• The **FedFS** evaluation has been stopped due to a complete lack of interest.
• We can make the the **FTS3** file transfer service available if needed. It is software which has to be run by the corresponding community or associated site or lab. It is not a services like Globus Transfer.
• dCache signed a MoU with an industry partner in Switzerland to handle License issues and compensation for dCache working.
• DESY and KIT in H2020 Proposal ‘INDIGO Data Cloud’ on AAI and storage.
• Planning various CHEP’15 abstracts.
END