Agenda

Profile of Utrecht University as a new Consortium member
The dawn of the Davrods project
Davrods architecture
Demonstration
Wrap up and Q&A
Utrecht University

**Facts & Figures**

- **Founded in:** 1636
- **Staff members:** 6,742
- **Alumni:** 115,000
- **381 Professors** (excluding faculty of Medicine)
- **550 Promotions**
- **32% International PhDs**
- **7573 Publications**
- **12 Nobel Prize winners**
- **15 Spinoza Prize winners**
- **45 Undergraduate programmes**
- **142 Graduate programmes**
- **21 Teacher programmes**
- **30,342 Students**
- **5,572 First-year students**

**Shanghai Ranking 2015**

- **1 in The Netherlands**
- **17 in Europe**
- **56 in World**
Utrecht University joins the iRODS consortium

**iRODS is a key component of our Research IT strategy**
- to manage the integrity of research data sets
- to collaborate on research data

**By joining the iRODS consortium we expect to**
- **support continued availability, maintenance and innovation of the software**
  - we recognize that the iRODS products need sustained funding
- **connect with iRODS development team and with other Consortium members**
  - learn from the experts, share our use cases and best practices
- **understand, anticipate and influence the product roadmap**
Dawn of the Davrods project

WebDAV support is crucial to our iRODS based services
- Supported standard: supported by most operating systems e.g. Mac OS X, Linux, Windows
- Connectivity: clients from other institutes can connect even from behind firewalls
- User experience: easy access to iRODS via an intuitive native interface
- Security: we can control the set of exposed iRODS API functions

We faced a showstopper challenge upgrading our services to iRODS4
- Existing webdav interface Webdavis proved incompatible with iRODS4
- Alternative software products not yet released for production purposes (Oct 2015)
- Needed to migrate to iRODS4 asap, ultimately by Q1 2016 (YOUth project)

-> We decided to develop and maintain a Webdav interface to iRODS: Davrods
Our Davrods design goals

• **Must support a variety of client platforms**
  – WebDAV Class 2 compliance needed

• **Performance must match that of Webdavis to maintain the user experience**

• **Must be available quickly**
  – Leverage existing technology where possible to shorten development time

• **Should support PAM authentication scheme**
  – PAM allows us to authenticate users from other institutes (federated authentication)

• **Should be managed and packaged as an open source product**
  – In line with our university’s societal responsibilities
Davrods
Davrods architecture

• **Apache module**
  – built using Apache APR development toolset
  – built after the *mod_davfs* module, yet connects to iRODS instead of filesystem
  – extends mod_dav, compliant with WebDav class 2 (IETF RFC2518)
  – easy to configure

• **iRODS interface**
  – leverages iRODS consortium maintained C client library
  – PAM, iRODS 4.1+ compliant
Davrods architecture

Davrods = multiple Apache providers
- authentication via iRODS server
- DAV access to iRODS objects and iRODS system metadata

The iRODS connection lifetime is tied to the HTTP connection
- does not tie up iRODS agent
- supports multiple requests in a single connection (HTTP keepalive)

-> efficient communication
Davrods configuration using Apache directives

```xml
<Location />
  DirectoryIndex disabled
  Dav irods
  AuthType Basic
  AuthName DAV
  AuthBasicProvider irods
  Require valid-user
  DavRodsServer  irods.example.com 1247
  DavRodsZone tempZone
  DavRodsAuthScheme PAM
  DavRodsDefaultResource demoResc
  DavRodsExposedRoot Home
</Location>
```
demo
Benchmark: Davrods outperforms Webdavis

WebDAV file transfer time

- Curl PUT 1GB
- Curl GET 1GB
- Cadaver PUT 1GB
- Cadaver GET 1GB
- Cadaver PUT 500x2MB
- Cadaver GET 500x2MB
Summary: Our Davrods design goals are nearly met!

- **Must support a variety of client platforms**
  - WebDAV Class 2 compliance needed
- **Performance must match that of Webdavis to maintain the user experience**
- **Must be available quickly**
  - Leverage existing technology where possible to shorten development time
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Hence to finish off..... (end of June)

• We will package Davrods as open source (LGPL v3 license)
• and push source on github:
  https://github.com/UtrechtUniversity/Davrods
• Provide source and binary packages
  –Centos7 RPMs already built
  –Other packaging upon request, we consider a .deb package

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