From Closed Networks to Open Data

“Musings from an NREN point of view”

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Outline

• Glorious Past
  – “WOW – we did all that!”

• Messy Present
  – “Ups – this is harder than we thought”

• Bright Future
  – “It gonna be so cool - data to infinity and beyond”
SWITCH is an integral part of the Swiss academic community.

Based on our core competencies

- Network
- Security
- Identity Management

SWITCH offers collaboratively developed ICT solutions that empower users in and beyond the academic world to achieve leading edge results in a globally competitive environment.
1994 Specialist Department for Security
1996 Foundation of SWITCH-CERT
1998 FIRST-Membership

Peter J. Gilli, then Managing Director of SWITCH, at his desk.

Source: https://www.switch.ch/de/stories/20years_cert/
Added value for customers

Community Work

Foundation

Integrated Offer
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Two “simple” questions

1. Which services should we offer to whom and how?

2. How do we make these services sustainable?
Procurement and Legal

• Framework contracts for academic sector
  – Major vendors; collaboration with NRENs/countries needed
  – Licensing issues

• Legal activities
  – Starting with an ICT Law Working Group
  – Extending to legal consulting

• Concept of SWITCHhub
Procurement and Legal

- Framework contracts for academic sector
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- Concept of SWITCHhub
Infrastructure and Data

Openstack and Ceph

• Offering: VM, Storage, GPU, Containers

Positioning

• Expansion of local infrastructure under maximum consideration of institutional needs
• Data location SWITCH

Zurich University of the Arts, Toni Areal

Université de Lausanne, Géopolis
Migrating from organization-centric AAI to user-centric edu-ID

SWITCH edu-ID: our framework to manage service access for all relevant user groups

SWITCH edu-ID: my key to all services in the research and education sector

SWITCH edu-ID: your key to the research and education sector

https://www.switch.ch/edu-id/
SWITCH Business Model

Third Party Funds

Federal / Cantonal Gov't, EU

SWITCH

Lecturers

Researchers

IT Services

University Management

University Administration

Students

Alumni

Services

Finances

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Financing Principles adopted in 2016

SWITCH Community (“circle 1”)
Extended Community (“circle 2”)
Commercial customers (“circle 3”)
Innovations & Projects (for SWITCH Community & Ext. Community)

At least cost coverage
Cost coverage + minimum margin in line with market prices
Defined financing

- Existing services from 2020 at latest
- New services at latest 5 years after launch
- Self-supporting business
- No cross-subsidizing with SWITCH Community
- Funding / Grants (CH/EU)
- Financial income
- Commercial profit
- Reserves
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If SWITCH were be founded today, what would its missions be?
Situation in Switzerland today

- Funding agencies demand now data management plans
- Open access initiative – initiated by swissuniversities
- Various efforts on establishing/developing data repositories
- Open science a main thrust in the next 4 year federal budget cycle 2021 – 2024

- Situation vary significantly between different institutions
Data Repositories in Switzerland

- 1/3 of Swiss research community share data in repositories

- Pronounced fragmentation of repositories in use
  - 149 different repositories mentioned
  - top 7: GitHub, Zenodo, FORSbase, GEO, OSF, DRYAD, figshare
  - Accept many repositories, but concentrate on quality criteria for them (?)

- SNF decided to contribute to the funding of national repositories in the future (but not to operate them itself)
Some observations

• Many players – many different viewpoints → many different visions

• Different institutions and different scientific communities have different needs and different strategies

• Open Science must primarily driven by the science (not by infrastructure providers)

• Consider open science as a gigantic puzzle – with many missing and ill-formed pieces that need to be fit together
Puzzle stones – with relevance for SWITCH

- New services are important puzzle pieces
  - Technical: Edu-ID – Engines - security
  - Organizational: Hub – information security – data quality
  - Legal

- Positioning of “data location SWITCH”
SWITCH Long Term Storage

- Store data that is needed for long periods
  - Reproducibility after several years e.g. FAIR
  - Funding body or regulatory need

- Store data that is less intensively used
  - Results from previous projects
  - 5-10 years of backups of generic data

- Store large quantities of data
  - Write over read
Overview Positioning

Customers & End-Users

SWITCHhub*

Commercial SaaS
EOSC / International SaaS
SWITCH SaaS
Institutional SaaS

Security (incl. comprehensible data quality)*

Research Data Connectome */** (incl. Security*)

Commercial Repositories
International (e.g. EOSC) & Domain-specific Repositories
Engines-based Repositories*
Institutional Repositories

Institutional SaaS

Network & Security (national & international networking)

Infrastructure as a Service (Engines, Institutional and Commercial)

Legal) Consulting*

SWITCHedu-ID*

SWITCHhub*

* Open Science Positioning
** SWITCH as Partner
Vision «Research Data Connectome»

- **Research & Education**
  - Non-institutional, Domain specific, Stored decentralized
  - Non-institutional, Non-domain specific, Stored decentralized

- **Society & Economy**
  - Institutional, Domain specific, Stored centralized
  - Institutional, Non-domain specific, Stored centralized

- **Research Data Connectome**
  - DMP-specified Research Data Repositories

- **Access and Usage**
  - National Research Assets

- **SBFI (via SNF / Innosuisse / swissuniversities) Funding**
Outline

• Glorious Past

• Messy Present
  – Established services must be adapted to new requirements
  – New services must be developed to meet future needs

• Bright Future
  – Open science as a gigantic puzzle – with many missing and ill-formed pieces that need to be fit together
  – Must be driven by science – not infrastructure providers