From Closed Networks to Open Data

"Musings from an NREN point of view"

SWITCH

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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”

Mission

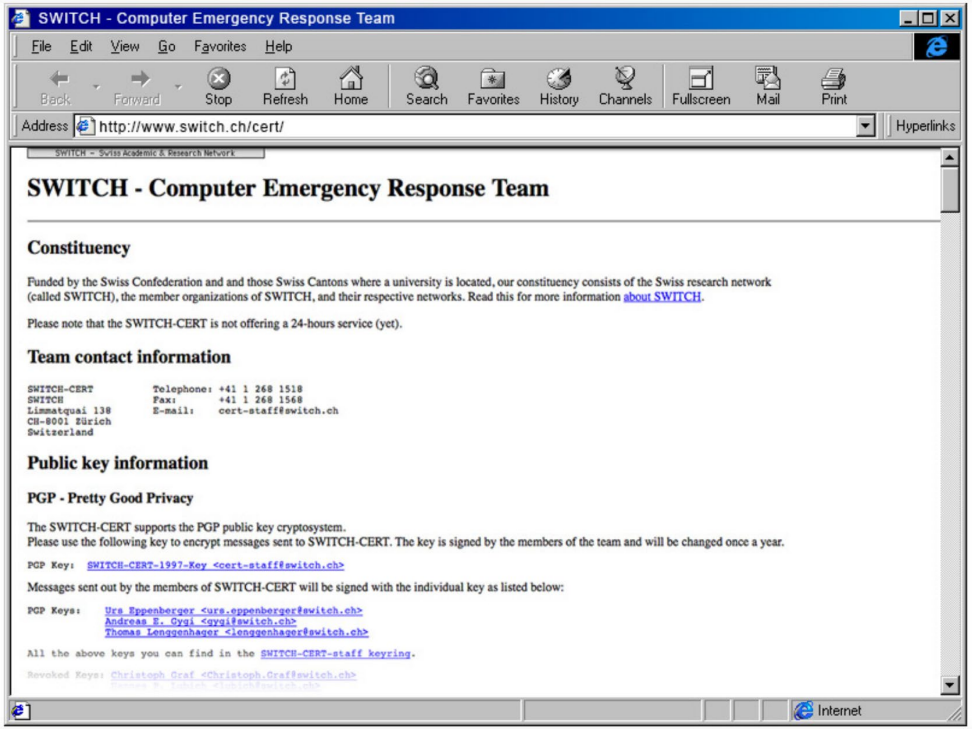
SWITCH is an **integral part of the Swiss academic community**.

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/

NREN

Registry

Banks

Industry

Energy

Trusted Collab | Trusted Collab | Trusted Collab | Trusted Collab | Trusted Collab

Information and Threat Intel Sharing & Collaboration

Incident Handling (Analysis & Coordination) & **Critical Threat Alerting**

Network Security Monitoring

Domain Security

Malware Monitoring & Analysis

ICS/OT Security

IoT Security

Forensics, Awareness, Info Services, Community Services (Info Events, Working Groups), CSIRT-Trainings, etc.

National & International Cooperation Network

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

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Cross-sector activity

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

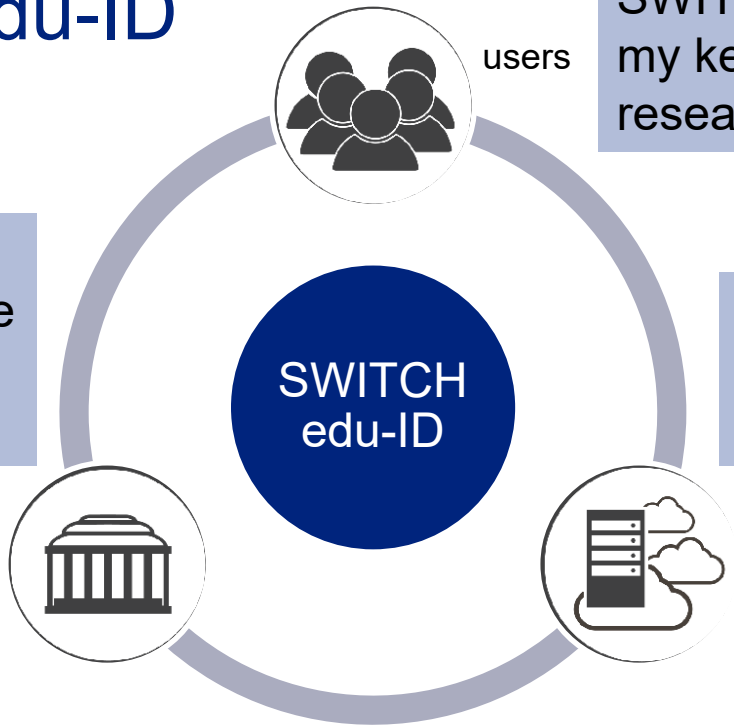
Photo Fabrice Ducrest © UNIL

Migrating from organization-centric AAI to user-centric edu-ID

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

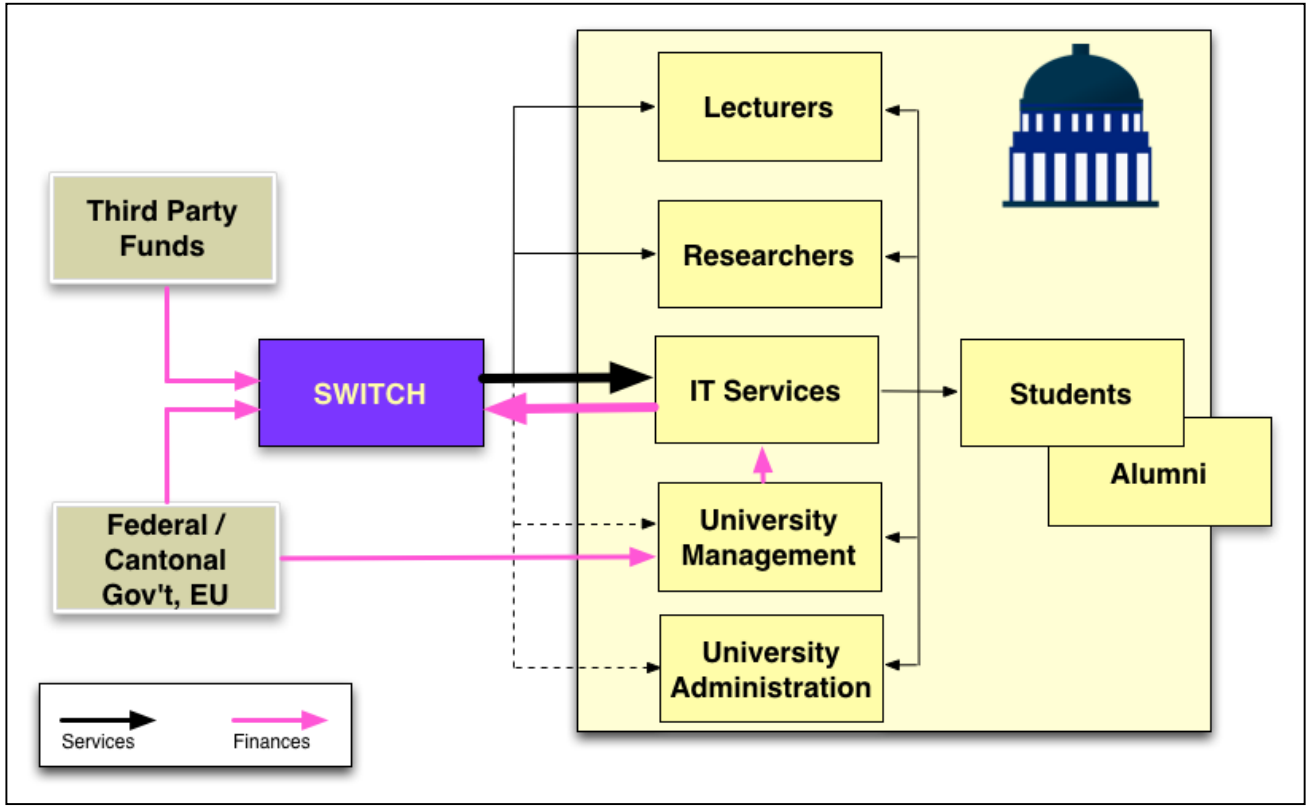
SWITCH edu-ID:
our framework to manage service access for all relevant user groups

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



https://www.switch.ch/edu-id/

SWITCH Business Model



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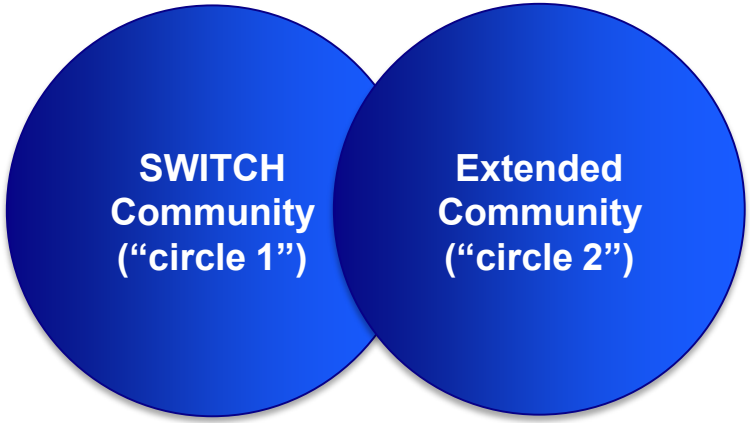
Financing Principles adopted in 2016



At least cost coverage

- Existing services from 2020 at latest
- New services at latest 5 years after launch

Cost coverage + minimum margin in line with market prices

- Self-supporting business
- No cross-subsidizing with SWITCH Community

Defined financing

- Funding / Grants (CH/EU)
- Financial income
- Commercial profit
- Reserves

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Simple questions (cont.)

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)

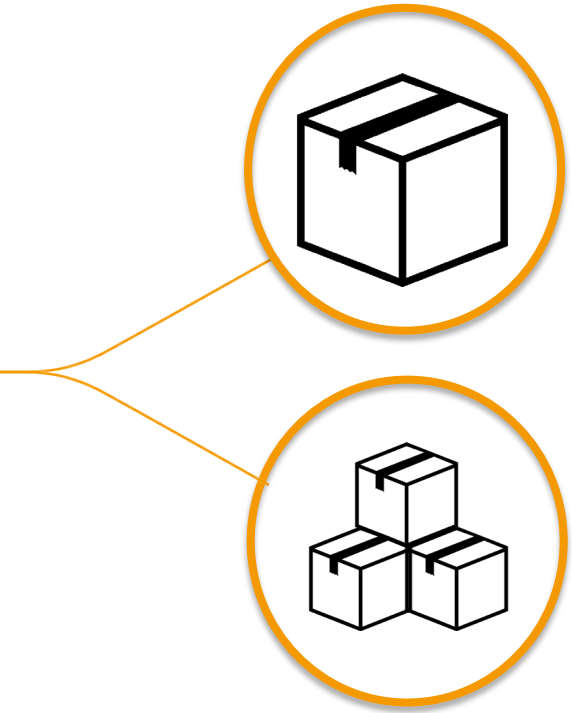
- Consider open science as a gigantic puzzle – with many missing and ill-formed pieces that need to be fit together

Puzzle stones – with relevance for SWITCH

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

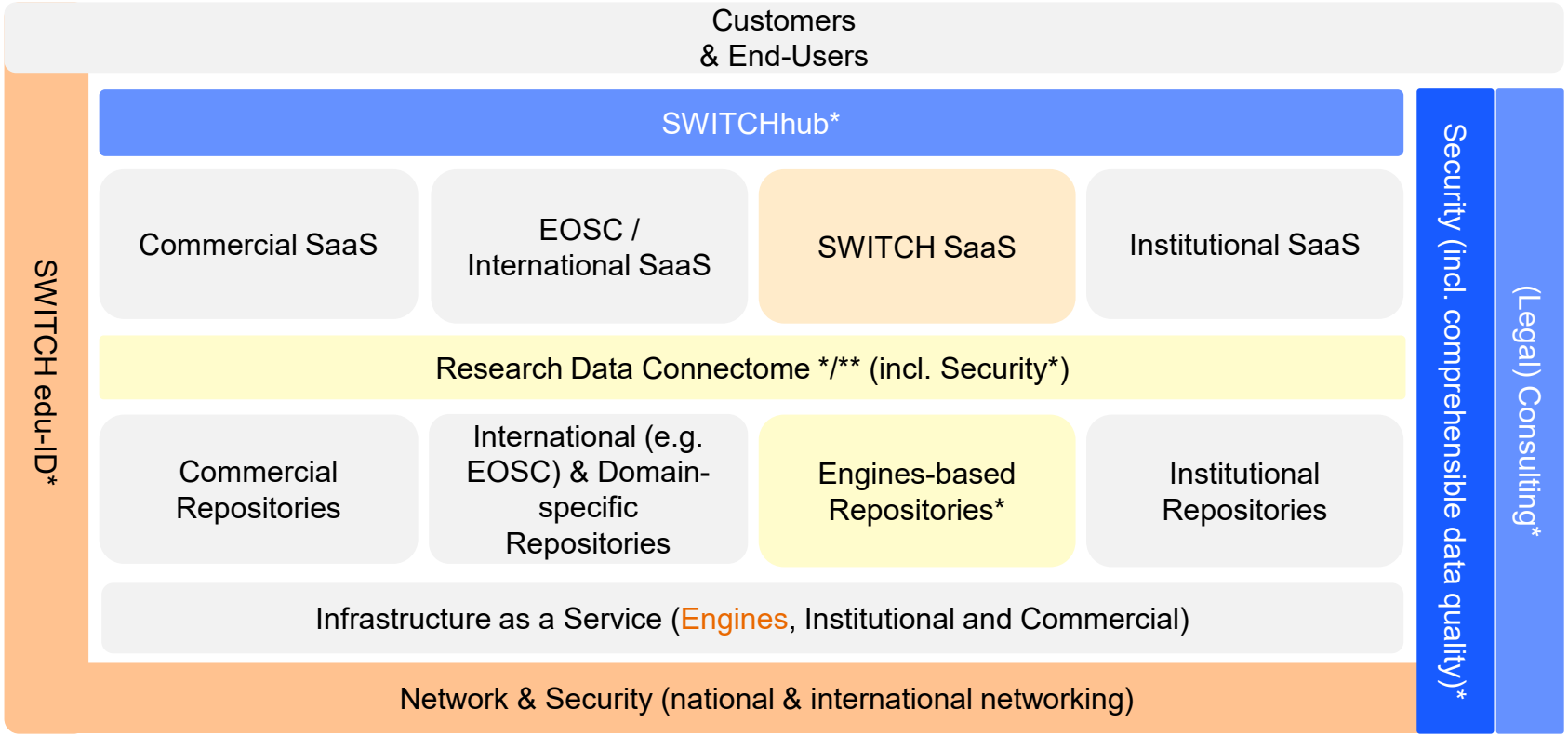
- Positioning of “data location SWITCH”

SWITCH Long Term Storage



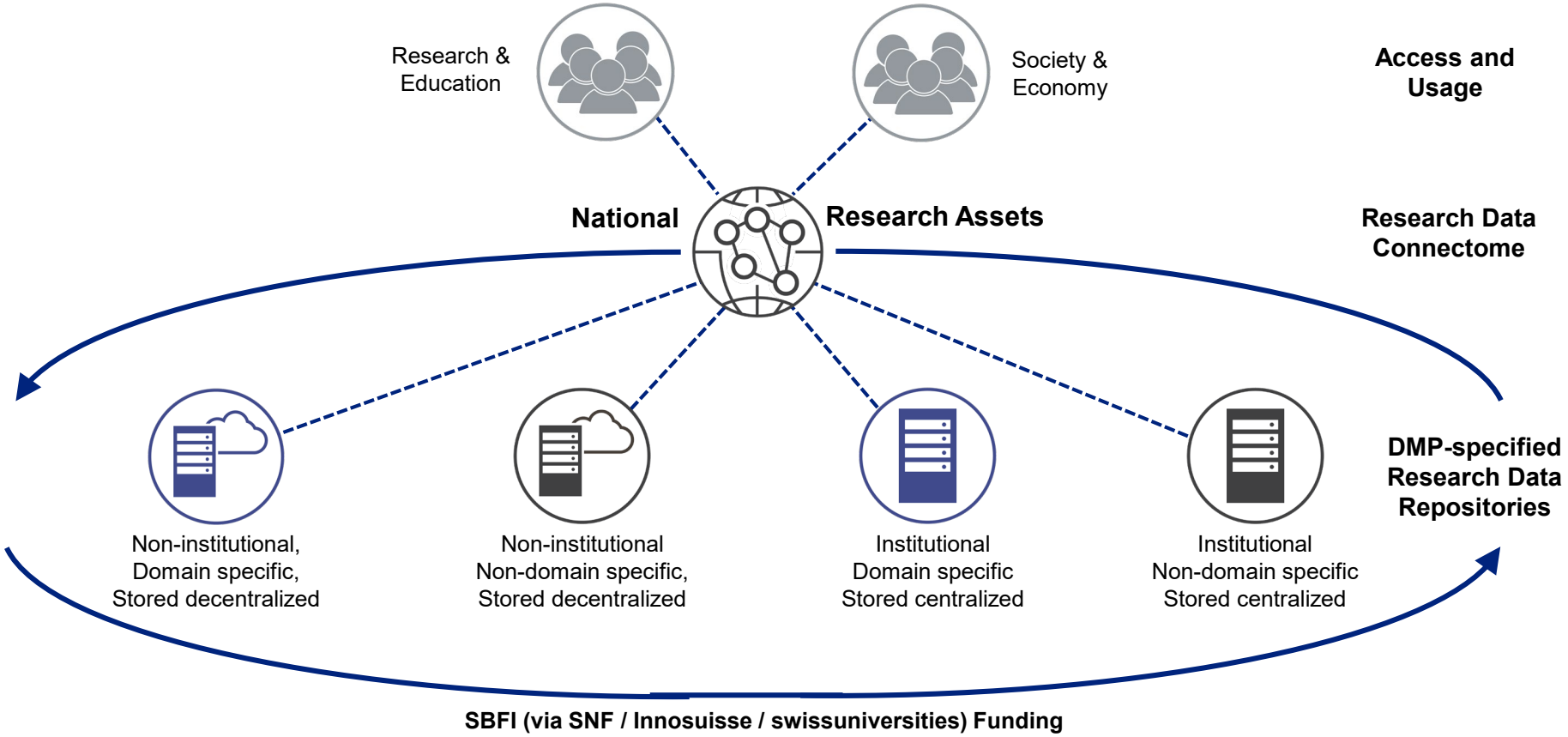
- Store data that is needed for long periods
  - Reproducibility after several years e.g. FAIR
  - Funding body or regulatory need
- Store data that is less intensively used
  - Results from previous projects
  - 5-10 years of backups of generic data
- Store large quantities of data
  - Write over read

Overview Positioning



* Open Science Positioning
** SWITCH as Partner

Vision «Research Data Connectome»



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