Building the digital campus: examples from Norwegian national services and collaborations

Ingrid Melve, program director, UNINETT
SRCE eInfrastructure day
Zagreb, April 5, 2017
Internet in general (Norway, DESI 2016)

Universities
1. Connectivity: Good
2. Digital skills: identified as needing to increase
3. Use of Internet: high, but variable
4. Integration: potential untapped
5. Digital services: Collaboration, need for more self-service, automation, simplification, data-centric infrastructure
The Nordic network landscape
Major reorganization of universities

Shared ICT is next
- Network
- HPC and storage
- Research data
- Student registry system
- Online services: libraries, repositories, cloud use, portals etc
- Joint procurement

Work smarter: quality up and cost down
Network status and plans

- Building rings, not links
- Connect university and college campus
- Data traffic goes up

- 14500 km (11500 ex Svalbard)
- 59 POPs
- 120 routers
- IRU with Broadnet until 2023.
- 1G, 10G, 100G
- >40% load -> upgrade
We will build/buy fiber to your campus
Croatia (DESI 2016)

eInfrastructure in Europe

1. Connectivity: Research network, including eduroam, IoThings
2. Digital skills: how to use? digital self confidence for teaching?
3. Use of Internet: variable
4. Integration: eInfrastructure services, federated login, clouds, data flows
5. Digital services: collaboration? Open access? Data centric?
Strategy for ICT in universities

Data
- Data centric

Tools
- Research
- Education
- Analytics and admin

Users
- Researchers
- Students
- Teachers
- Management and support
DATA CENTRIC
INFRASTRUCTURE
LOCAL RESPONSIBILITY
ICT for university and research

Infrastructure

Education

Research

Administration and management

UNINETT
COLLABORATION
STANDARDS
AUTOMATION
Services for education

- Collaboration
- Video
- Assessments
- Learning environments
- Nordic collaboration on requirements, procurement and service delivery
Goals of the eCampus program

- ICT solutions for higher ed: simple and good enough
- Digital competency (human capital)
- Digitalise ICT in learning
- National solutions, shared understanding

- Ministry of education and research, UNINETT program lead
- 70 million NOK, 5 (6-7) years
- 2012-2016 (initial idea 2009)

Proposed goals 2017-:
- All users should be able to access data, services and infrastructure
- The digital campus must support varied learning formats
- Systematic, from ad-hoc to everyday practice
- Collaboration local-national-international
- Make better use of data
DIGITAL LEARNING ENVIRONMENT
SPECIFICATIONS, INTEGRATION, PROCUREMENT

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DIGITAL LEARNING ENVIRONMENT

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FILESENDER, BOX
SHARING LUMPS OF INFORMATION
SfB, ADOBE CONNECT, WEBRTC
MEETING PLACES
SCREENCAST

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FLIPPED CLASSROOM
MEDIASITE, KALTURA
VIDEO INFRASTRUCTURE
Shopping-list Roadmap for video in education

**Local investment**
- Digital competence
- Web meeting support
- Video conference room and handholding
- Lecture capture agents
  - Screen capture or video?
  - Automated lecture hall
- Portal/LMS integration
- Identity management
- Common specifications

**Shared services**
- Network for competence
- Web meeting service
- Video conference support
- Lecture capture server
  - Multiple solutions
  - Media management
- Storage
- Access management
- Common specifications
SHARED IMPLEMENTATION
SHARED INVESTMENT
Work methodology

- Working groups: open and coordinated
- Best practice: identify, document, share
- Collaboration with vendors and suppliers: partnership, procurement
- Development agreements: Pre-procurement procedures, partnership
- Cost/benefit assessments: document, share
BEST PRACTICE

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Digital competence (opinion)

- Digital skills: how to use computer
- Digital competence: use ICT to evaluate, understand, organize, locate, use and create
- Digital confidence: willing to try (and fail)

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<thead>
<tr>
<th></th>
<th>Students</th>
<th>Faculty</th>
<th>ICT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital skills</td>
<td>High</td>
<td>Variable</td>
<td>High</td>
</tr>
<tr>
<td>Competence</td>
<td>Low</td>
<td>High</td>
<td>Medium</td>
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<td>Digital confidence</td>
<td>High</td>
<td>Low</td>
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</tbody>
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CAMPUS BEST PRACTICE
Technical infrastructure

- Server consolidation, share end system procurement agreement
- Local user support, link with working group
  - University users need local support teams: some had, some have built (some still lack)
  - Local support was done by “fire souls” (those who care), not by support teams
- Support portal
- Things take time
  - Education changes take time: Professors want to deliver proven good teaching, test and wait for next semester to deploy
KNOWING HOW TO
ICT use in higher education

- Proposed strategic goals 2017-:
  - All users should be able to access data, services and infrastructure
  - The digital campus must support varied learning formats
  - Systematic, from ad-hoc to everyday practice
  - Collaboration local-national-international
  - Make better use of data
DIGITAL SKILLS, COMPETENCY
Quality development

» Shared understanding of what is needed
» Technology maturity
» Timing, in relation to work in a topic, study program, institute or institution
» Collaboration with other national agencies
» Local support team organization
» Local eCampus projects
» Arena for digitisation
EDUROAM

YOU HAVE JUST BEEN EDUROAMED
Skype for Business as a service

- Production March 1 2016
- Joint effort by UNINETT, NTNU and University of Tromsø
- Highly redundant design
- Integrated with our SIP infrastructure
INFORMATION

FOR HUMANS
INFORMATION

FOR SYSTEMS AND MACHINES
PROCUREMENT
MAKE SIMPLE SOLUTIONS: BEST PRACTICE
STRATEGIC ICT GOALS

EDUCATION, RESEARCH, ADMIN, SECURITY
MAKE DECISION TOGETHER

SHARE IMPLEMENTATIONS

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BEST PRACTICE