Green IT 2013

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Agenda

- **Digital exams**
- **Printing**
- **Copiers**
- **PC-management**
- **Servers**
- **High Performance Computing**
- **Video Conference**

Digital exams

- Three pilots under way
  - Faculties of Medicin, Education and Law
- Covers the entire exam-process
  - Planning, creating the exam, examination, evaluation, complaints etc etc
- Several common and green denominators
  - Less paper and printing
  - Less transport of paper (to/from examinators)
  - Exams at home (less need to travel)
- More faculties in 2014

UiO : Universitetet i Oslo

INNLEVERING AV BESVARELSE STEG 1 AV 2

INNLEVERING

UiO : Det juridiske fakultet

INNLEVERING

Du kan levere eksamensbesvarelse så mange ganger du ønsker i løpet av eksamenstiden.

Hvis du har levert flere ganger vil kun den sist innleverte besvarelsen gjelde.

Ønsker du å levere eksamensbesvarelsen nå?

☑ Ja, jeg ønsker å levere min eksamensbesvarelse nå.
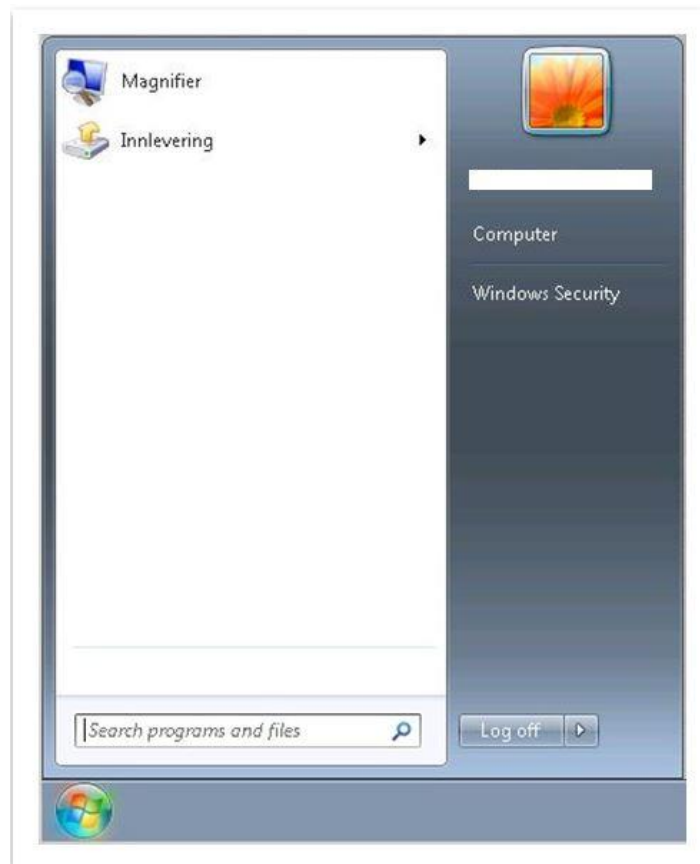
Lever besvarelsen Avbryt

INNLEVERING AV ...

NO 10:26
25.04.2013

INNLEVERING AV BESVARELSE STEG 2 AV 2

INNLEVERING
UiO **:** Det juridiske fakultet

DU HAR NÅ LEVERT EKSAMENSBESVARELSEN

I løpet av kort tid vil du motta en kvittering og en kopi av besvarelsen på din UiO-epost.

Hvis ditt mobilnummer er registrert i UiOs studentsystem, StudentWeb, vil du også motta bekreftelse på SMS.
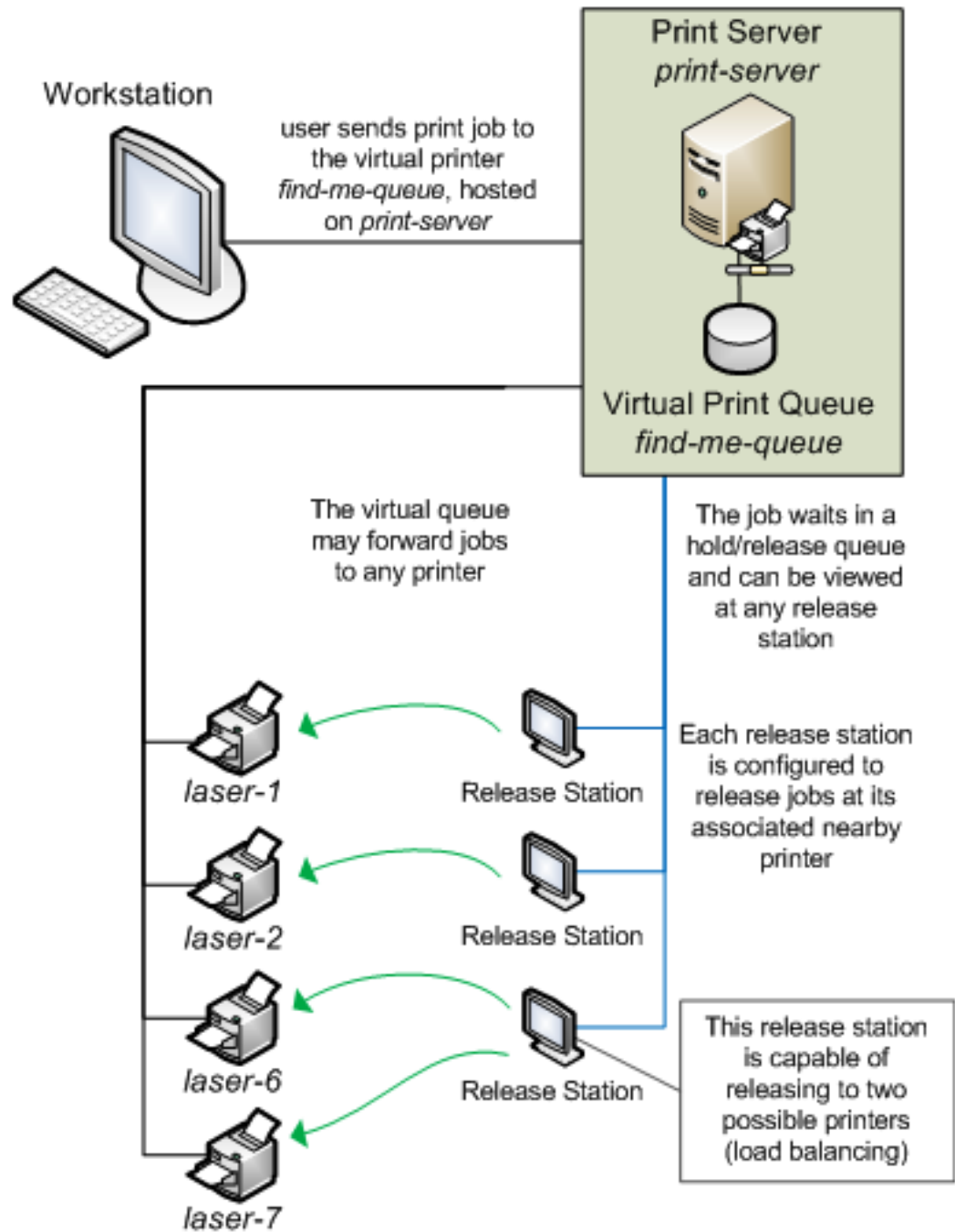
Avslutt

4

Printing

- New printsystem 2014
- Safecom selcted as solution
- Makes «Follow me» / «Pull Print» available
  - Prints only when you are at the printer
  - Using the regular UiO ID-card

Pull Print
to any printer

Workstation

user sends print job to the virtual printer *find-me-queue*, hosted on *print-server*

Print Server
print-server

Virtual Print Queue
find-me-queue

The virtual queue may forward jobs to any printer

The job waits in a hold/release queue and can be viewed at any release station

laser-1

Release Station

Each release station is configured to release jobs at its associated nearby printer

laser-2

Release Station

laser-6

Release Station

This release station is capable of releasing to two possible printers (load balancing)

laser-7

Printing (cont.)

- Less «forgotten» printouts
- No headerpage needed

- Good experiences from other universities
- Maybe 25% reduction in pages printed
  - That is 10 mill pages each year at UiO

Copiers

- Today separate copying machines
- New solution will also use Safecom
- And MFP (Multi Function Printers)
- Uses the same quota as for printing
- Eliminates the need for separate copiers
  - Less power
  - Fever "machines" to produce and ship

PC-management

- New PC-management-system late this year
  - Microsoft SCCM
  - System Center Configuration Manager
- Can turn PCs off at night
  - Hibernate or sleep
  - And wake-up in the morning ☺
- Maybe 25% less power used
  - 12.000 PCs x 60W x 0,25 = 180 KW

Servers

- From physical to virtual servers
  - One physical server can be many virtual servers
  - All new servers are virtual
- We have 3 virtual «server-farms»
  - Each «farm» has 4, 6 or 8 big servers
  - Gives up to 100, 150 or 200 virtual servers
- We see more than 80% less powerusage!
  - Even more if we use full capacity

High Performance computing (HPC)

- New HPC-computer installed june 2012
- It uses just as much power as the old one
- But it is 6 times faster!
- And is quite «green»

THE GREEN 500™

Ranking the World's Most
ENERGY-EFFICIENT SUPERCOMPUTERS

| 68 | 786.78 | University of Oslo | MEGWARE MiriQuid, Xeon E5-2670 8C 2.600GHz, Infiniband FDR | 227.00 |

TOP500® SUPERCOMPUTER SITES

| 96 | University of Oslo Norway | Abel - MEGWARE MiriQuid, Xeon E5-2670 8C 2.600GHz, Infiniband FDR Megware | 10080 | 178.6 | 209.7 | 227 |

Video Conference at UiO

Video Conference

- Quite a lot of dedicated equipment
  - Cisco/Tandberg, Polycom, Sony etc etc
- Not used very much
- Mostly for distant learning
- A lot of potential!

VSX Series Remote Control

Place or answer a call

End a call

Adjust the camera; navigate through menus

Open the Directory so you can make a call or work with an entry

Return to the Place a Call (home) screen

Confirm your current selection; perform functions on highlighted items

Increase or decrease the sound you hear from the far site(s)

Return to the previous screen

Mute the sound you're sending to the far site(s)

Select a far-site camera or video source

Zoom the camera in or out

Select a near-site camera or video source

Turn automatic camera tracking on or off

Show, move, or hide the Picture-in-Picture (PIP)

Select a camera or other video source

Store camera positions (when followed by a number); delete all stored camera positions

Display the onscreen keyboard so you can enter text

Enter a dot in an address

Start and stop sending content to far sites

Delete letters or numbers

Enter letters or numbers; move the camera to a stored position

Access the online help; see current system status while in a call

POLYCOM®

Video Conference, diversity

- Many different systems
  - Dedicated VC-equipment, many vendors
  - Adobe Connect
  - Skype
  - Google Talk
  - Lync
  - SIP-based systems
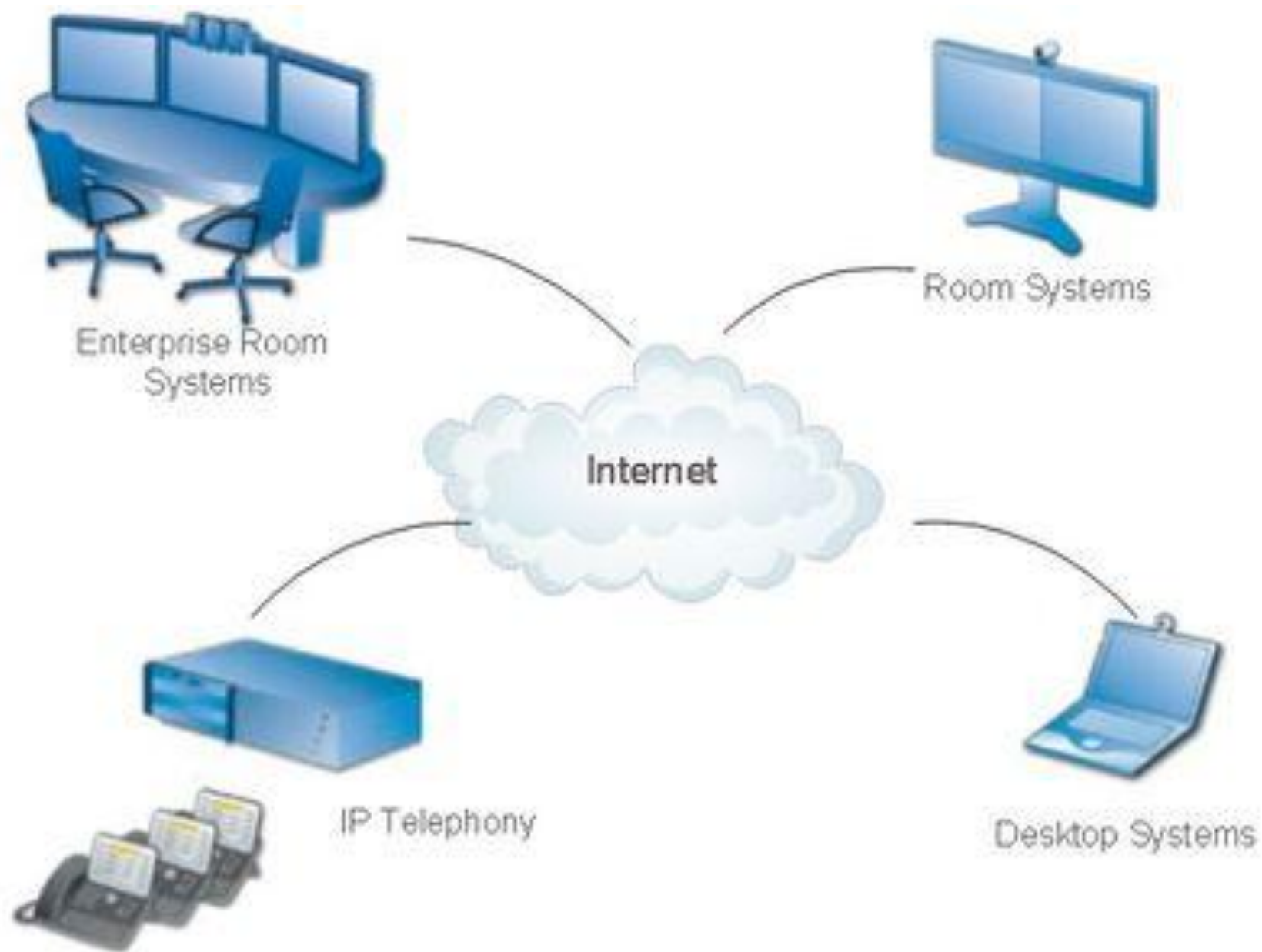- We need a common infrastructure!

Infrastructure

- Choose fundamentals
  - Signalling
  - Video-standards
  - Services
  - Catalogs
  - What should it be used for
  - Integration
- Buy and build according to these

What do we do

- One common, realtime infrastructure
  - For phone, video, conferences, presence etc etc
- Use open standards!
- Support many platforms
- Focus on the user and what the user needs

- Everyone can connect to everyone!

Enterprise Room Systems

Room Systems

Internet

IP Telephony

Desktop Systems

How?

- Use Internet-technology
  - IP-based systems only
- SIP (Session Initiation Protocol) for signalling
  - Open standard (but quite complex…)
- Share information
  - Catalogs
  - Integration with existing systems
- Develop user-friendly interfaces

The basics at UiO

- Asterisk and Kamillio SIP-infrastructure
  - As used for UiO phone-system
  - 6.500 SIP-phones operational, Cisco and Polycom
- LDAP-catalogs
  - As used for UiO computers
  - SIP-information automatically added
- Integration with Academic infrastructure
  - "UNINETT sanntid", reaching higher ed. in Norway

The basics at UiO (contd.)

- Integrate "off the shelf" solutions
  - Cisco/Tandberg now
    - Video Conference equipment
    - Management-server
    - Video-server
  - Polycom, Sony to come
- Desktop solutions
  - Jitsi and Bria soft-phones
    - Supported on "all" platforms
  - Pilot-use at the moment
    - Launch 1Q2014

UiO **:** Universitetet i Oslo

The next step

- Standard setup for video conference rooms
  - Familiar for the user. Easier to use!
- Conference-bridges
  - Voice and Video
- Integrate with Adobe Connect, Lync and Skype
  - Difficult…
- Video-conference catalogs
  - For easier access
- Still some way to go!