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PACS in (western) Norway

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PACS history of Norway

- The first commercial PACS system installed and implemented in 1998
- All public and private Norwegian hospitals and institutes were fully digitized by 2005
- The last institution to be digitized was the nationwide mammography screening

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Diagnostic imaging june/july 2003

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Organisation of specialist health care i Norway

- Four regional trusts
- Within each regional trust several local trusts
- Separate RIS/PACS-systems in each trust

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Pacs in health care regions

- North
  - Finnmark: Agfa
  - Tromsø: Agfa
  - Bodø: Agfa
- Mid-Norway
  - All trusts: Sectra
- Western
  - Bergen: Agfa
  - Fonna: Siemens
  - Førde: Siemens
  - Stavanger: Care-stream
- South-east
  - Oslo: Sectra, Siemens, Agfa
  - Vest-Viken: Siemens, Carestream

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Norway fully ”PACS-ified”

What´s next?

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Today´s challenges

- Integration of PACS and RIS into regional networks
- Integration of other “o”logies
- PACS as a tool in open surgery and minimal invasive surgery
- Integration of PACS and RIS into hospital EPR systems

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Teleradiology and integration into regional networks: Three different solutions

1. Pushing examinations from one hospital to another
2. Integrating different PACS/RIS systems (XDS-I)
3. Designing regional PACS-systems

Europacs 2010 (Geneva)

- Several papers on integration with IHE XDS-I solution
  - Shanghai, China
  - Leuven, Belgium
  - Bergen, Norway
  - Pittsburg, US
  - HongKong, China
  - Groningen, Netherlands

Advantages for integration in Norway as compared with other countries

- Infrastructure
  - Norwegian health care network (Helsenett), owned and run by the government
  - Provides all health care institutions with a common broad band network with Gbit capacity and cryptation
- Unique, national 11-digit personal identifier
- Almost all specialist health care institutions have one owner (Government)
- Uniform financing and much resources spent on health care
- Equal spending on health care throughout the country
- High IT-competence in health care

Disadvantages

- Norwegian legislation
  - Pushing examinations between hospitals: OK
  - Looking into another hospital's database is allowed only with great restrictions
  - That means that designing a system according to XDS-I standard is difficult and must be done with great care for patients´ secrecy and privacy

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Integration of PACS into regional networks (2003)

- PACS systems were designed to serve one or a few hospitals
- RIS systems are complicated (much more complicated than PACS systems) and are also designed to serve only one hospital
- PACS vendors have little interest in integration (they want to sell their own solutions)

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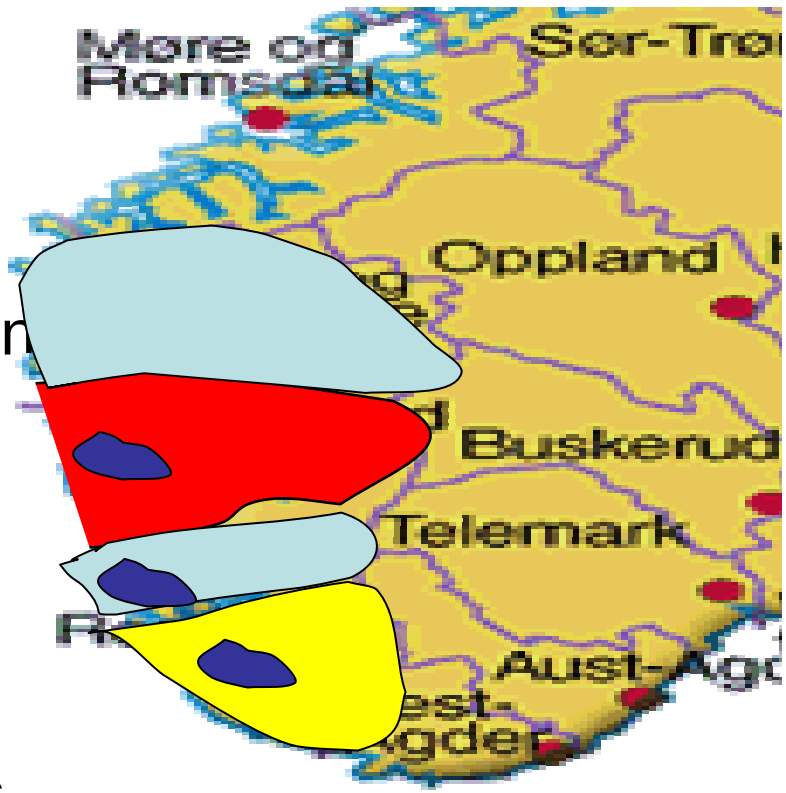
Western Norway health care region

Challenge :

- One health region
- 4 public trusts
- 2 private trusts
- All different RIS-PACS
- No funding for a regional PACS

Solution : Integration/communication platform created for cross enterprise document sharing (XDS-I)



Goal :

- Shared,distributed and seamless regional radiology for information interchange

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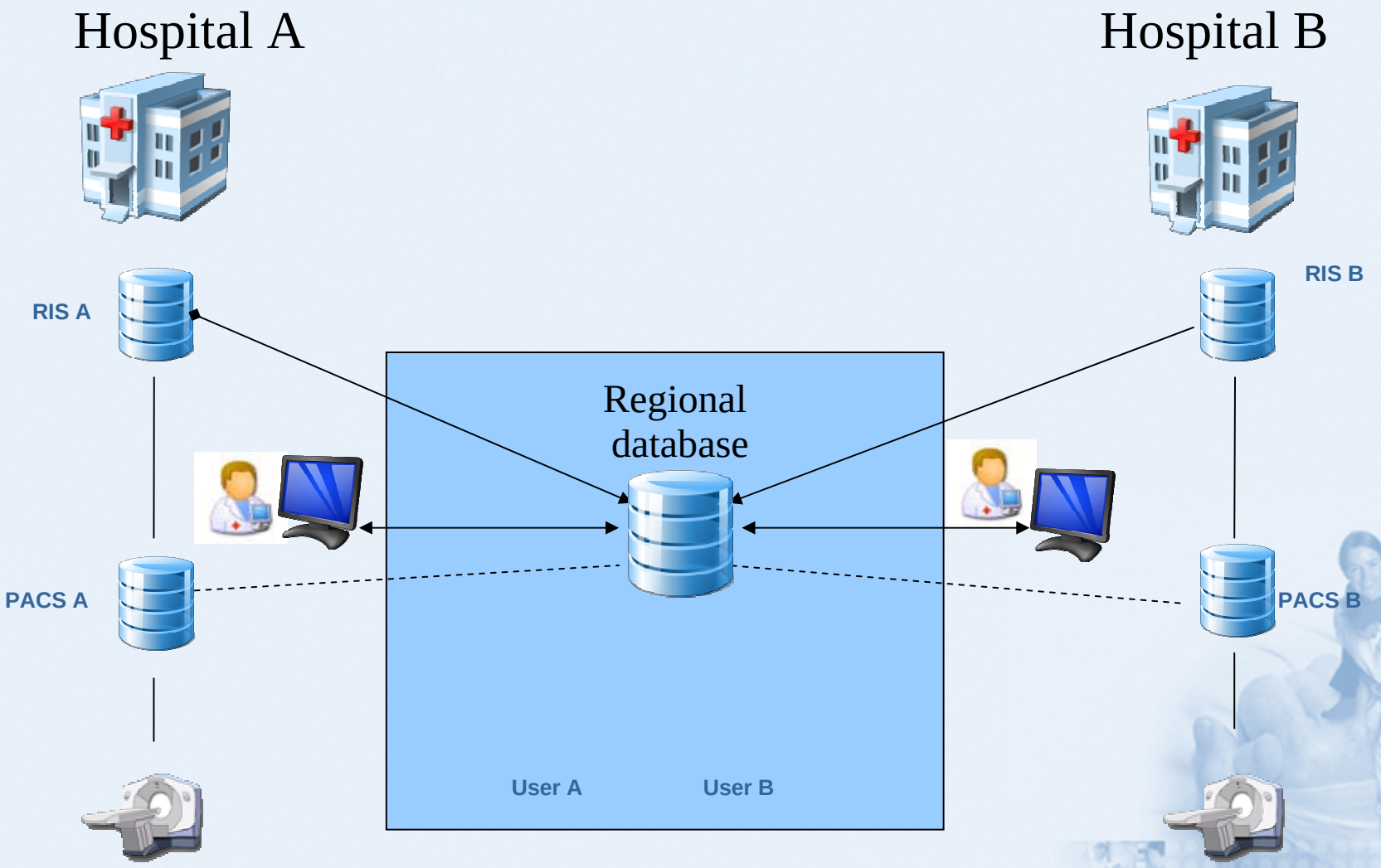
Our achievement

- Together with commercial companies (Agfa and Mawell™) we have developed a solution (Infobroker™) that is able to both:
  - linking PACS/RIS systems for the radiologists to be able to look into another hospitals` PACS system (XDS-I)
  - pushing examinations automatically from one RIS/PACS system to another with minimal secretary work-load

Integration and information platform



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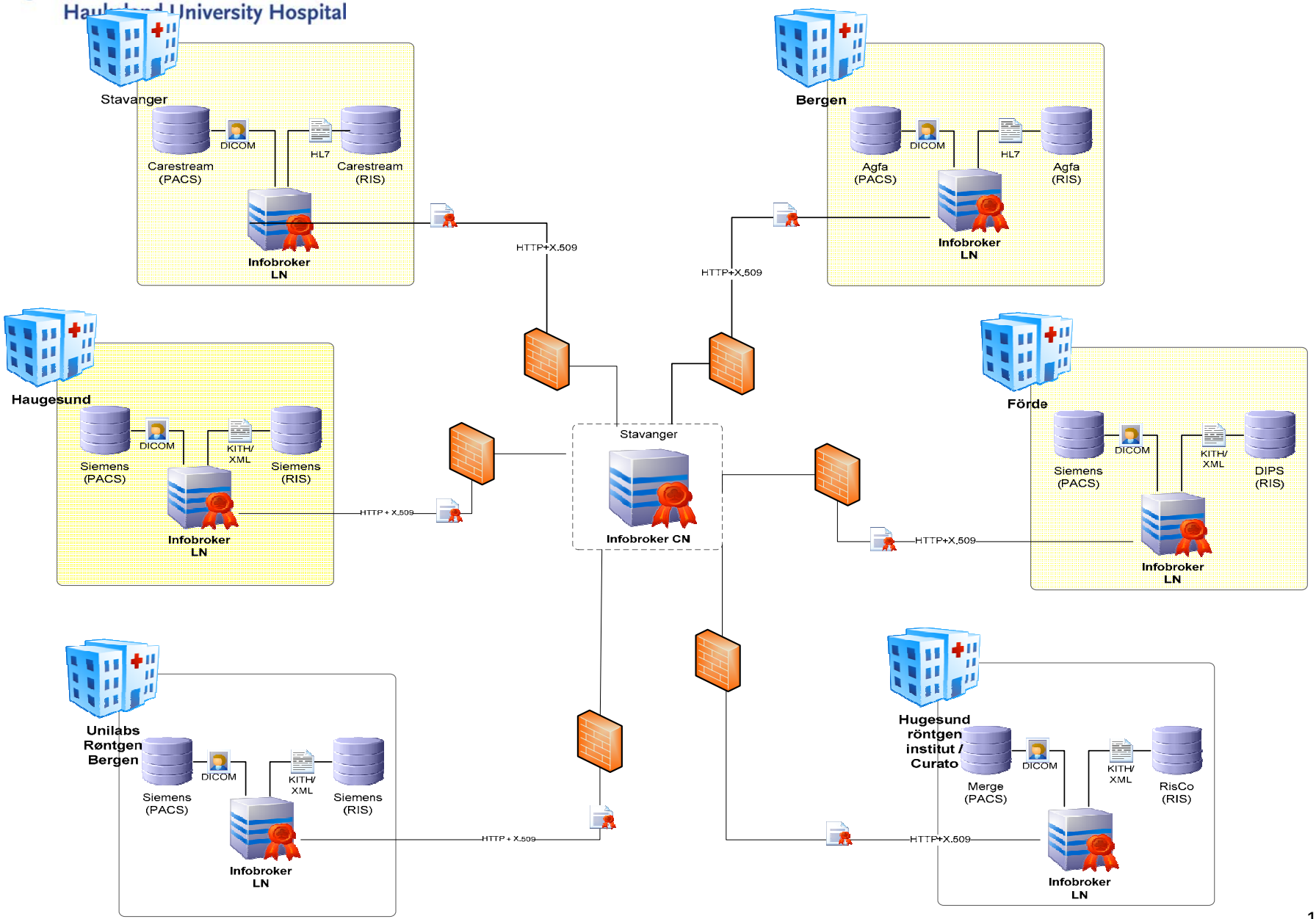

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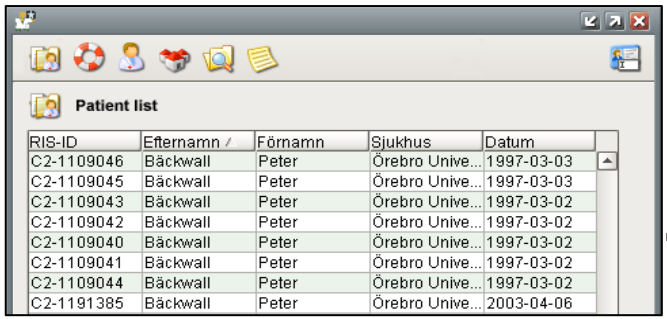
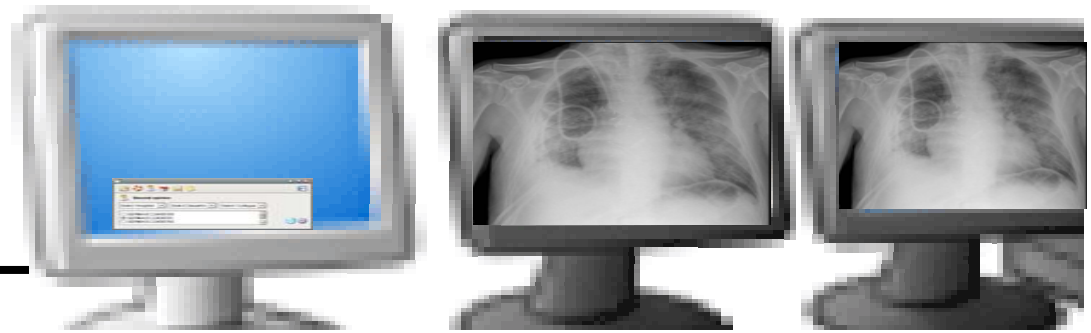
The user interface I





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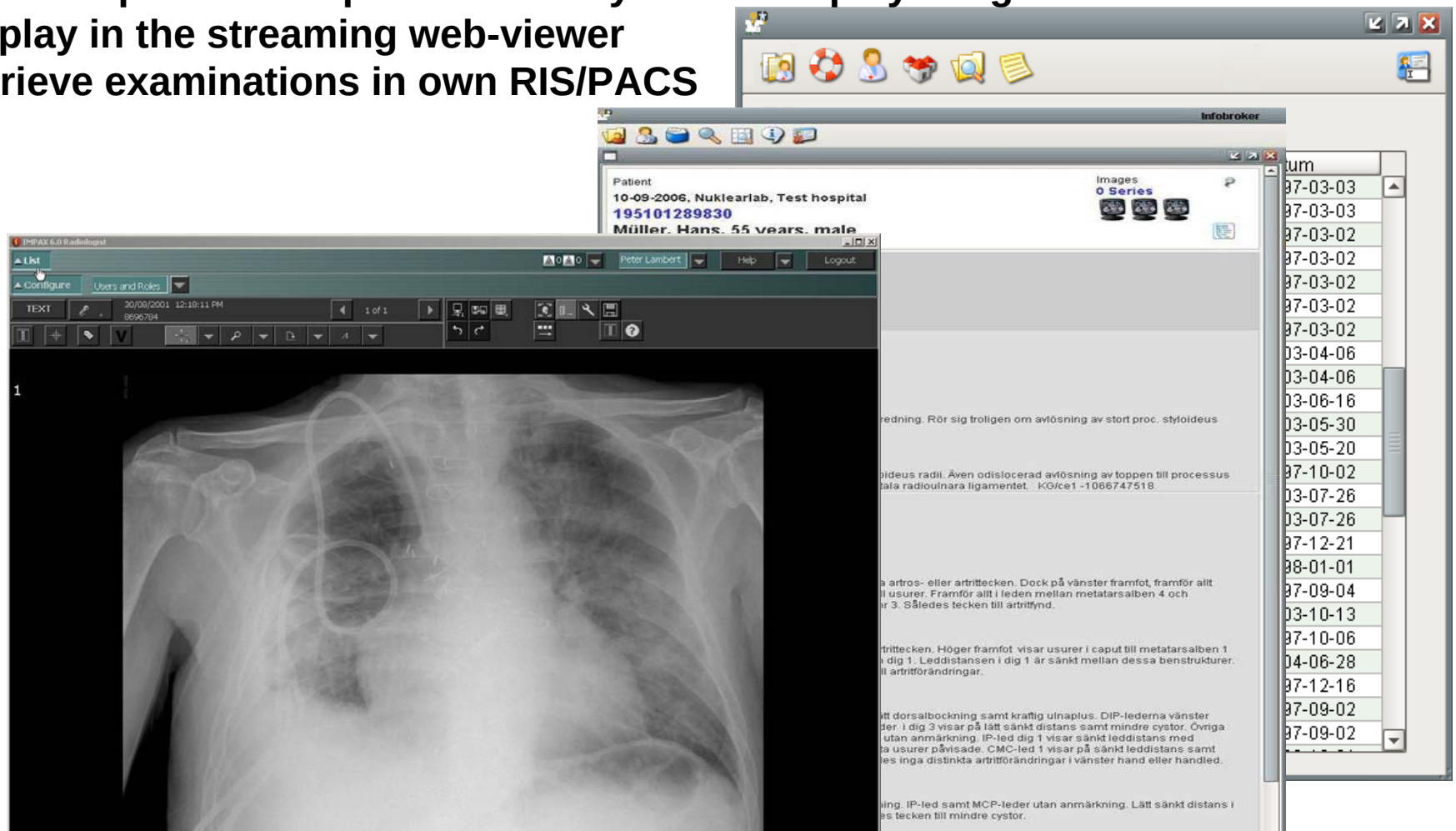
The streaming web viewer

- Identical patient in RIS and in InfoBroker
- From the overview you can display request and report
- From ”request and report window” you can display images
- Display in the streaming web-viewer
- Retrieve examinations in own RIS/PACS



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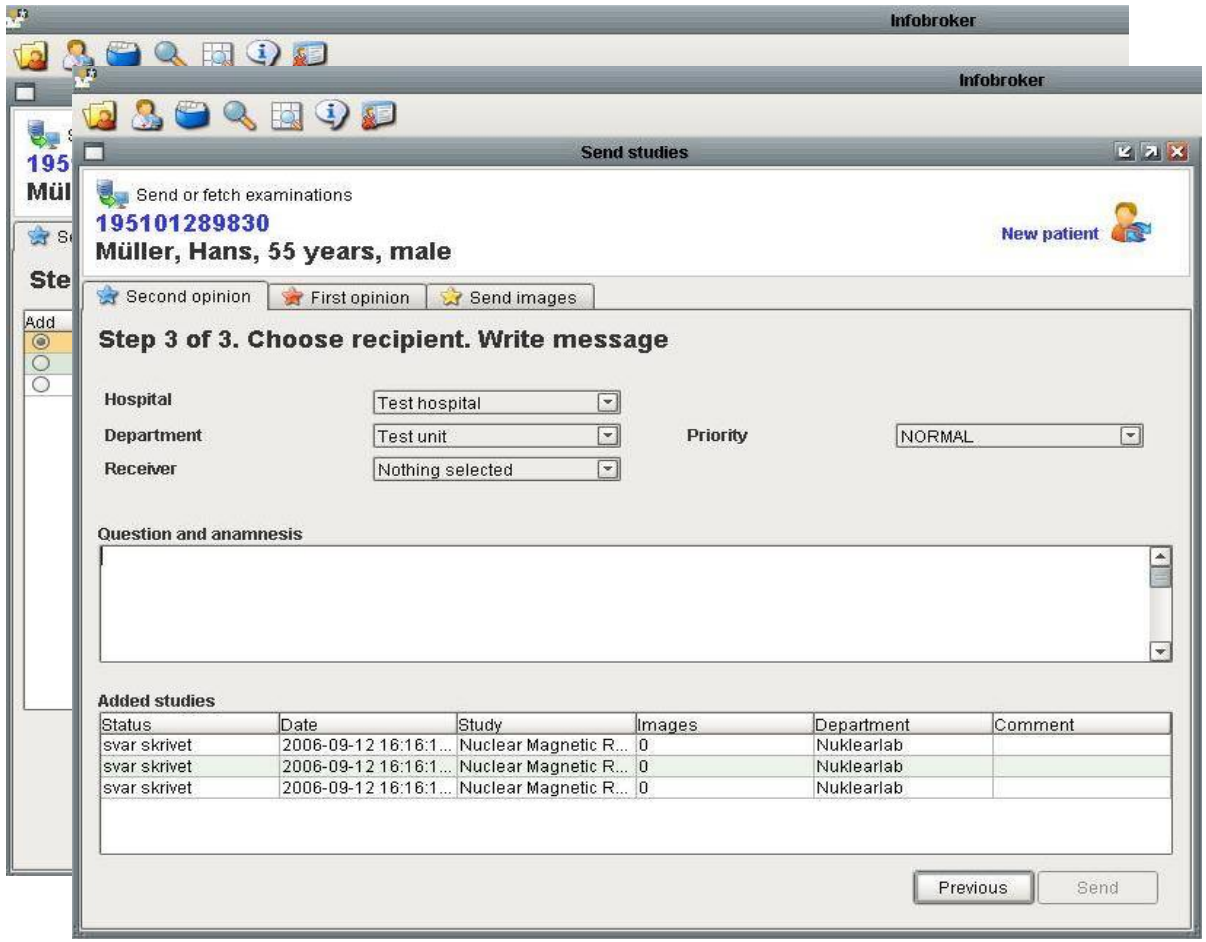
Information transfer between hospitals/systems



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Status by August 2010

- The system (Infobroker™) is operating in 2 of 4 public trusts, and it has been stable for 1 year

- The remaining trusts will be linked to the system within 6 months

Conclusion: PACS in (western) Norway

- Norway has reached uniformly far beyond the implementation of initial PACS systems
- Third and fourth generation PACS-systems are about to be installed
- Today's challenge:
  - creating and implementing a technical and organisational solution for regional and national cooperation between radiologists in teleradiology networks