

eHealth

**Global market – global healthcare?
Handling sensitive medical data in an unsecure world**

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eHealth visions

Upcoming of internet ...

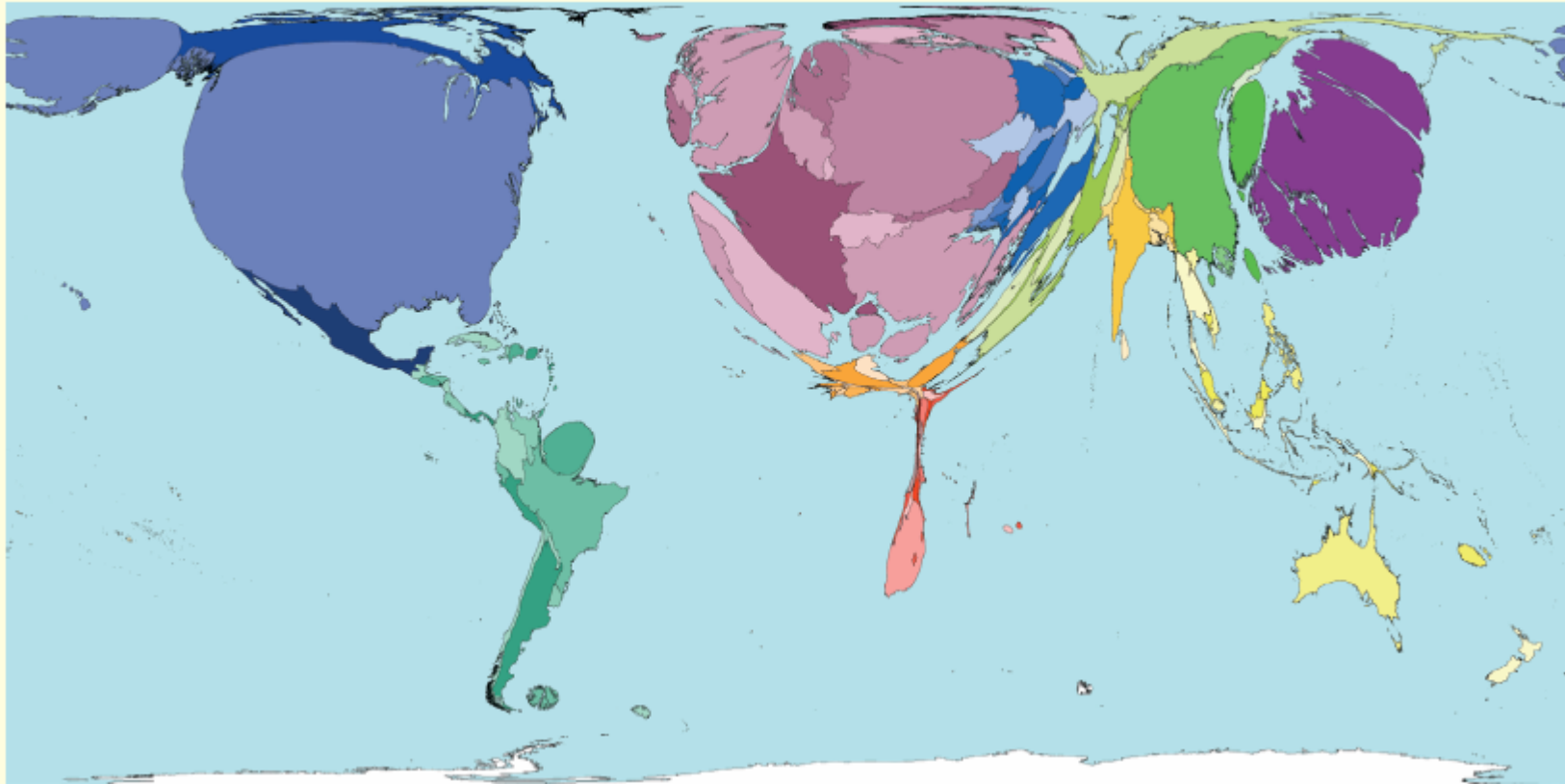
- **1996 internet and global markets**
 - **Internet technology for data transfer**
 - **New role of the patient (empowerment)**
- **eHealth definitions**
- **markets**

Upcoming of internet ...

Medical Record Institute (Boston)

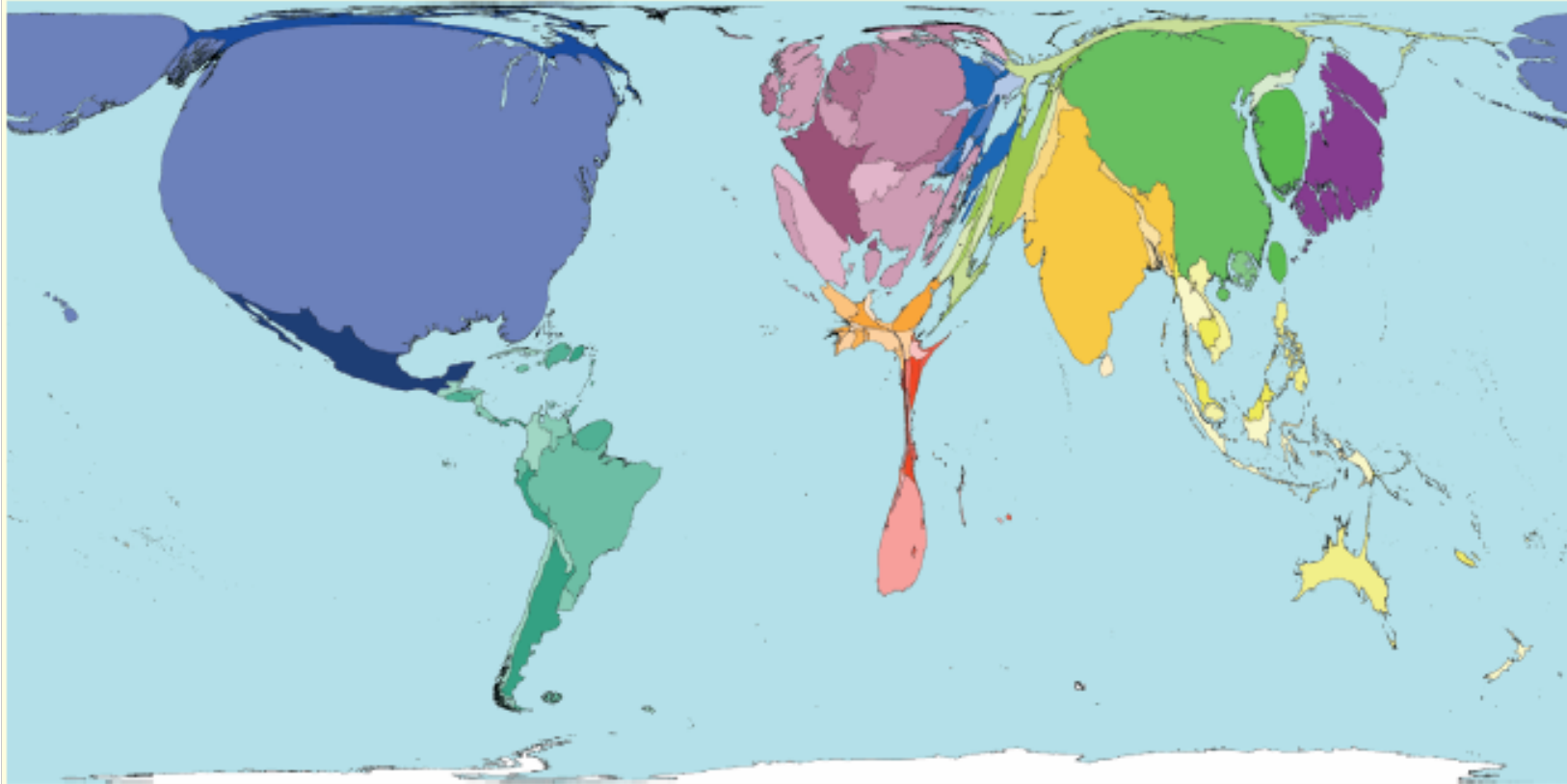
- **Level 1:**
automated medical records
traditional paperbased documentation, patient data electronic
- **Level 2:**
computerized medical record systems
Electronic data, scanned documents
- **Level 3:**
electronic medical records
structured electronic data, decision support, integrated systems
- **Level 4:**
electronic patient records
all relevant data from all doctors in one patient record
- **Level 5:**
electronic health record
all healthness relevant data, even behaviour in one patient centred record

Public Health Spending



- 2.228 Bill. US\$

Private Health Spending



- 1.847 Bill. US\$

10 years later we are still talking about eHealth ...

Why is eHealth not internet compatible?

- **[1] Markets and non-markets**
 - **Healthcare is a non-market, highly political controlled**
 - **Why ...**
 - **Results**
 - **(1) healthcare market is slow**
 - **(2) political controlled so expect the unexpected**
 - **(3) high risks**
 - **(4) running system are strictly billing related**

10 years later we are still talking about eHealth ...

Why is eHealth not internet compatible?

- **[2] doctors and magic**
 - **The indian medicine man is a magician but the modern doctor is a scientific person?**
 - **Placebo effects ...**
 - **conclusion**
 - **(1) we not only need telemedicine**
 - **(2) but we need telemagic ...**

10 years later we are still talking about eHealth ...

Why is eHealth not internet compatible?

- [3] From Mail to eMail
 - the letter is a document (text and context)
 - email is fast, short and non reliable
 - conclusion
 - (1) medical communication needs high reliability
 - (2) lost of document behaviour

10 years later we are still talking about eHealth ...

Why is eHealth not internet compatible?

- [4] Data privacy and the oath of hippokrates
 - Data a patient gives to a doctors has to be kept secret even to other doctors unless the patient confirms in a transfer to third persons
 - VPN-Technology does not solve the problem
 - Public-private-key-encryption is useless
 - Declaring the patient to be some kind of co- doctor (“patient empowerment”) does not work ...
- conclusion
 - (1) standard technologies can not be used without changes
 - (2) will “patient”-is-the-master-of-the-data- way work???

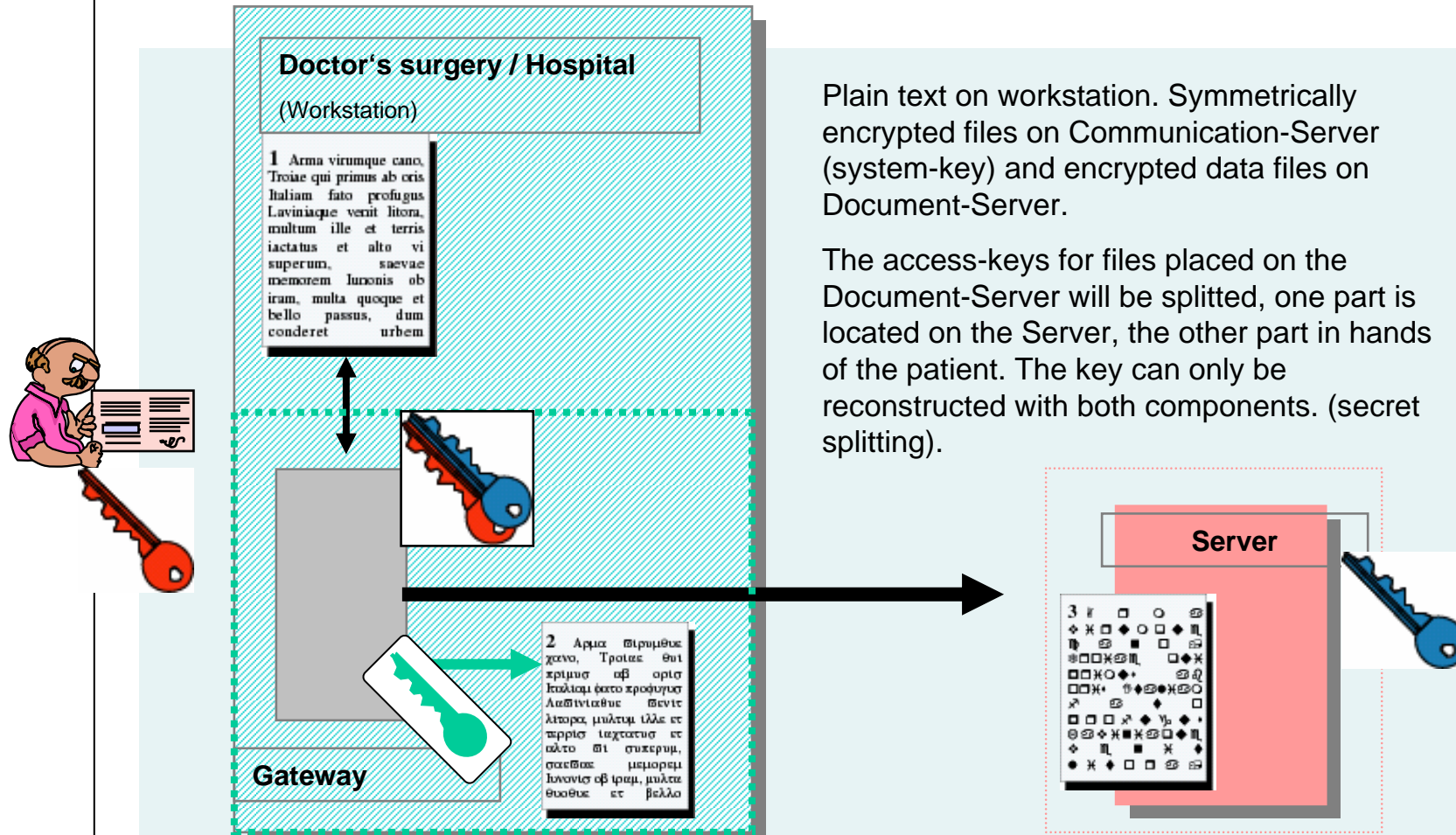
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- **MEDNET together with Deutsche Telekom AG since 2002**
 - **T-Systems International**
 - **Infrastructure for secure handling of medical data**

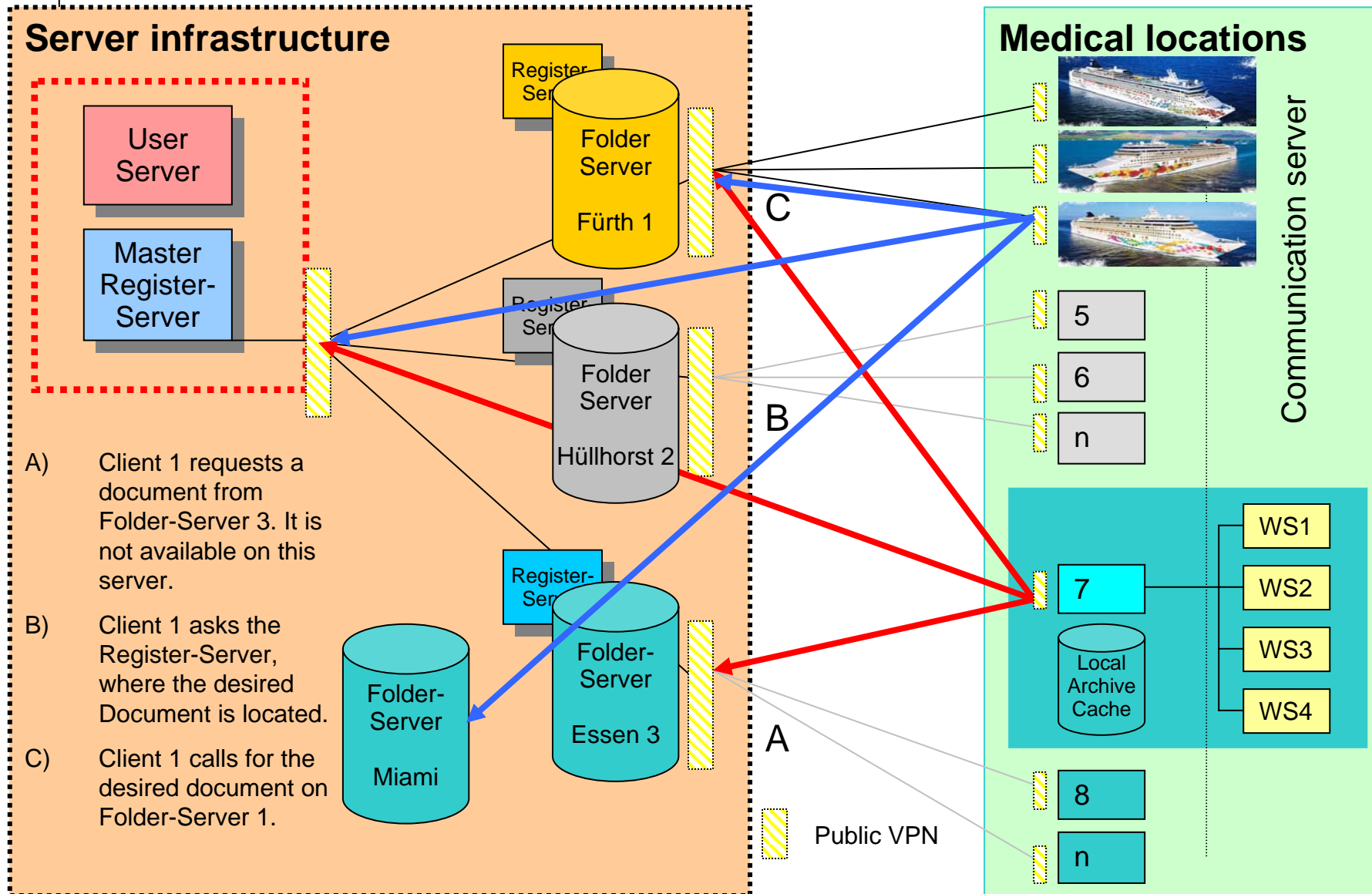
 - **conclusion**
 - **(1) data privacy**
 - **(2) availability**
 - **(3) self determination of the patient**
 - **(4) dicom streaming**

1: Data privacy

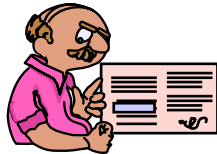


decentralized visibility of data and central availability: very fast access associated with strong confidentiality („Telearchiving“).

2: availability



3: patient self-determination and marketing



- = the patient gives access rights to the physicians with the card.
- = the card is a strong marketing instrument.

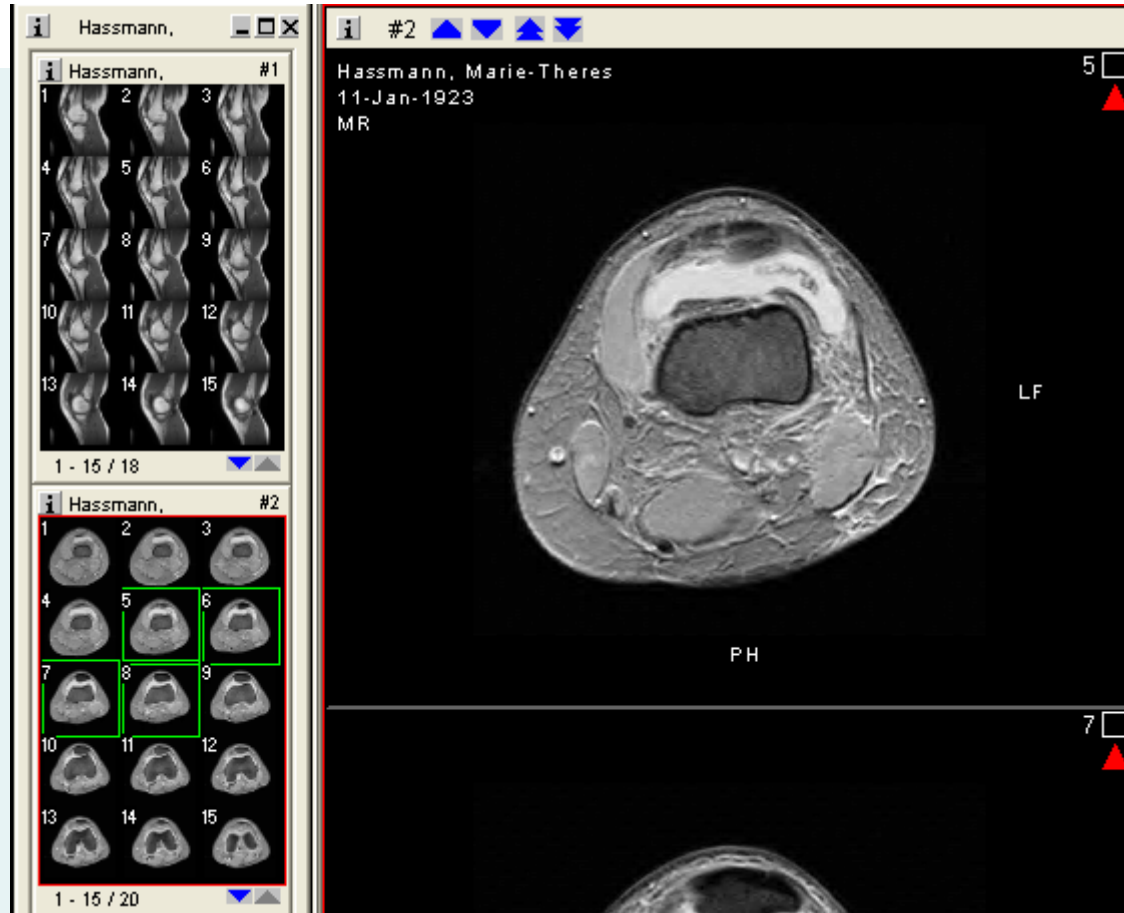
4: DICOM streaming technology

Streaming technology
(IPACS)

High ABO compression :

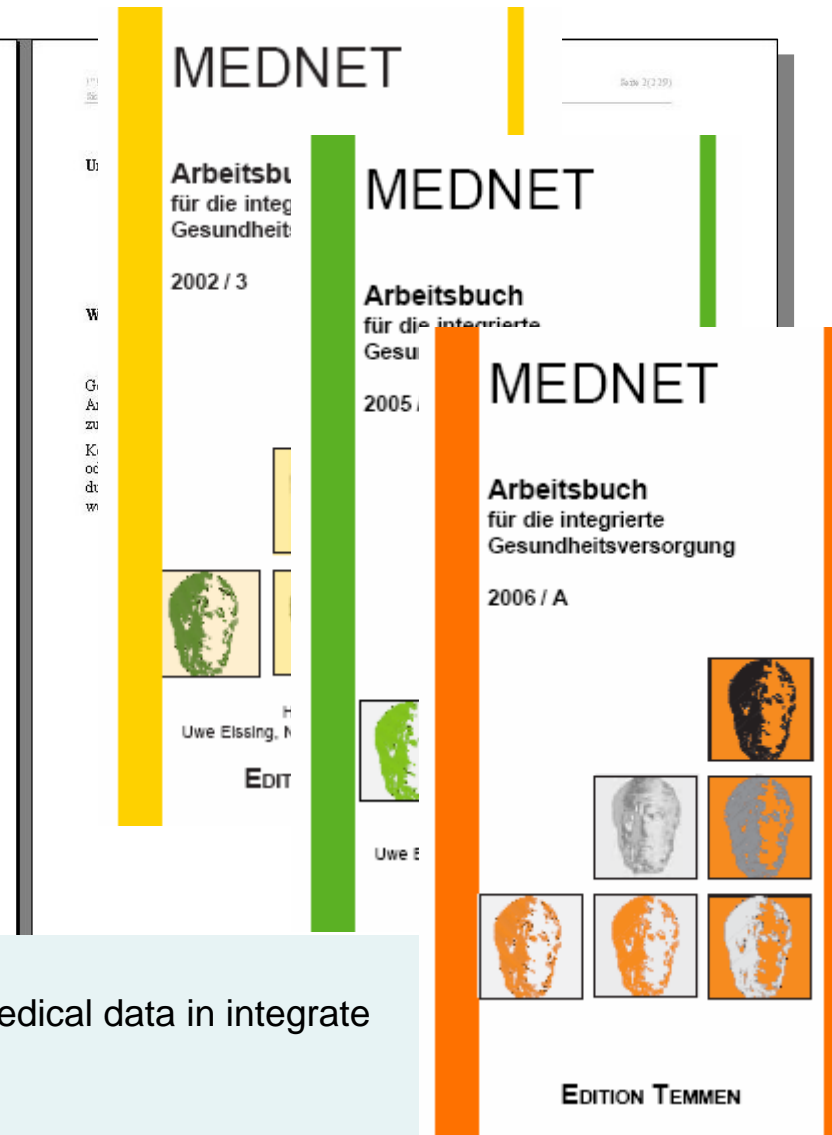
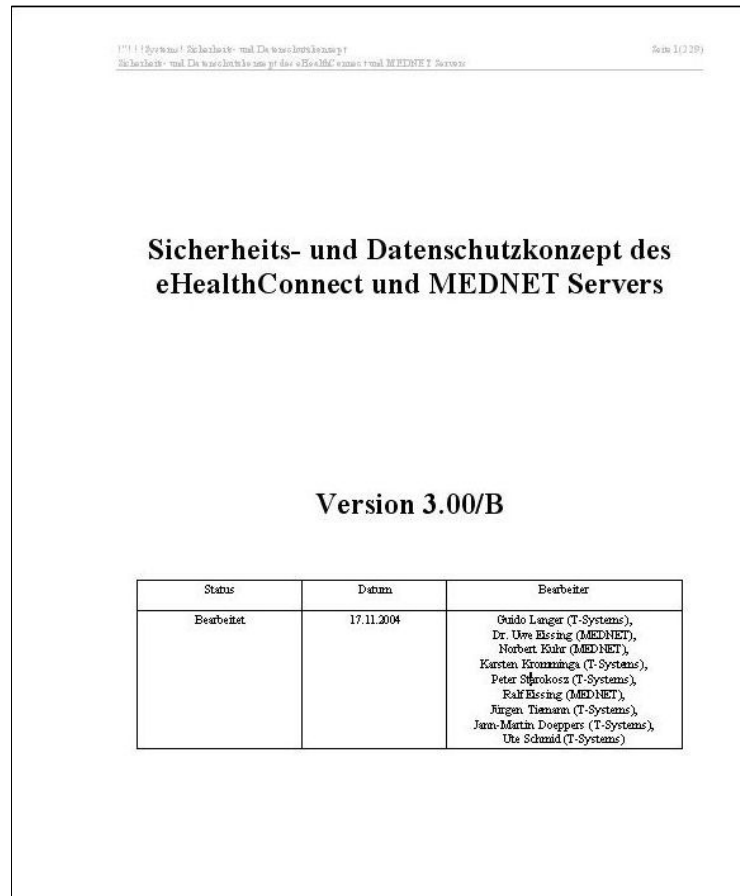
Dicom web-server needs
2MBit/sec pro user (JPEG
Format = lossy, MPEG =
lossy)

lossless ABO compression
with ration of 5 to 20 (low
bandwidth and low
storage capacity)



DICOM studies with streaming technology and specialized ABO compression

Publications to data privacy



- Extensible reports to data privacy and medical data in integrate health care environments
- MEDNET books ...

eHealth definitions (2)

Upcoming of internet ...

- **primary medical document:**
*based on duty of the doctor (liability);
this record is managed and owned by the doctor*
- **electronic patient record (EPA):**
*medical data of different doctors in one patient record;
the record is managed by the doctors in order of the patient*
- **health record (EGA):**
*all health relevant data in a web based patient record;
this record is managed by the patient (“master” of data)*

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- **We need a network of specialized partners world wide**
 - **same basic technology**
 - **highly adapted**
 - **to the special national billing procedures**
 - **to the special market rules**
- **conclusion**
KatraSoft is our partner for setting up this network