Countrywide Service Oriented Architecture
Connecting Dutch Healthcare Organizations

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Topics

- The concept
  - The Netherlands facts & figures
  - Short movie demonstrating the LSP
- Architectural principles
- Experiences
- Q & A

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The Netherlands

The Netherlands ("Holland")

- 23rd most densely populated country in the world
  - almost 1500 people per square mile
- High life expectancy
  - 82 years for newborn girls, 77 years for boys
- 16th largest economy in the world
- Aging population
  - More and longer demand for (health-)care
  - Working population decreases
- Challenges for healthcare
  - Doing more with less
  - Growing demand for extramural care

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The Dutch National SwitchBoard for Healthcare

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The concept

Pharmacist

Pharmacist

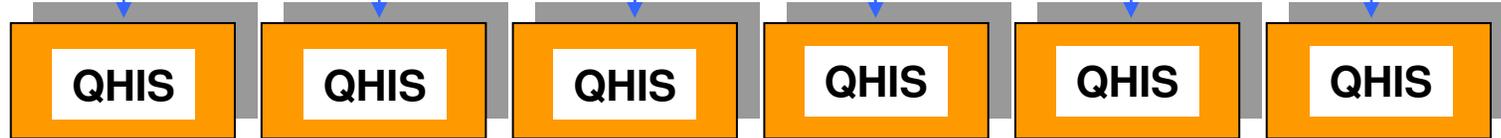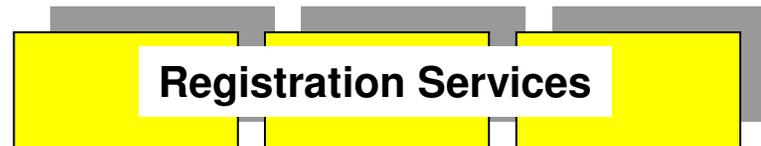General Practitioner

Hospital

LSP

General Practitioner

Hospital

Principles

- Patients' information stays at the source
- The Dutch National Switchpoint is a *pointer index*
- The Switch Point also retrieves the information from the QHIS-ses and transfers the information to the requesting QHIS.
- Importance of authentication and autorization
  - privacy aspects
  - reliability of information (responsibility)
  - Citizen Service Number for patients identification
  - Unique Healthcare provider identification for doctors etc.
- Importance of *logging*
- The patient in the driving seat
  - final autorization of healthcare professionals by the patient
  - right to see logging information by law

IT-related principles

- HL7v3 messages
    - between QHIS-ses and the National Switch Point
- At the start: SSL handshake to exchange authentication information
- Currently: also using Digital Signing as means to exchange authentication information
- Certification/Qualification of Healthcare systems before connecting (*Qualified* Healthcare Information System)
- Certification/Qualification of network-service-providers before connecting
- Service Oriented Architecture ("Composite Application")
    - at first focussing on information exchange
    - In future also real "services" (for example requests for analysis)

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Service Bus

Registration Services

Dutch National SwitchPoint

Pointer Index

| Orchestration | Authentication | Authorization | Routing | Logging |

| Business Activity Monitoring | Join/Group information | Management |

QHIS   QHIS   QHIS   QHIS   QHIS   QHIS

HL7v3 (XML/SOAP)

FTP / CRL (UZI)

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Current status

- This year 1500 QHISses to be connected
- Currently supported "applications"
  - Electronic Medication Record
  - Patient Summary Record
- New developments
  - Electronic Pathology Record
  - Electronic Laboratory records
  - Emergency treatment
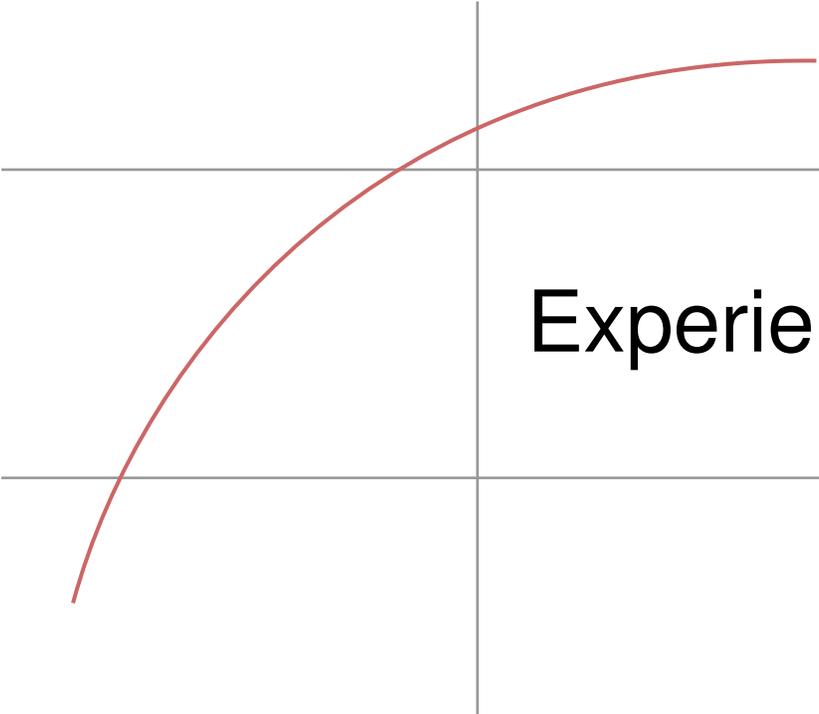 - Perinatology
  - Radiology
  - Patients' portal

Important

- Succesful cooperation between government, healthcare organizations and software vendors

- Architectural impact
  - HL7v3 vs SOAP/XML
  - Message oriented architecture
  - Interface specifications don't guarantee interoperability

- Standards impact
  - keep away from home-grown solutions
  - embrace to open/industry standards

- Legal impact
  - Law on privacy (legal implications / intepretations)
  - Use of BSN (social security number use for health id)

- Organizational impact
  - The National Switchpoint triggers "cleaning up" of healthcare IT infrastructure
  - Who owns the patient's information ?

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Question & Answers

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