



Kela's role in the implementation of national e-health services

7.5.2010

Background for the Finnish e-health strategy

- The applications built over the past several decades are fragmented and often lack interoperability
- The goal is to integrate the information systems of public and private healthcare providers into a single system that allows real-time access to patient records and prescription information

National eHealth Services: Objectives

- The patient records and prescriptions most critical to the implementation and monitoring of care are stored electronically using a uniform data structure
- The information will be available 24/7 to all participants across register boundaries
- Patient consent is required (however undergoing a major "upgrade")
- No more paper documents
 - Documents will be stored electronically throughout their lifecycle
- A cost-effective and reliable IT infrastructure

eResepti *ePrescription*

Act on Electronic Prescriptions (Act 61/2007)

Initial launch in Turku in 5/2010

eArkisto *eArchive*

Electronic archive of patient records (Act 159/2007)

To be introduced in 2011

eKatselu *eAccess*

Introduced simultaneously with ePrescription and eArchive

KanTa

- Entrusted with the implementation of the National eHealth Services, Kela launched the KanTo project in spring 2006
- The KanTo project will implement the KanTa services (in line with Kela's mandate under the Act on Electronic Prescriptions and the Act on Electronic Healthcare Patient Records)
(Acts 61/2007 and 159/2007)
- RFP phase resulted in Fujitsu Services, Digia and Neagen jointly delivering the solution



A partnership between three organizations

- **Kela:** responsible for building, operating and maintaining the national information systems
- **THL (National Institute for Health and Welfare):** responsible for the national code server
- **Valvira (National Supervisory Authority for Welfare and Health):** responsible for the licensing of healthcare professionals and the operation of authentication services (PKI infrastructure provider / Certificate Authority for KanTa services)

eResepti *ePrescription*

- **The purpose is to strengthen patient and drug safety**
 - Simplifies and streamlines the prescribing and delivery of medicines
 - National ePrescription Centre
 - National Pharmaceutical Database
 - A summary of the patient's overall medication can be displayed with the patient's consent (electronic prescriptions)
 - The data can be utilized by the public healthcare authorities

eResepti *ePrescription*

- **The purpose is to strengthen patient and drug safety (cont'd)**
 - ePrescriptions are written in a uniform way by all healthcare providers
 - ePrescriptions can be dispensed at any pharmacy: greater freedom of choice for patients
 - Used by both public and private healthcare providers

eArkisto *eArchive*

- Financed by the healthcare sector, implemented by Kela
- Unified system for the search and archival of patient records
- Protects patient information
- Provides patients with greater access to information
- The registers are maintained by healthcare providers
- National archival services will be introduced first in the healthcare sector and later in the social services sector
- Aim is to provide full patient history, not just overview

eArkisto *eArchive*

- Healthcare providers are responsible for storing electronic patient records in the eArchive
- Security of storage and access to electronic patient records throughout their lifecycle
- eArchive is responsible for
 - the usability, integrity and protection of the stored patient records
- eArchive
 - releases documents only with the patient's consent
 - ensures that documents are deleted after the statutory storage period is over
 - keeps information release and access logs

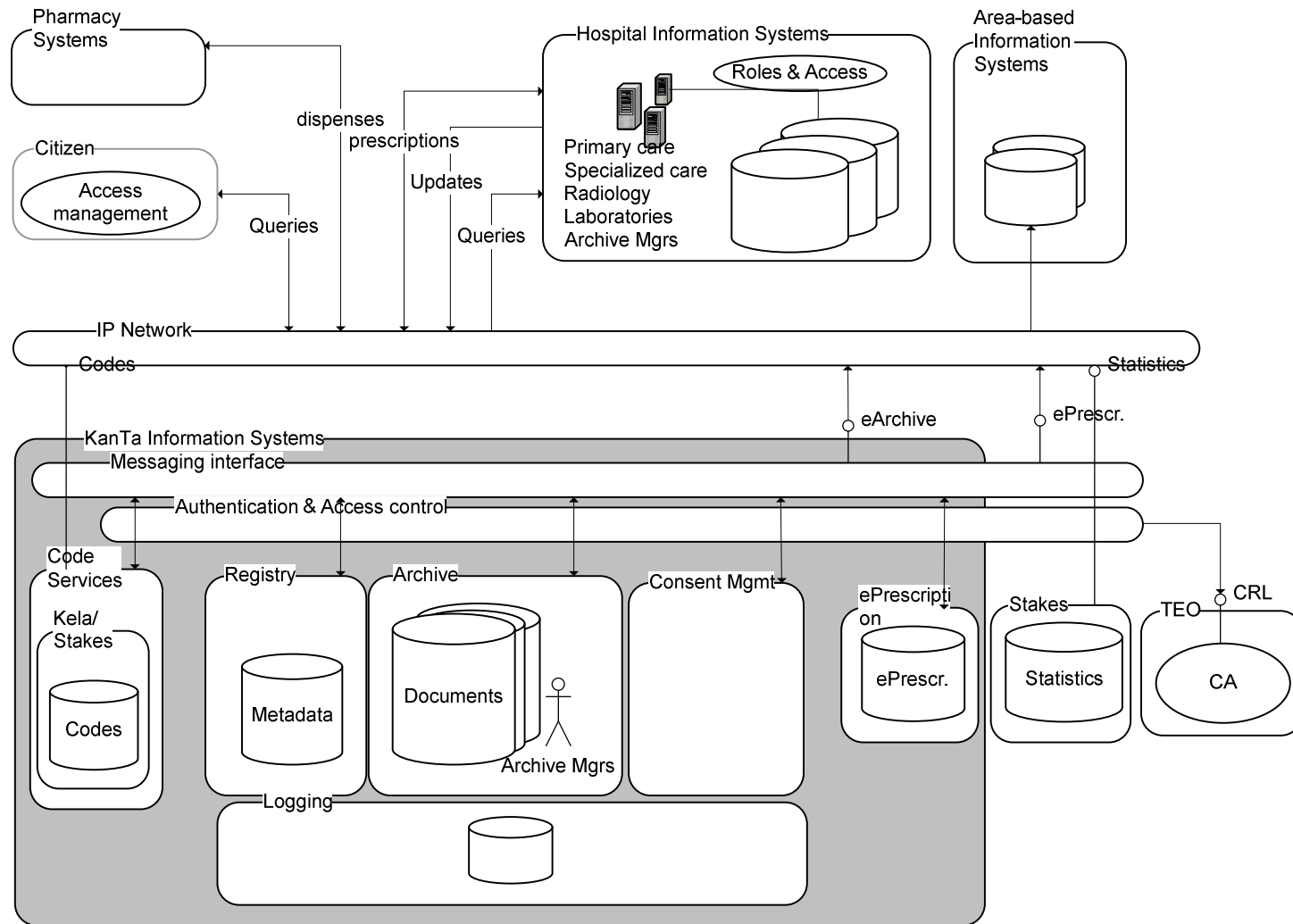
eArkisto *eArchive*

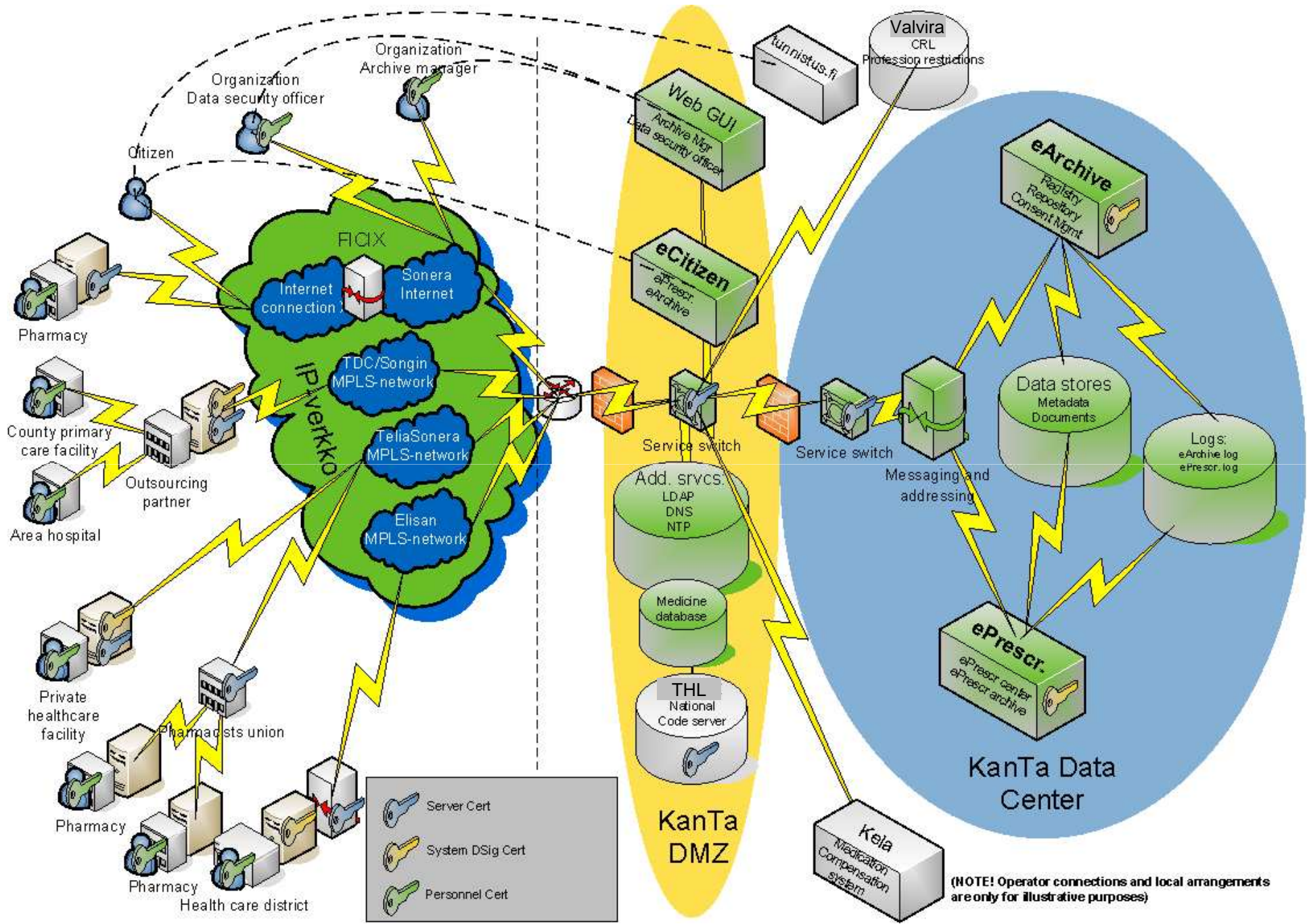
- Looking up information is an integral part of a health professional's work
- eArchive is accessed via EHR systems
 - Upon signature, documents are automatically stored in the national archive
 - Original documents are retained in the national archive – the documents released from the eArchive are copies
 - The retrieval of documents/data from the archive is accomplished by means of EHR systems
- The search data (subject to the verbal consent of the patient) indicate when and where the patient has been treated
 - The patient's written consent authorizes the release of patient records relating to a particular healthcare service or series of services

eKatselu eAccess

- Citizens over 18 can view personal medical information stored in the archive over the Internet
- Requires electronic identification
- Viewable information includes:
 - ePrescription and medicine delivery data
 - visits to healthcare providers (service transactions)
 - referrals, treatment summaries, certificates and statements
 - patient consents and any log data which the patients are entitled to access
 - available in the future: appointments and test results

KanTa original architecture (slightly modified from 2006 version)





Standards, recommendations etc...

(mandatory set of acronyms)

- HL7 V3
- HL7 CDA R2
- HL7 Medical Records
- WS-I Basic Profile v1.1
 - SOAP v1.1
 - WSDL v1.1
 - SSL Protocol v3.0, TLS v1.0
- WS-Security Core v1.1 (to be added later for mediating messaging hubs/routers)
 - X.509 Token Profile
- WS-Addressing v1.0
- ISO OID for identification of organizations, connection points, documents etc
- XML-DSig
 - XML-Signature Syntax and Processing, W3C Recommendation 12 February 2002

Message structure

- document metadata
- with signatures

- document content

- message payload



- transport level encryption
- and authentication

- SOAP-header w/
- WS-Addressing headers

Technical overview in the messaging part

- CDA R2 documents embedded in somewhat localized HL7 V3 Medical Records interactions (both the ePrescription and eArchive)
- Web Services transport profile with synchronous messaging
- Digital Signatures (W3) applied for all CDA R2 documents (either the professional or the system – depending on the document type)
- Interactions mostly client -> KanTa, but eg prescription renewal messages KanTa -> client
- Mutual TLS authentication, Valvira provides digital certificates for all parties (professionals, systems, devices)