HOW TO COMBINE OLD AND NEW TECHNOLOGY

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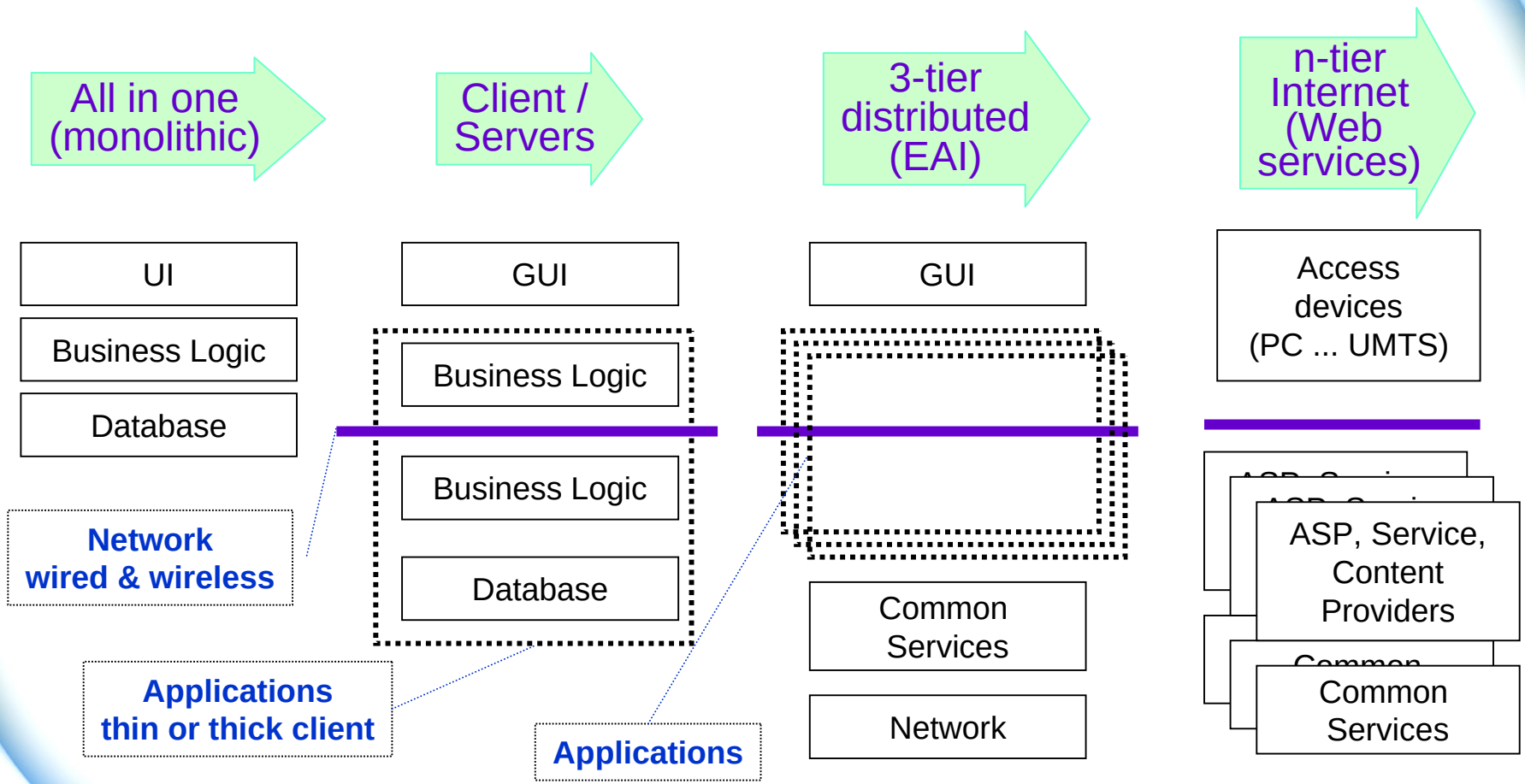
A QUESTION OF ARCHITECTURE, INTEGRATION, INTEROPERABILITY, MIGRATION, ENCAPSULATION, and of course TRUST & SECURITY

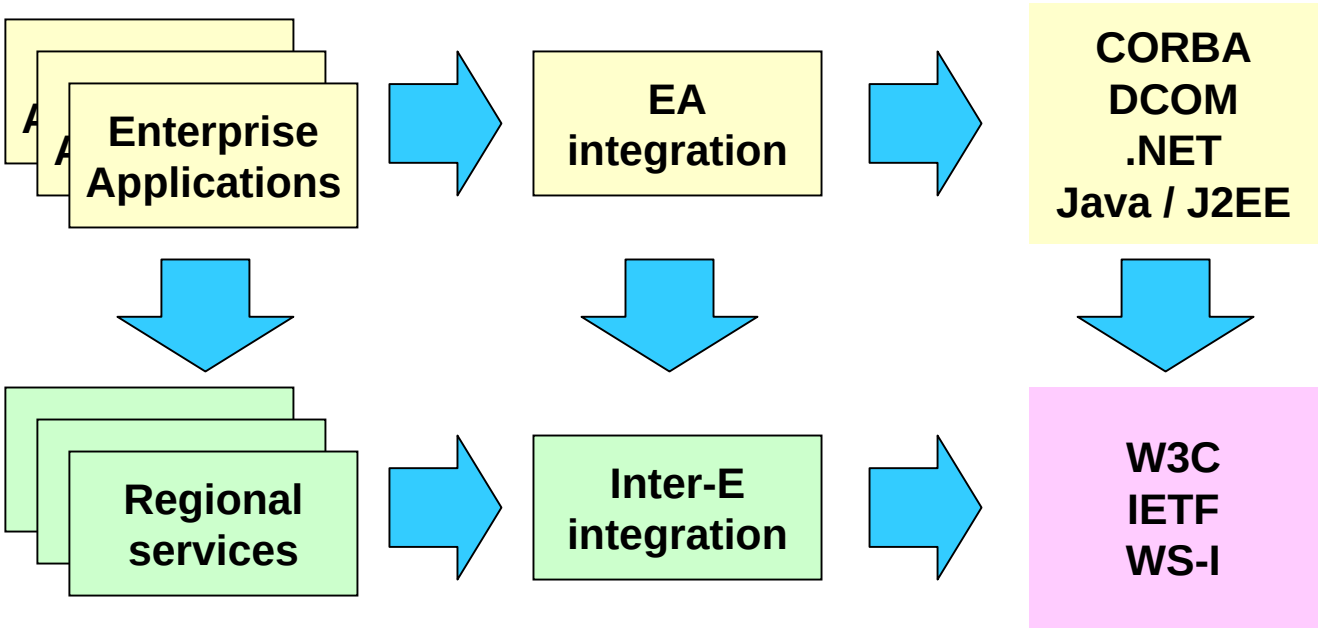
- What is "old", what is "new" technology
- How to integrate for functional and semantic interoperability
- Role of standards

- My "reference"
  - EU-funded PICNIC project in the eHealth / IST / 5th Framework Program (2000-3)

EVOLUTION OF PLATFORM ARCHITECTURES



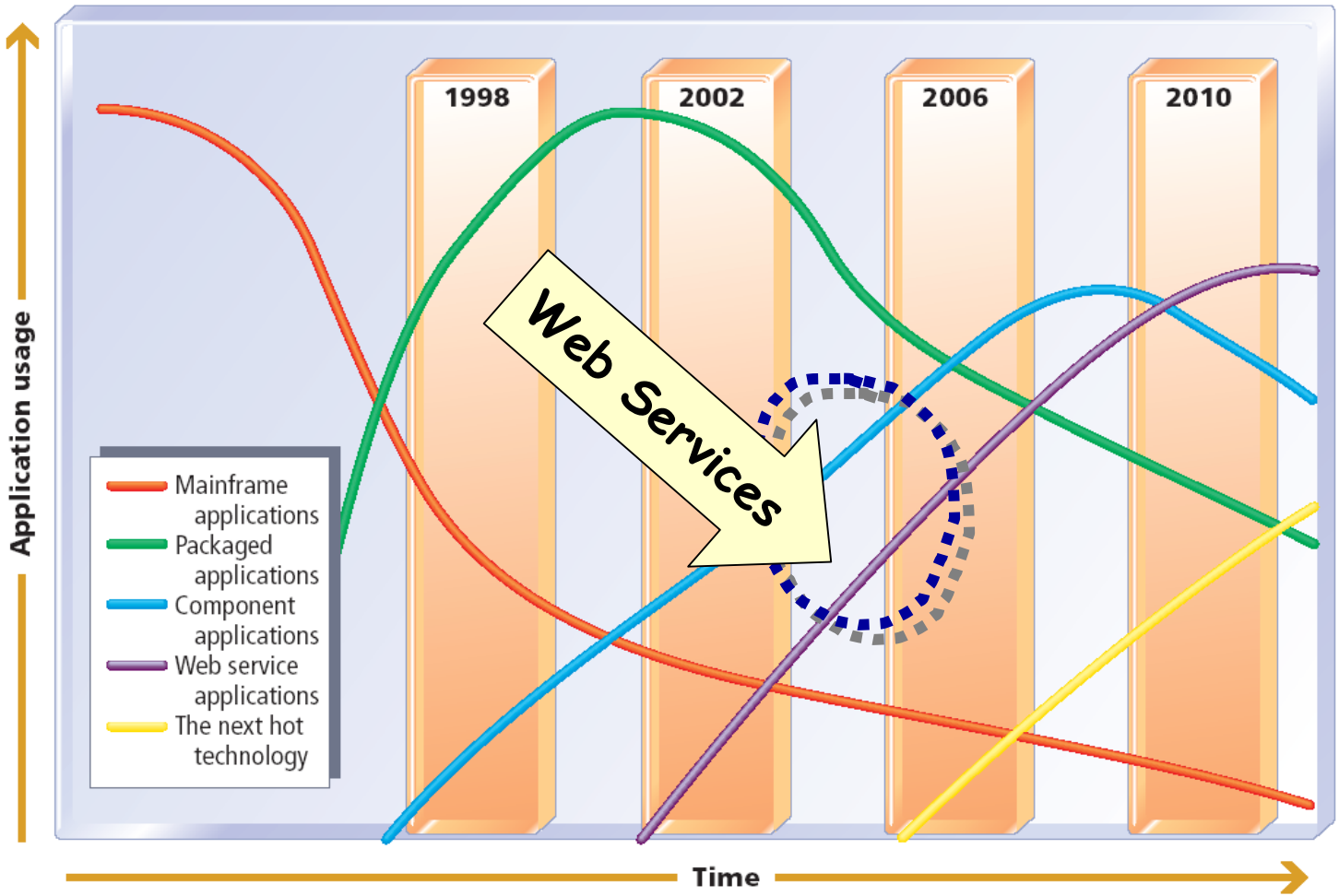
Technology Platforms for MEETING INTEGRATION NEEDS



ISSUES
Interoperability
Security
Flexibility
Scalability

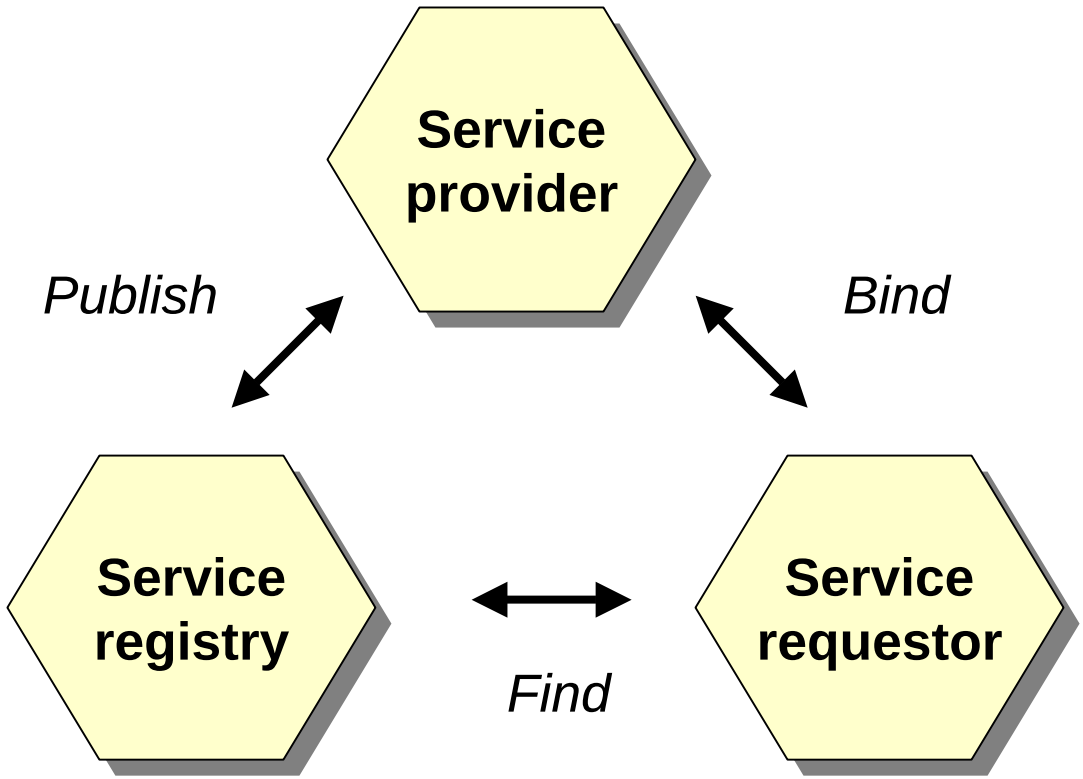
Standards

Forecast on TECHNOLOGY PLATFORMS



Source: Technology Forecast 2002-2004, Volume 1- Navigating the future of software, PWC, 2002

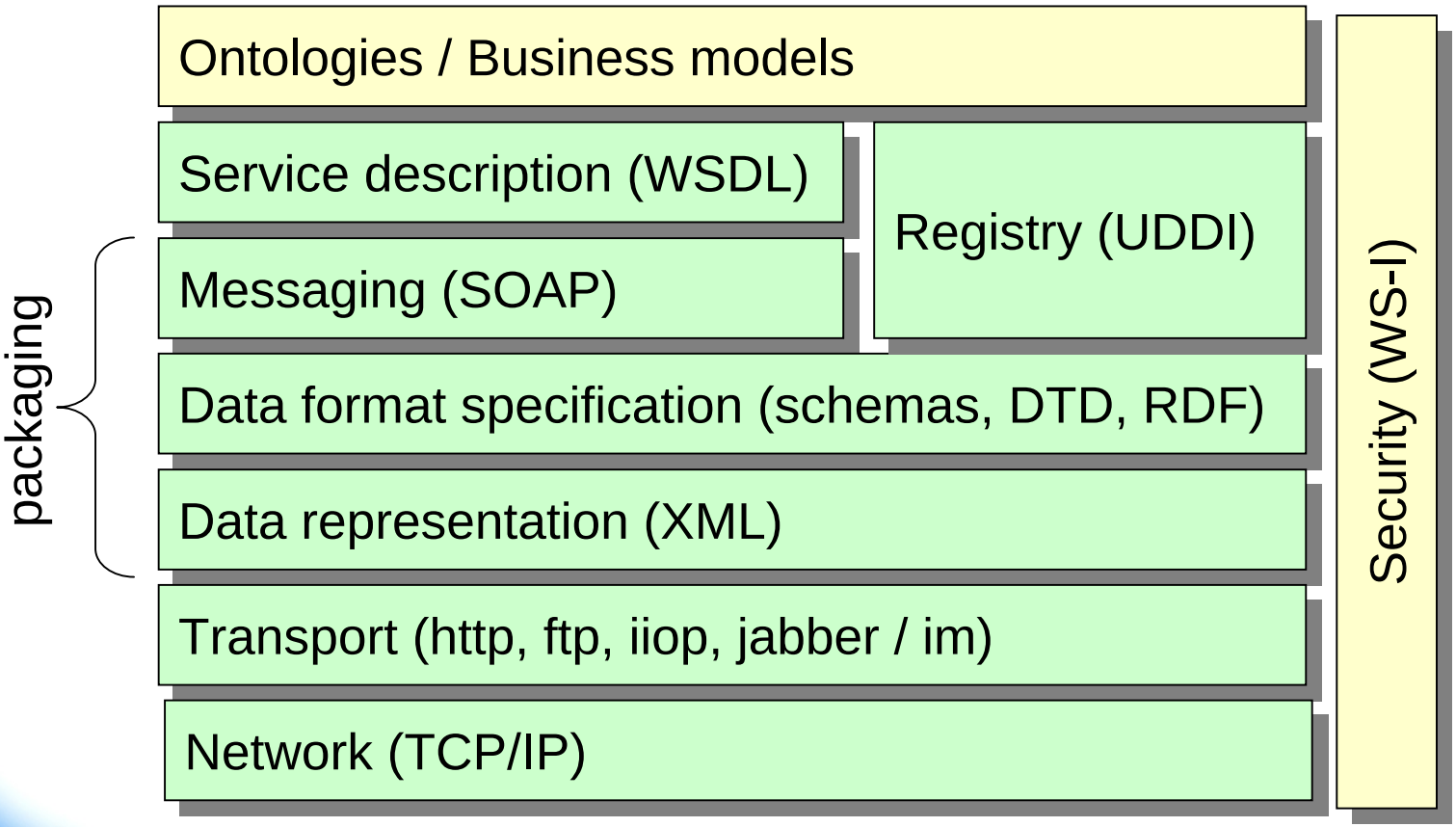
WEB SERVICES & PEER-to-PEER COMMUNICATION
W3C solution - “A whole new alphabet soup”



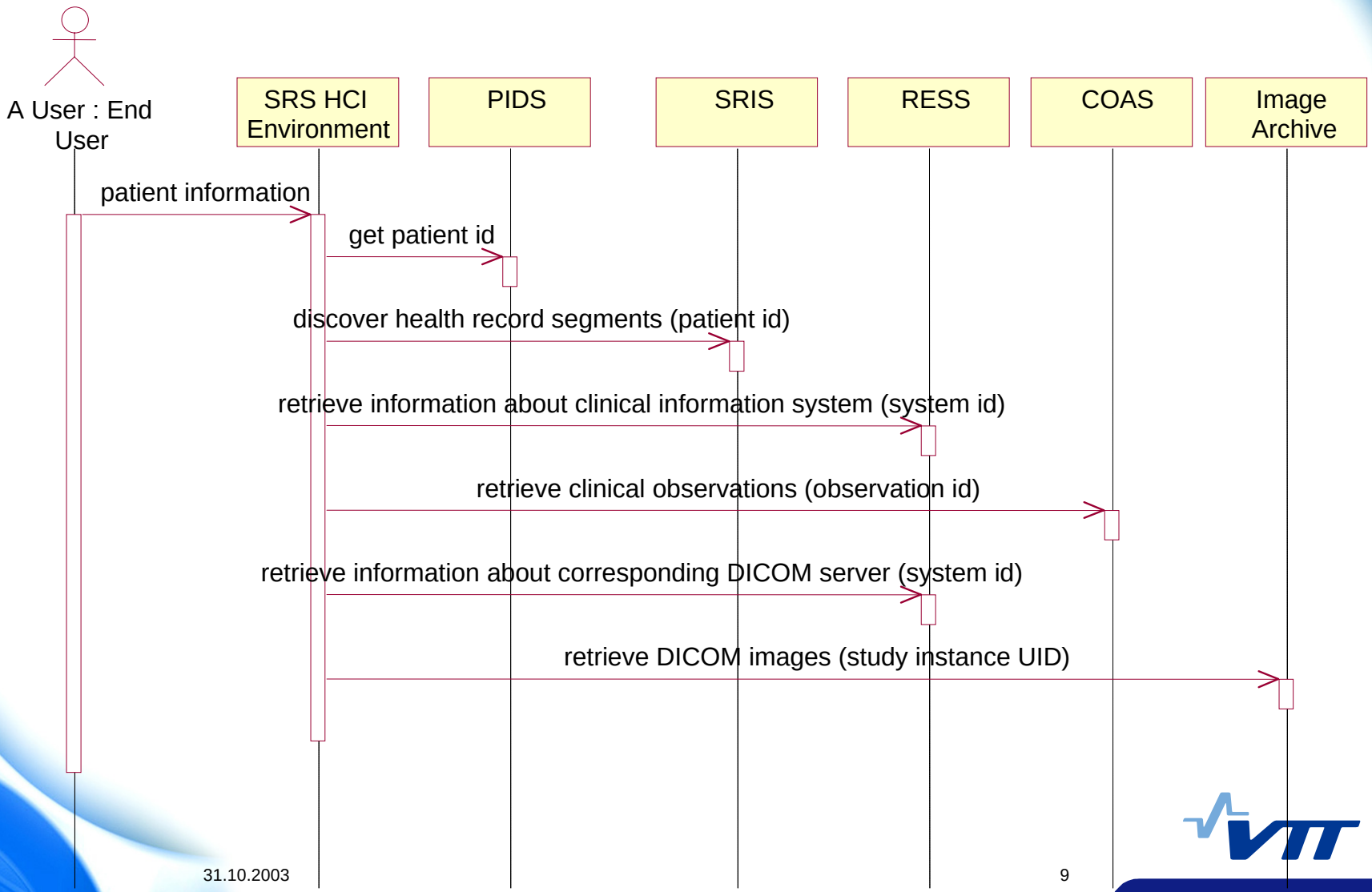
WEB SERVICES & PEER-to-PEER COMMUNICATION
W3C solution - “A whole new alphabet soup”

stack	standards	purpose
Discovery	UDDI	*Locating services*
Description	RDF, WSDL	*Describing services*
Packaging	XML, SOAP	*Requesting / performing services*
Transport	HTTP, Jabber	*Transporting requests*
Network	TCP/IP	*Network*

WEB SERVICES & PEER-to-PEER COMMUNICATION
W3C solution - “A whole new alphabet soup”



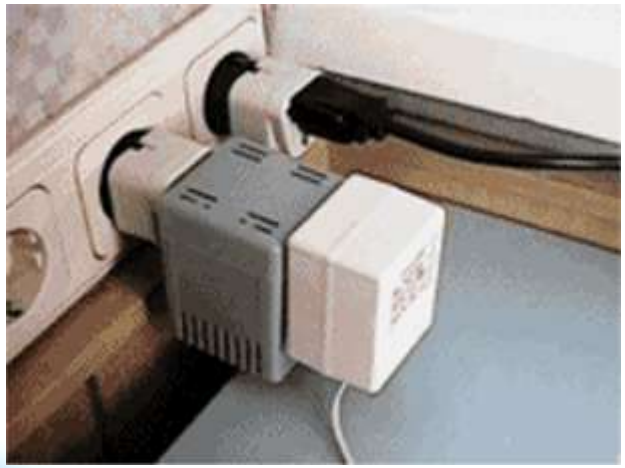
USE CASE APPROACH
SEQUENCE DIAGRAM



COMPONENT MODELING: OUTPUTS

- Public Interfaces
- Conformance Levels
- Reference Model

- Reference Model
  - Contains generic data structures
- Knowledge Model
  - Contains domain knowledge



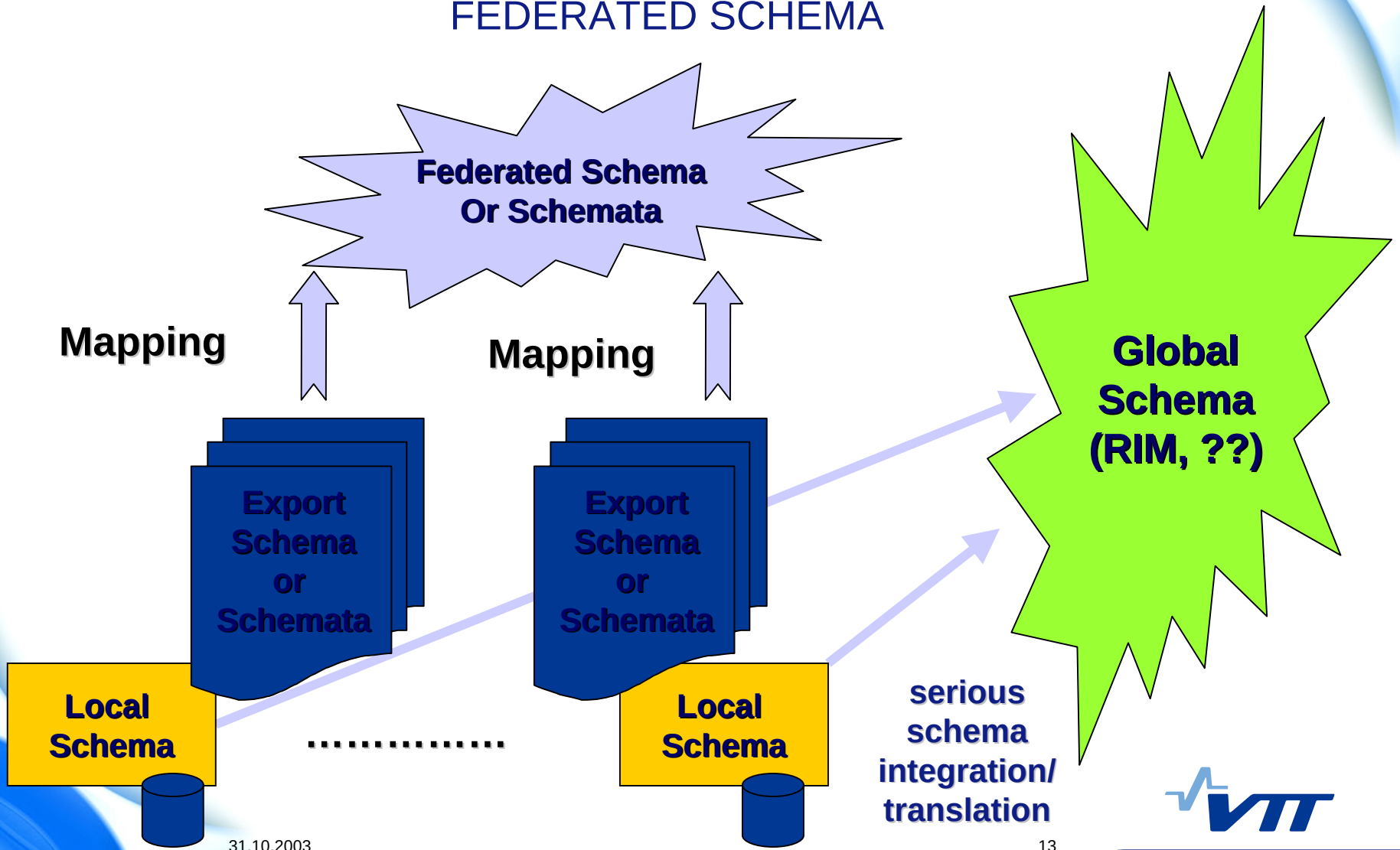
LESSONS LEARNT

- Components are useful only within the context of a larger, unifying framework that provides structure and semantics.
- A single component may require multiple implementations.
- It has been proven difficult to accept a component that at once is general in design, but specific in function.
- Incompatible versions of components necessarily exist, and may compete with themselves.
- Web Services are the building blocks of a component software architecture spanning the entire Internet.
- The needs for stability, manageability, maintainability and most importantly ability to evolve are of paramount importance.

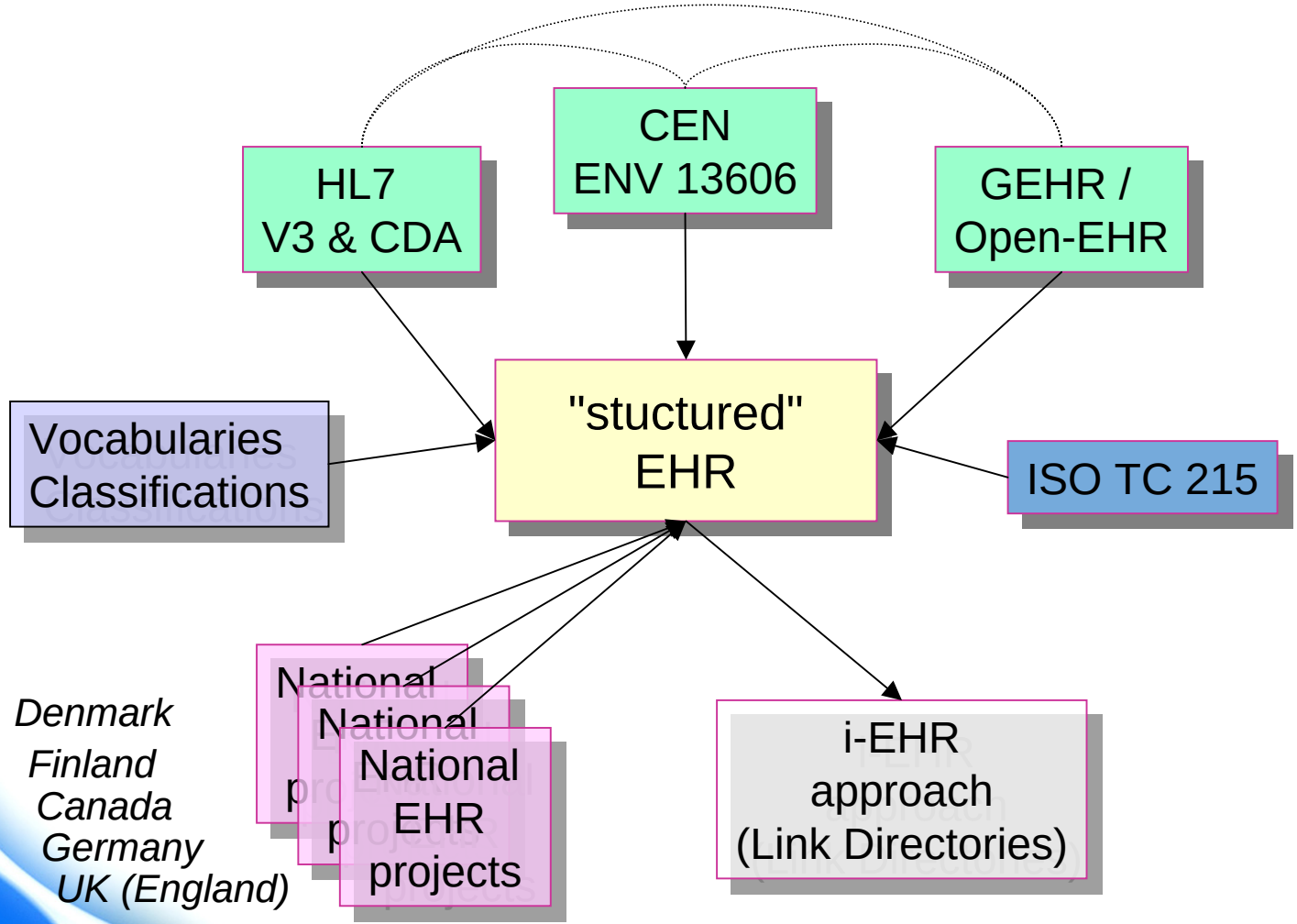
WHAT IS INTEROPERABILITY

Differing Views

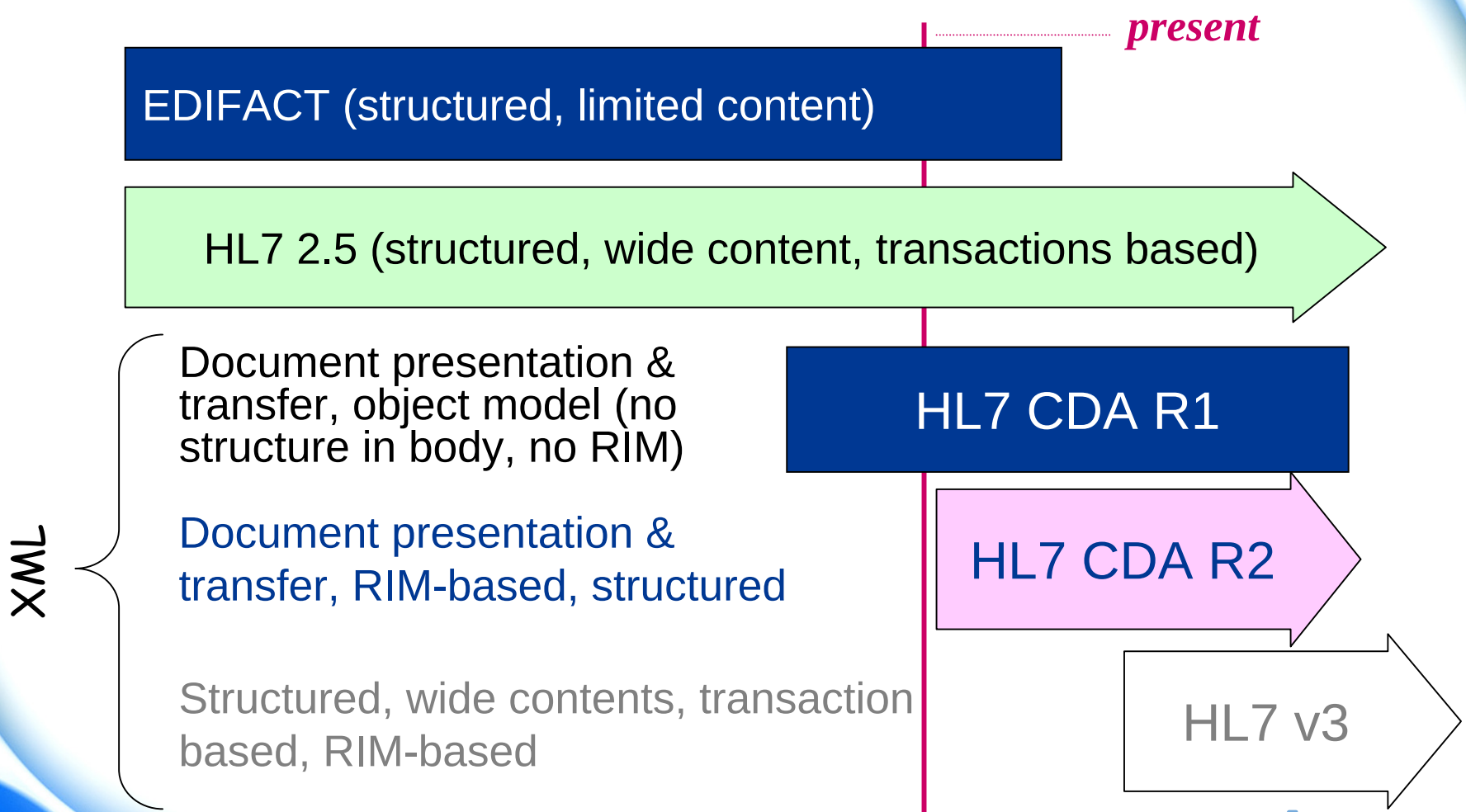
SEMANTIC INTEROPERABILITY
FEDERATED SCHEMA



NO SHORTAGE OF STANDARDS
But which work, which are mainstream?



SoA OF MESSAGING STANDARDS



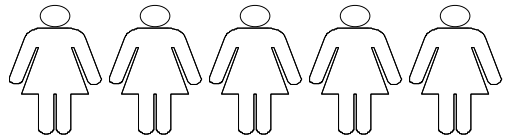
FINALLY,
YOU NEED AN ARCHITECTURE

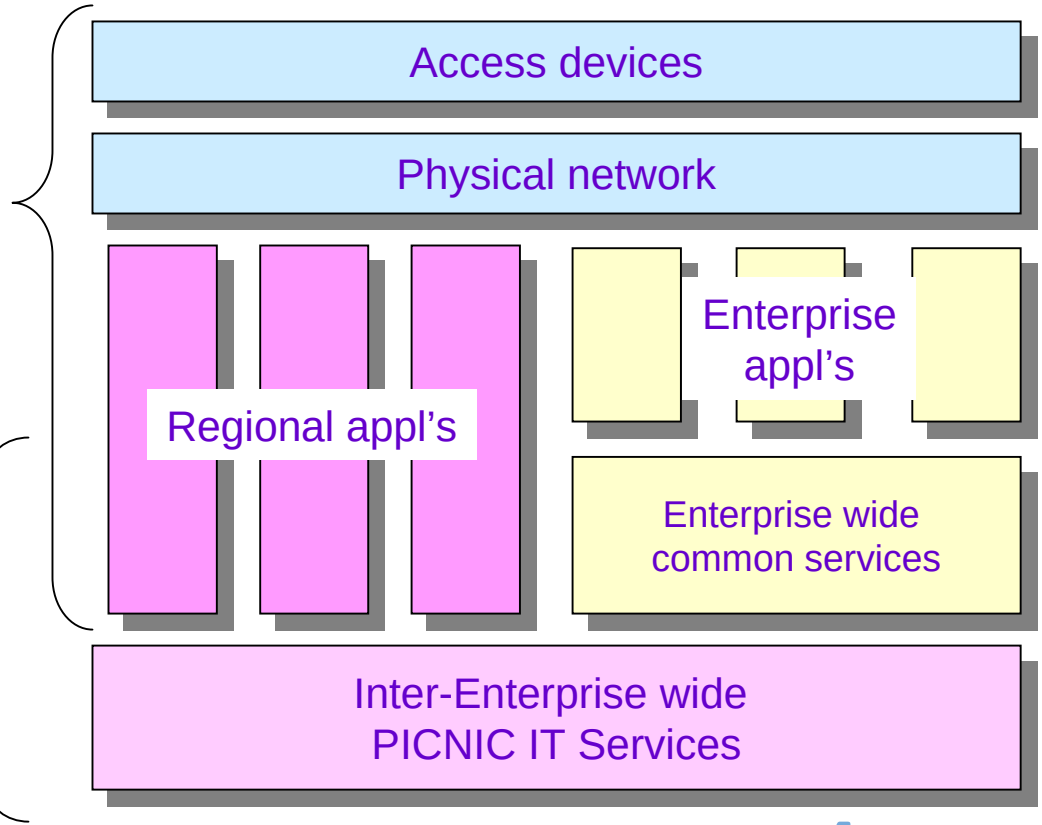
.. and a methodology to build and communite it to the stakeholders

GENERAL PICNIC ARCHITECTURE

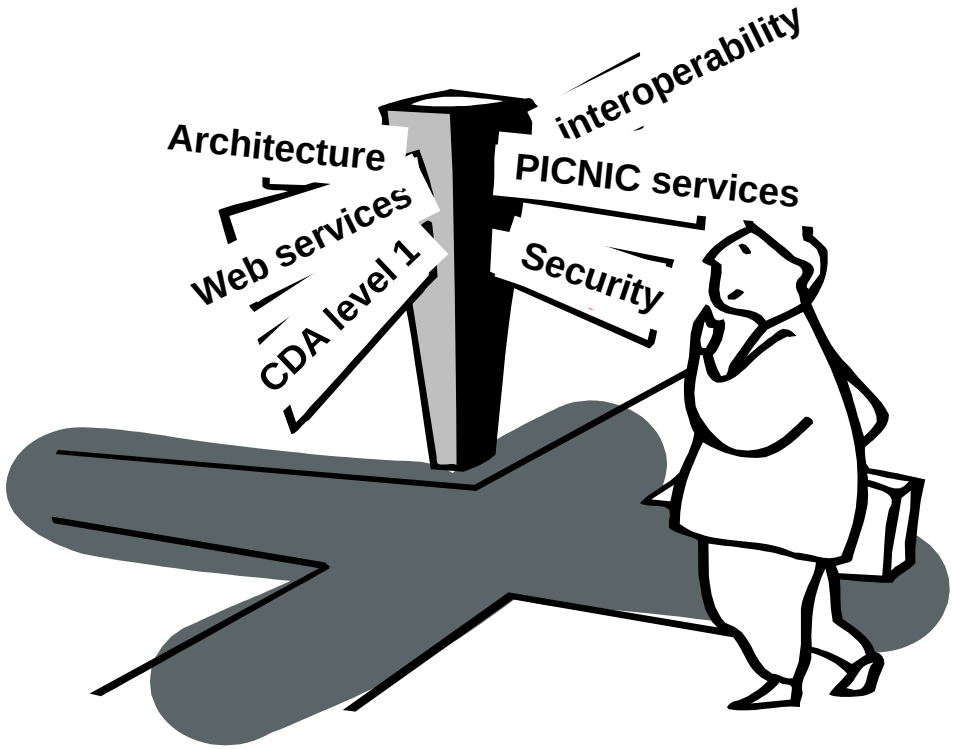
Physical users access regional and enterprise applications through various access devices using wired and wireless networks

Common services are used by regional and enterprise applications to enable interoperability and to add modularity





Thank you!


interoperability
Architecture
PICNIC services
Web services
Security
CDA level 1

SHOWSTOPPERS

- Interoperability in:
  - Technical standards for communication, storage and access
  - Coding (language in medical records)
  - Medical diagnosis and treatments
  - Organisational protocols
  - Reimbursement
  - Accreditation for medical staff and patients
  - Accreditation for patient (insurance, access to data)
  - Legal framework
  - Political decisions
- Storage and Processing the amount of medical information
  - Access to appropriate info at the right time, in the right format by the right person
- Limitations in the technology infrastructure
  - Systems design
  - Bandwidth availability
- Data Security and Privacy
  - Certification
  - Access management
  - Transfers
- eHealth acceptance in the medical community and citizens
  - Habits and medical traditions
  - Concerns related to confidentiality and loss of control
  - Lack of information about eHealth, and health in the population

SHOWSTOPPERS

- Legal Aspects
  - Ownership of data
  - Liability and insurance of the physicians
  - Data protection laws
- Regional differences
  - Political priorities
  - Language barriers
  - Cultural differences
  - Differences in the development of medical care delivery in the different regions (especially new EU member states)
- Economical Aspects
  - Absence of cost-efficiency models
  - Initial Investments in infrastructure
  - Uncertainty about eHealth sustainability
  - Low public and private R&D funding
- Ambiguity of the multiple visions of eHealth
- Competition between multiple players