



epsos

EUROPEAN PATIENTS
SMART OPEN SERVICES





“epSOS in short”

www.epsos.eu





1. Introduction to epSOS

- a. Intro to the project
- b. What is an NCP

2. History

- a. The development of the original common components
- b. NCP-in-the-box
- c. SRDC NCP and interoperability with NCP-in-the-box
- d. OpenNCP
- e. epSOS 2.0 Services

3. Organization

- a. Who
- b. For Whom
- c. How





4. Architecture and technologies

- a. IHE, HL7, other standardization bodies
- b. Architecture overview
- c. What is fully implemented, what is partly implemented, what is outside the scope

5. Tools

- a. Code repositories and CI
- b. Java, Maven, Gitflow

6. Experiences and an outlook to the future





Introduction to epSOS

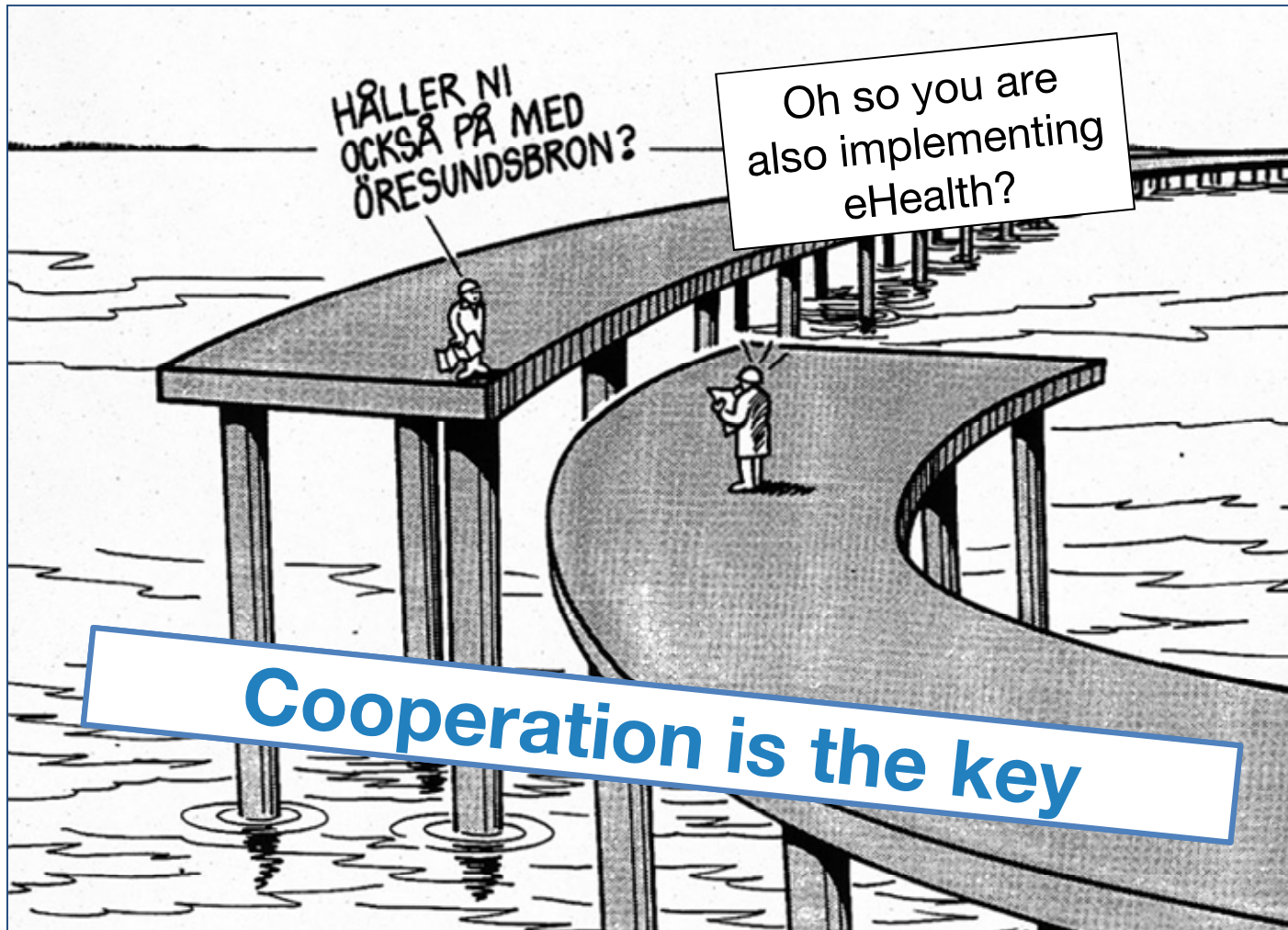




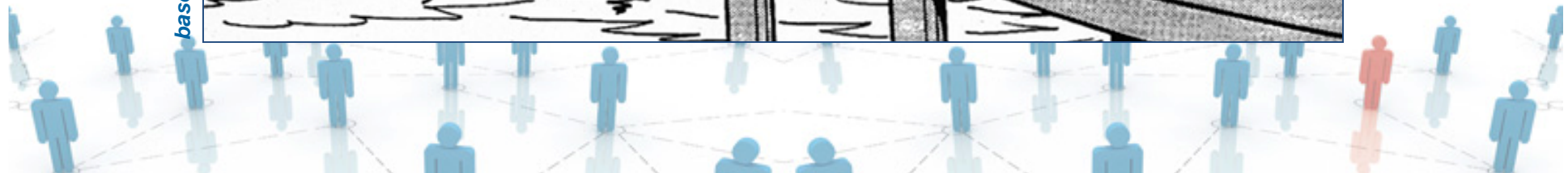
epSOS Mantra

From strategies to services
eHealth as the enabler for cross-border healthcare



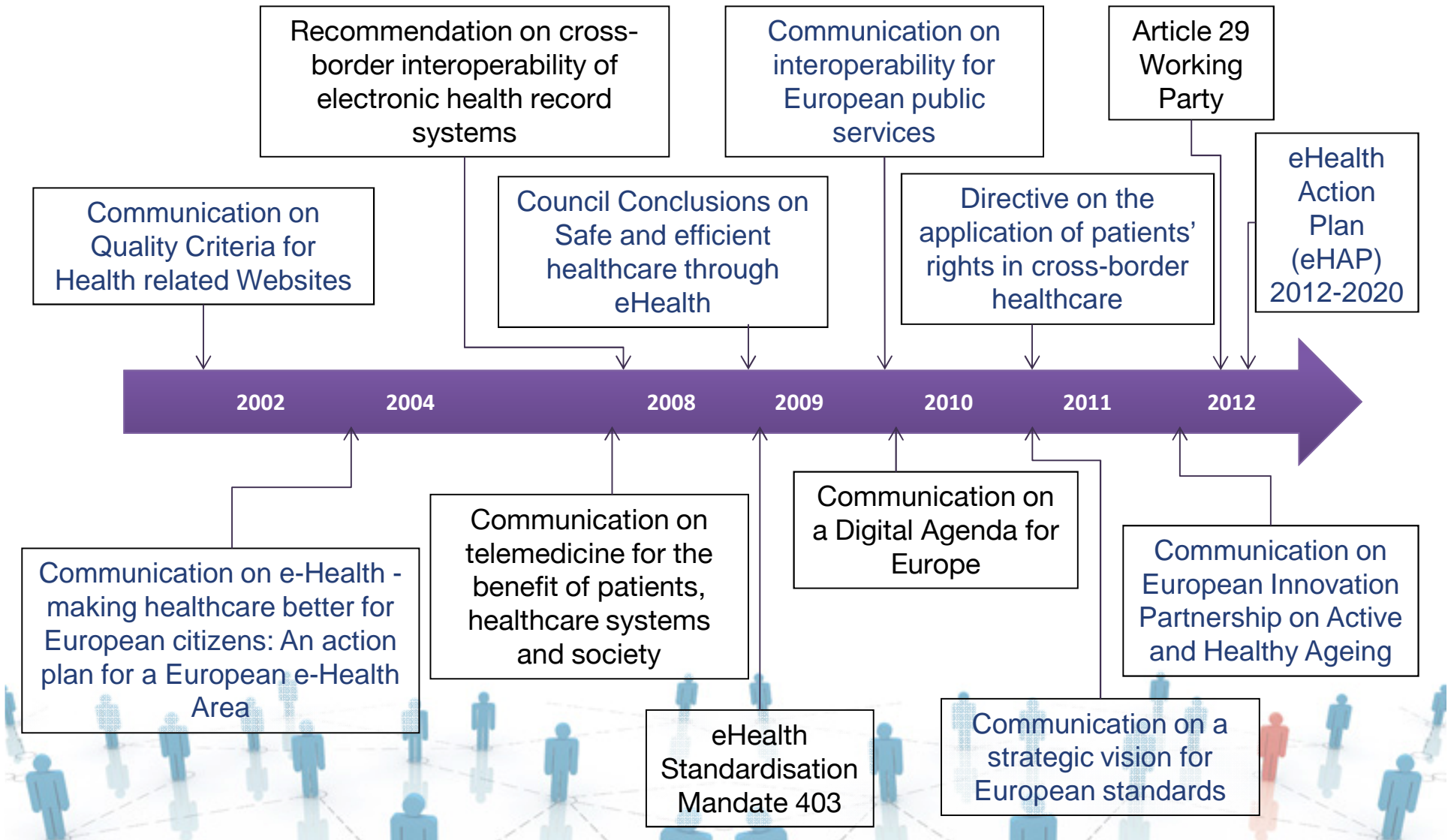


base from Mikael Erlandsson





Policy Context for EU eHealth Interoperability





epSOS Time Frames

epSOS I

epSOS II

2008

2009

2010

2011

2012

2013





The Goal

Smart Open Services for European Patients

..to develop a **practical** eHealth framework and ICT infrastructure *[based on existing national infrastructures]* that will enable **secure access** to patient **health information**, particularly with respect to a basic **Patient Summary** and **ePrescription**, **between European** healthcare systems.



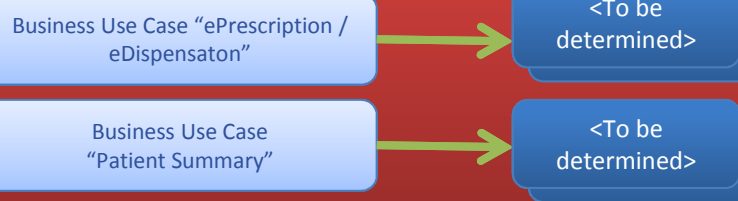


epSOS Vision

International base standards and profile development

- LOINC
 - SNOMED/CT
 - HL7 v2
 - HL7v3
 - CDA L1 L3
 - Pdf/A
 - HTPP1.1
 - UTF8
 - OASIS ebRIM 3.0
 - OASIS ebRS 3.0
 - W3C MTOM
 - W3C XOP
 - W3C SOAP 1.2
 - WSI BP 1.1
 - WSI SBP 1.1
 - RFC1305 (NTP)
 - ETSI TS 102 231
 - SAML
 - X509
 - RFC 3881
 - XACLM
 - TSL/NSL
- IHE-BPPC
 - IHE-XCPD
 - IHE-XCA
 - IHE-CT
 - IHE-XDR
 - IHE-ATNA
 - IHE-XSPA
 - IHE-XUA
 - IHE-XCF
 - ...
- TSP
 - CEN activities
 - IEEE 11073
 - ...

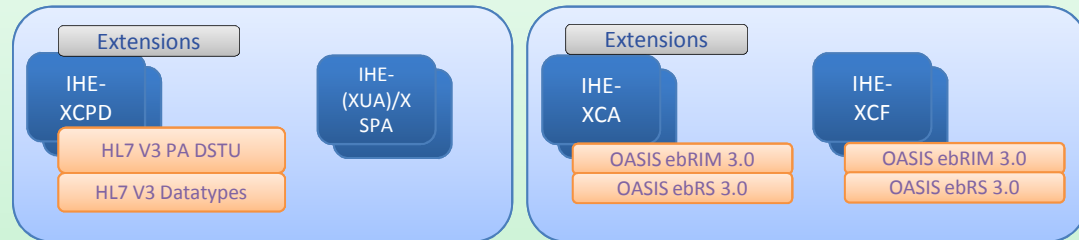
eHealth European Interoperability Framework: EU Recognised profiles



epSOS EU Cross-Border eHealth Interoperability Project

Identification Service

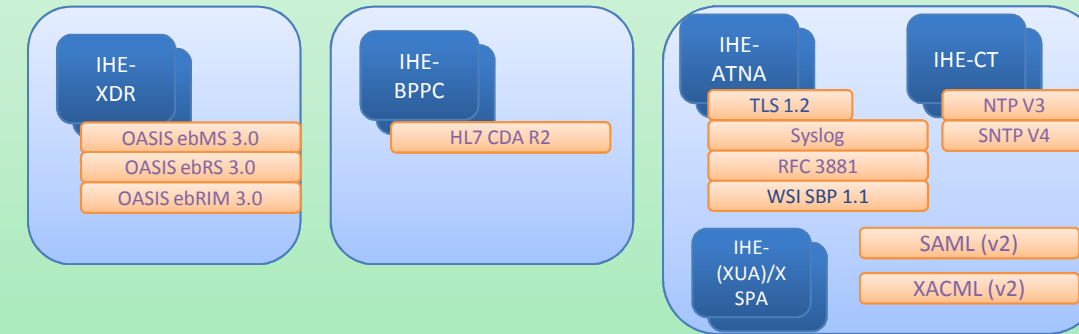
epSOS Business Service



Dispensation Service

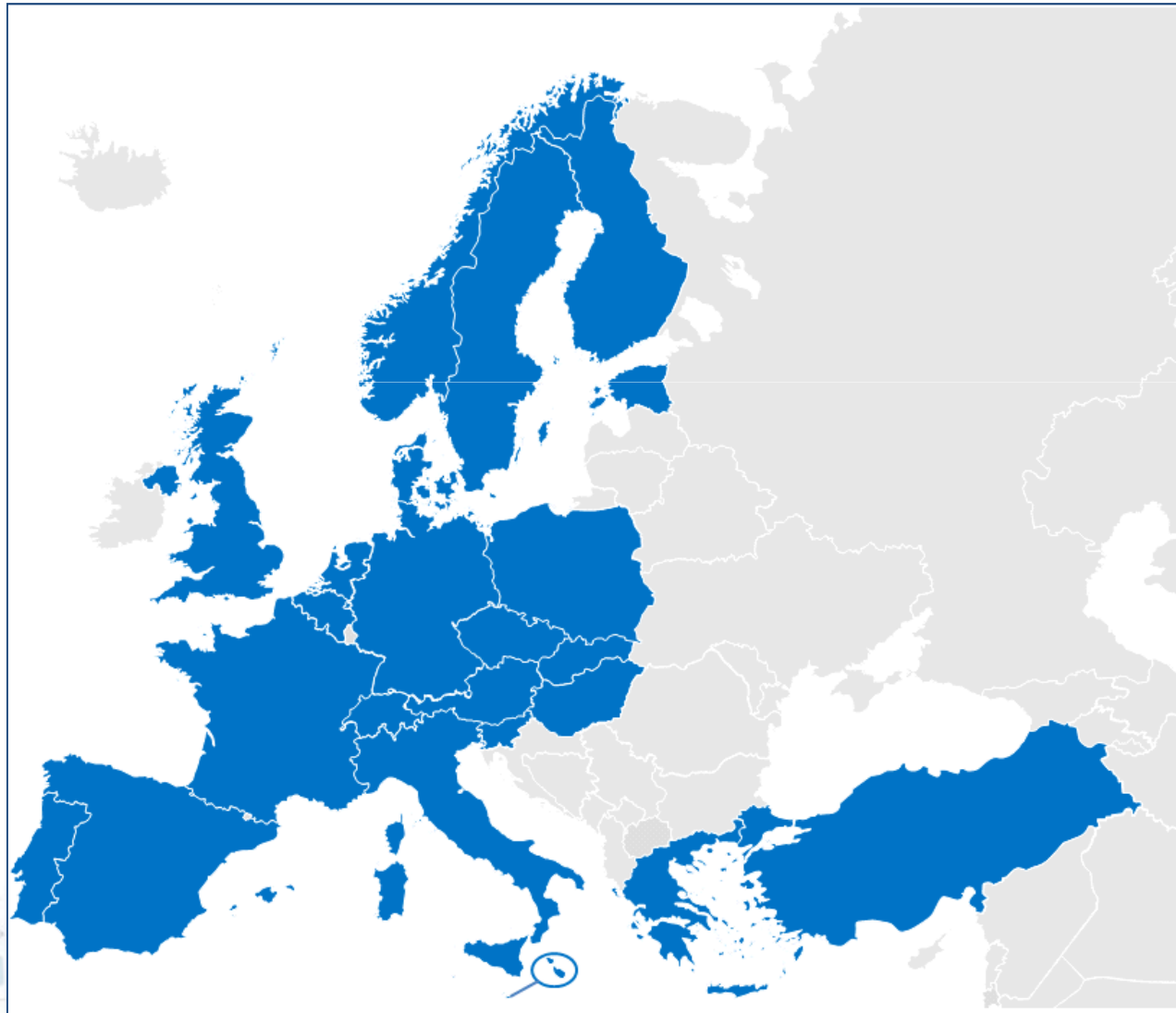
Consent Service

Security and Infrastructure services





26 Participating Nations





Industry Team

as per 15.05.2013

3M	<u>Agfa HealthCare</u>	Alert Life Sciences Computing	Apollo Information Technologies
Boston Life Labs	CareCom	<u>Cisco</u>	Conet AG
dbMotion	Dedalus Healthcare Systems Group	Engineering S.p.A	<u>GE Healthcare</u>
<u>Gnomon Informatics</u>	<u>IBM</u>	<u>IHE Europe*</u>	<u>Indra</u>
Insiel S.p.A.	Intel Corporation	Mawell	MediCognos
<u>Microsoft</u>	Netsmart	Oracle	Posam
RISE	Steria	<u>Tiani-Spirit</u>	TrebleM
T-Systems	UBM Medica	X-tention	

Industry Team Steering Group members are underlined

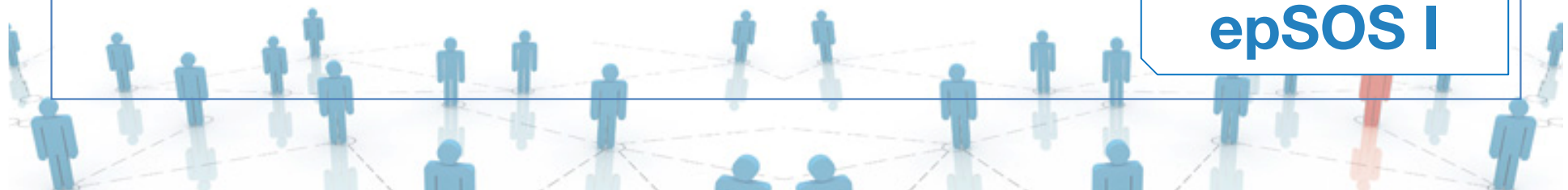
*Industry Team Coordinator,
no member of Industry Team



Provide concrete cross border Health services

- **Patient Summary for EU Citizens**
 - Occasional and Regular Visit
- **ePrescribing for EU Citizens**
 - Medication ePrescription and eDispensation

epSOS I





■ Patient Access

- Give the patients access to their information in multi-language

■ Health-Care Encounter Report

- Report information about an encounter

■ Medication Related Overview

- Provide relevant information for medication dispensation



epSOS II



National Contact Point

Legal

Gathers all the legal supporting NCP structure

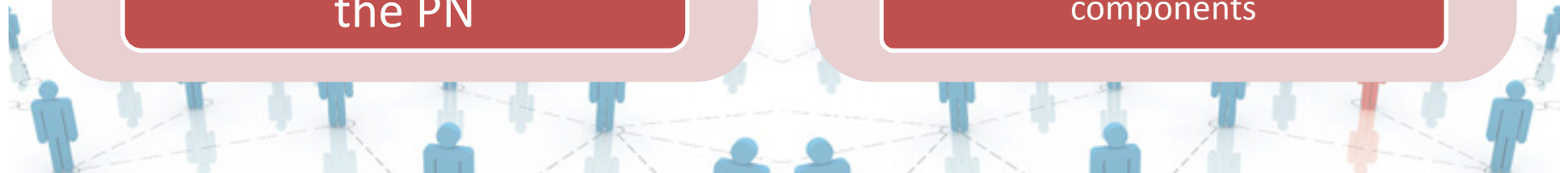
Controls the flow of information to and from the PN

Technical

Acts as an entry/exit point for a national eHealth infrastructure

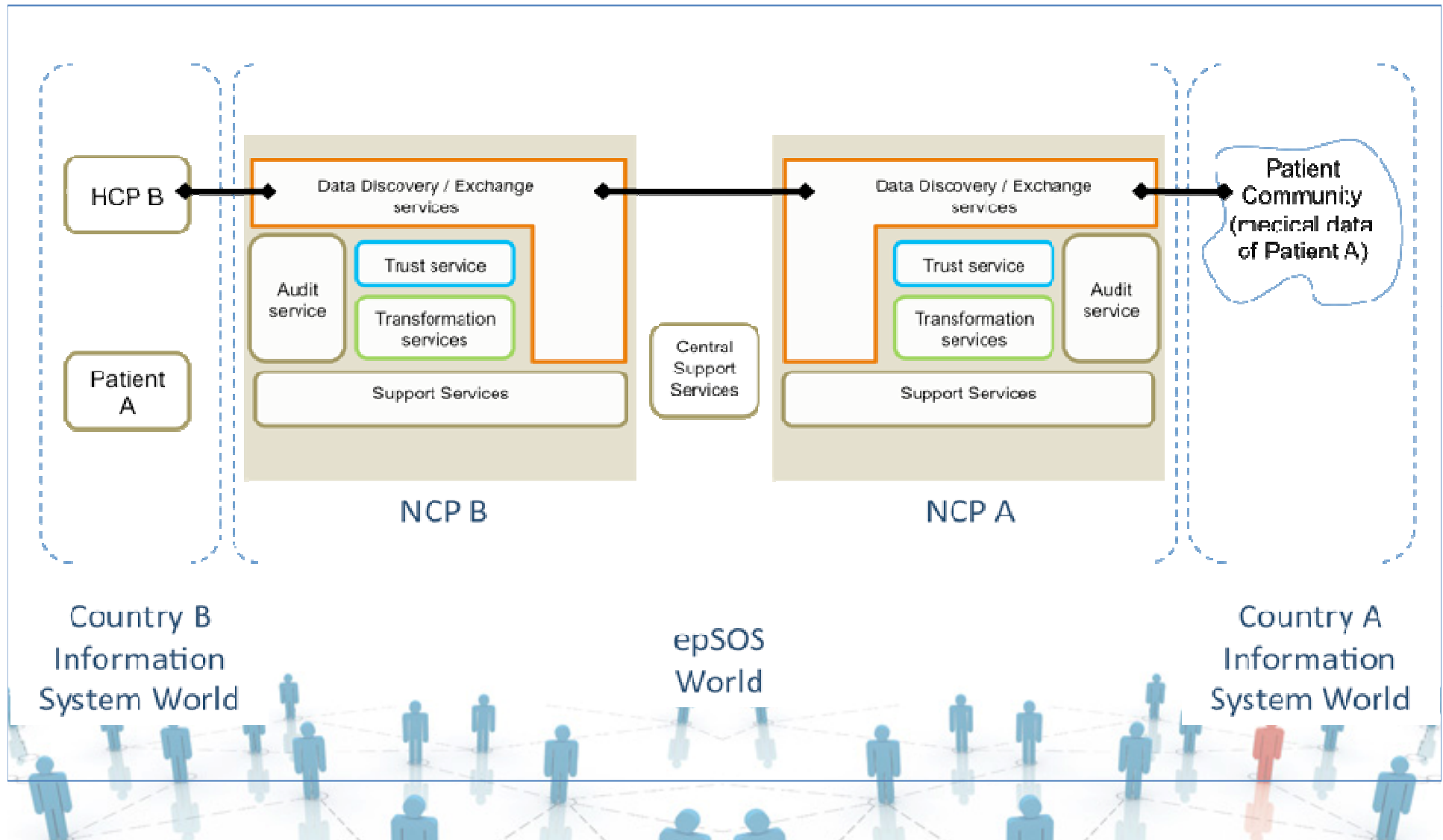
Handles semantic and technical adaptations of eHealth applications

Is built using the delivered components





NCP Concept





History





Motivations

- **Interoperability** to connect services and architectures, potentially different in every Participating Nation (PN)
- The **National Contact Point (NCP)** is the fulcrum of cross border interoperability, exploiting the role of connecting the PN to the European Level environment.





Original Idea

- Limit central project results to specifications
- Leave implementation to PNs

- Feasibility of achieving interoperability between NIs was very low
- PNs commitment with specs was low

Recognized outcome

Actions taken

- It was decided in 2010 to engage a consortium to develop a reference implementation





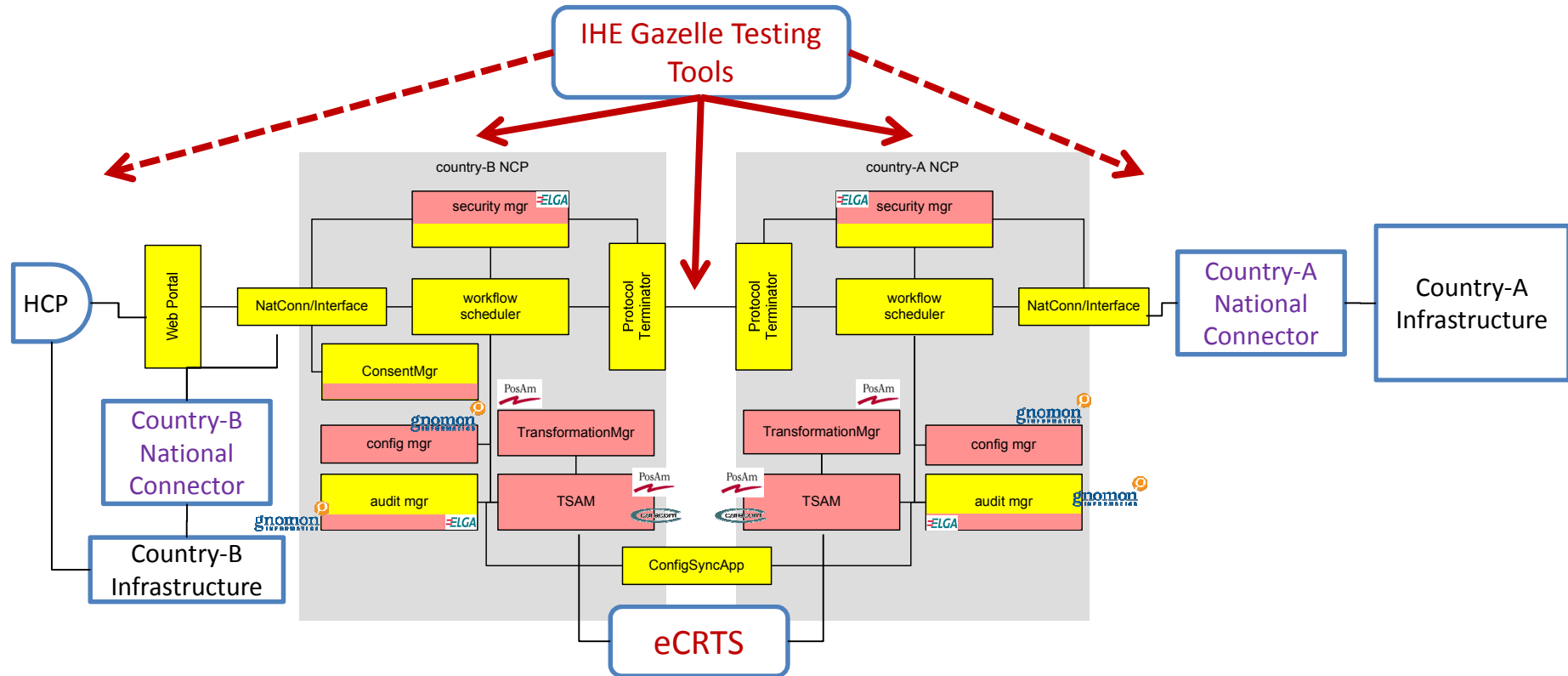
FraunhoferElgaTiani Solution

- Developed by the consortium of **beneficiaries** and **industry team**
- Mainly constituted by **Fraunhofer, Elga** and **Tiani**
- The resulting components were in part **proprietary software**





Common Components Development (CCD) Composition



yellow

Vendor ready-to-deploy and IHE connect-a-thon tested products
→ no JARF sponsoring, royalty-free licence for epSOS pilot projects

red

cooperative, common development by Industry Team / Beneficiaries
→ JARF sponsored Open Source Software, linked to vendor products





- Second NCP implementation developed by **SRDC** (Software Research, Development and Consultancy Ltd., Turkey)
- Provided **free of charge** to several countries for their own NCP, under GPL license
- Makes use of open epSOS **common components**
- Has compliant **interoperability** with **FET** solution and **OpenNCP**





Summer of 2012

Concrete plans for forming an open source project (OpenNCP)

Delivering the software components necessary to run a NCP

Manifest it in the formation of an international task-force team





Organization





OpenNCP Community

Open group of **people** orchestrated by an **agile** software development methodology conducting effort on **designing, coding, testing** and delivering OpenNCP software





Willing People == Community



OpenNCP Team and epSOS Members at 2013 Istanbul Connectathon



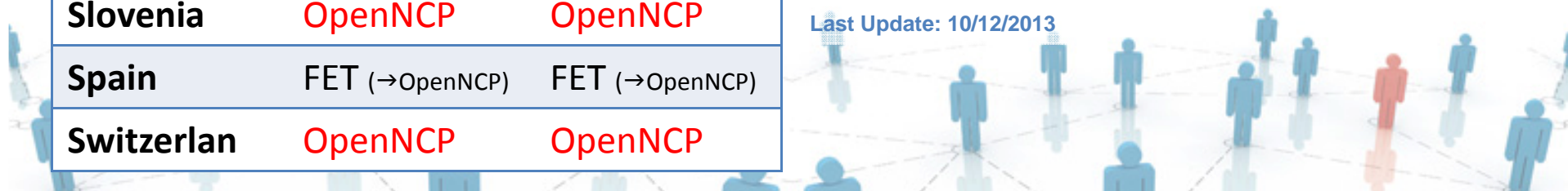


OpenNCP Adoption

Patient Summary		
PN	PS A	PS B
Austria	FET	FET
Estonia	OpenNCP	OpenNCP
France	FET	FET
Hungary	N/A	OpenNCP
Italy	OpenNCP	OpenNCP
Luxembourg	N/A	OpenNCP
Malta	OpenNCP	OpenNCP
Portugal	OpenNCP	OpenNCP
Slovenia	OpenNCP	OpenNCP
Spain	FET (→OpenNCP)	FET (→OpenNCP)
Switzerland	OpenNCP	OpenNCP

ePrescription		
PN	eP A	eP B
Croatia	OpenNCP	OpenNCP
Denmark	FET	FET
Finland	OpenNCP	OpenNCP
Greece	N/A	FET (→OpenNCP)
Hungary	FET (→OpenNCP)	FET (→OpenNCP)
Italy	OpenNCP	OpenNCP
Spain	OpenNCP	FET (→OpenNCP)
Sweden	OpenNCP	OpenNCP

Last Update: 10/12/2013





Since then (2012-06)

100

+ meetings

21

Software components

4

Used over 1 PAT and 4 PPTs

epSOS I/II

epSOS I and II services available

Adopted by MOST of epSOS PN (10+)





OpenNCP Vision

...design and develop a set of Open Source Components (OpenNCP) that can be adopted by Participating Nation, to build their local implementation of the NCP (*National Contact Point*).





OpenNCP Definition

“epSOS NCP software publicly available under Open Source licensing”





**Motivation
and Culture**

**Skills and
Expertise**

**Key
Ingredients**

Willing People

**Common
needs**





Distributed Development

12

Countries

AT, CH, DK, EE, FI, GR, HU, IT, PT, SE,
SK, TR

27

Contributors (not all coding)

3

Spanned timezones

24

Source repositories

*development and contributions to the project
should be **easily obtainable** and
understandable*

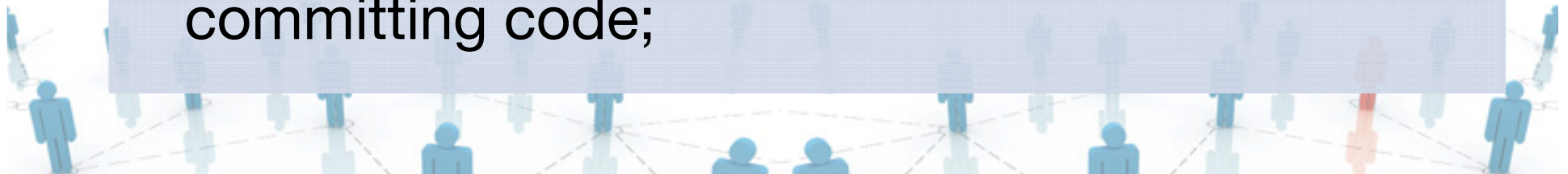




Method

Software components released **MUST**

- Be readily deployable;
- Have qualitative demands on the build tools (**Continuous Integration**);
- Have discipline of the developers when committing code;





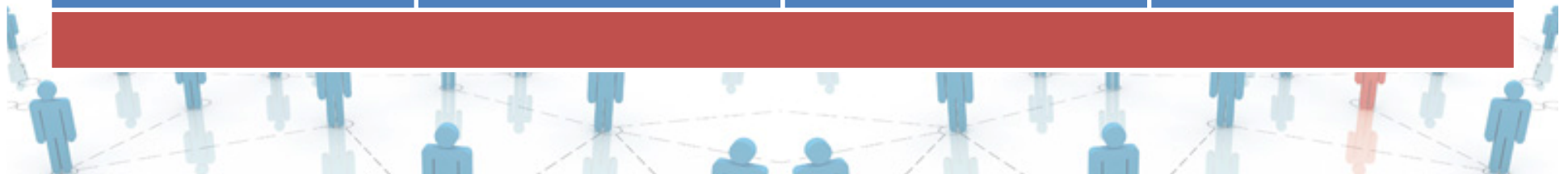
OpenNCP Community

Collaborative
Design

Technology
Engineering

Support &
Maintenance

Knowledge
Sharing





Architecture and Technologies





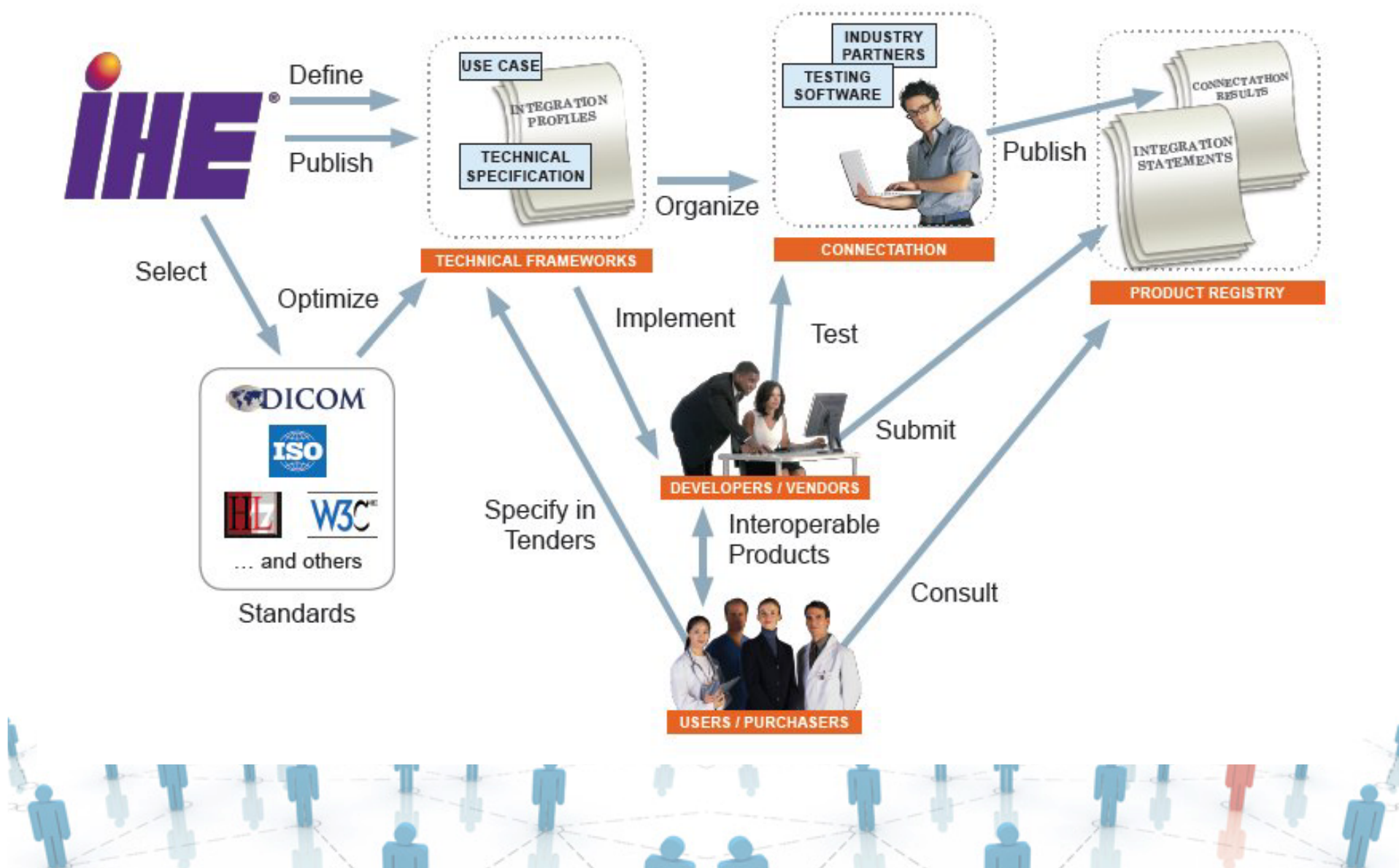
IHE Definition



Aims to speedup the adoption of EHRs and optimize the clinical information exchange between systems.

By improving the **quality**, **efficiency** e **safety** of healthcare procedures due to improved information availability.







HL7 Definition



Vision

- Create the best and most widely used standards in healthcare

Mission

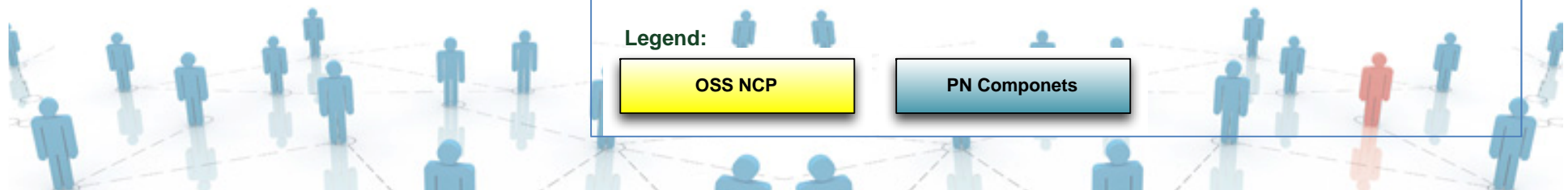
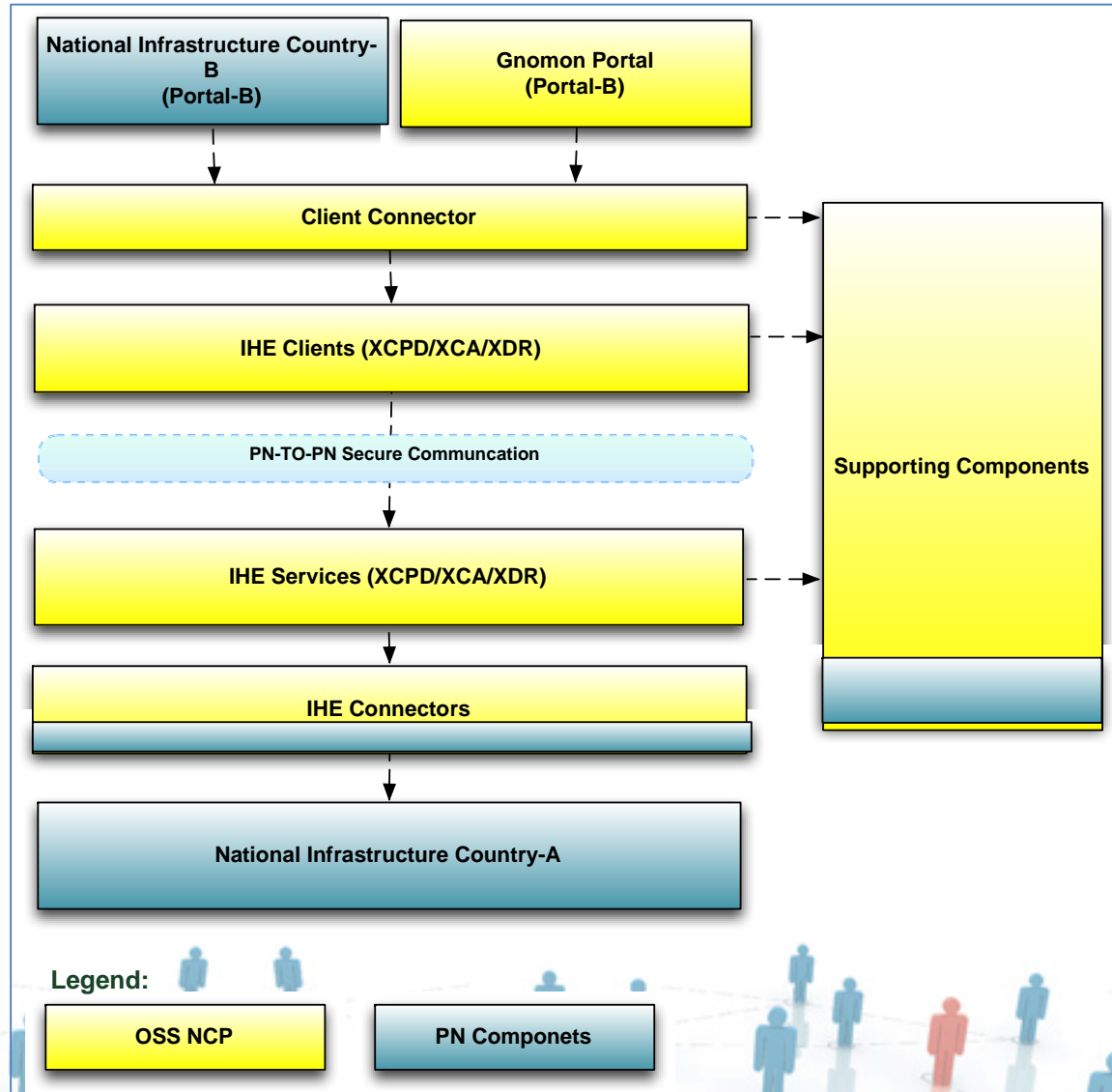
- Provide standards that improve care delivery, optimize workflow, reduce ambiguity and enhance knowledge transfer. All based on maximum scientific rigor.

Meaning

- Level Seven refers to the seventh level of the OSI model, the application level.

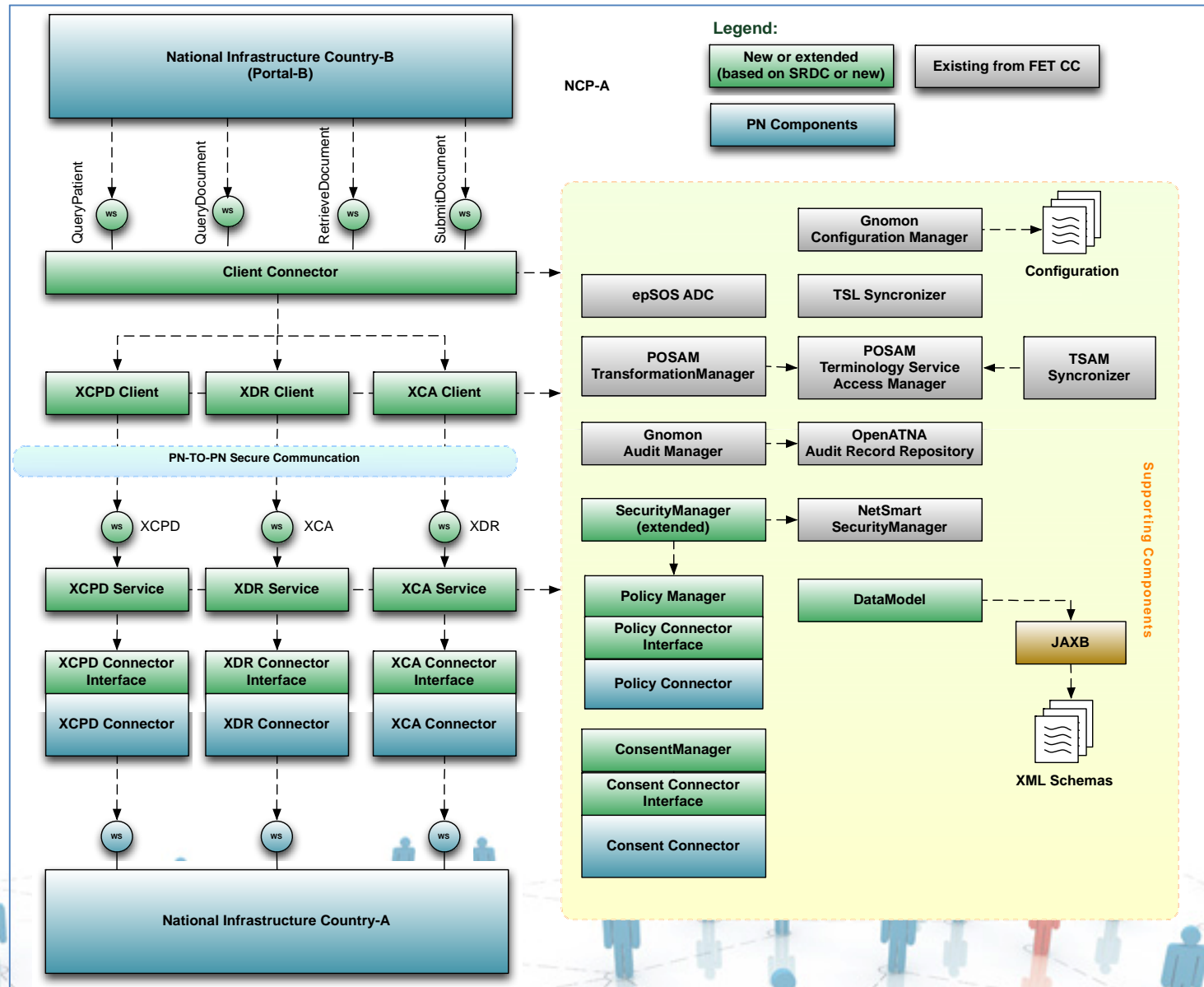


NCP Common Component Architecture



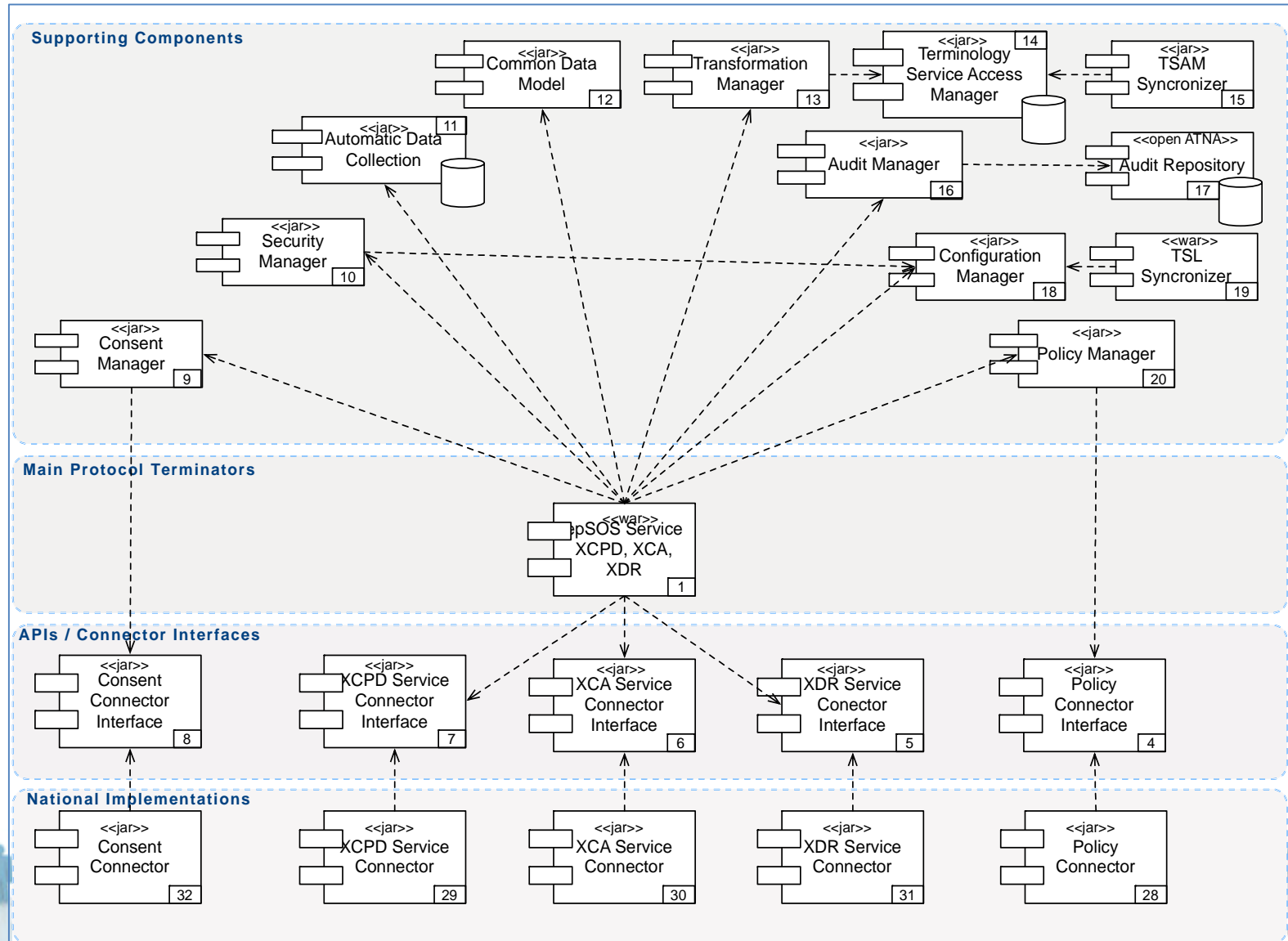


NCP Logical Component Model



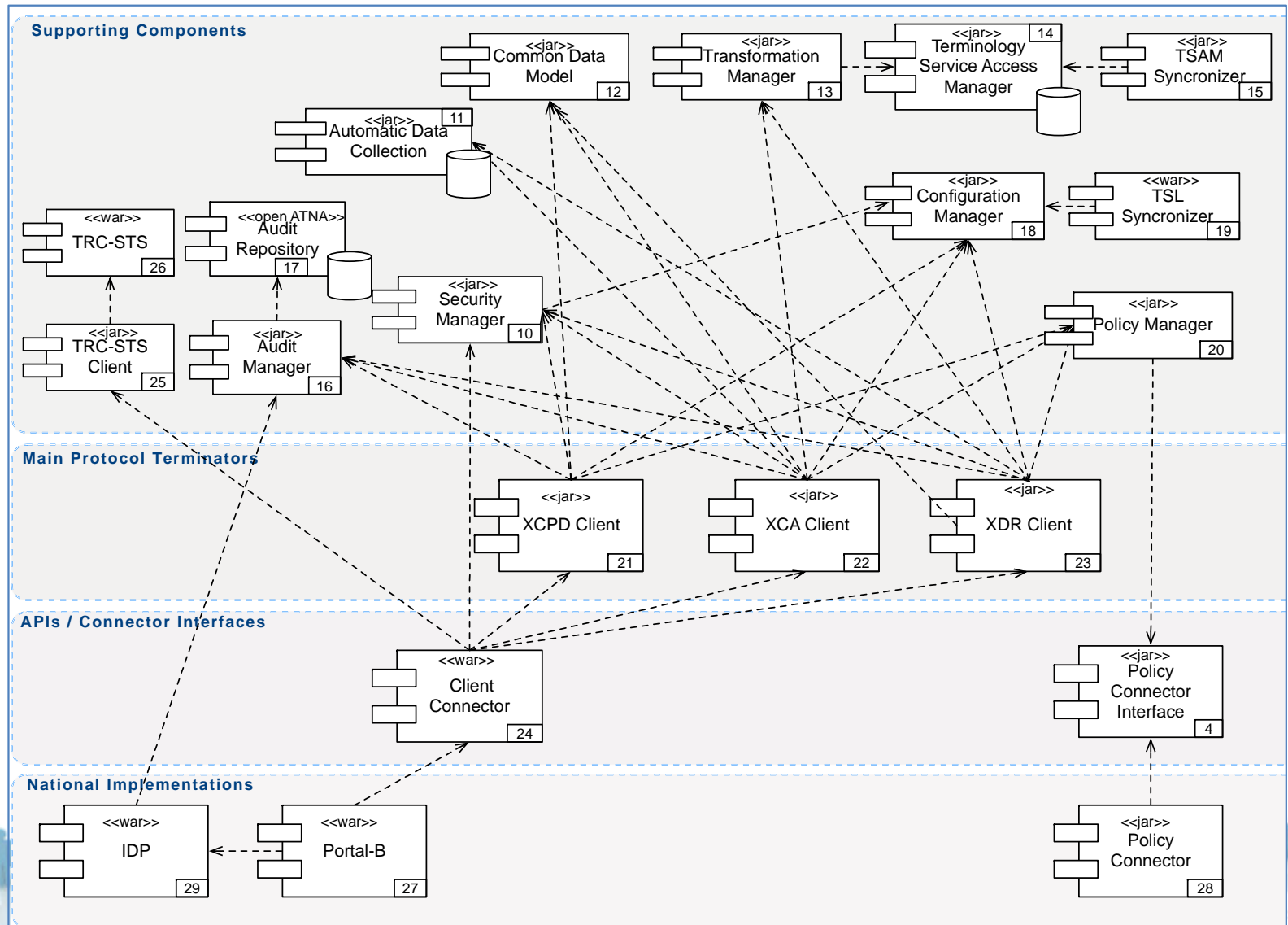


NCP-A Components Architecture





NCP-B Components Architecture





OpenNCP Services Implementation Status

epSOS I

Patient Service

Order Service

Consent Service

epSOS II

Healthcare
Encounter
Report

Medication
Related
Overview

Patient
Access

Automated
Validation

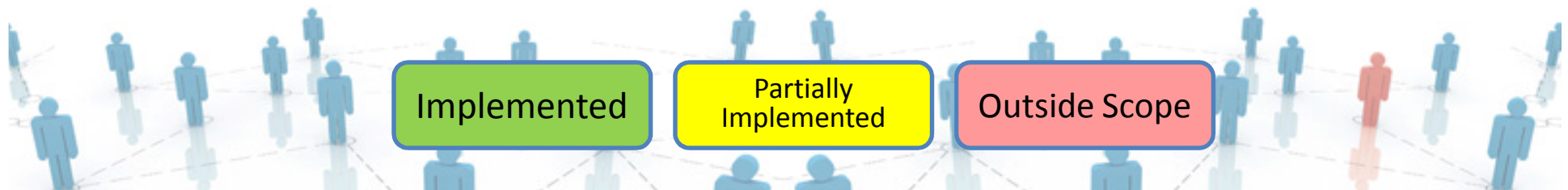
112
Emergency

EHIC

CTS2

XDM

ESS





Tools





Development Management

MyDashboard

Activity Stream

JIRA

Thursday

Marcelo Fonseca attached 2 files to OPENNCP-28 - OpenNCP Documentation: General Presentation, Technical Aspects, Installation Overview

----- Forwarded message -----
From: Marcelo Fonseca <marcelo.fonseca@iuz.pt>
Date: 20131025
Subject: epSOS Documentation, Technical Aspects: Information about the open source solution
To: "Kathrin Kublin" <Kathrin.Kublin@img.gu.ch>
Cc: "yuegen.wei@getmail.de" <yuegen.wei@getmail.de>, "Liliana Bano" <liana.bano@iuz.pt>, Marcello Melgara <marcello.melgara@ont.sspa.it>

Dear Kathrin,

Please accept my appreciation for a reference about the open source solution, to be included in the "epSOS Technical Aspects" sheet

IUZ

Thursday at 11:44 AM

Marcelo Fonseca commented on OpenNCP Technical Sheet

Here's my suggestion for an OpenNCP reference:

Reference Implementation

The epSOS Project decided to support the development of a reference implementation without any limitations on the usage by the PIs. As a result the OpenNCP represents a set of

Thursday at 10:32 AM

Marcelo Fonseca commented on OPENNCP-28 - OpenNCP Documentation: General Presentation, Technical Aspects, Installation Overview

Assigned to Me

Key	Summary	Updated
OPENNCP-28	OpenNCP Documentation: General Presentation, Technical Aspects, Installation Overview	26Dec13
PT-397	JCA Query workflow messages are being validated twice in NCP-A-B	17Dec13
TSYNC-6	TSYNC-4 / Build CTS2 compliant REST client	17Dec13
TSYNC-6	TSYNC-4 / Adjust DAOs to fill the database using the REST client	17Dec13
PT-405	iDispensation CDA Validation NCP-A	11Dec13

1-5 of 22

Watched Issues

Key	Summary	Updated
TSYNC-6	TSYNC-4 / Adjust DAOs to fill the database using the REST client	17Dec13
TSYNC-6	TSYNC-4 / Build CTS2 compliant REST client	17Dec13
TSLBNA-1	Paths in epSOS properties should be relative, not absolute	19Mar13
PT-347	Send CDA document transformation/translation errors to the portal	31Oct13
PT-209	PT-205 / Closed integration tests for CLIENT part with LIVE formalist POST	19Oct13

1-5 of 30

Created vs. Resolved Chart: CI Enhancements Implementation Tasks

Pie Chart: CI Enhancements Implementation Tasks

Total Issues: 43
Static Type: Assignee

OpenNCP Support

QUICK FILTERS: Only My Issues Recently Updated

43 To Do 5 In Progress 3 Quality Control 2 Done Release...

Major (CONSIDER solve for release) 32 issues

- PT-347 Send CDA document transformation/translation errors to the portal
- COMA-3 [Config. Manager] JT Policy do not allow passwords to be stored in database
- PT-116 XDR support for PDF/A coded eDispensation
- CM-1 Implement consent revocation
- PT-249 Refactoring of PT-219 (some exception classes need to be moved to another project and to different packages)
- PT-254 Problem with XDR submit dispensation request, it returns errors when trying with the endpoints
- OP-7 Some audit logs generate exceptions in OpenATNA
- TSAM-6 Thousands of Maven warnings
- TM-55 Transformation of coded element Author in iDispensation CDA level 1 produced by Sweden is not correct

OPENNCP-28 OpenNCP Documentation: General Presentation, Technical Aspects, Installation Overview

OPENNCP-33 Road to Sustainability

INT-68 WG epSOS OpenNCP Implementation - Austria

Tool

Atlassian Jira + GreenHopper

Location

<https://openncp.atlassian.net>



Knowledge Sharing

The screenshot shows the OpenNCP Confluence page. The header includes the Confluence logo, navigation tabs for Spaces, People, and Create, and a search bar. The main content area features a 'Pages' section with the title 'OpenNCP Community Home' and a 'Welcome to the OpenNCP Community!' message. Below the welcome message is a group photo of community members. The page also includes a list of links for various documents and a search bar at the bottom.

Pages

OpenNCP Community Home

Created by Luis Pinto, last modified by Licínio kustra Mano on Dec 26, 2013

Welcome to the OpenNCP Community!



This is the home of the OpenNCP development.

- OpenNCP General Presentation
- OpenNCP Technical Sheet
- OpenNCP Disclaimer
- OpenNCP Release Notes
- OpenNCP Meeting minutes
- OpenNCP Installation Overview
- OpenNCP Installation Manual
- OpenNCP Usage

Try searching:

Looking for OpenNCP releases?

Latest release is: 2.1.0 Release Changelog and Notes (Gold Release)

Want to contribute to OpenNCP?

Check out our last meetings and jump in the next one OpenNCP Meeting minutes

Want to install and setup the OpenNCP?

You can try the OpenNCP Installation Manual or for a introductory version the OpenNCP Installation Overview

Tool

Atlassian Confluence

Location<https://openncp.atlassian.net/wiki>



Code Sharing

epSOS common-components
A project that implements the common components specified by the epSOS project

[Project Home](#) [Source](#)

Summary [People](#)

Project Information

★ Starred by 3 users
[Project leads](#)

Code license
[Apache License 2.0](#)

Labels
Health, eu, e-Health, ihe, license

Members
[sl...@unimabla.net](#)
[stefan.p...@mawell.com](#)
[Konstantin Hyponan](#)
[msfyuk...@gmail.com](#)
[marcelo...@uz.it](#)
[liqin...@uz.it](#)
[no.pnh...@uz.it](#)
[13 committers](#)

Links
[External links](#)
[OpenNCP Home](#)

epSOS Common Components Description

The epSOS project has released interoperability specifications (Common Components Specification) for national Contact Points (NCPs) to interact and support epSOS defined services such as patient summary and prescription. epSOS has also established a testing process for testing compliant implementations of these specifications, and ensure their interoperability.

Project Dissemination

The general dissemination of the epSOS project is carried out at <http://www.epSOS.eu>, and all questions or comments regarding the project as a whole or any of the deliverables should be directed to the communication channels defined by the epSOS project. This open source project is a software implementation of these interoperability specifications. It is an example of their realization in software components that support building of an NCP (national contact point) by participating nations.

Artifacts Publication

All artifacts published by this open source project and its subprojects will be made available on <http://www.joinup.eu/>. This open source project will primarily provide the software components needed in an NCP, and integration tests that demonstrate their interdependencies. This will include build scripts, third party components, general instructions on deploying and notes on system prerequisites. Furthermore, the project may provide implementation notes, comments on the epSOS interoperability specification and general discussion related to the implementation of the software components. Such notes should be viewed in the context of a development work in progress, and may change over time or completely disappear.

License notes

The components developed in this project are developed under the ASLV2 and the GPLv3.

OpenNCP Introduction

The OpenNCP is thought of as a conceptual collection of the common components with the aim of constructing a NCP. The repositories hosted here represents the effort to meet this end.

OpenNCP miniprojects

The responsibility of the development and testing of the components have been divided into several miniprojects, each responsible of a logical

epSOS common-components
A project that implements the common components specified by the epSOS project

[Project Home](#) [Source](#)

Repository: [protocollterminators](#) [Checkout](#) [Browse](#) [Changes](#) [Clones](#)

Committed Changes Branch: [develop](#) Tag: [<none>](#) Other: [<none>](#) [Download zip](#)

Rev	Scores	Commit log message	Date
1102ae2928bb		Merge branch 'release/2.1.0'	Dec 17, 2013
3d51550bae07		Preparing OpenNCP Gold Release Version 2.1.0	Dec 17, 2013
6a1fe72ac70a		Merge branch 'release/2.1.0' into develop Conflicts: epSOS-integration-test/pom.xml epSOS-nCP-client-consumer/pom.xml epSOS-nCP-client/epSOS-client-connector/pom.xml epSOS-nCP-client/epSOS-xca-ws-client/pom.xml epSOS-nCP-client/epSOS-client-connector/pom.xml	Dec 17, 2013
e4cb672a1e08		PT-407 Review OpenNCP integration tests according to new testing tools - Adjust mock messages;	Dec 12, 2013
e46a31d7aa2a		PT-407 Review OpenNCP integration tests according to new testing tools - Fix testing case.	Dec 12, 2013
6e42e440b62		PT-407 Review OpenNCP integration tests according to new testing tools - Adjust testing case.	Dec 12, 2013
33c067e0f841		Preparing OpenNCP Release Candidate Version 2.1.0-RC0	Nov 25, 2013
ba28ae4ab93a		PT-377 PT-333 PT-336 PT-330 PT-394 PT-346 Validation tool for documents in Server Side - Add support for document validation tool in Client Side for the following services: MRO, PS, EP, HCEr, ED, CS;	Nov 25, 2013
946670c9f566		PT-372 PT-306 PT-307 PT-298 PT-319 Validation tool for documents in Client Side - Add support for document validation tool in Client Side for the following services: MRO, PS, EP, HCEr, ED, CS;	Nov 25, 2013
b27ab0c920b2		Merge branch 'release/2.0.3'	Nov 4, 2013
918782e2b66e		Preparing for OpenNCP Release Version 2.0.3	Nov 4, 2013
38e882420bc2		PT-354 NCP-A XCPD Audit - Adjust filling of Human Requestor User ID on other services; - Adjust version of Utils;	Oct 17, 2013
274493be23bc		PT-354 NCP-A XCPD Audit - Adjust filling of Human Requestor User ID; - Adjust version of Assertion Validator;	Oct 17, 2013
12e0f30c7c49		AM-11 epSOS-94 Audit Message - Adjust project version; - Adjust project dependencies;	Oct 16, 2013
5a5f9bfc0927		Merge branch 'release/2.0.2'	Sep 12, 2013
e5109180c0e0		Preparing for the OpenNCP 2.0.2 release	Sep 10, 2013
e222a070f56e		TSU-SW-2 up/prepare/Session NoClass (audit-manager version)	Sep 3, 2013
ba5af0d7f564		Merge branch 'develop' of https://code.google.com/p/epSOS-common-components/ protocollterminators into develop	Aug 26, 2013
2130c71ab25d		Merge branch 'release/2.0.1'	Aug 6, 2013
f1184d85975e		Preparing for the OpenNCP 2.0.1 release	Aug 6, 2013
a330173b3a3b		AM-5 New Audit Trail Specs - Adjust dependency version for Audit Manager;	Jul 15, 2013
9150812bbaba		Merge branch 'release/2.0.0-OPENNCP'	Jun 20, 2013
76337fe1fedb		Preparing for release of OpenNCP 2.0.0	Jun 20, 2013
34875ae4872		Merge branch 'release/1.1.1'	Mar 6, 2013
a187cae6b762		Merge branch 'release/1.1.0' Conflicts: epSOS-integration-test/pom.xml epSOS-nCP-client-consumer/pom.xml epSOS-nCP-client/epSOS-client-connector/pom.xml epSOS-nCP-client/epSOS-xca-ws-client/po...	Jan 24, 2013

Tool

Google Code + Git SCM

Location<https://code.google.com/p/epSOS-common-components/>



Quality Assurance

Jenkins

Novo Job

Pessoal

Historial de compilações

Relacionamento de Projectos

Verificar a impressão digital de ficheiro

Gerir o Jenkins

My Views

Fila de Compilações

Sem compilações em espera.

Estado de execução de compilações

#	Estado
1	Parado
2	Parado

All NCP-A NCP-B Static Analysis Test and Deploy +

S	W	Name ↓
🌞	🌞	StaticAnalysis - epSOS.Protocol.Terminators
🌞	🌞	StaticAnalysis - epSOS.Data.Model
🌞	🌞	StaticAnalysis - epSOS.Utilities
🌞	☁️	TestAndDeploy - epSOS.Audit.Manager
🌞	☁️	TestAndDeploy - epSOS.Config.Manager
🌞	☁️	TestAndDeploy - epSOS.Consent.Manager
🌞	☁️	TestAndDeploy - epSOS.Data.Model
🌞	🌞	TestAndDeploy - epSOS.Protocol.Terminators
🌞	🌞	TestAndDeploy - epSOS.PT.ClientConnector.Consumer
🌞	🌞	TestAndDeploy - epSOS.PT.ClientSide
☁️	☁️	TestAndDeploy - epSOS.PT.Integration.Test
🌞	🌞	TestAndDeploy - epSOS.PT.National.Connector.Mock
🌞	🌞	TestAndDeploy - epSOS.PT.NC.Mock.IT
🌞	☁️	TestAndDeploy - epSOS.PT.ServerSide
🌞	🌞	TestAndDeploy - epSOS.PT.Web.Services.Utils
🌞	🌞	TestAndDeploy - epSOS.PT.WS.Interface.Declarations

CheckStyle Result

Warnings Trend

All Warnings	New Warnings	Fixed Warnings
4993	0	0

Summary

Total	High Priority	Normal Priority	Low Priority
4993	4993	0	0

Details

Modules Packages Files Categories Types Warnings Details

Module	Total	Distribution
EpSOS CC Client Connector	195	██████████
EpSOS CC IHE-XCA Service Client	1388	██
EpSOS CC IHE-XCA Service Interface Implementation	917	████████████████████████████████████
EpSOS CC IHE-XCPD Service Client	190	██████████
EpSOS CC IHE-XCPD Service Interface Implementation	96	████████
EpSOS CC IHE-XDR Service Client	155	██████████
EpSOS CC IHE-XDR Service Interface Implementation	398	████████████████████████████████
EpSOS CC WS Interface Declarations	212	██████████
EpSOS CC Web Services (based on IHE XCPD, XCA, XDR)	1189	████████████████████████████████████
EpSOS CC Web Services Utils	47	██████
Mock National Connector implementations	206	██████████
Total	4993	

Tool

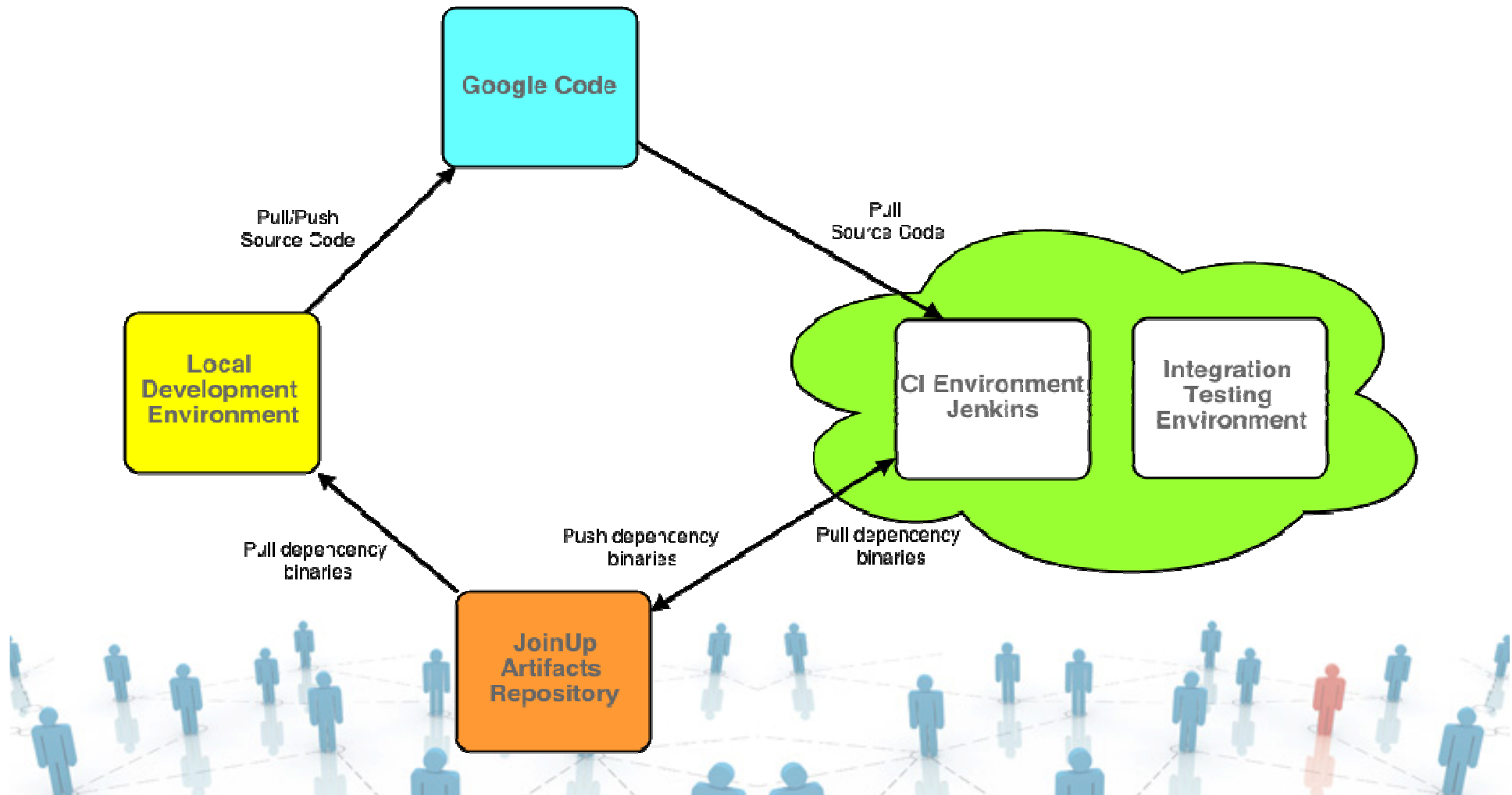
Jenkins

Location

<http://dev.iuz.pt/openncp-jenkins/>

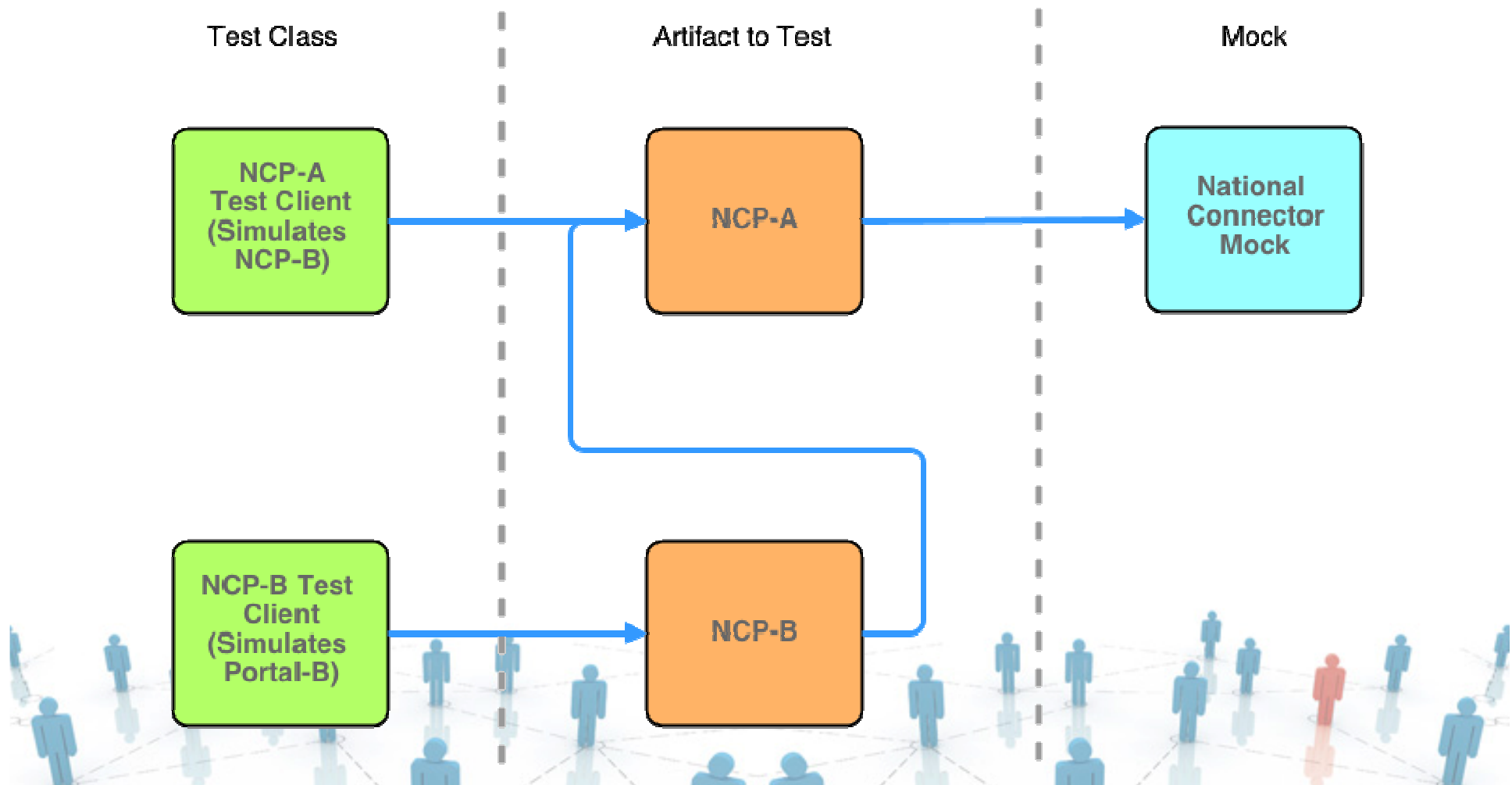


Quality Assurance: CI Actors and Relations





Quality Assurance: Continuous Integration Scheme





Publishing Framework

The screenshot shows the JoinUP website interface. At the top, there is a search bar and a 'Login or Sign up' button. Below the search bar, the navigation menu includes 'My Page', 'Communities', 'Semantic Assets', 'Software', 'News', 'Events', 'e-Library', and 'People'. The main content area features a sidebar on the left with options like 'Software', 'Welcome', 'Description', 'Members list', 'Issues', 'Releases', 'Metrics', 'Highlights', 'Semantic Assets', 'Software', 'Communities', 'Asset release', 'Communications', and 'News'. The main content area displays the project title 'European Patients Smart Open Services' with a 5-star rating. Below the title, there is a description of the project and a list of related activities, including 'Thomas Urak has joined the software european Patients Smart Open Services' and 'Tomas Martišius has joined the software european Patients Smart Open Services'. On the right side, there are buttons for 'Request to be a member of this project', 'I use this project', and 'Membership of this must be approved by a facilitator'. Below these buttons, there is a 'Submitted by' section with a photo of Fredrik Lindén and a 'Software team' section with a list of facilitators: Fredrik Lindén (Project owner Facilitator Member (SKL/SALAR)), Jürgen Wehnert (Facilitator Member (gematik)), and Thorsten Hentzelt (Facilitator Member).

Collaborative platform created by the European Commission

Support open source development work done by government agencies in Europe

Tool

JoinUP

Location

<https://joinup.ec.europa.eu/software/ecc/home>



Other tools and technologies used in OpenNCP

Programming Language	Java
Webservice framework	Axis 2
Build framework	Maven
Versioning Scheme	Semantic Versioning
Licensing	GPLv3 and ASLv2



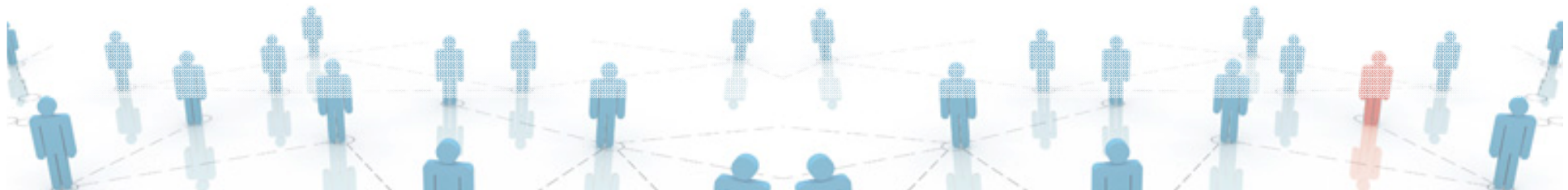


Experiences and outlook to the future





- The past year and a half has been quite challenging to all of the OpenNCP members;
- We have managed to produce and maintain a set of important SW artifacts, with contributions from different PNs, with many constraints;
- Each PN earned a lot of knowledge and experience highly based on the sense of community and the information exchange;





- The future of the OpenNCP will highly depend on the community good health;
- The increase of testing load under OpenNCP will lead to the assurance of the solution maturity;
- Each PN will gain more responsibility and independence in the testing activities;
- We hope to see the work performed in the OpenNCP used across multiple future projects;





Thank you for your attention!
info@epsos.eu

