

Validation Tools for Connectivity Testing

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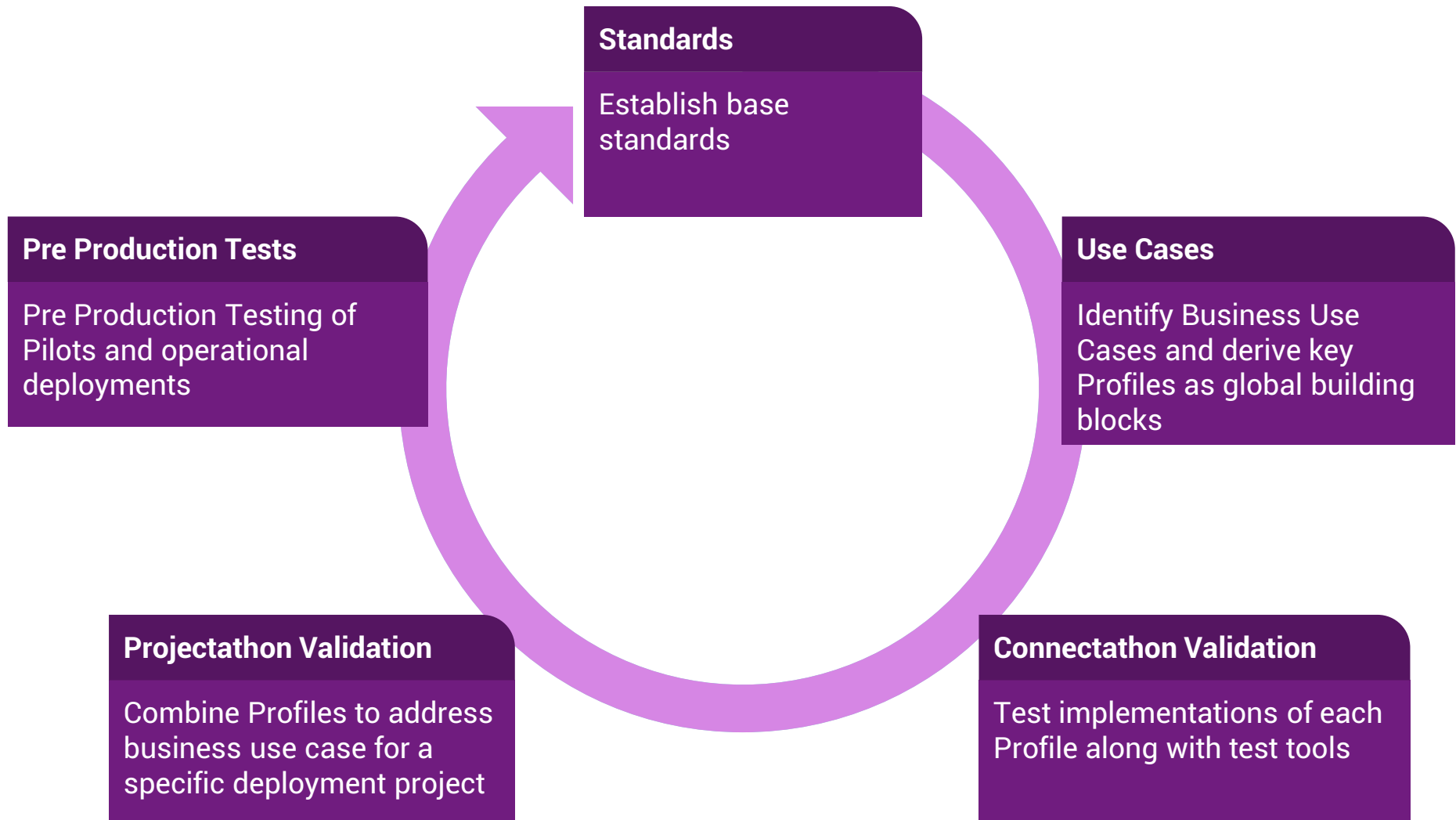
Alexandre Berler (alexandre.berler@ihe-services.net)

IHE Services

- Introduction
- Validation Tools
- Simulation Tools
- Supporting tools (data generation, data capture...)
- Test Management tools

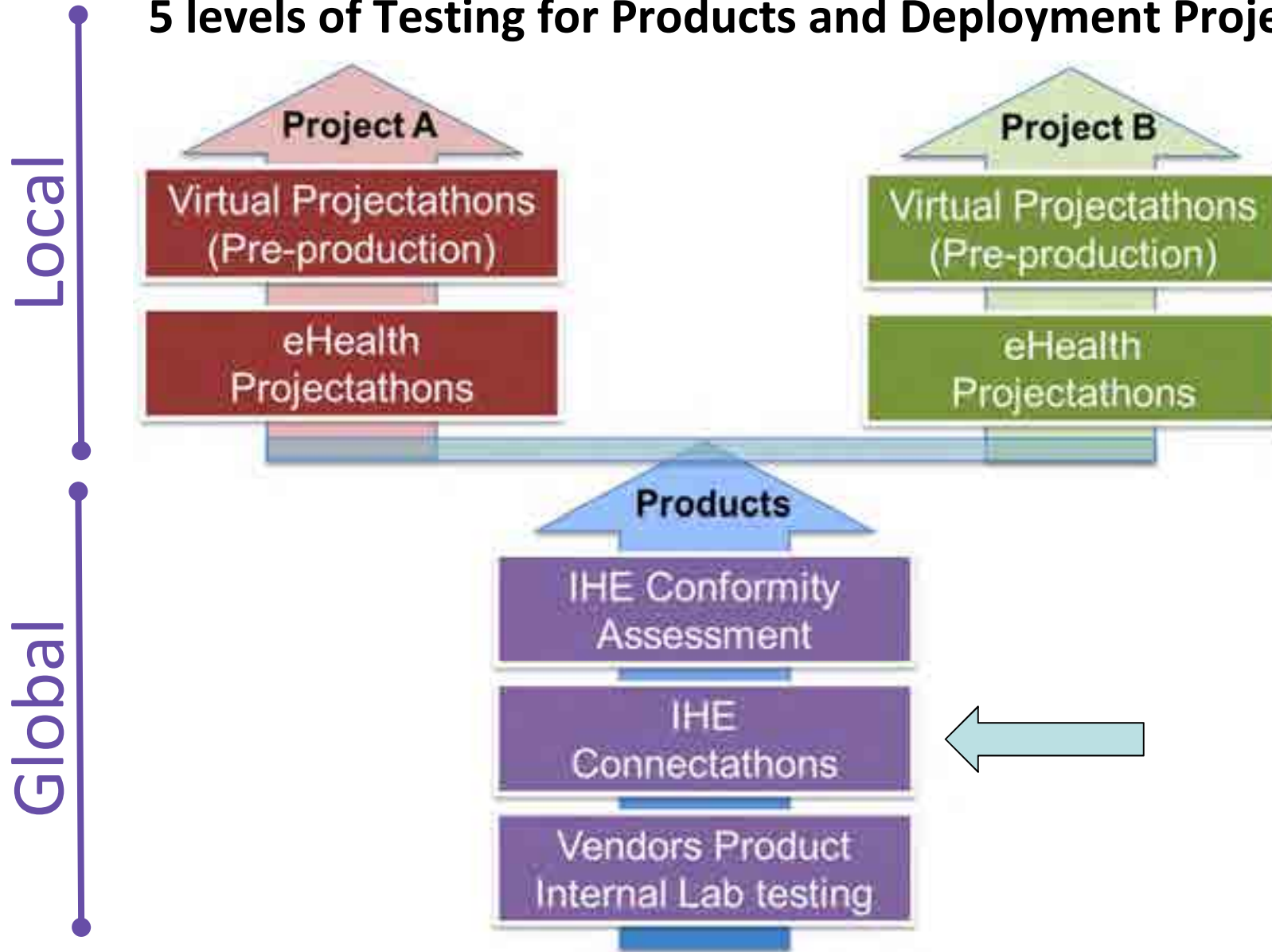
INTRODUCTION

Realizing Interoperability is about teamwork



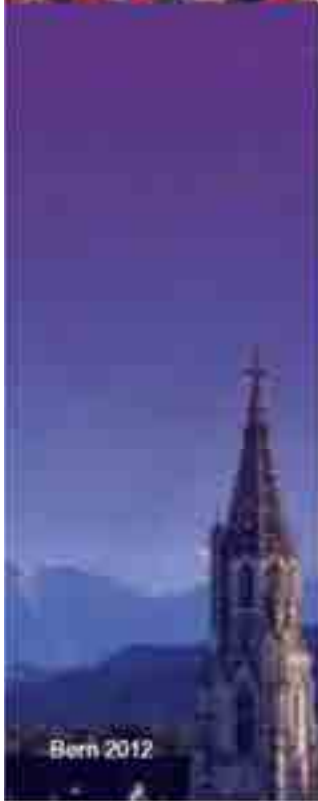
Gazelle: for the overall testing continuum

5 levels of Testing for Products and Deployment Projects





Connectathon



Bern 2012



Istanbul 2013



Vienna 2014



London 2015



Sochi 2016

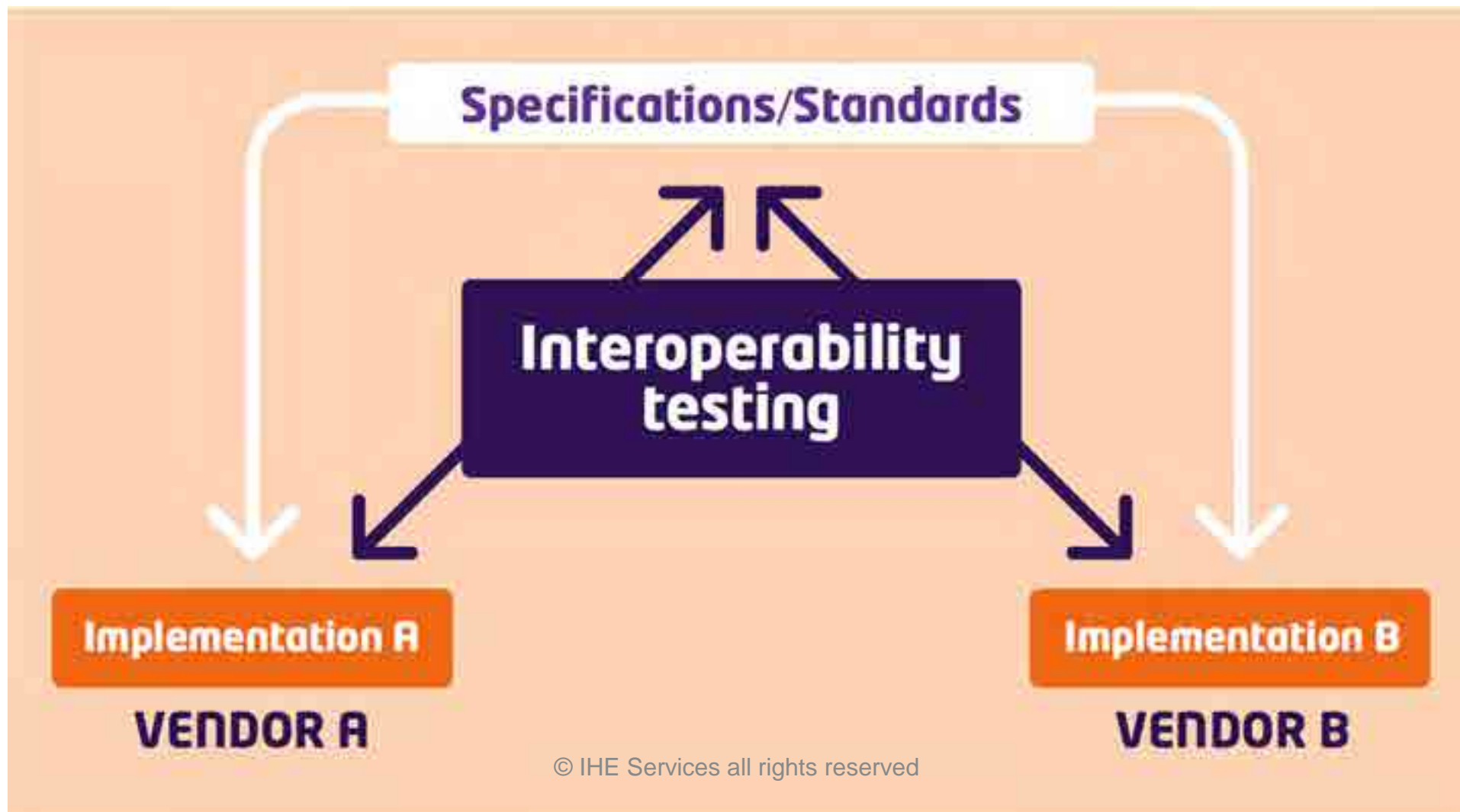


Venice 2017



- Open invitation to vendor and other implementers community
- Advanced testing tools (GAZELLE, a GITB platform)
- Testing organized and supervised by project management team and monitors
- Thousands of cross-vendor tests performed
- Results recorded and published

What is the Connectathon ?



The secrets behind the IHE Connectathon

- It all starts with an interoperability problem faced by users (clinicians, health authorities, provider organizations) and engaging the vendors → Use Case
- Use case(s) are transformed by IHE Domains Committees (IHE International) into one or more IHE Profiles, a standards based detailed specification.
- Connectathon Participants have to bring an implementation of one or more IHE Profiles. It is not about evaluation of emerging standards (e.g. *HL7 FHIR Connectathon*) nor a hack-a-thon (*invent as you implement*).
- Participants have to pass “pre-connectathon tests” before showing up here, and here they are to follow the test plans set by IHE, that are monitored for correct execution.

Quality in Interoperability is strategic

■ Testing rigor is driven by:

- Follow the Gazelle driven predefined test plans
- Participants have to test with at least three different other parties
- Testing is overseen and results validated by neutral “monitors”
- All testing (incl. bugs) is tracked and orchestrated by the Gazelle Test Management Platform

■ Connectathon Participants are undergoing a culture change:

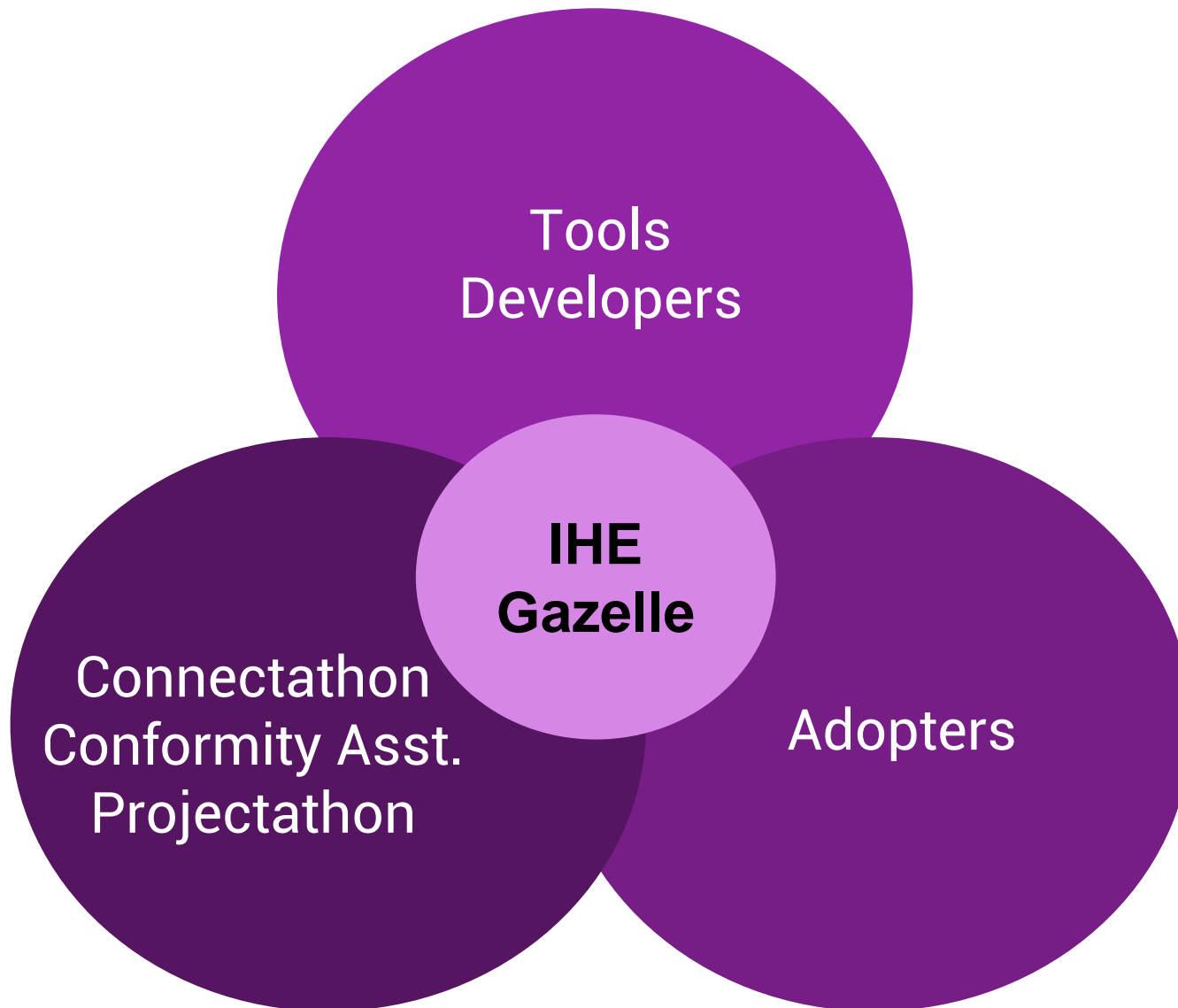
- You can only succeed if you collaborate with the other vendors
- Others can help you better understand the profiles and underlying standards
- It is more effective to comply with a profile to address your customers needs (while keeping some flexibility)

Meeting new challenges in 2020 Restructuring the Connectathon to be Online

20 plus years of experience with face-to-face Connectathon needs to be ***re-invented as an online*** process:

- Face-to-face facilitates building trust among the participants, collaboration is critical, we cannot afford to lose those critical ingredients by moving online.
- New challenges arise:
 - Creating physical connectivity, as simple as being on a local area network, when you have Internet, firewalls, cyberthreats, exposed product interfaces, performance
 - Each testing participant has to interact with hundreds of other participants, tens of monitors, and....
 - synchronize with the Gazelle tool, get impromptu support and solution to their issues to progress.
 - This is well beyond the typical video conferencing and chat tools of today.
 - And the challenges we will discover this week....

Gazelle: Test Platform Communities Ecosystem

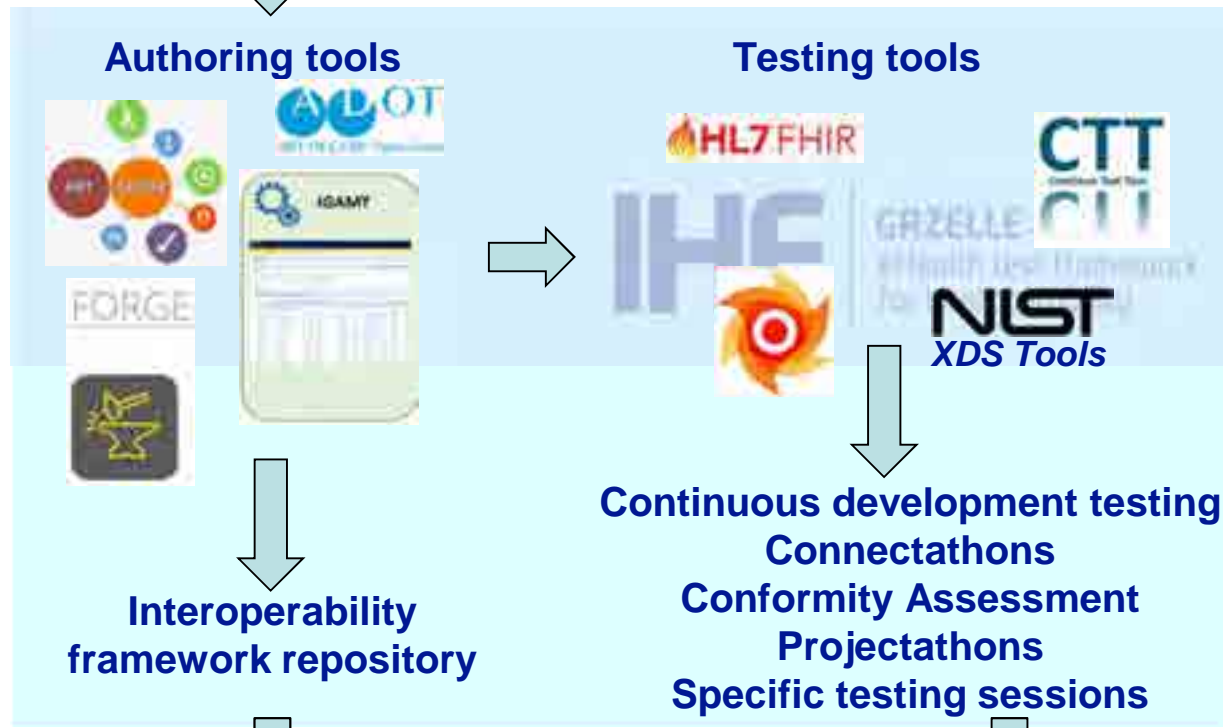


- Gazelle was born to automate testing during IHE Connectathons
 - Test management suite
 - Robust: over 400 simultaneous users, three times each year
- Automates interactions and content checks (documents, APIs, messages, tokens, etc), across diverse standards
- Simulates actors and transactions from IHE Profiles
- Integrates open source third party tools into one unique end user environment
- Integrates testing with specification authoring tools (CDA/Art-décor/Object Checker, HL7V2/IGAMT, ATNA/Audit Events, etc.)
- Links test plans back to specifications
- Bi-yearly updates supported by a stable core maintenance team

→ Gazelle is an Ecosystem

Uses cases requiring interoperability

Standards, Profiles,
Nomenclatures



System implementing interoperability spec.

GAZELLE IN NUMBERS

- > 14 years of development (Jboss 4, 5, 7)
- > 40 IHE Connectathon/Projectathon (USA, EU, Japan, China, Korea, Ireland, Swiss...)
- Ca 2M lines of code (<https://www.openhub.net/p/ihe-gazelle>)
- > 100 FTE invested
- Used with >400 simultaneous users
- > 700 vendors using it
- > 800 test cases
- >1500 users
- >35000 CDA validations
- >50000 test instances verified
- ...

**Used by 11 national & 3 regional ehealth programs,
5 vendors internal labs, 5 IHE Connectathons**

1. Arsenal.IT (Italy Venice Region)
2. Abrumet-Brussels eHealth (Belgium)
3. Insiel SPA (Italy)
4. InteropSanté - France
5. GE
6. Agfa
7. Medical PHIT (NL)
8. Technikum Wien (Austria)
9. IHE USA
10. IHE-Europe
11. IHE China
12. IHE Japan
13. Agence eSanté-Luxembourg
14. InterAMC France
15. eHealth Finland
16. eHealthSuisse & Federal MoH
17. eHealthPlatform Belgium
18. EU DG Santé-European Cross Border
19. Sequoia-USA
20. EFS-French Blood Transfusion-France
21. Saudi Arabia eHealth: SHC-KSA
22. Ireland eHealth (HSE)
23. French ehealth (ASIP)



- 5 Running instances (for IHE)
 - USA, Europe, Japan, Korea, China
- Running instances (non IHE specific projects) EP2
 - Arsenàl IT (I),
 - Agence Nationale Santé (ANS), (F)
 - Agence eSanté Luxembourg (L)
 - eHealth Brussels (B),
 - DG Santé (EU commission)
 - Kela Finland (FI),
 - Sequoia Project (USA)
 - eHealthSuisse (CH)
 - Technikum Universität Wien (AT)
 - Inter-AMC (F)
 - Etablissement Français du Sang (EFS) (F)
 - InteropLab (NL)
 - Insiel (I)
- Running instances on vendor facilities
 - Agfa (B), GE (India)
- Used by Vendors for Continuous integration
 - Rough idea but no real figure (Cpage at least)

Slide 18

EP2

Alexander peux-tu mettre à jour si besoin la liste si dessous? En particulier je ne suis pas certain d'être à jour avec les installation belges et néerlandaises.... Dans le contexte ça peut-etre utile. Merci.

Eric Poiseau, 26/10/2020

■ Gazelle

- a **test management** tools oriented toward interoperability & conformance testing
- a suite of IHE actors **simulators**
- a suite of IHE **conformance checking** tools
- a suite of tools for testing support
 - Tools for data generation
 - Tools for automation of testing

■ Gazelle Architecture

■ Validation tools

- HL7v2 messages validator
- CDA document validator
- Audit message validator
- Gazelle X Validator
- Use of WS for CI

■ Simulators

- Patient Manager Simulator
- Order Manager Simulator
- Gazelle Security Suite
- XDS Tools

■ Test Supporting tools

- Gazelle Proxy
- Gazelle SVS Simulator
- Gazelle DDS

■ Gazelle Test Management & Connectathon

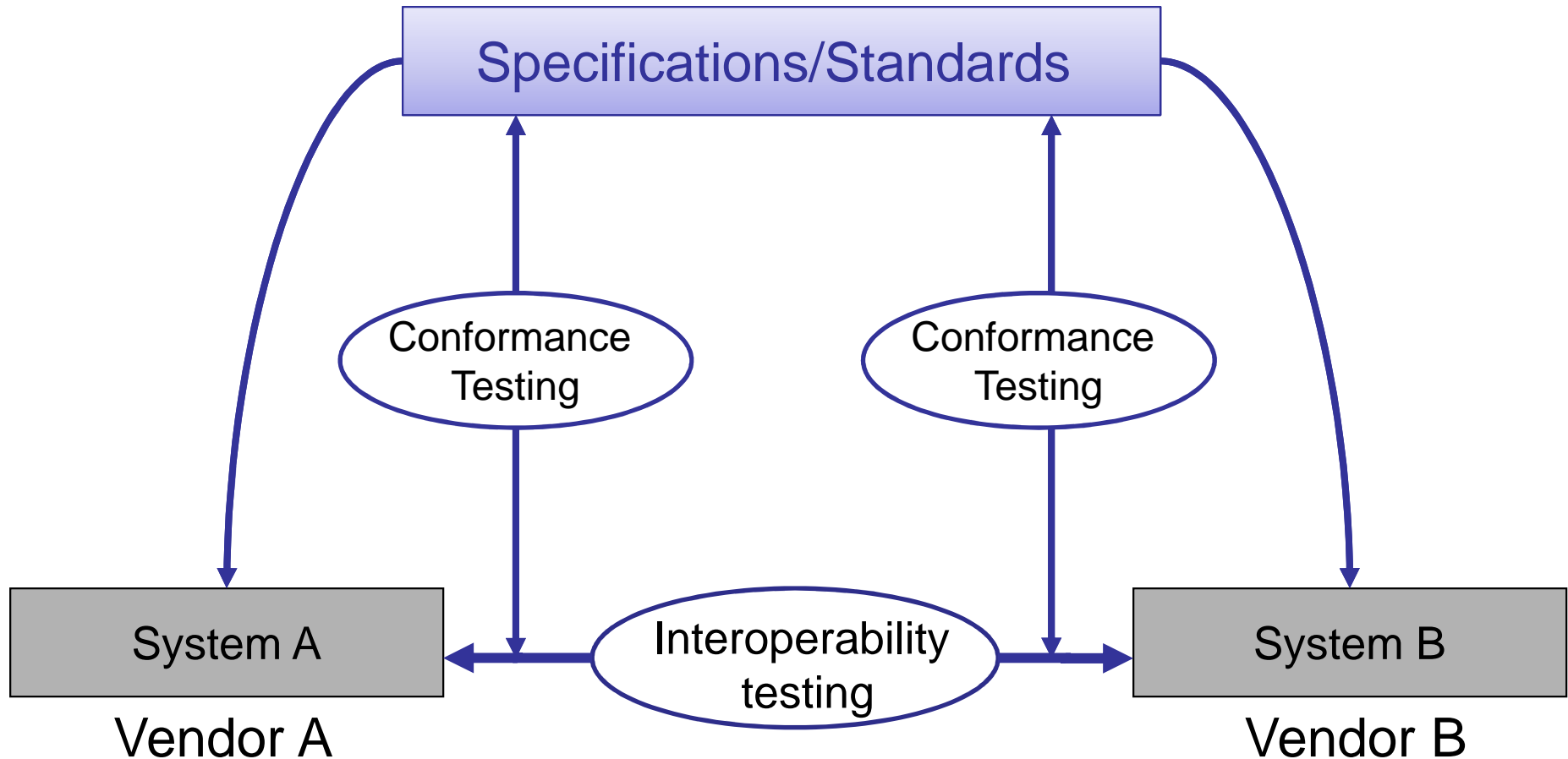
■ Conformity Assessment testing

GAZELLE TEST BED ARCHITECTURE

- A set of tools for testing the interoperability and the conformance of eHealth Information Systems
 - For IHE connectathon
 - For Vendors implementing eHealth Standards
 - For Users deploying and using eHealth Information Systems
 - For conformity assessment testing

- Developed in Rennes for IHE
 - 2001-2006 → KUDU a test management tool based on PHP + Postgresql (University of Rennes 1 + INRIA)
 - 2006-2011 → Gazelle, 2nd generation, INRIA
 - 2011-today → transfer of development team to Kereval

Conformance / Interoperability Testing



THREE TIER MODEL

Three-tier architecture

■ Logic :

- **Validators**
- **Simulators**
- Test Management

■ Model:

- UML models (XML documents validation)
- HL7 Message profiles
- Concepts
- Test Definitions

■ Data:

- Value sets
- Simulated data
- Coded values

CONFORMANCE CHECKING TOOLS



Conformance Checking tools

■ Goal

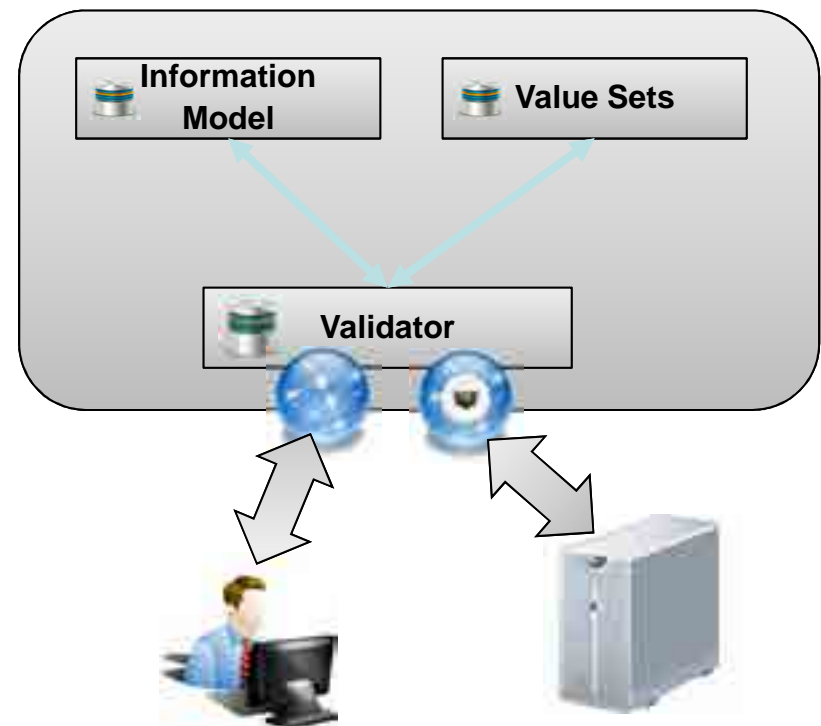
- Verify that messages/documents are conform with the specifications

■ Target

- Developers
- Testers
- Other tools like simulators

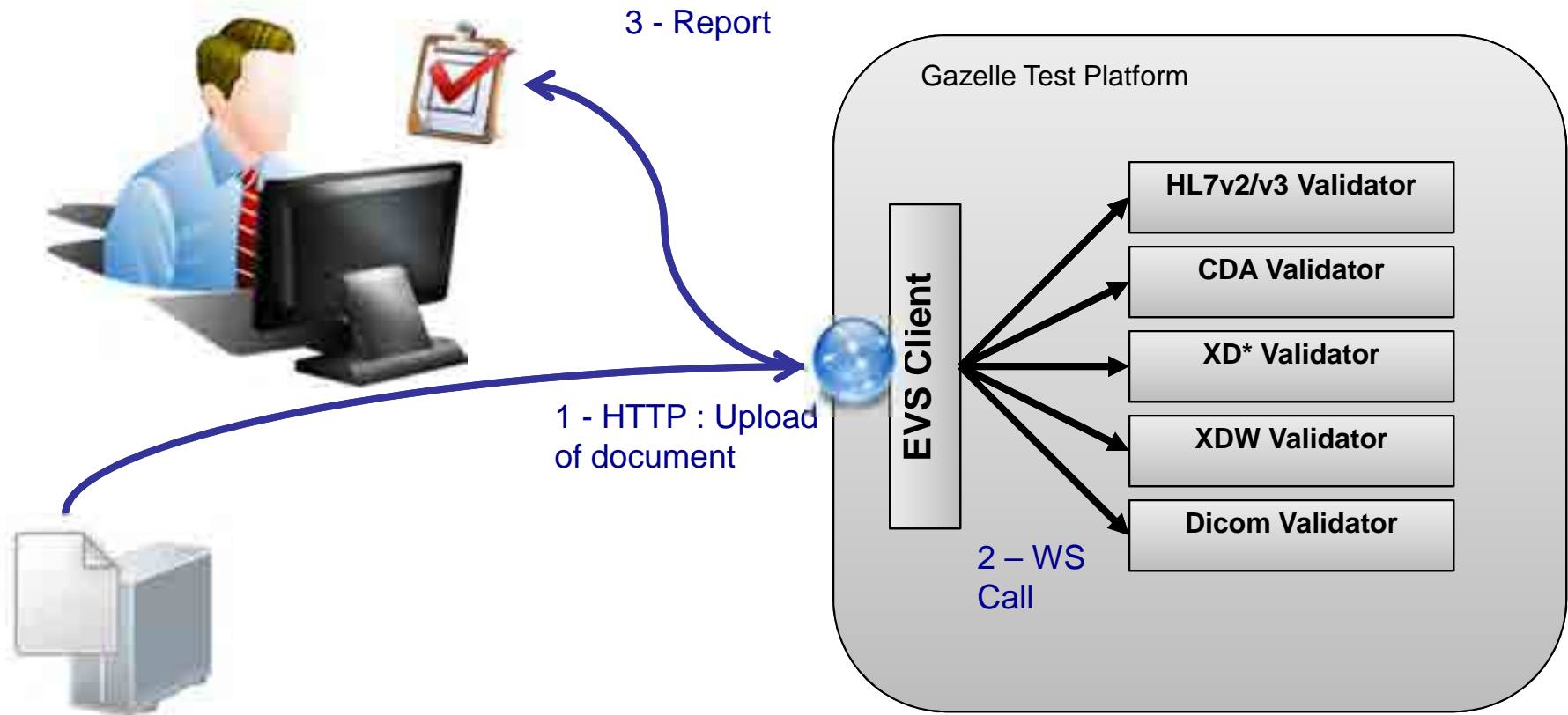
■ Interface

- GUI for users
- Web services for tools



- HL7 CDA Structured Document (ObjectsChecker)
- HL7v2, HL7v3, FHIR
- IHE XD* transactions
- Sharing Value Set content
- Workflow documents
- ATNA audit messages
- X509 certificates
- SAML Assertions
- ...

Standalone Document/Message Validation



- LINK DO VIDEO ON YOUTUBE
- https://www.youtube.com/watch?v=ae8KrRH0J_Q&list=PL41WsYuE9IdSWJXa5BdKZgqZ-zzkpGOCn&index=10&t=14s

Validation Tool Example : CDA Document

The screenshot shows a web application titled "External Validation Service Front-end". The main heading is "Validate CDA documents". Below this, there is a section for uploading files, with the instruction "Upload the XML File you want to validate - only files with extension *.xml* are allowed:". There is an "Add..." button and a list area. Below the upload section, there are two dropdown menus: "Select a validator" with a value of "schematron" and "Model Based Validation" with a value of "Error based validation". There are also "Validate" and "Clear" buttons. The footer contains links for "About", "Contact us", "Issue Tracker", and "Copyright 2013 IHE International".

- CDA Validation tool for IHE / epSOS / ASIP /...

- [Link](#)



Integrating
the Healthcare
Enterprise

Model Based Validation details

Show Templates Tree (experimental)

- 1.3.6.1.4.1.19376.1.5.3.1.1.1 - Medical Documents Specification
- 1.3.6.1.4.1.19376.1.9.1.1.1 - PharmacyPrescriptionDocument
 - 1.2.40.0.32.6.1.10.1.1 - UNKNOWN
 - 1.2.40.0.32.6.1.10.1.1.2 - UNKNOWN
- 1.3.6.1.4.1.19376.1.5.3.1.3.19 - MedicationSection
 - 2.16.840.1.113883.10.20.1.8 - Medications
 - 1.3.6.1.4.1.19376.1.9.1.2.1 - Prescription
 - 2.16.840.1.113883.10.20.1.24 - MedicationActivity
 - 1.3.6.1.4.1.19376.1.5.3.1.4.7 - Medications
 - 1.3.6.1.4.1.19376.1.5.3.1.4.7.1 - NormalDosing
 - 1.3.6.1.4.1.19376.1.9.1.3.2 - PrescriptionItemEntry
 - 1.3.6.1.4.1.19376.1.5.3.1.4.7.2 - ProductEntry
 - 2.16.840.1.113883.10.20.1.53 - Product
 - 1.3.6.1.4.1.19376.1.9.1.3.1 - MedicineEntry
 - 2.16.840.1.113883.10.20.1.49 - PatientInstructions
 - 1.3.6.1.4.1.19376.1.5.3.1.4.3 - PatientFulfillmentInstructions
 - 2.16.840.1.113883.10.20.1.43 - FulfillmentInstructions
 - 1.3.6.1.4.1.19376.1.5.3.1.4.3.1 - MedicationFulfillmentInstructions

Result **FAILED**
Summary 324 checks
5 errors
2 warnings
6 infos

HIDE: Errors Warnings Infos Reports

Errors

Test Location	Description
constraint_pharmpre_PrescriptionItemEntry/ClinicalDocument/component/structure	ERROR: This condition is not verified: consumable to dispense, which SHALL be relationship between a prescription item entry 2.16.840.1.113883.5.1002 ActRelationshipType STATIC. (IHE PRE, 6.3.4.1.3.21) more...

Click here to view the OCL language to test the assertion.

Test Location	Description
constraint_pharmpre_PrescriptionItemEntry/ClinicalDocument/component/structuredBody/component{0}/section/entry{0}/substanceAdministration	ERROR: This condition is not verified: The value for "supply@classCode" in an amount of unit dispense SHALL be "SPLY". (IHE PRE, 6.3.4.1.3.21)

Test Location	Description
constraint_pharmpre_PrescriptionItemEntry/ClinicalDocument/component/structuredBody/component{0}/section/entry{0}/substanceAdministration	ERROR: This condition is not verified: An amount of units of the consumable to dispense SHA

SIMULATORS

■ Goal

- Test the interoperability of an application
- Simulator is not a reference implementation
- Simulator controlled to perform test cases

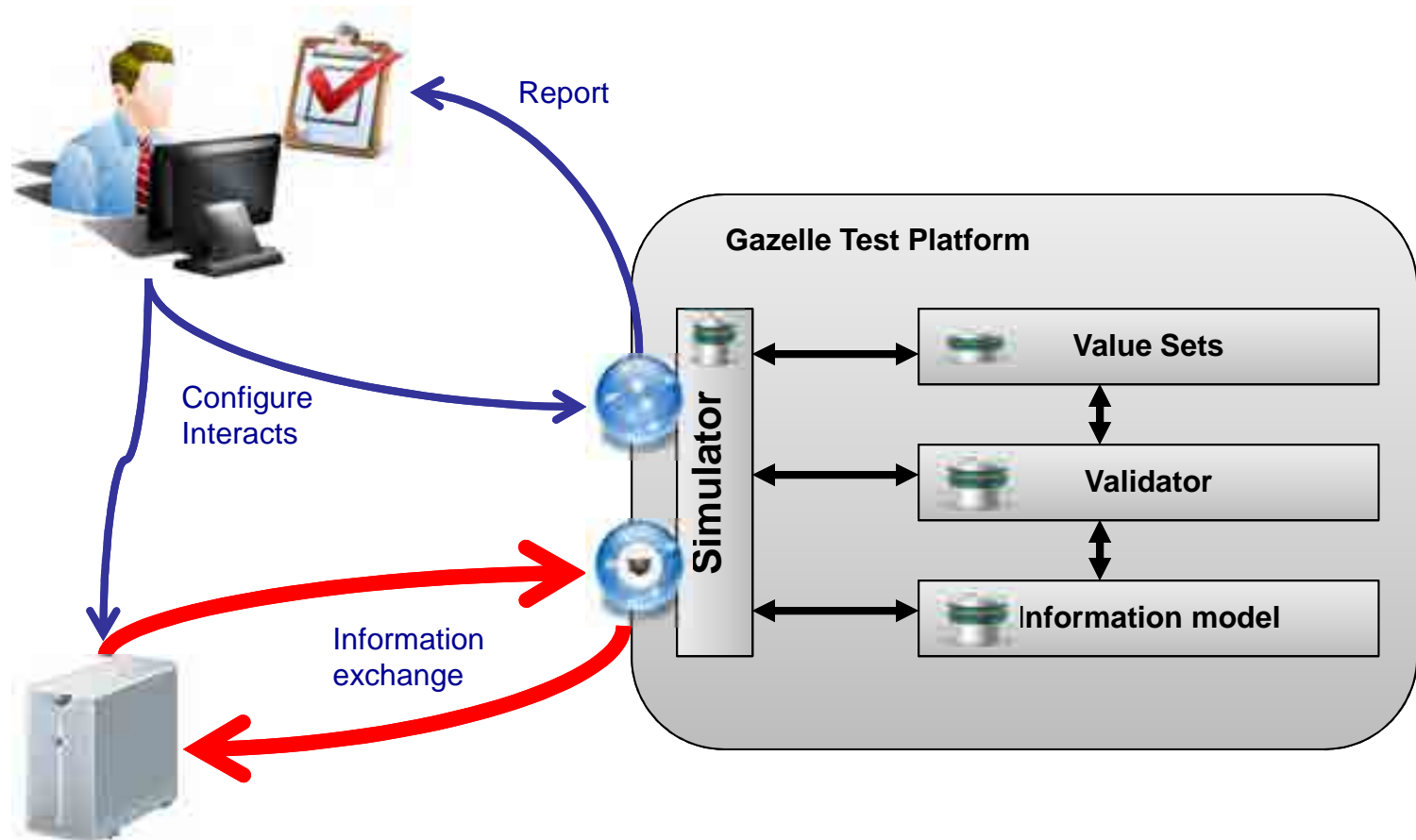
■ Target

- Developers
- Testers

■ Interface

- GUI for humans to interact with the tool
- Network socket for the protocol tested
- Web service to call validation tool,
- Dynamic access to coded value set

Simulator Architecture



Provide and Register Set-b (XDS profile)

Provide and Register Set-b (XDS profile)

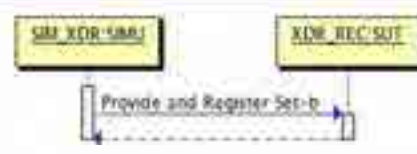
This tool provides the possibility to send documents to a repository or a document recipient using the transaction (TI-4). To use this tool you have to:

- Select your repository configuration or add a new one on the page [configurations](#).
- Fill metadata of the submissionSet. The patient id of the submissionSet is required.
- Upload the document(s) to submit, and fill IHE metadata related to the document(s).
- Click on execute button to send the document(s) to the selected configuration.

Configurations

Nist Repository

Repository	
Name	XDSaClient Simulator
sourceID	1.3.6.1.4.1.21367.2012.2.1.1



System Under Test	
Name	Nist Repository
System Name	Nist Repository
URL	http://hl7.org/testing/nist.gov/12080/05-service/xfdsrepository

Affinity Domain: IHE (XDS-3)

Transaction: (TI-4)

SubmissionSet (XDS Submission Set)

Submission Set	
SubmissionSet title	XDS Submission Set
patient id *	
Opt.	Metadata Name
R	XDSsubmissionSet.sourceID
R	XDSsubmissionSet.uniqueID
R	XDSsubmissionSet.contentTypeCode

- press select ...
- Admission evaluation
 - Admission history and physical
 - Autopsy
 - BLOOD BANK STUDIES
 - BLOOD GAS STUDIES
 - Case conference
 - CELL COUNTS - DIFFERENTIAL STUDIES
 - CELL MARKER STUDIES
 - CHEMISTRY CHALLENGE STUDIES
 - CHEMISTRY STUDIES
 - COAGULATION STUDIES
 - Comminization
 - Comprehensive history and physical
 - Consults**
 - Confirmatory consultation
 - Consult
 - Counseling
 - Discharge summarization
 - Education
- press select ...

Add Options/Metadata

Value(s)

Existing Simulators

- XD* Suite of simulator
 - IHE and eHDSI
- Order Management
 - Radiology, Laboratory, Cardiology, Eyecare
- Patient Management
- Sharing Value Set
- Security (TLS)
- ...

TEST MANAGEMENT TOOL

Test Management Platform

■ Registration of systems

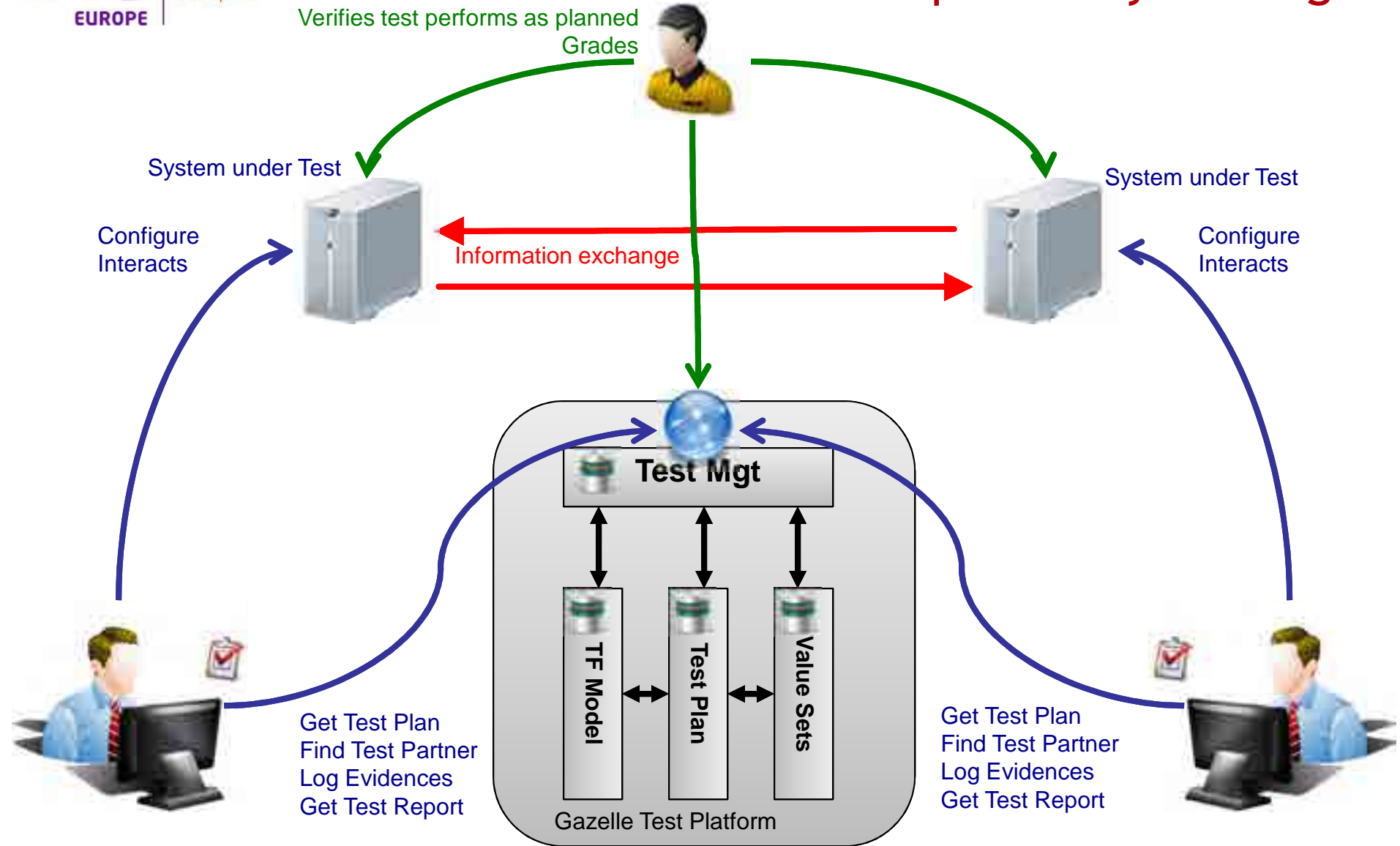
- What to test -> select test plan(s)

■ Provide list of test to perform

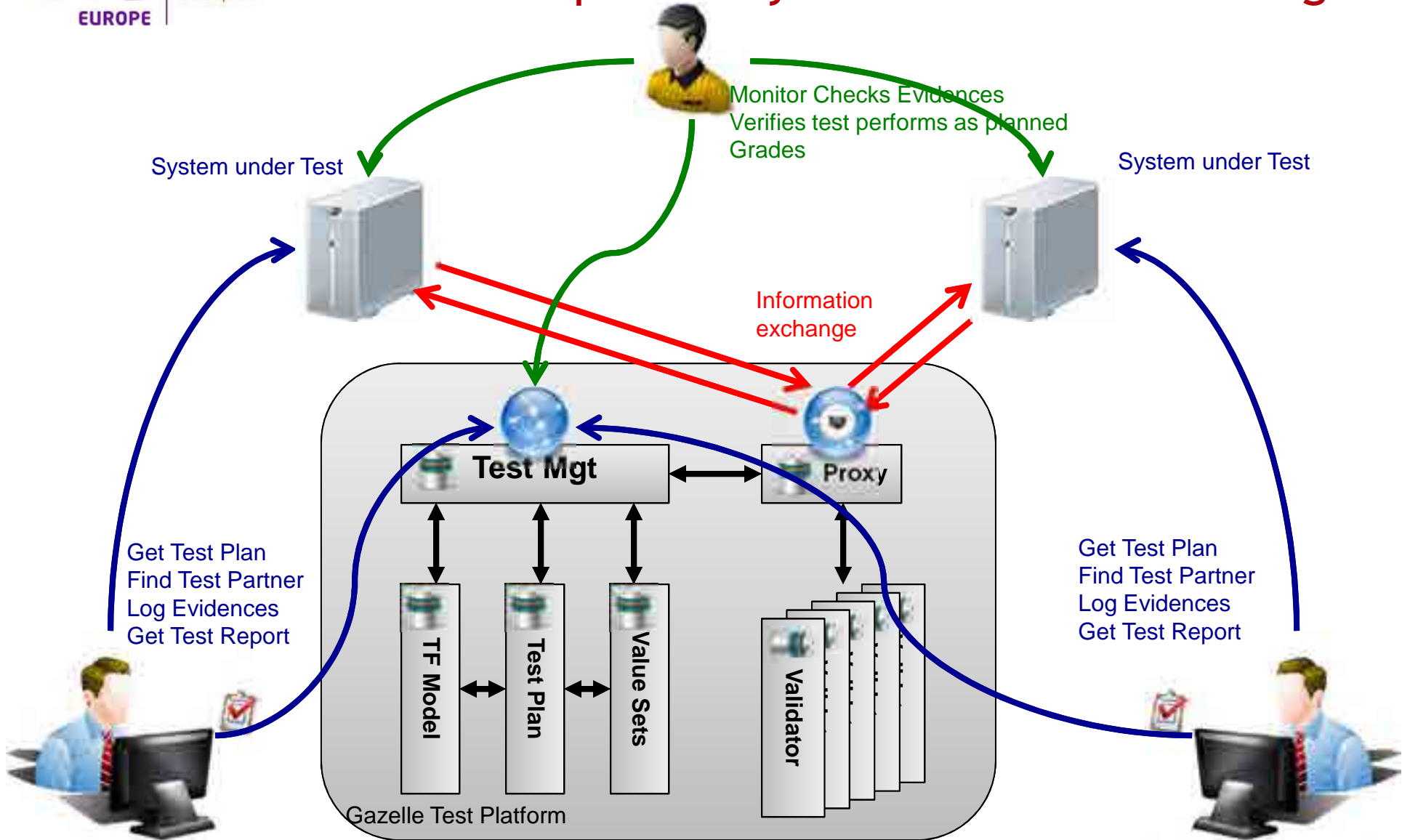
- Conformance testing (test to be executed before meeting the actual test partners)
 - Simulators + validators
- Interoperability testing (test to be executed system to system)

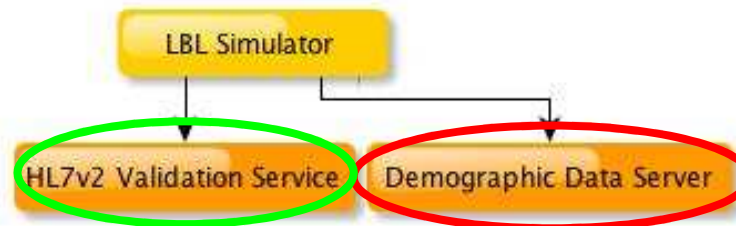
Interoperability Testing

Monitor Checks Evidences
Verifies test performs as planned
Grades



Interoperability + Conformance Testing





OVERVIEW OF VALIDATION TOOLS

- **Overview of Validation tools**
 - **HL7v2 messages validator**
 - HL7v2 message profiles
 - HL7v2 data tables
 - Validation of HL7v2 messages using EVS Client
 - **CDA document validator**
 - Art-Décor as an authoring tool
 - Gazelle ObjectsChecker
 - Validation using EVS Client
 - **Audit message validator**
 - Definition of audit messages in GSS
 - Validation using EVS Client
 - **Model Based Validation**
 - HL7v3, HPD,..
 - **Gazelle X Validator**
 - What it does
 - **Use of WS for CI**
 - Example with SOAP UI
 - epSOS Architecture

HL7 V2 MESSAGES

HL7v2 Message Validation

■ Input :

- Message to validate
- Message profile
- Some context data

■ Tool :

- <https://gazelle.ihe.net/GazelleHL7v2Validator>

- An XML expression of the constraint in the specifications
 - <http://gazelle.ihe.net/GazelleHL7v2Validator/viewProfile.seam?oid=1.3.6.1.4.12559.11.1.1.11>
- The profile makes references to tables
 - <http://gazelle.ihe.net/GazelleHL7v2Validator/viewResource.seam?oid=1.3.6.1.4.12559.11.1.3.1.5#0309>
- HL7 v2 Message profiles authoring tool
 - Messaging workbench (RIP)
 - IGAMT : <https://hl7v2.igamt.nist.gov/igamt/>

CDA DOCUMENTS

Getting specifications right: The ART-DECOR Framework



- ...is an open-source tool and a methodology for various **multidisciplinary** stakeholders of healthcare information exchange
- ...supports **collaboration of team members** within and between governance groups and allows separation of concerns with different views on one **single documentation for different domain experts**
- ...supports **creation and maintenance of templates**, value sets, data sets and more
- ...supports shared **building block repositories** for templates, value sets and data sets

ART-DECOR in Europe



- Shared repositories with collection of artifacts
 - Template Repository (building blocks for clinical document definitions) and Value Sets (code lists)
 - Functional Models (datasets)
 - Sharing artifacts between countries has already started by Germany, Austria, Netherlands
- ART-DECOR specs → Input for Testing Tool



ART-DECOR & IHE Europe



■ Memorandum of Understanding signed:

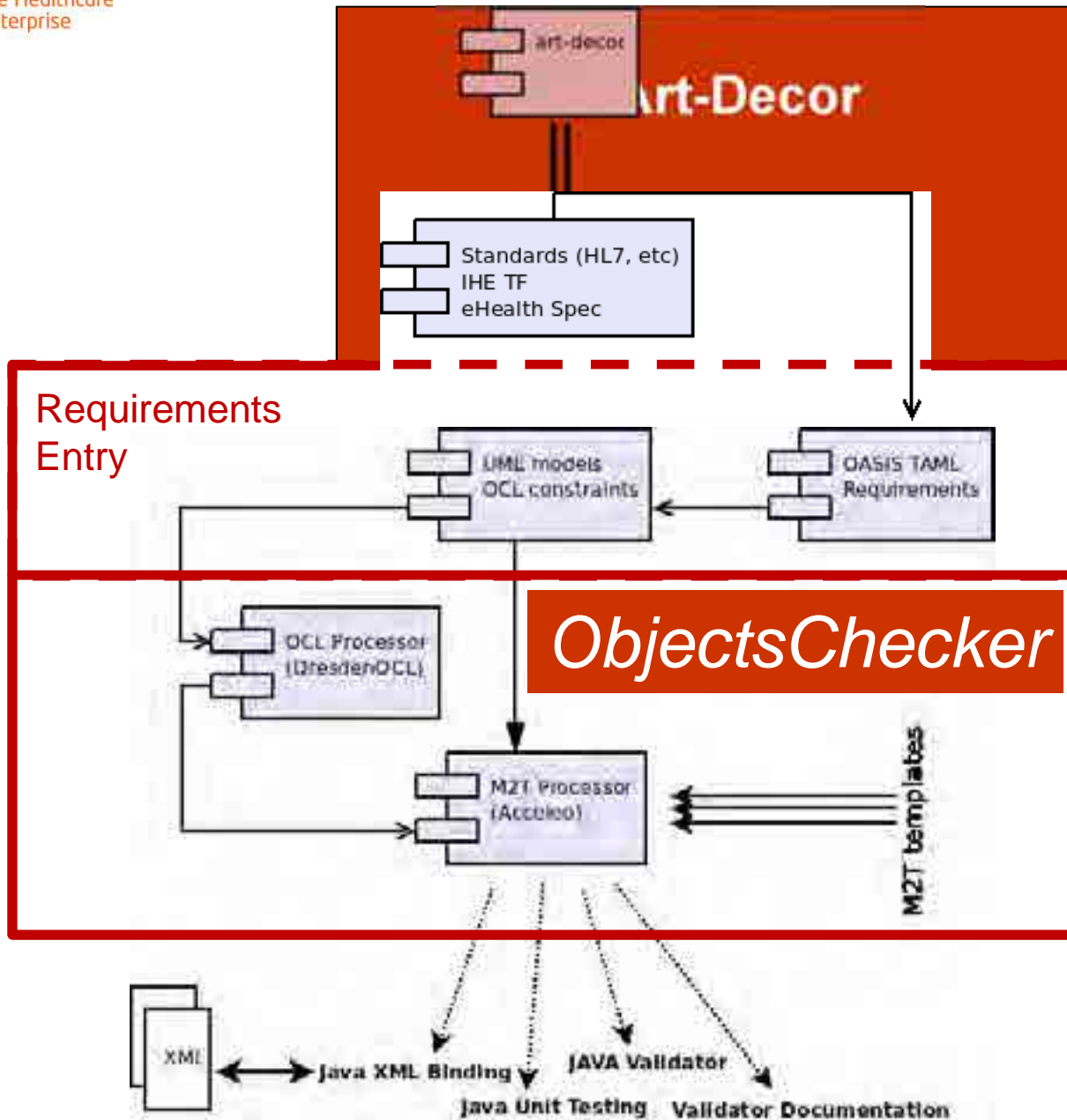
■ Synergistic tooling: ART-DECOR Framework and IHE Gazelle ObjectsChecker

- → facilitate the creation and consistent standardized documentation of CDA based specifications and
- → support rigorous compliance validation and testing.

■ The overall goal is:

- to provide these projects with easy-to-use efficient **combined tooling** that enhance the quality of their implementations and information exchange.

Art-decor and Gazelle *ObjectsChecker* coupling



Advantages of coupling ObjectsChecker with art-decor

- Art-decor moves rigor at point of Content Profiles/Impl.
Guides documentation and avoid discovery of issues/gaps
at the time *ObjectsChecker* input is created.
- Reduces gaps and misunderstanding of CDA specifications
- Automate the generation of formal OCL description avoiding
test tool manual entry
- <https://art-decor.ihe-europe.net>
- <https://gazelle.ihe.net/CDAGenerator>

AUDIT MESSAGES

- Definition of the message in Gazelle Security Suite
 - <https://gazelle.ihe.net/gss>
- Audit message structure is well defined
- GSS provides an authoring tool.
- GSS provides a service for validation

GAZELLE X VALIDATOR

■ WORK IN PROGRESS

■ Purpose

- 1,n inputs checks for coherence content in the inputs according to rules

- <https://gazelle.ihe.net/GazelleXValidatorRuleEditor>

■ Use cases

■ Coherence between query and responses

- Question : “what is the PID for **John Doe**” ?” (syntax is ok)
- Response : “The PID for **Ann Clark** is X50452” (syntax is ok)
- Cross validation fails : This is not the response to the question !
Ann Clark is not John Doe !

OVERVIEW OF SIMULATION TOOLS

■ Overview of Simulators

■ Patient Manager Simulator

- What it does and how to use it
- Example of the automation
- <https://gazelle.ihe.net/PatientManager>

■ Order Manager Simulator

- What it does and how to use it
- <https://gazelle.ihe.net/OrderManager>

■ Gazelle Security Suite

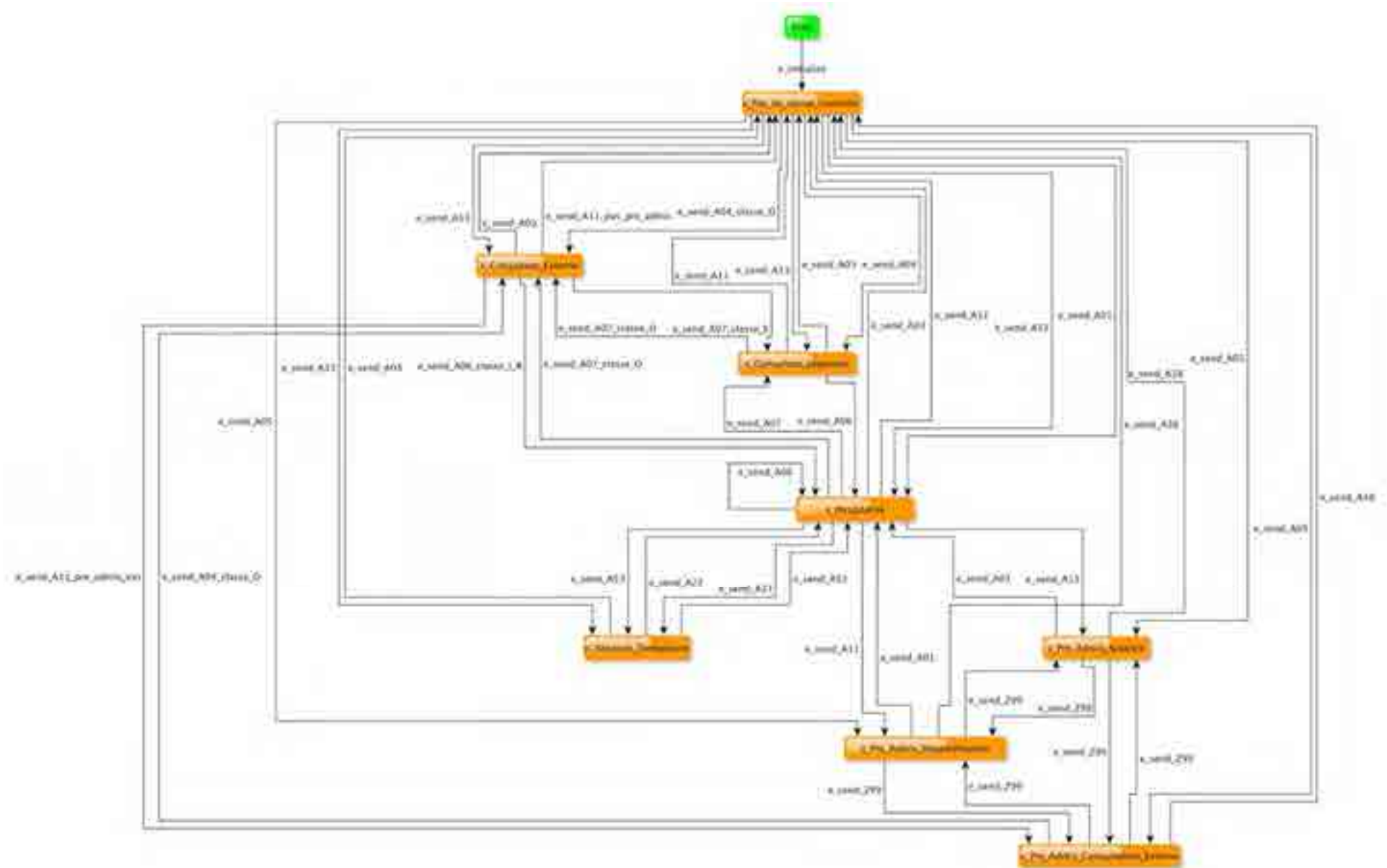
- What it does and how to use it
- <https://gazelle.ihe.net/gss>

■ XDS Tools

- What it does and how to use it

- Used for the following profiles
 - PIX, PDQ (v2, v3 and FHIR)
 - DSTU2 version
 - DSTU3 version
 - R4
 - And future ones ...
 - PAM
 - XCPD

PAM Test Automation



- For example : simulate the sending of messages in order to visit all the edge in the previous graph.
- About 380 HL7v2 messages need to be send in order to visit all edges.
 - Simulator can automate it
 - Test can be fully automated if combined with SUT specific checking
 - Using selenium or similar tools to verify patient status in the GUI of the SUT
 - Using web services to query the status of the patient in the SUT
- Feature currently being extended
 - Facilitate usage in CI environment of implementers (vendors, editors)

- Used for the following profiles
 - SWF, SWF.b
 - PaLM (lab) and Eyecare ordering

- LBL added in 2017
- To come LCSD

- Generation/signature of certificates for testing purposes

- <https://gazelle.ihe.net/gss>

- Front-end to simulate a TLS connexion with a server or a client

- Support for HL7v2
 - Support for DICOM
 - Support for webservices
 - Support for syslog



The image shows a screenshot of a table with several columns and rows. The table has a light blue header. The first column contains numbers 1 through 10. The second column contains text, possibly names or identifiers. The third and fourth columns contain numerical values. The fifth and sixth columns contain text, possibly dates or times. Some cells in the table are highlighted in yellow, specifically the cells in the third and fourth columns for rows 3, 4, and 5, and the cell in the sixth column for row 6.

- Definition of Audit Messages

- SAML Assertion provider

- <https://gazelle.ihe.net/picketlink-sts?wsdl>

- https://docs.google.com/spreadsheets/d/18dG9yKJizxOBQI8JKiTr2_OPHGhgRd-4Ue0NBNHWC60/edit#gid=0

- 2 Tools (not competing)
- NIST Toolkit
 - <http://ihexds.nist.gov/>
- Gazelle XD* Client
 - <https://gazelle.ihe.net/XDStarClient>

- A tool that performs a schematron validation of XML document
- <https://gazelle.ihe.net/SchematronValidator/home.seam>

The screenshot displays the 'Manage Schematrons' web interface. It features a search bar, filter controls for 'Last Change', 'Active', 'Group', and 'Object Type', and a table listing various schematrons. The table columns are: Label, Version, Last Change, Path, Object Type, Active, and Action. The table contains 14 rows of data, including entries for XSD schemas and FHIR profiles.

Label	Version	Last Change	Path	Object Type	Active	Action
XSD - HL7	201118	2016-11-08 08:21:44:00	www.hl7.org/Schemas/...	XSD (XSDSchema)	Yes	Q
XSD - HL7	201118	2016-09-18 19:58:59:00	www.hl7.org/Schemas/...	XSD (XSDSchema)	Yes	Q
XSD - HL7	201118	2016-11-28 18:27:44:00	www.hl7.org/Schemas/...	XSD (XSDSchema)	Yes	Q
FHA - v1.0.0	201104	2017-04-28 12:22:26:00	FA-20160101/...	FHA - HL7 Germany	Yes	Q
FHR - (STU) - composition	001U3	2016-01-26 16:28:32:0000	hr/STU/Composition.xsd	FHR	Yes	Q
FHR - (STU) - condition	001U3	2016-01-26 16:38:32:0000	hr/STU/Condition.xsd	FHR	Yes	Q
FHR - (STU) - observation	001U3	2016-01-26 16:38:32:0000	hr/STU/Observation.xsd	FHR	Yes	Q
FHR - (STU) - patient	001U3	2016-01-26 16:38:32:0000	hr/STU/Patient.xsd	FHR	Yes	Q
FHR - (STU) - procedure	001U3	2016-01-26 16:38:32:0000	hr/STU/Procedure.xsd	FHR	Yes	Q
FHR - (STU) - questionnaire	001U3	2016-01-26 16:38:32:0000	hr/STU/Questionnaire.xsd	FHR	Yes	Q
FHR - (STU) - operationdefinition	001U3	2016-01-26 16:38:32:0000	hr/STU/OperationDefinition.xsd	FHR	Yes	Q
FHR - (STU) - resource	001U3	2016-01-26 16:38:32:0000	hr/STU/Resource.xsd	FHR	Yes	Q
FHR - (STU) - structuredefinition	001U3	2016-01-26 16:38:32:0000	hr/STU/StructureDefinition.xsd	FHR	Yes	Q

Schematron Validator extension

The screenshot shows a web browser window with the URL `https://edi-tp.ifs.sante.fr/VS/CheckResult.aspx?type=XML&doc=1.0.0.1.0.1.2008.11.01.01.01`. The page content includes:

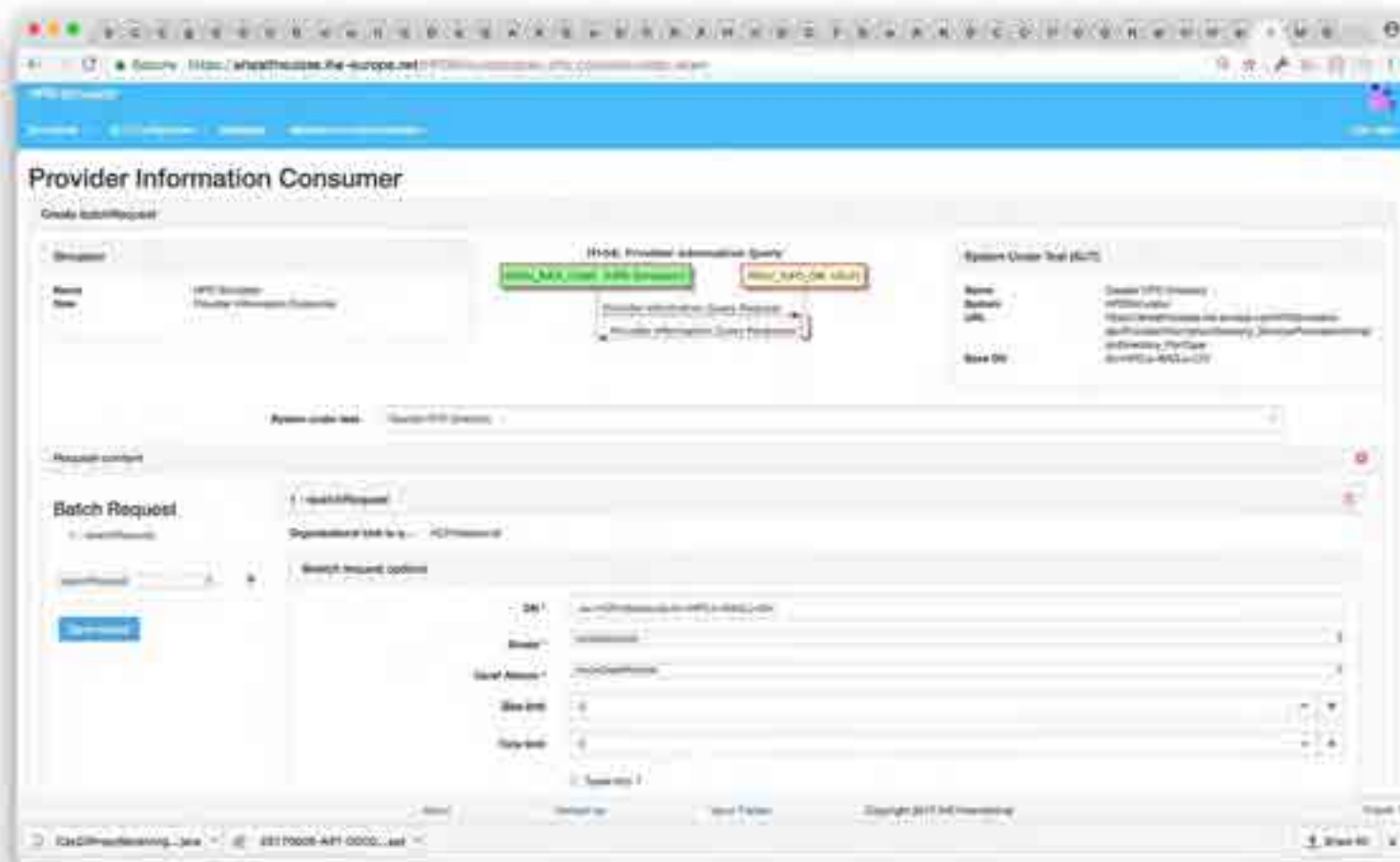
- XSD Validation detailed Result:** PASSED. Message: "Your XML document has been validated with the appropriate XSD schema, here is the detail of the validation. The XML document is valid regarding the schema."
- Schematron Validation details:** PASSED.
- Summary of checks:** PASSED. Summary: 14 check(s) performed. Details: No error, No warning, No note, 14 successful check(s), No unknown exception.
- Reports:** A table listing validation tests:

Test	Location	Description	Severity
<code>(RÔLE = ANN or RÔLE = REMPL) and IDENTIFIANT_ILI.MESSAGE.CONCERNÉ or message ILI = ANN or RÔLE = REMPL</code>	MF_007-001_2010-ENTETE_STANDARD	Error: L'identifiant du message concerné "et" est réservé et ne peut pas être ANN ou REMPL.	F-1
<code>not(NOM_1(SUS) or NOM_DE_FAMILLE = NOM_1(SUS))</code>	MF_007-001_2010-CORPS_DU_MESSAGE-DELIVRANCE-PRESCRIPTION-PRESENT	Warning: Le nom de famille "il" n'est ni un "et" ni un nom de famille.	F-2
<code>not(ILLU_DE_NAVISANCE) or not(ILLU_DE_NAVISANCE_10-000-001)</code>	MF_007-001_2010-CORPS_DU_MESSAGE-DELIVRANCE-PRESCRIPTION-PRESENT	Warning: Le nom de naissance "m" doit être au format "Code Pays" (2 car), "Département" (3 car), "Commune" (5 car).	F-3
<code>not(PROM) and not(PREVOIR) or string-length(not(NOM_PREVOIR)+1) < 30</code>	MF_007-001_2010-CORPS_DU_MESSAGE-DELIVRANCE-PRESCRIPTION-MEDICAL-PRESCRITEUR	Warning: La longueur de la concaténation du nom "e" et du préfixe "k" du médecin prescripteur est supérieure à 30 caractères. Faire attention: l'ETI. Une partie de cette information sera perdue.	F-4
<code>string(TYPE_D_IDENTIFIANT) < 4 or (string(TYPE_D_IDENTIFIANT) < 4 and string-length(DELIVRANCE-PRESENT-IDENTIFICATION_DU_PASSENT_A_C_03_REPETITIF) > 2)</code>	MF_007-001_2010-CORPS_DU_MESSAGE-DELIVRANCE-PRESCRIPTION-PRESENT-IDENTIFICATION_DU_PASSENT_A_C_03_REPETITIF	Error: Il ne peut pas y avoir plus de 20 caractères dans le champ "TYPE_D_IDENTIFIANT".	F-5

At the bottom of the browser window, there is a status bar with the text: "Délivrance_OK_001gato00.tcl", "Cax20ProxyReceiving..._jre", "20110906-001-DECO..._jre", "Copyright 2017 IHE International", "Page 41/50", and "Debug".

■ Simulate the HPD profile

■ <https://gazelle.ihe.net/HPDSimulator/home.seam>



OVERVIEW OF TEST SUPPORTING TOOLS

■ Test Supporting tools

■ Gazelle Proxy

- The man in the middle
- <https://gazelle.ihe.net/proxy>

■ Gazelle SVS Simulator

- The mean to easily customize tool to different flavor of codes
- <https://gazelle.ihe.net/SVSSimulator>

■ Gazelle DDS

- Get fake but realistic patient data, get some variety in your test data.
- <https://gazelle.ihe.net/DDS>

■ Assertion Manager

- Link between the specifications and the tests
- <https://gazelle.ihe.net/AssertionManagerGui>

- Capture of messages exchanged between partners
- Plays the role of the man in the middle.
- Neutral
- Supports Dicom, HL7v2, Syslog, http (Webservices)
- Bound to EVS Client for validation of captured messages
- <https://gazelle.ihe.net/proxy>

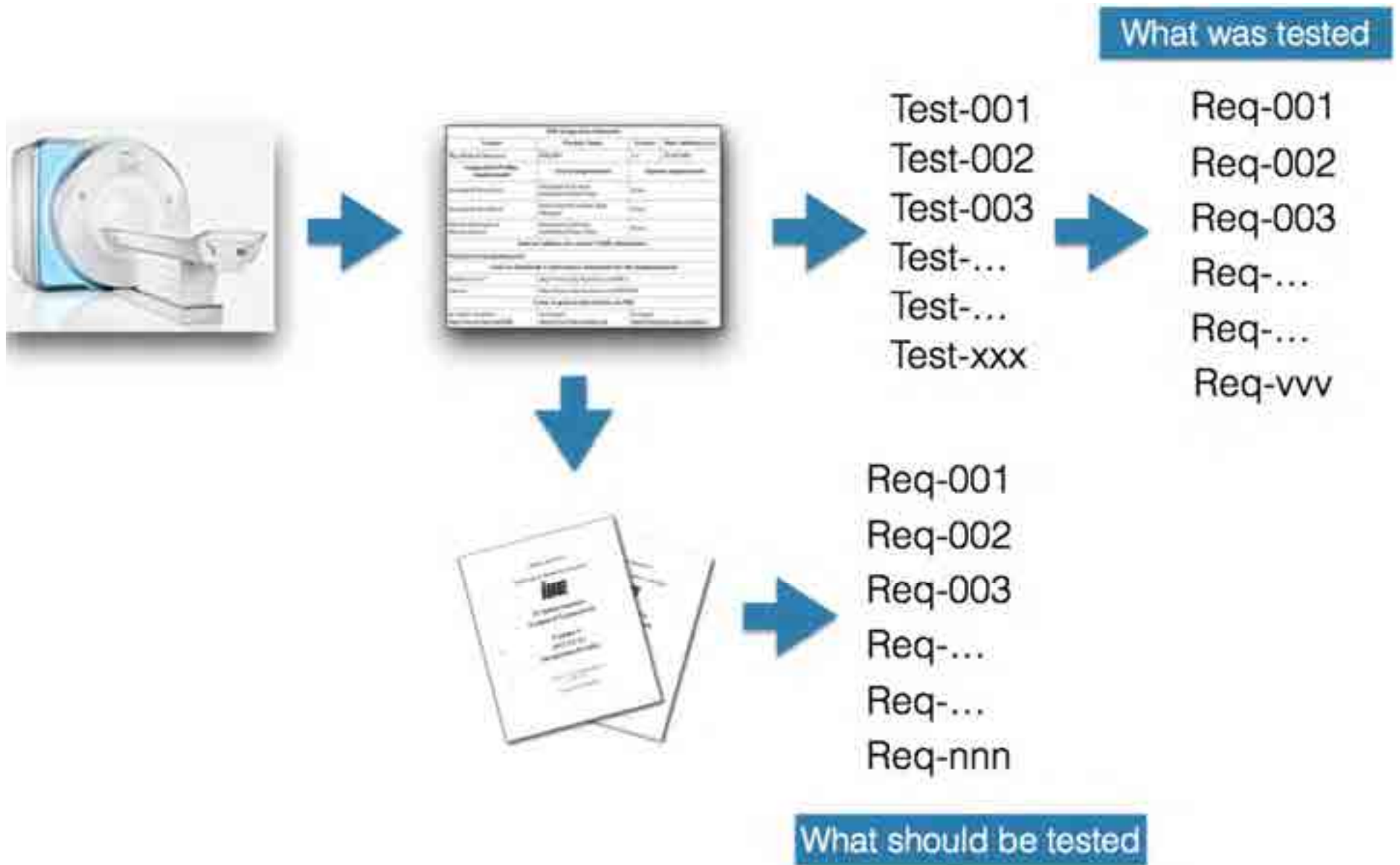
- SVS Simulator is both a simulator and a support tool
 - Simulates actors in the SVS profile
- We have extended the SVS profile for our testing needs:
 - <https://gazelle.ihe.net/RetrieveValueSet?id=1.3.6.1.4.1.21367.101.103>
 - <https://gazelle.ihe.net/RetrieveValueSet?id=1.3.6.1.4.1.21367.101.103&random=true>
 - <https://gazelle.ihe.net/RetrieveValueSet?id=1.3.6.1.4.1.21367.101.103&code=A>
- Allow customization of tools to different deployment environment

Demographic Data Server

- Generation of demographic data on the demand.
- Used by simulators
- Used by Test Management for complex scenarii design (cross community access)
- <https://gazelle.ihe.net/DDS>

- Management of Requirements
- Objective is to answer the 2 following questions :
 - How much of the specs do the test cover
 - When I have performed a test campaign, how much of the specs did I cover
- <https://gazelle.ihe.net/AssertionManagerGui>

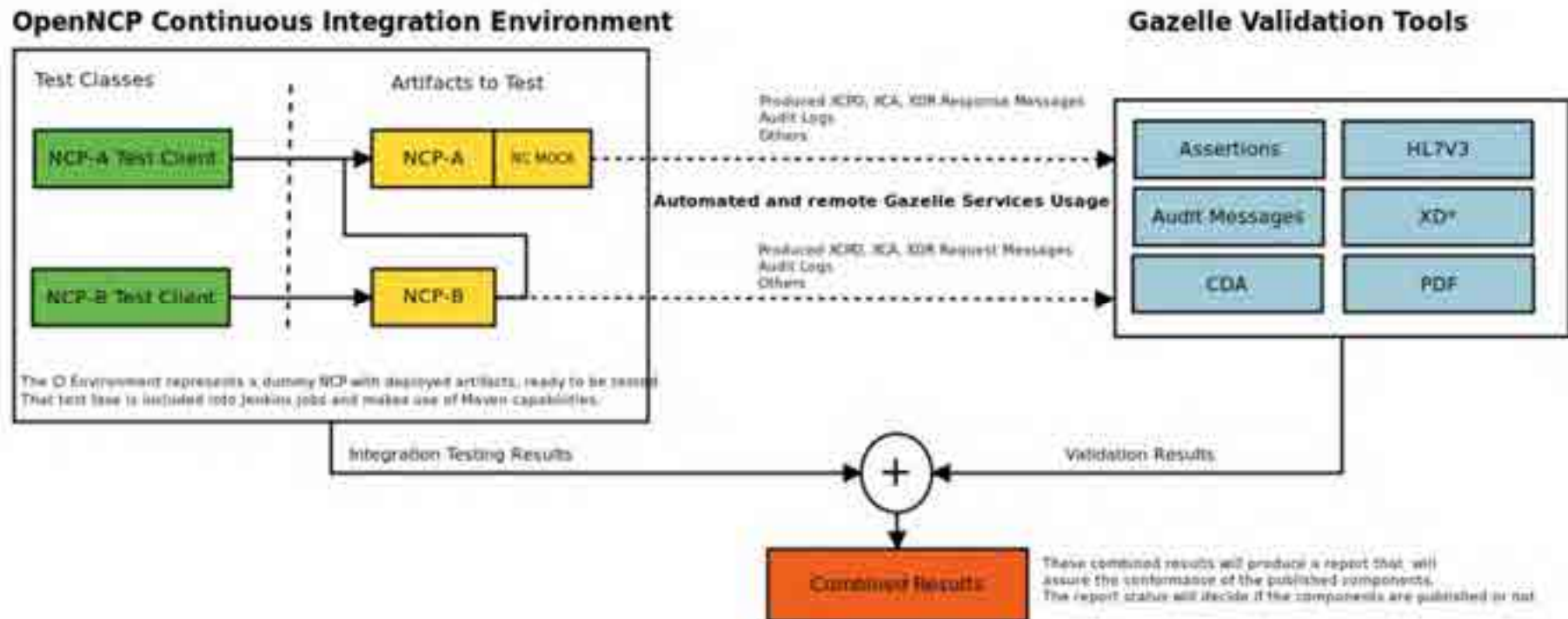
Assertion Manager



USE OF VALIDATION SERVICES FOR CI

■ Example of openNCP project

- WS call to verify that the new code is not breaking the conformity of messages/documents



GAZELLE PROJECT MANAGEMENT

- Hosted on the INRIA Forge at
 - <https://gforge.inria.fr/projects/gazelle/>
- Managed by SVN
- Sources accessible on Read-Only
 - Need to be a know developer to commit
 - Procedure to become a developer
 - Add an account on the forge
 - Request binding of account with project to Eric
- Apache 2.0 License
 - You can do what ever you want !

- We use jira atlassian <https://gazelle.ihe.net/jira>
 - Bug tracking
 - Feature Requests
 - Agile development management.
 - Time tracking on project

- Documentation is hosted on <https://gazelle.ihe.net>
- Huge work on re-documentation of the tools started
 - Objectives better compliance with ISO 17025
 - Easier distribution of documentation in link with the different version of the tools
 - <https://gazelle.ihe.net/gazelle-documentation>

Jira : Greenhopper plugin : Agile View

The screenshot displays the Jira Agile Board interface for 'Rapid Board Rennes'. The board is organized into three columns: 'To Do' (51 items), 'In Progress' (29 items), and 'Done' (27 items). The 'To Do' column is currently empty. The 'In Progress' column contains two items:

- OM-76: LAB-26: unable to post a message in the simulator
- OM-81: Error during message generation when trying to perform pre-connection test 30006

The 'Done' column is also empty. Below the main board, there is a section for 'Everything Else' (9 items) with three items:

- OM-1: Add Support for EYECARE domain
- DCS-60: Need to add the assigning authority for national patient identifier
- PAA-50: Add missing information for patient and encounter for query by POC actors

Each item in the 'Everything Else' section has a corresponding icon and a user profile picture. The interface includes a top navigation bar with 'Rapid Board Rennes' and various filters like 'Board Filter', 'All Issues', and 'Assignee'. The bottom of the board shows a legend for 'Everything Else' with a green bar and a red bar.

■ We use Jenkins

- <https://gazelle.ihe.net/jenkins>



↑ [Back to Dashboard](#)

-  [Status](#)
-  [Changes](#)
-  [Workspace](#)
-  [Modules](#)
-  [Subversion Polling Log](#)

 Build History	(trend)
 #54 Sep 26, 2012 1:01:29 PM 2MB	
 #53 Sep 26, 2012 12:12:05 PM  366KB	
 #52 Sep 26, 2012 11:59:34 AM 190KB	
 #51 Sep 13, 2012 4:02:04 PM 192KB	
 #50 Sep 13, 2012 3:34:11 PM  298KB	
 #49 Sep 13, 2012 3:33:06 PM 191KB	
 #48 Sep 13, 2012 11:02:04 AM 192KB	

Project gazelle-tools

-  [Workspace](#)
-  [Recent Changes](#)

Permalinks

- [Last build \(#54\), 5 days 7 hr ago](#)
- [Last stable build \(#54\), 5 days 7 hr ago](#)
- [Last successful build \(#54\), 5 days 7 hr ago](#)
- [Last failed build \(#30\), 26 days ago](#)
- [Last unsuccessful build \(#33\), 25 days ago](#)
- [Last Release \(#53\), 5 days 7 hr ago](#)

■ Testlink

- repository of tests for the applications developed within the project

- <https://gazelle.ihe.net/testlink>

■ Static code analysis

- <https://gazelle.ihe.net/sonar>

- We use nexus

- <https://gazelle.ihe.net/nexus>

- Repository of the artifacts used by the different applications

- All our components are (or will) use crowdin :
 - <https://crowdin.net/project/gazelle>

Gazelle

Interoperability Conformance Testing for eHealth Information Systems

Choose the language you want to translate to. The original language is English.

▼ Needs Translation



French

82% completed



Finnish

0% completed



Japanese

41% completed



Swedish

0% completed



English

99% completed

- Nagios3 for service monitoring
 - <https://gazelle.ihe.net/nagios3/>

Host Status Totals

Up	Down	Unreachable	Pending
15	0	0	0

All Problems	All Types
0	15

Service Status Totals

Ok	Warning	Unknown	Critical	Pending
328	3	0	0	0

All Problems	All Types
3	331

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