Antilope

Advancing eHealth Interoperability

Testing tools for eHealth interoperability testing

Existing testing tools and tools to be developed

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ETSI World Class Standards

cip competitiveness and innovation framework programme 2007-2013

SEVENTH FRAMEWORK PROGRAMME

Do we need testing and tools -1?

- Interoperability of future eHealth systems is first addressed when **specifications for a system are set**.
- Basing the solution on **internationally accepted standard** is the key step.
- The next step is setting **the profiles** that would restrict the level of freedom in standards to the level that would make them interoperable.
- eHealth solutions are **built with intention to respect** all the requirements set in the standards and profiles.

Do we need testing and tools –2?

- However, standard and profile specifications are, as a rule, not tight enough and **differing interpretations and erroneous implementations** lead to interoperability problem.
- It has been proven many times that the only solution to that problem is the appropriate level of **testing**.
- In order for the testing to be precise, efficient and less dependent on human intervention **testing tools** are required.

Key messages on testing tools

Testing tools are key to achieving interoperability	Testing and certification of eEIF Use Cases is relying on recognized profiles and will require robust and high quality testing tools
Use good testing tools that exist	ANTILOPE is contributing by consolidating and disseminating the knowledge about the testing tools that are already available.
New or improved test tools need to be developed	ANTILOPE is identifying the gaps and will stimulate the development of required additional capabilities of testing tools

Testing tools analysis process

eEIF Use Cases

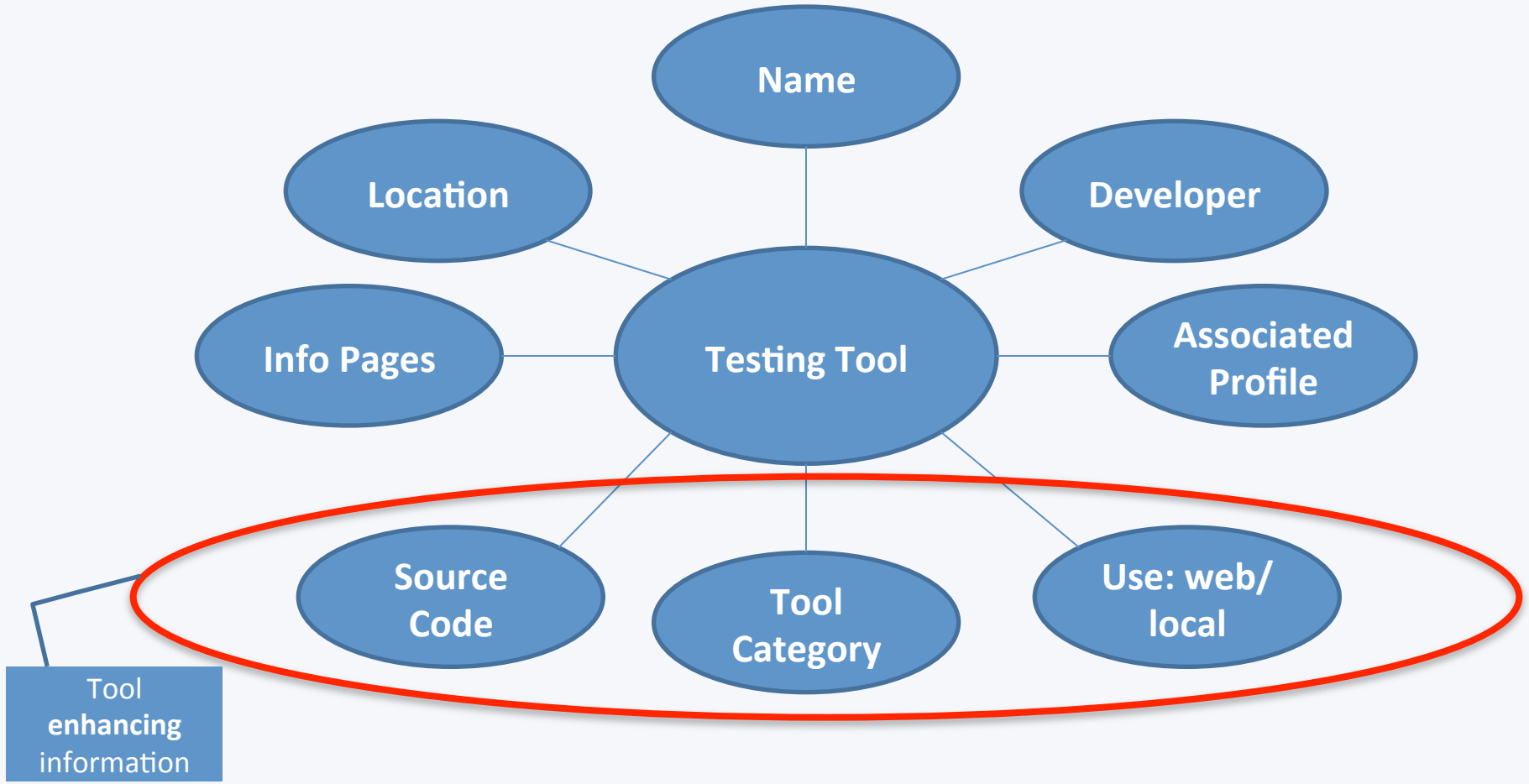
ANTILOPE refined Use Cases

Selection of Profiles and underlying standards adapted to the Use Cases

Existing Testing Tools for Selected Profiles and standards

Gaps in existing testing tools

Existing Testing Tools Information Diagram



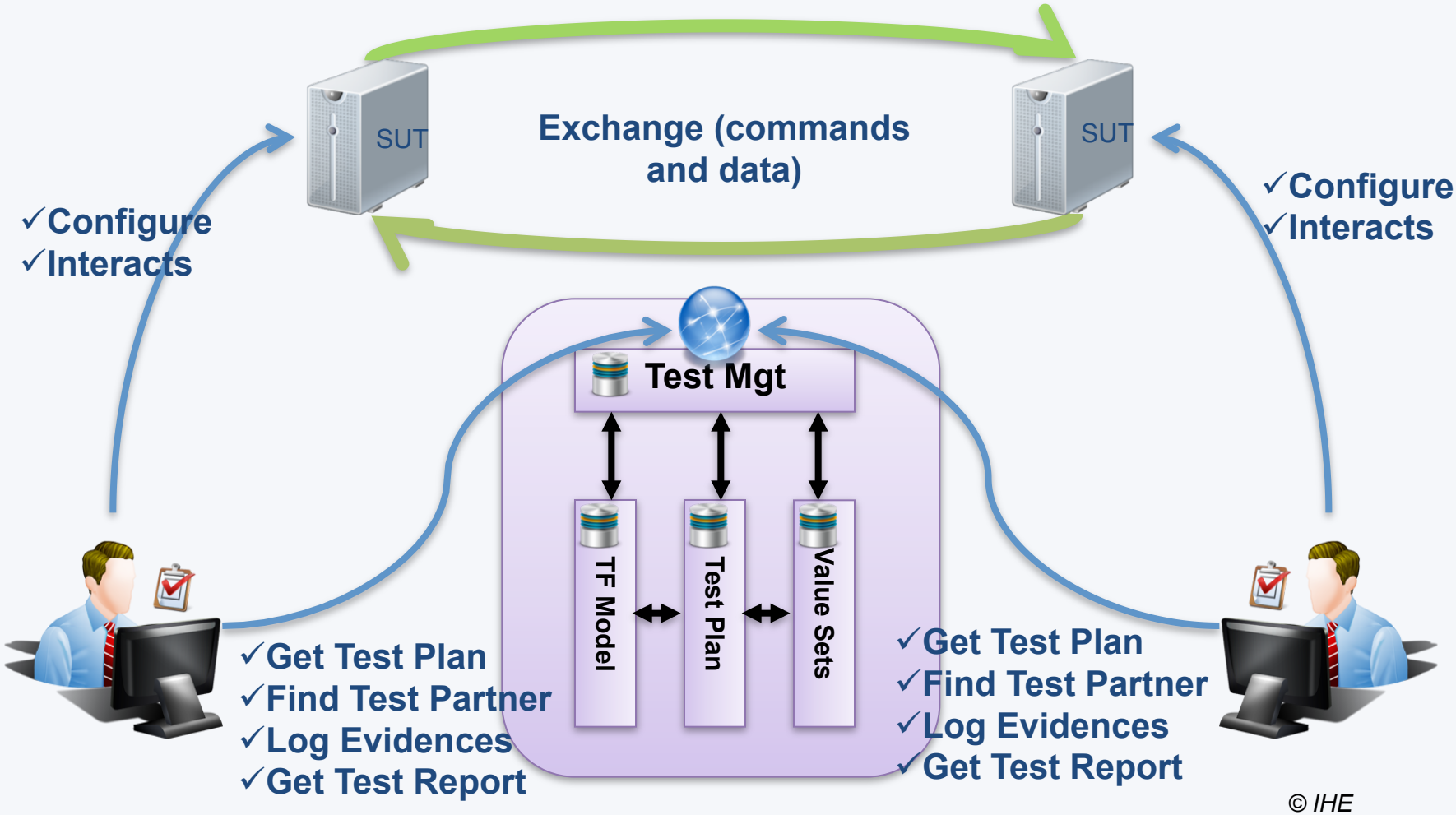
Testing tool source code

Source code	Explanation
Open source	The source code of a testing tool is **freely available**. This is a preferred solution.
Not open	The source code is **not freely available**.
Partly open	The source of the testing software is freely available but requires run time support that is may not be free.

Testing tools access rights

Testing tool access	Description
Free	Free use of a testing tool, either over the network or free download and installation. This is a preferred solution.
Commercial	A testing tool can be accessed under commercial conditions set by the entity that developed or owns the tool.
Member restricted access	The testing tool can be accessed under condition of membership in an organization that owns/controls the tool.
Combined	Testing software free to use but requires run time environment that is proprietary with possible conditions.

Testing tool categories: Test management tools



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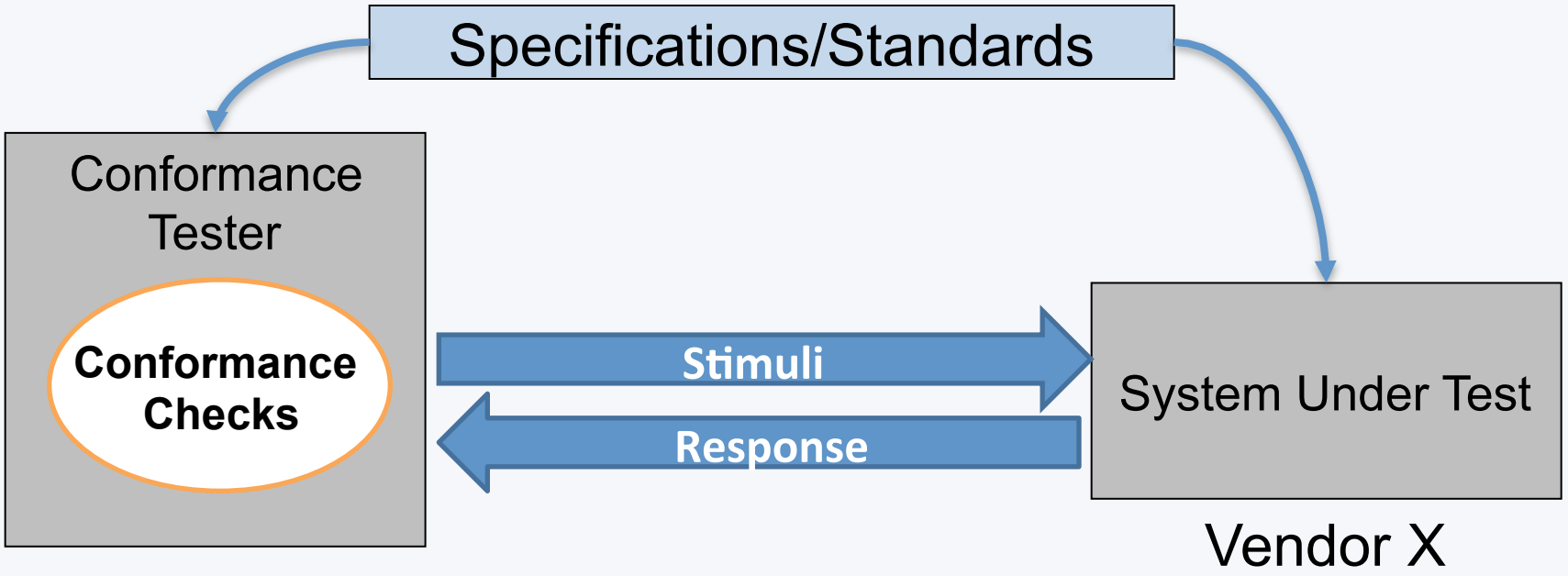
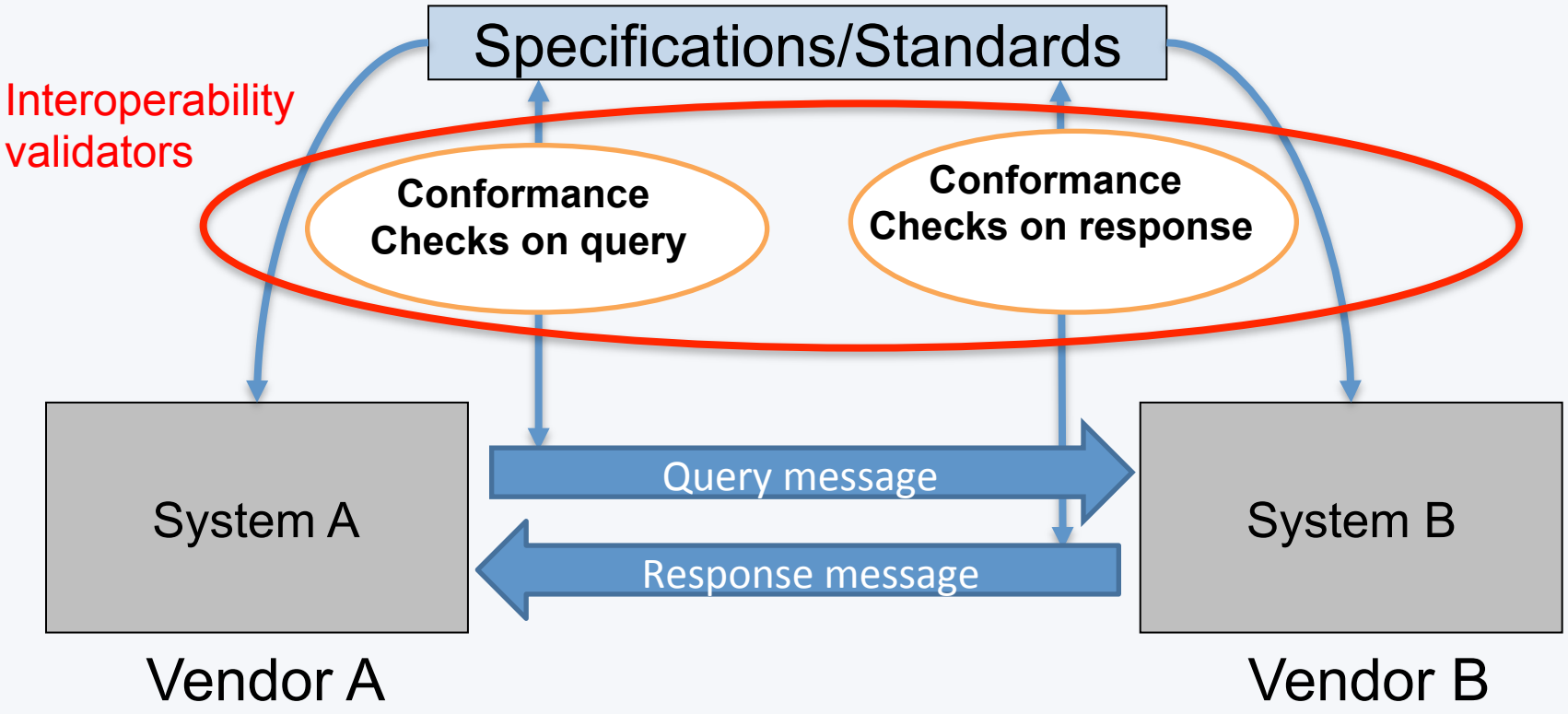
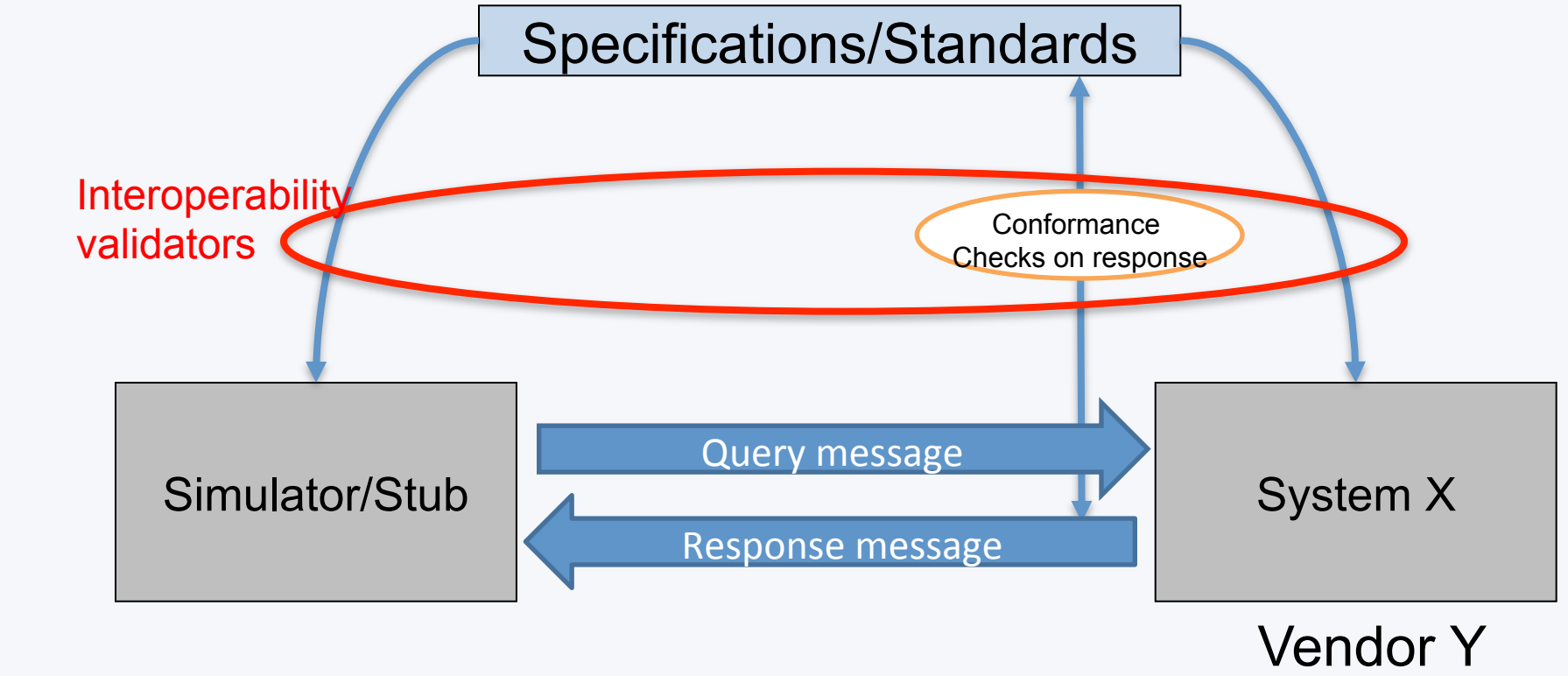
Testing tool categories: Conformance tester



Testing tool categories: Interoperability validators



Testing tool categories: Simulators/stubs



Testing tool categories: Other

Category	Description
Software libraries	Software libraries may be used to build both eHealth systems as well as eHealth testing tools. An example is a library that supports encoding and decoding of HL7 messages.
Test data generators	A test data generator accelerates test data preparation by providing valid, input data to be used in testing.
Reference implementations	A reference implementation is, in general, an implementation of a specification (standard or profile) to be used as a definitive interpretation for that specification.
Support tools	During testing and debugging various support tools may be useful. While they do not test anything themselves, they may provide means of collecting the information that is needed to progress with testing.
Network sniffers	Sniffers are also known as network analyzers or protocol analyzers.

Existing testing tools grouped

Tools specific to IHE profiles

Tools specific to Continua Health Alliance Profiles

Generic tools useful for testing HL7. No associated profile.

Tools not recommended for use

Status and identified needs for improvement (1)

Profile	Existing tool categories	Areas of improvement
IHE: ATNA	**Data generator** **Interoperability validator** **Support tool** **Simulator/stub**	There is currently no conformance testing tool. Syslog message generator for testing the ARR actor would facilitate test data preparation. Current validator is checking message content. Analysis of coverage of profile requirements is likely to improve the testing.
CHA: HRN	**Conformance tester** **Interoperability validator**	Data generator: CESL to be added to HRN tools Simulator/stub: No CESL HRN tools PHMR document type to be added to interoperability validator Coverage of HRN testing could be improved as there are HRN sender tests but there are no HRN receiver tests.

Status and identified needs for improvements (2)

Profile	Existing tool categories	Areas of improvement
IHE BPPC	Interoperability validator	A generator of valid Consent document is required. A conformance tester would automate testing and ensure that requirements are well covered. In particular this would mean testing of Use Case workflow in addition to content checking.
IHE DIS	Interoperability validator	A generator of valid Dispensation documents is required. Dispensation should be generated from a given Prescription. Useful to test the Dispensation workflow. Improved DIS testing tools should look to automate the testing while ensuring improved coverage of requirements.
IHE PAM	Interoperability validator Simulator/stub	Automation of workflow for PAM profile. The tools available nowadays allow the validation of the exchanged messages and the simulation of the missing partners. Automation of the exchange can be used to test the "server" actors in these profiles and thus provide means of more exhaustive testing, requiring less human interactions. The goal may be achieved as improved interoperability validator and/or as conformance tester.

Summarising current status of testing tools and future targets

- **Testing tools already** exist for eEIF Use Cases
- The increased use of **existing tools will improve interoperability** of eHealth systems implementing eEIF Use Cases
- In addition to immediate use of existing tools, **improved testing tools should be developed** to increase the testing precision and productivity
- **Improvements** that could be targeted at this point in time are **already identified**
- A **Request For Proposal** to develop new or improved testing tools has been issued
- As the eEIF evolves, there should be a **continuous process** of review , development and deployment of improved testing tools

Request for proposal for new testing tools

- Deliverable D3.2 completed in February 2014
- Public version (more “user friendly”) published on March 14 on Antilope web pages and announced widely

Antilope calls for development of eHealth testing tools

12 March 2014

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Brussels, 12 March 2014 – Today the EU-funded Antilope project published a request for proposals (RFP) for developing testing tools that further enhance testing for the profiles and standards needed to implement the use cases identified in the European eHealth Interoperability Framework (eEIF). These new testing tools will serve to further advance eHealth interoperability in Europe.

The Antilope project has published a list of testing tools that are used to ensure interoperability with existing IT infrastructures, services and devices. Gaps remain where existing testing tools could be improved or new tools could be built. This request for proposals is a call for developers and organisations to address these shortcomings. Tools that will be freely available and are based on open source code will be preferred.

RFP key dates

- March 2014: RFP communication on Antilope website
- March to December 2014: Intention to develop a testing tool should be communicated to ANTILOPE that will maintain the list of potential new tools
- September to December 2014: Validation of the new testing tools
- Demonstration of the new testing tools
  - January 2015 at Antilope Conference
  - April 2015 at Connectathon in Luxemburg

More information

For more information,

please refer to D3.1, D3.2 and D3.3 documents

available on the Antilope website

http://www.antilope-project.eu/