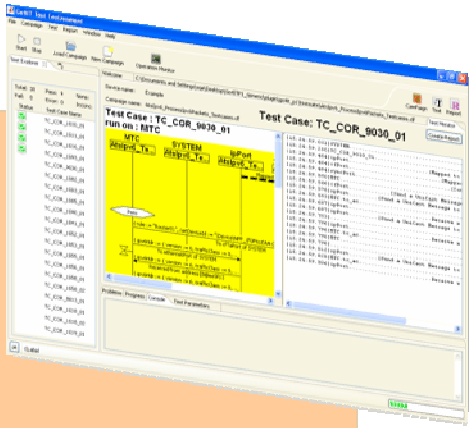


The Go4IT project

4th e-Infrastructure Concertation

6 December 2007

inno

Project identity card

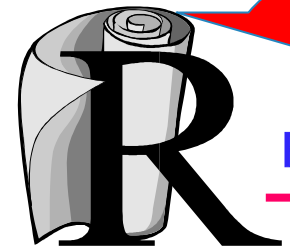
- **Integrated Infrastructure Initiative**
  - Started in Nov 2005
  - 30 month FP6 project
- **Partners:**
  - France (jTest, INRIA)
  - Europe (ETSI)
  - Germany (inno, Fokus)
  - Spain (Cetecom)
  - China (BII, CATR, BUPT, *IMU*)
  - Russia (Ispras)
  - Brazil (IPT)
  - *Uruguay (Inco)*
- **Go4IT project intends to provide Research Infrastructure users with free *TTCN-3* based *IPv6* testing environment including *test tools, test suites* and the related *services*.**

Go4IT activities and services

Project objectives: Deliver IPv6 oriented test tools, test suites and the related services
Technical choice: standardised TTCN-3 test methods

- Provide a roadmap to a free, open & generic test environment.
- Develop open & generic test tools for IPv6 protocols.
- Offer free test tools, test services such as plugtest events and related support.
- Raise user communities awareness of testing and validation methodologies.
- Disseminate worldwide.

Rational
Fill product to market gap



Requirements

From standard development to conformance testing

Product

Standards

Tests Spec.

Development

Testing

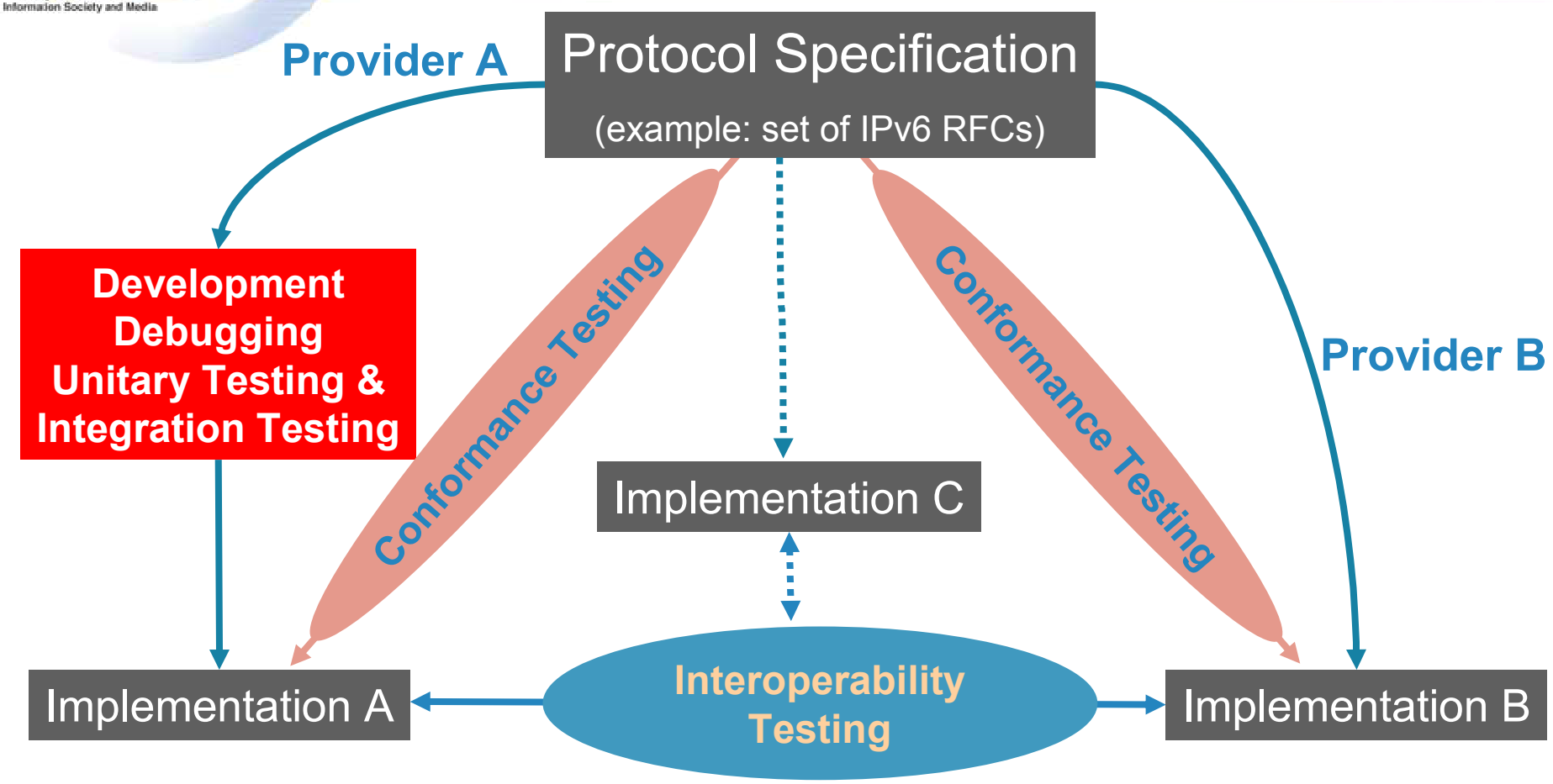
Standards Download

TTCN-3 test suites

Executable test suites

The Go4IT test case: IPv6

Protocol Testing: Methodology



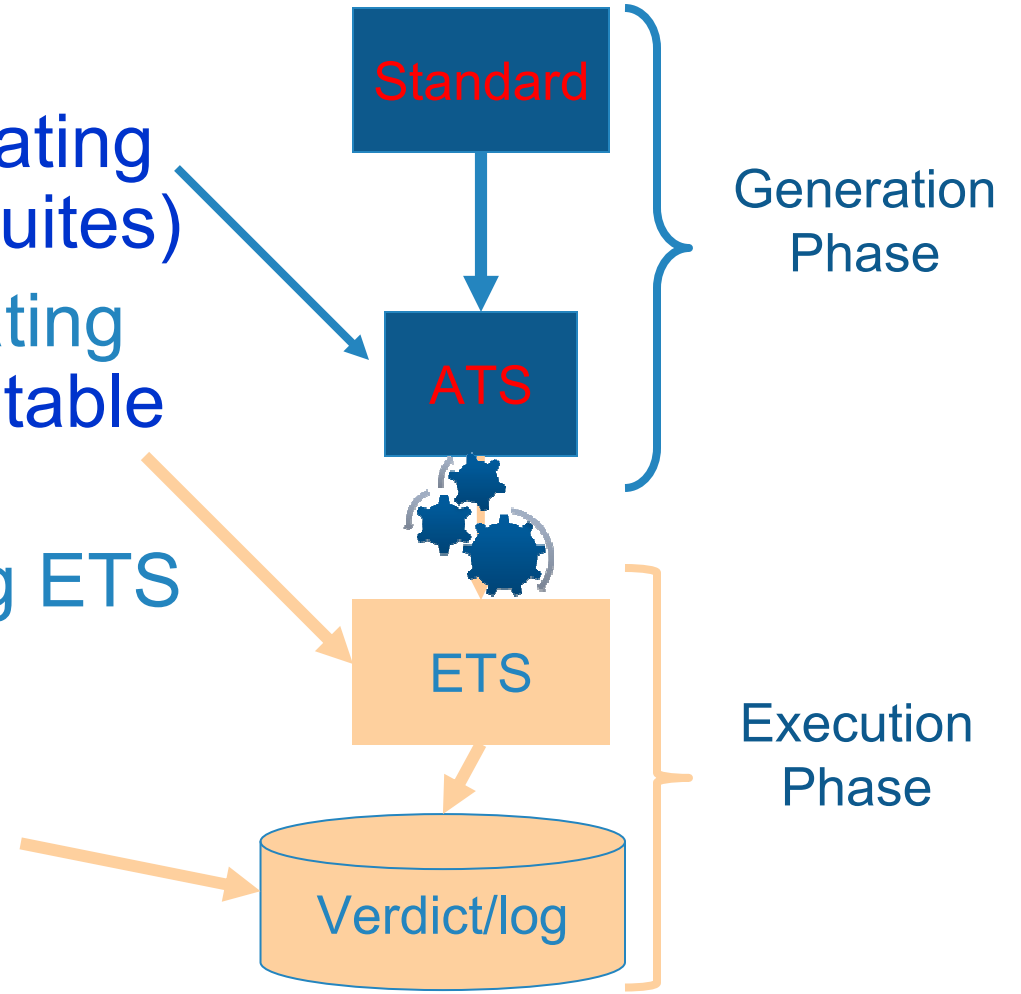
Arguments in favor of testing methodology

- Some implementations may be considered conformant to their specification but may not interoperate with other implementations
  - Contradiction with the final goal of networks
- Some implementations may be considered not conformant to their specification but may interoperate with other implementations
  - What the end-user needs is interoperability, but does he want a product that doesn't realize what it is design for?

We need both conformance and interoperability

Test Methodology: Different steps

- Specification : Generating ATS (Abstract Test Suites)
- Compilation : Translating ATS into ETS (Executable Test Suites)
- Execution : Executing ETS on the IUT
- Analysis : Analyzing results and verdicts



Status for IPv6 testing in Europe

1.5 M€ STF276

Best practice : TTCN-3

Empiric, pragmatic

1- Exec. Tests

Test Specs

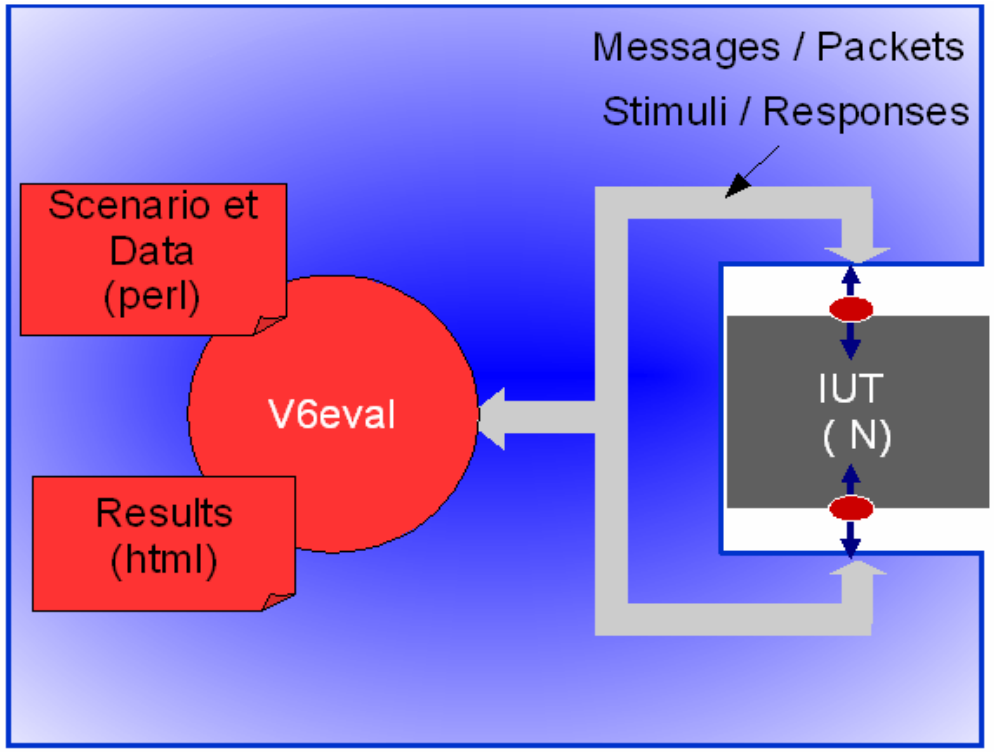
Specification

Development

Testing

Kame, Wide

Test Methodology: V6eval tool (Tahi Project – Japan)



Pro:

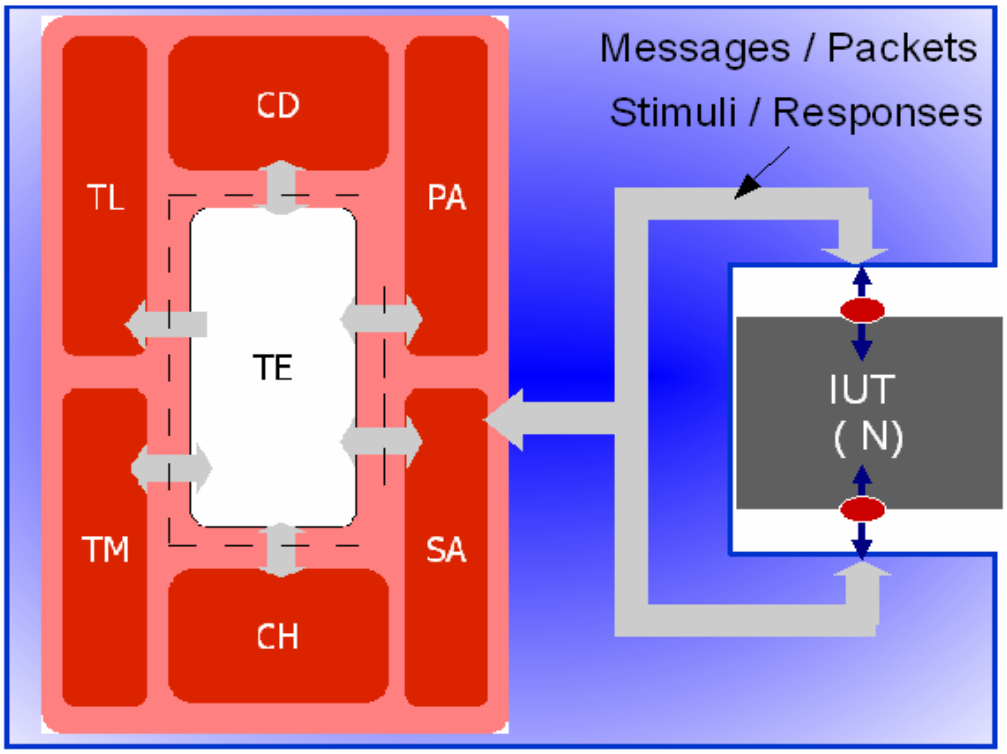
- Mature (1998)
- Free
- Maintained
- A lot of existing Test Suites

Cons:

- Not Standard
- Not Open
- No Methodology
- Dedicated to IPv6

No use outside IPv6

Test Methodology: TTCN3 Architecture



Pros:

- Standard
- Open
- Generic
- European Methodology

Cons:

- No Free Tool (ETS)
- No Free Environment
- No Testing Community

IPv6 is just a test case

Road to a success ?
Go4IT: increased objectives set

- Initial project target:
  - Users and market needs analysis
  - test suites and services for IPv6
  - Possible development of ATS
    - DHCPv6 released

- Partners interest: open-source test platform

Open-source project and community launched in parallel

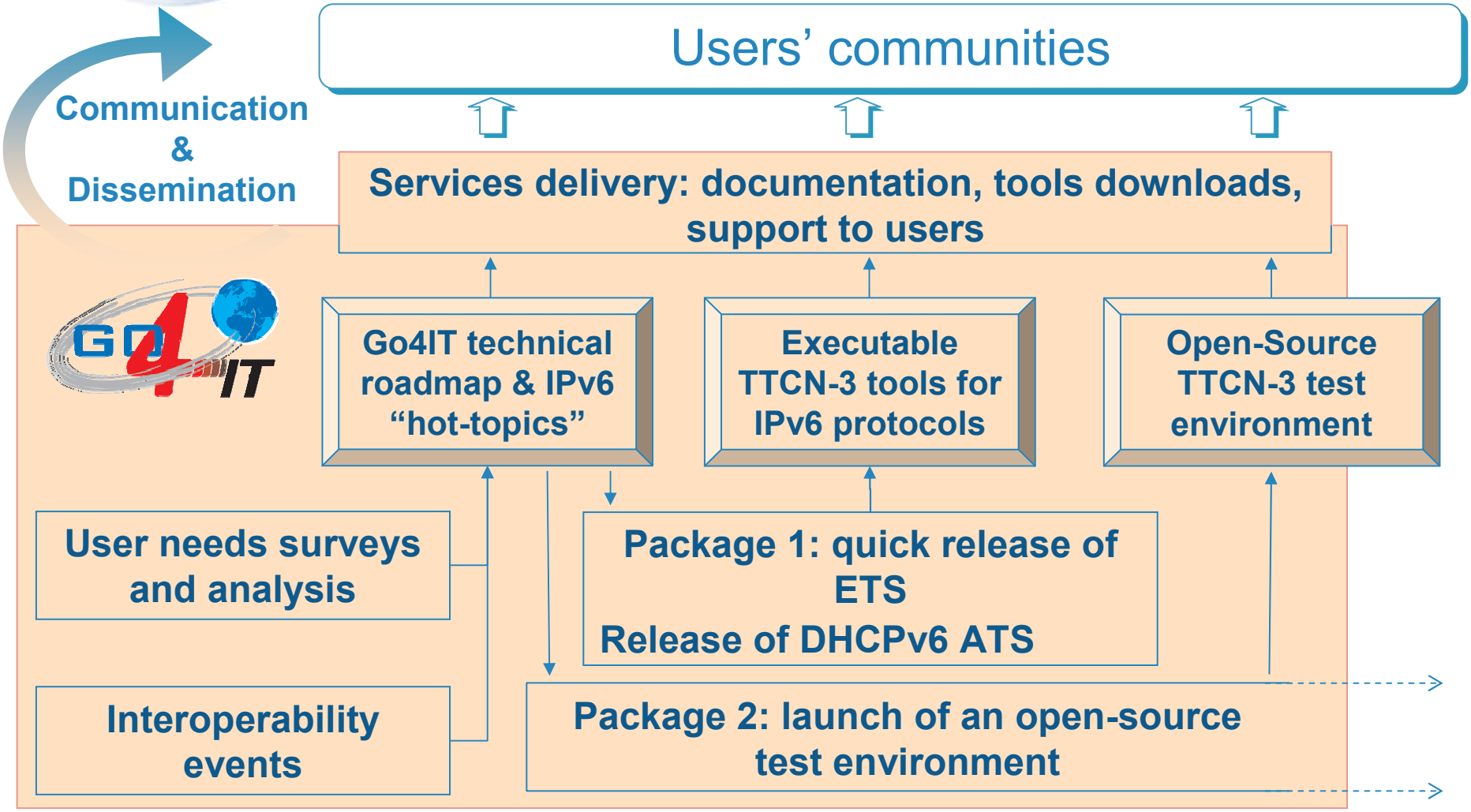
Project organisation adapted

Open-source : reasons for interest

- For academic people
  - Education and training
  - Possible creation, debugging and update of ATS
  - Low cost solutions
  - Capability to implement and test new potential TTCN functionalities (access to the test platform source)
  - Possible re-use of efforts made by the community (share developed components)
- For test users
  - Confidence in the test environment
  - Validated test suites
  - Friendly interfaces
- For industrial users
  - Full control on environment
  - Visibility
  - Access to innovation

Possible range of usage, from protocol to applications

Go4IT approach



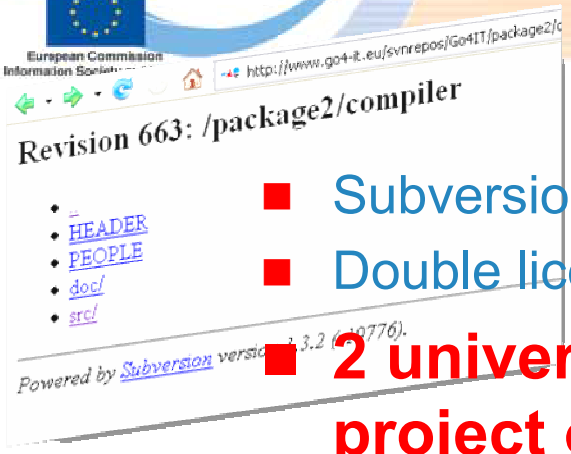
Status: release of Executable test suites

- Partnership built with the TestingTech company
  - Allows access to an enlarged pool of executable test suites at a negligible price
- Project now proposing and building ETS for:
  - IPv6 core protocols (IPv6 STF276)
  - Mobile IPv6
  - Ipsec
  - Ripng
  - DHCPv6
  - V4/v6 Transition mechanisms
- As a minimum, all the runtimes required to run the ETS are provided

Status: release of ATS

- DHCPv6 Abstract Test Suite drafted
- Following IPv6 ready logo specification making use of the ETSI scientific methodology
- New ETSI-MTS work item opened and supported by Fokus, TestingTech, Nokia and Ericsson
- Now being transformed into an executable test suite

Status: open-source community



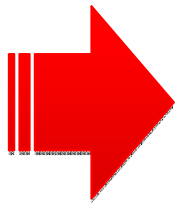
- Subversion repository running / Architecture defined
- Double licensing scheme: GPL/LGPL and Cecill based
- **2 universities from China and Uruguay joined the project on a voluntary basis**: +10-15 developpers
- Already delivered
  - Open-source Codec Generator
  - Open source Test management and test logging GUI
- On going development
  - Basic TTCN-3 compiler : only a small amount of TTCN-3 language to be covered within Go4IT
- On going discussions with other open-source initiatives, academics and industrials for possible collaborations

Success ?

- Enlarged scope of objectives
- International momentum with 150% committed partners
- Additional voluntary contributions
- Raised interest from several organisations

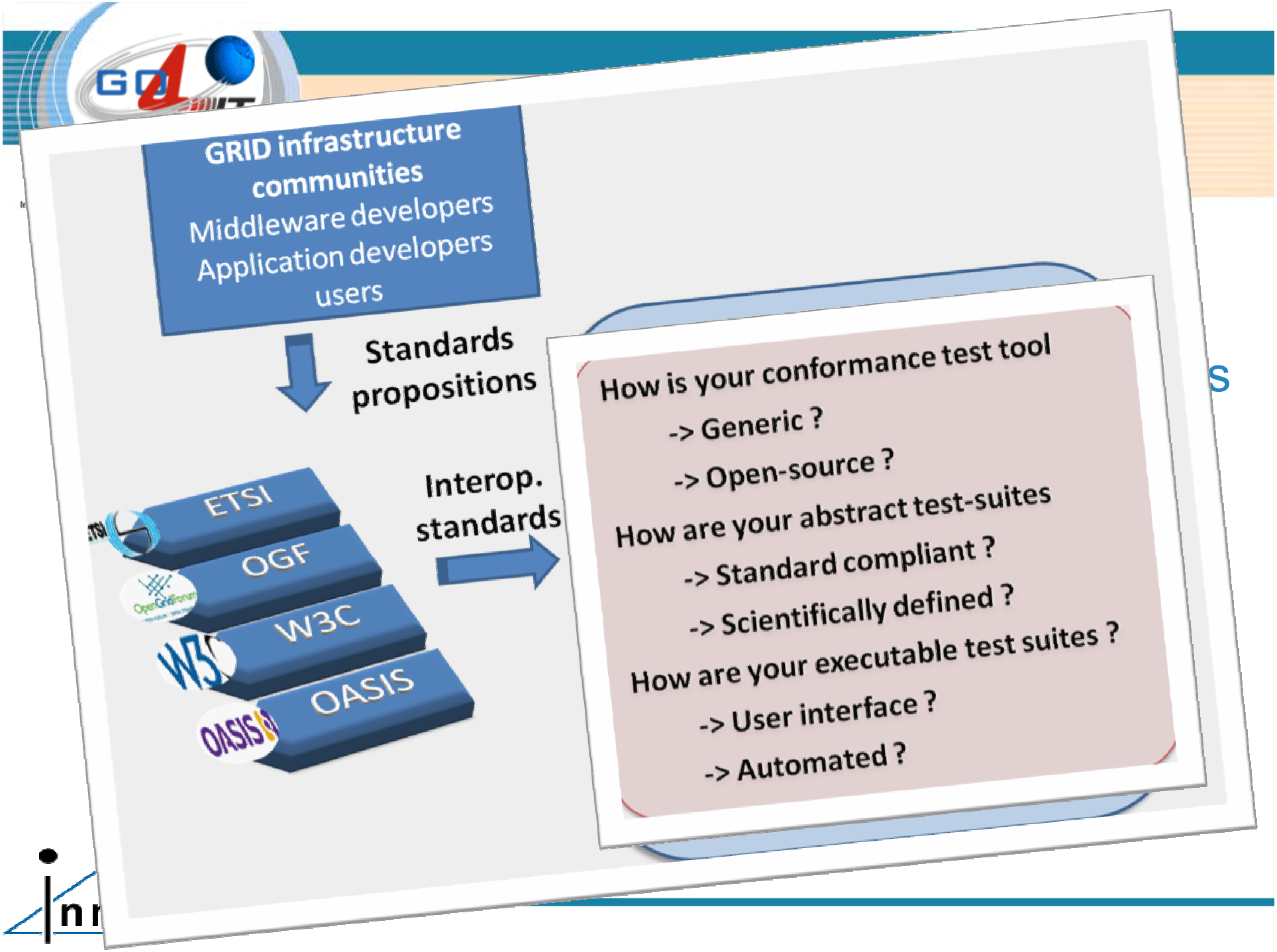
Next steps

- ✓ TTCN-3 methodology is a powerful approach to conformance testing
- ✓ This Eu leadership raise a worldwide interest
- ✓ Bring standards & specifications to live
- ✓ Scale from unitary testing to remote & distributed testing
- ✓ Many has to be done to get a complete open-source environment



- ➢ Road mapping: from protocols to applications and beyond
- ➢ Evaluate possible extension to reliability, robustness
- ➢ Pursue open-source platform development : compiler, parallel & distributed test
- ➢ Ensure continuation of the Eu leadership
- ➢ More test suites, more test cases
- ➢ Sustainability

TTCN-3 testing … Help research exploitation through standardisation


GRID infrastructure communities
Middleware developers
Application developers
users
Standards propositions
Interop. standards
ETSI
OGF
W3C
OASIS
How is your conformance test tool
-> Generic ?
-> Open-source ?
How are your abstract test-suites
-> Standard compliant ?
-> Scientifically defined ?
How are your executable test suites ?
-> User interface ?
-> Automated ?

Welcome to join us !

Go4IT offers different levels of user participation enabling you to contribute according to your specific interests and competencies.

Involvement can be from "being aware" right up to "active contribution".

- **Be informed**: share aims and results while accessing for free the full services offered by the Go4IT project and having the opportunity to give your feedback … ***Go4IT forum***
- **Contribute**: Get privileged access to private information and tools and participate in technical and dissemination activities … ***Go4IT factory***
- **Coordinate**: ensure the project deliverables remain aligned to the overall objectives of Go4IT and the interests of individual contributors…***Go4IT consortium***

http://www.go4-it.eu

Thank you for your attention

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