



ADVANCING NEAR
FIELD COMMUNICATION
TECHNOLOGY



NFC Forum Compliance Program

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Objectives of the Compliance Program

- Develop a means of establishing compliance and interoperability with the Forum's published open standards
- Develop a product certification program with a consumer recognizable trademark guaranteeing the NFC brand promise of compliance and interoperability

Questions to Answer

- To meet these objectives, the Compliance Committee had to answer the following questions:
 1. What does a device have to do in order to be certified?
 2. What needs to be certified, how will it be certified, and how do we track devices through the process?
 3. How and what do we have to test (or not test) for conformance and interoperability?

Status of Compliance Work

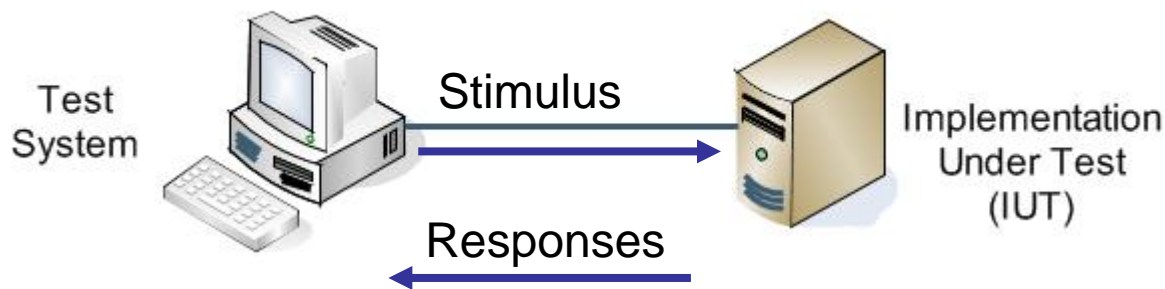
- Over 100 representatives of 30 member companies within the Forum have worked for the past 2-3 years on:
 - Defining Minimum Levels of Interoperability
 - Developing a Certification Program
 - Defining and developing Test Procedures, Tools, and Test Laboratory Relationships
- “First Wave Certification Program” should be ready within the year

Certification Terminology

- Certification: Procedure by which a (Certification) Body gives written assurance that a product, process or service conforms to specified requirements. [ISO 17025]
- Certification **is usually based on testing of products.**
- There are two main types of testing: **conformance testing** and **interoperability testing.**
- NFC certification may be based on conformance testing, on interoperability testing, or a combination. NFC Forum is using both for the First Certification Wave, but conformance testing is the ultimate goal.

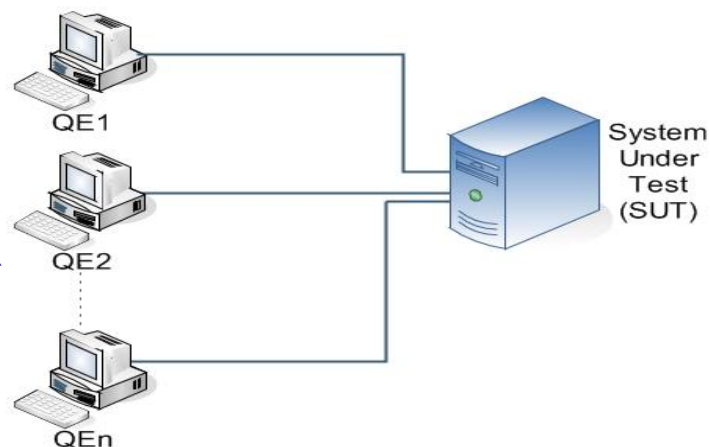
Types of Testing

Conformance Testing



Interoperability Testing

Interoperability
Test Bed

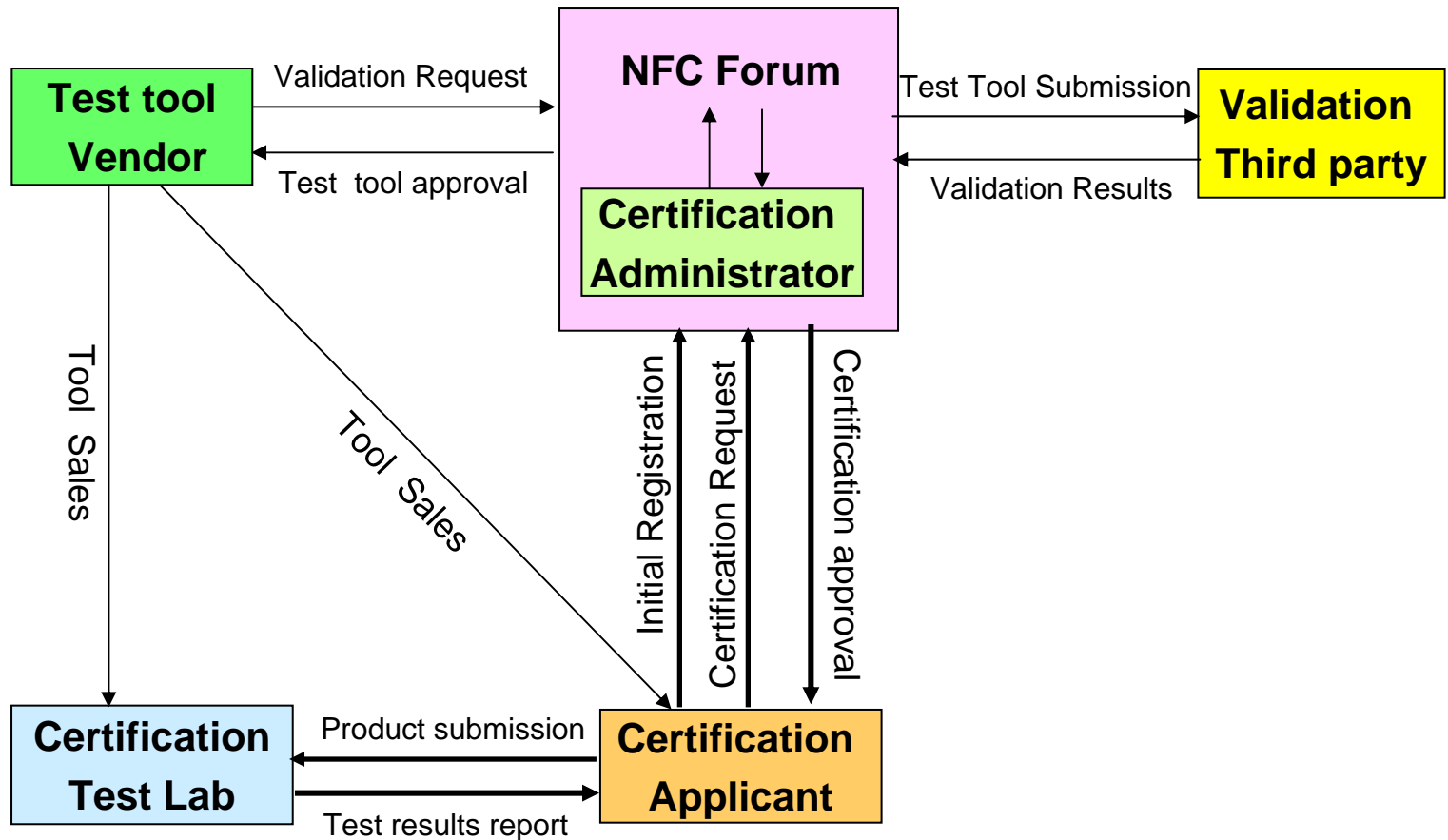


✓ NFC Forum is focusing on **Conformance Testing**

More Certification Terminology

- Test cases define what to evaluate and how to conduct the evaluation.
- Plugfests, plugtests, bakeoffs are used for informal testing in order to test the specifications themselves, not for certification.
- Testing is done not to the mandatory features, but to the implemented features.

Certification Process Overview



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First Wave Certification: Conformance Testing

Applicant for First Wave Certification must:

1. **“Self Confirm” Device is compliant to certain existing NFC Forum Specifications, which may or may not have Test Cases available, including but not limited to:**

Digital Protocol
Activities
Tag Operation

LLCP
Others?

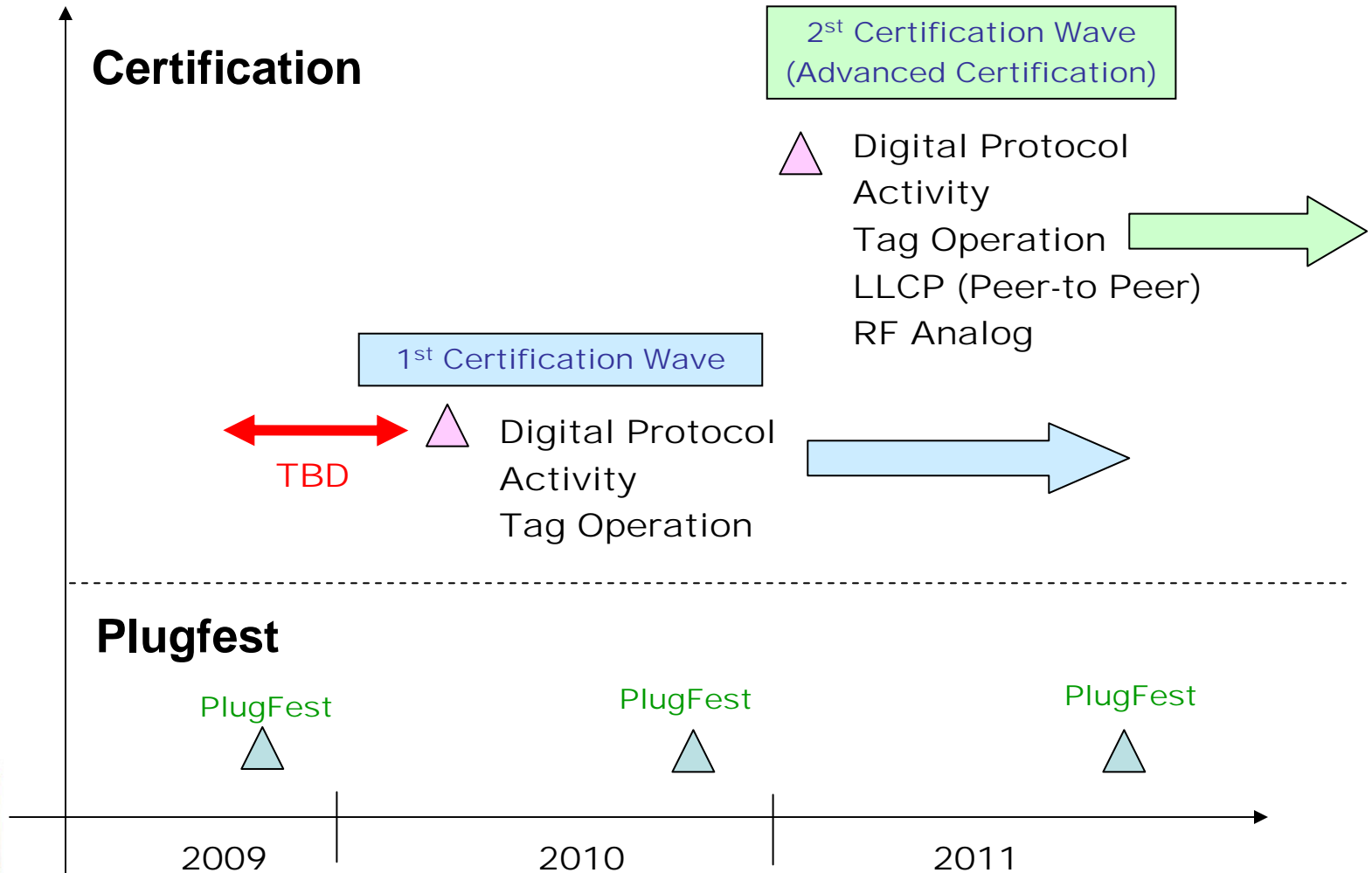
2. **Submit Device for Certification Test**

- Conformance Test using NFC Forum-Approved test tool
- Conformance Test coverage will be different than Step 1, and will likely include Tag Operation, Digital Protocol, and Activity Specifications

First Wave Certification: Interoperability Testing

- **The NFC Forum also strongly recommends some Interoperability Testing**
 - NFC Forum will define and support an interoperability test event (“plugfest”) by using a “Test Bed” to decrease chances of interoperability issues
 - Interoperability testing by the applicant is not required at this point in First Wave Certification. However, it is strongly recommended (could become mandatory).
 - Certification will not be denied based on the results of interoperability testing

Target Schedule



Ongoing Activities

- High-Level Conformance Requirements (HLCR) document, which defines minimum levels of interoperability for certification
- Traceability Matrix to enable implementers to map requirements in the HLCR document to technical specifications
- Certification administration
 - Selected The Open Group as Administrator
 - Policy/ procedures almost complete
 - Development and implementation underway

Ongoing Activities (2)

- Developing partnerships with test equipment manufacturers
- Creating Requirements Catalogs, Test Purposes, and Test Cases (1800+ to date)
- Prioritizing, selecting and completing test cases for First Wave Certification
- Selecting the Test Tool Validation House
- Drafted RF testing requirements

Plugfests

- Now, one Plugfest per year
- December 2008: Plugfest and Testfest
 - Plugfest: More than 20 devices/tools/tags from more than 10 companies
 - Testfest: Three RFC Test Tool Manufacturers
 - Coverage:
 - All tag types (1, 2, 3, 4A and 4B)
 - Read and Write functions
 - Peer-to-Peer
 - Card Emulation
 - Protocol Testing
 - RF Measurements
- Planned Plugfest and LLCP Specification test session at September member meeting