NFC Forum Certification: The Key to Interoperable Innovation

Mohamed Awad
Associate Product Line Director, Broadcom
Member Board of Directors, NFC Forum

4G World NFC Summit
October 26, 2011
NFC and the Wallet

NFC Forum

Sprint Launching Mobile payment services with Google Q3 2011

VISA announced a shift in liability to merchants when the POS terminal is not chip / contactless.

France and Netherlands country wide rollout committed for Q2 2012.

China Unionpay launching NFC in Sept 2011, planning 700K POS terminal deployment by end of 2011

Orange and Barclaycard have launched commercial NFC services in the UK, Q2 2011.

Tukcell launches commercial NFC services, Q2 2011.

Eltisalat has launched commercial NFC services in Tanzania to complement SMS based payment - plans 4 more countries by end of 2011

SKTelecom has mandated all smartphones must come with NFC.

NTT DoCoMo commit to move from Felica to NFC by end of 2012

Eltisalat


Visa announced a shift in liability to merchants when the POS terminal is not chip / contactless.

France and Netherlands country wide rollout committed for Q2 2012.

China Unionpay launching NFC in Sept 2011, planning 700K POS terminal deployment by end of 2011

Orange and Barclaycard have launched commercial NFC services in the UK, Q2 2011.

Sprint Launching Mobile payment services with Google Q3 2011

VISA announced a shift in liability to merchants when the POS terminal is not chip / contactless.

France and Netherlands country wide rollout committed for Q2 2012.

China Unionpay launching NFC in Sept 2011, planning 700K POS terminal deployment by end of 2011

Orange and Barclaycard have launched commercial NFC services in the UK, Q2 2011.

Sprint Launching Mobile payment services with Google Q3 2011

VISA announced a shift in liability to merchants when the POS terminal is not chip / contactless.

France and Netherlands country wide rollout committed for Q2 2012.

China Unionpay launching NFC in Sept 2011, planning 700K POS terminal deployment by end of 2011

Orange and Barclaycard have launched commercial NFC services in the UK, Q2 2011.
NFC & User Interface Evolution
The Connectivity Sub-System

- Bluetooth
- Combo Chip
- Wi-Fi
- GNSS
- FM
- NFC Forum Combo Chip
1. Determine which wireless technologies are available on the television
2. Decide Wi-Fi direct will provide the most efficient transfer of the video
3. Establish Wi-Fi direct connection
4. Authenticate connection
5. Transfer video
6. Terminate connection
NFC Forum
Certification & Standards
## 16 Specifications Published

<table>
<thead>
<tr>
<th>Specification</th>
<th>Milestone</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Data Exchange Format Technical Specification</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NFC Data Exchange Format (NDEF) Technical Specification</td>
<td>Adopted</td>
<td>24-JUL-2006</td>
</tr>
<tr>
<td><strong>NFC Forum Tag Type Technical Specifications</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NFC Forum Type 1 Tag Operation Specification 1.1</td>
<td>Adopted</td>
<td>13-APR-2011</td>
</tr>
<tr>
<td>NFC Forum Type 2 Tag Operation Specification 1.1</td>
<td>Adopted</td>
<td>31-MAY-2011</td>
</tr>
<tr>
<td>NFC Forum Type 3 Tag Operation Specification 1.1</td>
<td>Adopted</td>
<td>28-JUN-2011</td>
</tr>
<tr>
<td>NFC Forum Type 4 Tag Operation Specification 2.0</td>
<td>Adopted</td>
<td>28-JUN-2011</td>
</tr>
<tr>
<td><strong>Record Type Definition Technical Specifications</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NFC Record Type Definition (RTD) Technical Specification</td>
<td>Adopted</td>
<td>24-JUL-2006</td>
</tr>
<tr>
<td>NFC Text Record Type Definition (RTD) Technical Specification</td>
<td>Adopted</td>
<td>24-JUL-2006</td>
</tr>
<tr>
<td>NFC URI Record Type Definition (RTD) Technical Specification</td>
<td>Adopted</td>
<td>24-JUL-2006</td>
</tr>
<tr>
<td>NFC Smart Poster Record Type Definition (RTD) Technical Specification</td>
<td>Adopted</td>
<td>24-JUL-2006</td>
</tr>
<tr>
<td>NFC Generic Control Record Type Definition (RTD) Technical Specification</td>
<td>Adopted</td>
<td>7-MAR-2008</td>
</tr>
<tr>
<td>NFC Signature Record Type Definition (RTD) Technical Specification</td>
<td>Adopted</td>
<td>18-NOV-2010</td>
</tr>
<tr>
<td><strong>Reference Application Technical Specifications</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NFC Forum Connection Handover 1.2 Technical Specification</td>
<td>Adopted</td>
<td>7-JUL-2010</td>
</tr>
<tr>
<td><strong>Protocol Technical Specifications</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NFC Logical Link Control Protocol (LLCP) 1.1 Technical Specification</td>
<td>Adopted</td>
<td>20-JUN-2011</td>
</tr>
<tr>
<td>NFC Logical Link Control Protocol (LLCP) 1.0 Technical Specification (deprecated)</td>
<td>Adopted</td>
<td>11-DEC-2009</td>
</tr>
<tr>
<td>NFC Activity Technical Specification</td>
<td>Adopted</td>
<td>18-NOV-2010</td>
</tr>
<tr>
<td>NFC Simple NDEF Exchange Protocol (SNEP) specification</td>
<td>Adopted</td>
<td>31-AUG-2011</td>
</tr>
<tr>
<td><strong>NFC Device Internal Technical Specifications</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Certification Documents</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NFC Forum Device Requirements (.zip file including the document and two exceptions)</td>
<td>Adopted</td>
<td>24-OCT-2010</td>
</tr>
<tr>
<td>Device Test Application Specification for NFC Digital Protocol and NFC Forum Type 1/2/3/4 Tags</td>
<td>Adopted</td>
<td>27-OCT-2010</td>
</tr>
</tbody>
</table>
Compliance Program

Certification Program

Certified Device

Plugfests

Interoperability Program
NFC Forum Certification

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 will we test (or not test) for compliance to specifications and interoperability?

Solutions

Certification Policy defines program rules and processes

Device Requirements document defines minimum feature set

Conformance Testing confirms compliance to specifications

Plugfests help manufacturers test interoperability

http://www.nfc-forum.org/certification/
Plugfest Events

- 3-day members-only events that:
- Promote the interoperability of NFC Forum implementations
- Enable confidential device-to-device testing
- Complement Certification Program conformance testing
- Focus on RF, Digital Protocol, LLCP capabilities
- Include access to wide range of implementations, tags, smart posters, test tools
NFC Forum Certification Mark

- Consumer-facing mark
- Shows where to touch to trigger NFC activity

For Tags and Media
- For use TODAY on smart posters, cards, labels, etc. using NFC Forum tags
- No cost to use; free license, available to everyone

For Devices
- Devices that have passed certification may use this to designate the NFC touchpoint

A Certified Device

For Support
ting
Materials, Packaging, & Documentation

- Industry-facing mark
- Granted to products that complete NFC Forum certification
- Suggested use for supporting materials (warranties, etc.)
- Available only for NFC Forum members TODAY
1. The certification program increases the addressable market
   - Makes global markets available to those who certify
   - Enables many market segments to leverage the same underlying technology

2. The increased addressable market attracts more investment
   - Larger more ambitious projects will now have a positive return on investment
   - New entrants will emerge, increasing competition and the quality of products

3. New market segments and product categories will adopt NFC
   - More competitive products means wider deployment and adoption
   - More competitive products means greater innovation

4. Go to #2….
Thank you!
The Connectivity Sub-System
## Certification Clarifies & Instills Confidence

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Specifications</th>
<th>Certification</th>
<th>N-Mark</th>
<th>Certification Mark</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Technology Provider:</strong></td>
<td>• Implement to market requirements</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>OEM:</strong></td>
<td>• Validate market requirements are met</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>• Convey product conformance</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>• Educate user</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>System Integrator:</strong></td>
<td>• Ensure product conformance</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>• Convey systems capabilities</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Retail Channel:</strong></td>
<td>• Educate User</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>• Ensure product quality</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>End-User:</strong></td>
<td>• Learn new behavior</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td>• Ensure use case is achievable</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
Sample Use Cases

- **Simplified transfer of contact information**
  - One person's phone can be configured to automatically send business card information when an NFC peer-to-peer connection is established. The recipient doesn't have to do anything other than to accept the business card and allow it to be entered into his phone book.

- **Collecting movie posters for later use**
  - A consumer can retrieve and store movie posters with NFC tags onto an NFC-enabled phone while just passing by. Back home, the consumer can display the movie information on a flat-screen TV and navigate to the films' web pages, simply by tapping the phone to an NFC-enabled TV remote control.
NFC for Mobile Payments
 NFC Forum Certification is Good for Business

- Brings together a set of addressable markets whose combined size is greater than the sum of its parts.

- Clarifies the basis upon which innovation, partnerships, and the NFC Ecosystem will flourish.

- Establishes confidence and credibility in the technology, for everyone in the value chain.
Certification Enables Alliances to Be Built

- Reduces risk and investment associated with adopting a new technology from a new vendor
- Removes initial technical barriers, through certified compliance to a common set of standards
- Organizations will be drawn to those companies with a similar standards-centric strategy
- Partners can focus resources on higher-level integration, functionality and meeting customer needs