NFC Momentum: Beyond the Killer App

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Sony
Chairman, NFC Forum

NFC Solutions Summit
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NFC Phones Here Now

Available in the market…

- Acer E320 Liquid Express
- BlackBerry Bold 9790
- BlackBerry Bold 9900/9930
- BlackBerry Curve 9350/60/70
- BlackBerry Curve 9380
- CMII 1/3
- Casio DT-X8
- Casio Ruggedized IT-800RGC 35
- Fujitsu Arrows μ F-07D
- Google Galaxy Nexus
- Google Nexus S
- HTC Incredible
- HTC One X
- HTC Ruby / Amaze
- Huawei Sonic/ Turkcell T20
- LG Optimus Elite
- LG Optimus LTE
- LG Optimus Vu
More NFC Phones Available Now

- LG T530/ Ego
- Mobiwire Cosyphone
- Pantech Sky Vega LTE
- Nokia Oro
- Pantech Sky Vega Racer
- Samsung Galaxy Note
- Samsung GALAXY S II
- Samsung S5230/S5260
- Nokia 603
- Nokia 700
- Samsung GALAXY S II
- Nokia 603
- Nokia 700
- Samsung GALAXY S II
- Samsung S5230/S5260
... and More

- Samsung SHW-A170K
- Samsung Wave 578
- Samsung Wave M / Y
- Sonim XP3300 Core NFC
- Sonim XP and NFC
- Sony Xperia S
- Turkcell T11 Maxiphone
- Turkcell T11 Maxiphone
NFC Tablets

A fast-moving new segment, with several models recently announced and demonstrated:

- **NEC AGT10 Android Tablet with NFC functionality on front panel**, launched in March 2012
- **Sharp RW-T107 Android Tablet with NFC functionality built in**, launched in Japan
- **Samsung Windows Tablet prototype** – demonstrated and handed out at Microsoft Build conference, September 13-16
- **TazPad from TazTag** aimed at retail – launched in France
- **Samsung Galaxy Note phone/tablet with NFC** – coming to U.S. in summer 2012
More NFC Device Categories

Additional types of NFC devices, available now and on the way…

Smart Meters for utility companies from Landis & Gyr and NXP

Nintendo Wii U, expected to ship in 2012, will have NFC in controllers

Moneto: NFC microSD for the iPhone from DeviceFidelity, shipping now

Glidepoint NFC trackpad from Cirque, shown at CES 2012

Sony RC-S380 reader/writer, the world’s first product certified by the NFC Forum, can communicate with any devices that conform to the NFC Forum specification

ViVOtech NFC payment terminals come in a range of form factors

Revosys V5 interactive taxi terminal/tablet offers NFC payment capability; Verifone also supplying taxi devices
What the Analysts are Saying

- **Berg Insight**
  - 100 million cell phones using NFC technology predicted to be sold this year alone

- **Deloitte**
  - In 2013 there may be as many as 300 million NFC smartphones, tablets and eReaders sold

- **Gartner Research**
  - 50% of smartphones will have NFC capability by 2015

- **Frost & Sullivan**
  - By 2015 NFC technology will be the most-used solution for mobile payment and NFC will enable worldwide transactions totaling about $151.7 billion

- **Forrester Research**
  - Named NFC to its Top Mobile Trends for 2011

- **Yankee Group**
  - Global mobile transactions predicted to grow to more than $1 Trillion by 2015
But…

What is NFC?
NFC is Uniquely Powerful

ISO14443/18092 TypeA
ISO14443 TypeB
ISO18092 TypeF

Global Interoperability

Form Factor Free

Card (ID-1)
Device (Mobile, PC, CE, Terminals)
Tag
NFC - How Does it Work?
Three Mandatory Communication Modes

Connect the world of apps with the physical world:

Tag/Card Reader/Writer (Terminal)
Multi-standard (ISO/IEC14443, JIS X 6319-4/Felica, ISO/IEC15693)

Connect devices through physical proximity:

P2P Communication (Device to Device)
NFCIP-1, NFCIP-2 (ISO/IEC18092, ISO/IEC21481)

Interactive wallet:

Card Emulation (Secure Element)
EMVCo/ISO/IEC14443, JIS X 6319-4/Felica
## Three Mandatory NFC Modes - A Different Look

<table>
<thead>
<tr>
<th>Mode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Card Emulation</strong></td>
<td>Similar quantity to contactless plastic cards</td>
</tr>
<tr>
<td></td>
<td>Features:&lt;br&gt;- Infrastructure compatible&lt;br&gt;- Virtual card&lt;br&gt;- Network enabled card&lt;br&gt;- Payment and Transport</td>
</tr>
<tr>
<td><strong>Reader/ Writer</strong></td>
<td>10 times, or more larger quantity than Terminals</td>
</tr>
<tr>
<td></td>
<td>Never before in the hands of consumers&lt;br&gt;Open applications&lt;br&gt;New Paradigm!</td>
</tr>
<tr>
<td><strong>Peer-to-Peer</strong></td>
<td>Never existed before&lt;br&gt;Open applications&lt;br&gt;New Frontier!</td>
</tr>
</tbody>
</table>

**NFC is Consumer Facing!**

**100 – 300+ million devices per year**
Card Emulation

(Japan Experience)
Japan: Existing Infrastructure was a Must

- 2001: Edy launch
- 2004: Mobile Wallet launch
## Japan: 100+ Card Emulation Services

### Market Expansion of Mobile (NFC)

<table>
<thead>
<tr>
<th>Year</th>
<th>Service Launch</th>
<th>Merchant Launch</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY2004</td>
<td>Jul. 04 NTT DoCoMo</td>
<td></td>
</tr>
<tr>
<td>FY2005</td>
<td>Sep. 05 au (KDDI)</td>
<td>Nov. 05 Vodafone (SoftBank)</td>
</tr>
<tr>
<td>FY2005</td>
<td>Dec. 05 iD</td>
<td>Jan.06 Mobile Suica</td>
</tr>
<tr>
<td>FY2006</td>
<td>Sep. 06 VISA Touch</td>
<td></td>
</tr>
<tr>
<td>FY2007</td>
<td>Apr. 07 nanaco Mobile</td>
<td>Jun. 07 Ticket WAON Platform</td>
</tr>
<tr>
<td>FY2008</td>
<td>Oct. 07</td>
<td></td>
</tr>
</tbody>
</table>

### Mobile FeliCa handset penetration

- FY2004: 3 million
- FY2005: 14 million
- FY2006: 30 million
- FY2007: 53 million

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Japan: e-Money Reduces Coin Circulation

Coin circulation

- Introduction of Sales Tax
- e-money release
- New e-money players from retail
After 8 years, with 70 million handsets, over 100 models every year, even with popularity of Card Emulation services…

Active users remain at 20% to 25% of all who have NFC handsets.

Why?
An inability to meet consumer demand for RW and P2P mode applications and services. Bars were too high for developers to commercialize applications and services in these modes.
## Japan/NFC comparison

<table>
<thead>
<tr>
<th>Japan Adoption</th>
<th>NFC Adoption</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Card Emulation</strong></td>
<td><strong>Card Emulation</strong></td>
</tr>
<tr>
<td>(Payment and Transport)</td>
<td>(Payment and Transport)</td>
</tr>
<tr>
<td><strong>+</strong></td>
<td><strong>+</strong></td>
</tr>
<tr>
<td><strong>Reader/Writer</strong></td>
<td><strong>Reader/Writer</strong></td>
</tr>
<tr>
<td>(License required, domestic)</td>
<td>(Open and global)</td>
</tr>
<tr>
<td><strong>+</strong></td>
<td><strong>+</strong></td>
</tr>
<tr>
<td><strong>Peer-to-Peer</strong></td>
<td><strong>Peer-to-Peer</strong></td>
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<tr>
<td>(License required, domestic)</td>
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Mobile Payment is to NFC Adoption….

….as Spreadsheets were to PC Adoption
A killer app can:
- Transform a cutting-edge technology into a mainstream tool
- Drive momentum
- Create an air of inevitability

But…. 
<table>
<thead>
<tr>
<th>PC Adoption</th>
<th>NFC Adoption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spreadsheets</td>
<td>Mobile Payment</td>
</tr>
<tr>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Word Processing</td>
<td>Reader/Writer Applications</td>
</tr>
<tr>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Email/Internet</td>
<td>Peer-to-Peer Applications</td>
</tr>
<tr>
<td>+</td>
<td>+</td>
</tr>
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Tags: The Stealth Driver?

Could simple tags be a killer app?

- Controlled by the consumer
  - *Am I interested enough to tap?*
- “Tap and Read”
  - Simpler than QR or bar codes
- Easy and inexpensive to deploy
- Unlimited informational and promotional opportunities across every vertical
Consumer Non-Payment Use Cases
Use Case Opportunities

- Advertising
- Consumer Electronics
- Gaming
- Healthcare and wellness
- Hospitality
- Retail (POS tag reading)
- Social media

...and many more
Consumer Electronics

- **Pairing NFC Devices**
  - Home computer components
  - In-car devices
  - Home entertainment systems
  - Headsets and handsets
  - Cameras and printers / digital frames

- **Connectivity**
  - Quick and secure Bluetooth and Wi-Fi set-up
  - Fast data transfer
  - Audio handover

- **Information Gathering**
  - Read product history from smart tag to NFC phone
Healthcare and Wellness

- Sleep monitoring to diagnose and treat sleep disorders
- One-touch check-in at doctor appointments with NFC device
- Prescription drug information on NFC tags
- Patient monitoring
Another Healthcare Use Case

**Measurement**
Pedometer with NFC functionality measures daily working count

**Touch & Go**
Touch the pedometer on the mobile phone and transfer measured data

**Data Transfer**
Send measured data to Wellness Support Server via mobile phone network

**Online Service**
- Corresponding healthcare service available
- Show graph on the mobile phone

**Offline Viewer**
Hospitality and Tourism

- Hotels
  - Self check-in – bypass lines
  - Unlock guest room door
- Museums
  - Access exhibit information
  - Receive vouchers
  - Download related apps
Gaming

- Phone-to-phone touch games
- Unlock levels by tapping 2 phones
- Unlock location-linked features via tags
Business Non-Payment Use Cases
Use Case Opportunities

- Access control
- Distribution
- Healthcare
- Mobile workers
- Security
- Utility metering
- Workforce management

...and many more
Distribution/Logistics

- Tracking critical shipments via NFC tags
- Anti-counterfeiting with NFC tag ID
- Monitor temperature-sensitive packages in transit
- Remote workforce management with NFC tag-based check-in/checkout
Security/Access Control

- NFC-enabled mobile device replaces ID card
- Fewer things to carry
- Easy digital delivery of credentials
- More precise tracking and reporting of movements
Workforce Audit & Control

- Remote time and attendance recording and monitoring
- Delivery of just-in-time instructions
- Less effort, fewer errors
- Confirmation of service delivery
- Streamlined business processes
The Role of the NFC Forum
Mission and Goals

The mission of the NFC Forum is to advance the use of NFC technology by:

- Developing standards-based specifications that ensure interoperability among devices and services
- Encouraging the development of products using NFC Forum specifications
- Educating the market globally about NFC technology
- Ensuring that products claiming NFC capabilities comply with NFC Forum specifications
- Promoting the NFC Forum N-Mark
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We are Well into the Journey

Define and Stabilize Technology

Support Interoperability
Enhance Technology
Support Ecosystem

Refine Technology
Expand Ecosystem
Promote End User Usage

2008 2009 2010 2011 2012/13
Thank you!

and

Join us!