NFC Application Ecosystems: Marketing, Gaming, Access and Identity Applications

- Smart Card Alliance Mobile & NFC Council Webinar
- October 11, 2012
Introductions

• Brent Bowen, INSIDE Secure
• Chair, Mobile & NFC Council
Mobile & NFC Council

- Raise awareness and accelerate the adoption of all applications using NFC
  - Access control, identity, loyalty, marketing, payments, peer-to-peer, promotion/coupons/offers, transit, …

- Accelerate the practical application of NFC, providing a bridge between technology development/specifications and the applications that can deliver business benefits to industry stakeholders.
Mobile/NFC Ecosystem Project

Objectives
- To educate broadly on NFC – especially beyond payment
- Describe ecosystem as it relates to the different applications (marketing, payments, identity, access, transit, peer-to-peer, posters, gaming, product labels) and different end markets (e.g., consumer, medical, enterprise) – especially beyond payment

Application Ecosystems
- Peer-to-Peer
- Tags and Posters
- Product Labels
- Marketing
- Gaming
- Access
- Identity
- Social Networking
- Payments
- Ticketing
- Transit
Today’s Webinar Topics & Speakers

➢ **Introductions:** Brent Bowen, INSIDE Secure & Chair, Smart Card Alliance Mobile & NFC Council

➢ **NFC Marketing Applications:** Chandra Srivastava, Visa Inc.

➢ **Gaming Applications:** Deborah Baxley, Capgemini

➢ **Access Applications:** Tom Zalewski, CorFire

➢ **Identity Applications:** Steve Rogers, Intellisoft

➢ **Q&A:** Randy Vanderhoof, Smart Card Alliance
NFC Marketing Applications

- Chandra Srivastava, Visa Inc.
- Smart Card Alliance Mobile & NFC Council
Mobile Marketing Applications

- **Targeted & personalized content**
  - Right customer, Right content, Right time, Right place
- **Mobile Marketing content**
  - Digital Offers / Coupons – redeemable for discounts at retailers
  - Ads / Promotions – promote products
  - Product Information – provide additional information
- **Mobile Marketing applications**
  - Retail In-store – consumer is in-store shopping
  - Retail out-of-store – consumer is out-of-store shopping
  - Direct Marketing – push marketing via wallets, tags & apps
  - Consumer Engagement – gaming, P2P mobile Apps
Mobile Marketing Ecosystem

- Retailers
- Brands
- Content-Providers

Offers/Coupons • Ads/Promotions • Product Info
(Targeting, Personalization, Loyalty)

Retail (in-store)
- Check-in
- Smart Posters
- Product Tags
- Check-out
- Coupon Redemption
- Loyalty

Retail (out-of-store)
- LBS Offers
- Mobile Catalogs
- Merchandising
- Pre/Post Shopping
- Merchant Coalition

Direct Marketing
- Mailers w Tags
- PUSH to Wallet
- Search Engine Ads
- Mobile App Ads
- Web Apps (clip to mobile)

Consumer Engagement
- Gaming
- Mobile Apps
- P2P Apps
## NFC Mobile Marketing Ecosystem Players

<table>
<thead>
<tr>
<th>Category</th>
<th>Examples</th>
<th>Role</th>
<th>Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wallets with Offers &amp; Loyalty</strong></td>
<td>C-SAM, Isis, Google, PayPass, Serve, Toro, Visa, VeriFone, ViVOtech</td>
<td>Provide Wallet enabled with payments, digital offers and loyalty cards</td>
<td>Proprietary</td>
</tr>
<tr>
<td><strong>Check-in, LBS</strong></td>
<td>Foursquare, Google, Isis, Loopt, Shopkick</td>
<td>Provide Retail check-in based on NFC tap on Smart Posters/Tags, or on Location Based Services</td>
<td>GPS, Cell location, Smart Posters, Proprietary</td>
</tr>
<tr>
<td><strong>Smart Poster / Tags</strong></td>
<td>All things Mobile, Proxama, Proximity Sky, Identive NFC, NFC Superstore</td>
<td>Provide Smart Poster and tags linked to back end service to mobile marketing and mobile offers</td>
<td>NFC Forum guidelines; Proprietary for content management linked to tags/posters</td>
</tr>
<tr>
<td><strong>Offer/Loyalty Redemption at POS</strong></td>
<td>Isis, Google, ViVOtech, VeriFone, Visa</td>
<td>Provide Apps to support transfer of offers and loyalty data from mobile NFC phone to Retail POS systems and redemption of offers</td>
<td>Proprietary specs; retrofit to existing couponing standards, Network Redemption</td>
</tr>
<tr>
<td><strong>Mobile Offer Codes &amp; Barcodes</strong></td>
<td>MMA, ACP, You Technology, Coupons.com</td>
<td>Provide guidelines for digital offer standards</td>
<td>GS1, Mobile Marketing Association (MMA) Guidelines, Association of Coupons Professionals (ACP) Guidelines, Retailer Specified</td>
</tr>
<tr>
<td><strong>Offer Reconciliation</strong></td>
<td>Inmar, NCH, You Technology, Retailer in-house</td>
<td>Provide offer settlement &amp; reconciliation for CPG coupons and retailer sponsored offers</td>
<td>Proprietary</td>
</tr>
</tbody>
</table>
Mobile Marketing Considerations

• **Ability for Targeting & Personalization**
  - Consumer enrollment, profile & preferences
  - Access to consumer behavior & transaction history
  - Content correlation to consumer profile/activities

• **Consumer Discovery & Content Delivery**
  - Types of consumer interactions – check-in, poster taps, etc
  - Content delivery – types & timings

• **Retailer Participation**
  - Technology enablement for in-store or out-of store marketing
  - Level of participation

• **Content Provider Participation**
Gaming Applications

- Deborah Baxley, Capgemini
- Smart Card Alliance Mobile & NFC Council
Gamification unlocks “the MAGIC of NFC”

- Gaming is the one use case that might make NFC “cool” – providing a catalyst for mass adoption
  - Enable interactivity with real-life items such as plush toys and posters
  - Make gaming more social by incorporating peer to peer

- The blurring of physical and virtual creates revenue opportunities for gaming companies
  - Entice gamers to purchase toys
  - Increase engagement levels among gamers
Mobile/NFC Gaming Ecosystem

- **Console/Handset/Tag manufacturers**: Link games to devices
- **Game Publishers**: Engage gamer, provide app dev platform spanning multiple devices
- **Gamer/Gambler**: Collect revenue for levels, add-ons
- **Marketing Specialist**: Provide targeted offers
- **Micropayment Providers**: Provide "tap & gamble" experience beyond casino door
- **Gaming Platform**: Provide targeted offers
- **Gambling Casinos**: Engage gamer
<table>
<thead>
<tr>
<th>Category</th>
<th>Examples</th>
<th>Use of NFC</th>
</tr>
</thead>
</table>
| **Console/handset/tag manufactures** | • Nintendo  
• Nokia  
• Samsung  
• NXP | • Link games with real world items  
• Support peer-to-peer gambling  
• Support micropayments  
• Instant purchase game items or apps/games |
| **Game publishers**              | • Nintendo (Wii, Pokemon)  
• Rovio (Angry Birds “Magic”)  
• Sifteo (Cubes)  
• Activision (Skylanders)  
• Vectorform (Pandemic 1.0)  
• Nukotoys | • Use USB-based or handset NFC readers to enable interactivity with real-life, unlock new levels, offer discounts and rewards to players  
• Provision down-load codes on physical goods  
• Combine collectables with game  
• Enable peer-to-peer gaming (“pairing”)  
• Pair mobile phones with accessories, e.g. speakers, TV |
| **Gambling Casinos**             | • TBD | • “Tap-n-gamble” extending gambling experience beyond casino floor |
| **Gaming Platform**              | • SCVNGR | • Enable publishers to build location-based games compatible with multiple handsets |
| **Micropayments**                | • Sometrics  
• Zong  
• Mopay | • Replace scratch-off cards  
• Enable game publishers to market free games then monetize virtual currency |
| **Target Offers**                | • Sometrics | • Serve targeted offers based on location, demographics, conversion history & social affiliation |
NFC Access Applications

- Tom Zalewski, CorFire
- Smart Card Alliance Mobile & NFC Council
Access Control

- Manage and Monitor Real-Time Access for Authorized Users
  - Physical Access
    - Public or Private Buildings or Facilities
    - Corporate Campuses/Offices, Remote Facilities or Buildings
    - Hotel or Public Facilities
    - Servicing & Maintenance of Public-use Kiosks, Vending/Ticketing Machines
  - Logical Access
    - Corporate, Private or Limited-Access Networks

- Ability to Issue Open-Ended, Time or Event-Triggered Credentials
  - Time of Day, Week, or Re-occurring period
  - X number of Uses / Attempts
  - Location-Triggered Access

- Ability to Grant Transfer of Access Credentials
  - From Authority to End User
  - From End User to End User (similar to P2P)
## Access Control Application/Stakeholders

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<thead>
<tr>
<th>Category</th>
<th>Applications</th>
<th>Examples / Stakeholders</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Consumer / B2C</strong></td>
<td>• Hotel Access&lt;br&gt;• Memberships&lt;br&gt;• Rental Properties&lt;br&gt;• College Campus</td>
<td>• Hotel rooms, concierge lounges&lt;br&gt;• Entertainment, country clubs, airline clubs&lt;br&gt;• Vacation rentals&lt;br&gt;• Dorms, student buildings</td>
</tr>
<tr>
<td><strong>Corporate / B2E</strong></td>
<td>• Employee Campus&lt;br&gt;• Field Facilities</td>
<td>• Access badge replacement&lt;br&gt;• Remote location temporary access</td>
</tr>
<tr>
<td><strong>Field Work Force</strong></td>
<td>• Residential / Real Estate&lt;br&gt;• Cleaning / maintenance&lt;br&gt;• Hospitality&lt;br&gt;• Inspectors</td>
<td>• Real Estate Agent property access&lt;br&gt;• Real-time access, tracking and documentation&lt;br&gt;• Special Events, Medical Facilities</td>
</tr>
<tr>
<td><strong>Industrial Facilities</strong></td>
<td>• Remote Utility Facilities&lt;br&gt;• Authority Access</td>
<td>• Public Utility Premises, Microwave/Radio Sites&lt;br&gt;• Automated or Remote Equipment Shelters</td>
</tr>
<tr>
<td><strong>Vending and Kiosk for Servicing / maintenance</strong></td>
<td>• Ticketing Kiosks&lt;br&gt;• Lottery/Slot Machines</td>
<td>• Access to Transit Kiosk, Self Service Parking Kiosk&lt;br&gt;• Convention center, Casinos,</td>
</tr>
<tr>
<td><strong>Logical Access</strong></td>
<td>• Corporate Networks&lt;br&gt;• Private Networks&lt;br&gt;• One-Time Use</td>
<td>• Off-site employees&lt;br&gt;• Temporary or contract workers</td>
</tr>
</tbody>
</table>
Access Stakeholders

➢ B2B Channels
  ▪ Corporate Employee Access
    ▪ Physical Access and Logical Access
  ▪ Field Workforce Management
    ▪ Field employees requiring access to secure sites
    ▪ Vendor or partner access such as real estate or property management
    ▪ Sales staff, direct or partner

➢ B2C Channels
  ▪ Customer access to hotel or lounge facilities
    ▪ May extend to other rental facilities or properties, rental equipment, etc

➢ Other Channels
  ▪ Extends to ID and alternate forms of access authentication
  ▪ Time stamping and real time management
  ▪ Health & medical industry, regulatory inspectors, local authorities
Field Work Force Example - NFC

1. Employee momentarily touches phone to lock
2. Lock provides ID to phone
3. Phone requests credentials from SP OTA
4. SP validates phone, location & permission to access lock
5. SP sends lock access code to MNO & logs event
6. MNO routes credentials to phone SE
7. Phone requests PIN from employee
8. Employee touches phone to lock a second time
9. Lock opens and sends confirmation to phone
10. Phone sends successful access event to SP server

Dispatch Console  SP TSM  MNO TSM  NFC Field Workforce Access Applications

Real Estate Agent Access  Field Technician Access  Remote Utilities Station
Access Considerations

➢ Residential and Industrial Lock Applications
  ▪ Connected lock
    ▪ Networked or hardwired connection
      ▪ Allows commands to be sent via non-NFC link
      ▪ NFC used as trigger, back-end makes access decision
        ▪ i.e. service discovery triggers SMS to server for access request
    ▪ Stand-alone lock
      ▪ Requires commands to be sent only by NFC
      ▪ Back-end does not always need to be invoked to obtain access

➢ Levels of Security
  ▪ SE or no SE required?
    ▪ Business model of SE owner, drive for 100% occupancy vrs $ for space
    ▪ Liability and exposure for a given application

➢ Ability to Log and Document Access Credential History
  ▪ Liability
  ▪ Law Enforcement
NFC Identity Applications

- Steve Rogers, Intellisoft
- Smart Card Alliance Mobile & NFC Council
NFC - Identity

NFC – Smart phone IDENTITY authentication & verification:
- Strong identity and attribute management
- Familiar / accepted / synergistic form factor - “use every day”
- Significant CPU power and memory
- Easy-to-use and safe smart phone applications
- Biometric authentication (photo, face, iris, fingerprint, voice…)
- Visual display of verified badge
- Strong authentication, PKI, out-of-band, location GPS

NFC - Secure storage & use of multiple IDENTITY credentials:
- Driver's License
- Passport
- Health / Insurance ID
- Student ID
- Retiree ID
- Corporate ID
- Access Control (PACS, LACS)
- Professional Certificate
- Training Certificate
- Entitlement Account
- Debit /Credit Account
- Loyalty / E-Ticket
NFC – Identify Others

NFC phone as electronic IDENTITY credential reader:

- Access to Enterprise Identity Infrastructure
- Situational Awareness
- Just-in-Time Credentials
- Emergency Responder Verification
- PIN and Biometric Verification
- Strong Authentication
- Privileges / Authorization
- Location Based (GPS)
- Information Privacy
- Attribute Attestation (ERO, NRF, ESF, NIPP…)
- Interoperability with Standards-Based Credentials
- Incident Scene Management and Tracking
- Secure Information Sharing
- Reader / Credential Communications Security
NFC Identity Credentials for identity verification purposes:
WHO are you and WHAT are you allowed to do…

- Virtualized Credentials
- High Assurance and Trusted Identity
- Incident Scene Access
- Physical Access to Facilities
- Transportation
- E-Ticketing
- Payment & Financial Transactions
- Health Records and Services
- Logical Access to Networks and Information Systems
- Professional Certification Verification
- Legal Authorization
- Digital Signature
- Secure Email
Medical Services
Use Cases

- Admissions
- Emergency Room
- Kiosk Check-in
- 1st Responders
- Loyalty Cards
- NFC Enabled Smart Device
- Pharmacies
- EMR, HIE, PMR
- Patient Portal
- PACS & LACS
- Merchants
College Campus Use Cases

- Admissions Records
- Parking / Transportation
- Student ID
- Health Care
- Local Merchants
- NFC Enabled Smart Device
- Laundry
- Event Tickets
- Physical Access
- Logical Access
- Campus Stores
Emergency Responder Use Cases

Scene Access

Mobile ID

Incident Mgt.

1st Responders

Volunteers

Police

Medical

Fire

Communications

Supplies
# NFC Identity Ecosystem Players

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</table>
| **College and University Campus Environment** | • HID / ActivIdentity  
• Ingersoll Rand  
• Identive Group  
• CBORD  
• Blackboard | Identity Security Access Control Data Exchange Ticketing Payment | ISO14443 NFC NIST FERPA Proprietary |
| **Emergency First Responder Environment** | • HID / ActivIdentity / CoreStreet  
• Northrop Grumman  
• Advanced Response Concepts / WidePoint  
• Collaborative Fusion Inc.  
• CISCO | Identity Police Fire Medical / EMS Utilities Communications DHS Transportation HAZMAT | ISO14443 NFC NIST FEMA Proprietary NIMS NRF, NRP, ICS, NIPP ERO |
| **Medical Use Environment**          | • Quest Diagnostics  
• Lab Corp  
• SAFE BioPharma  
• HID / ActivIdentity | Identity Records Security Access Payment | ISO14443 NFC NIST Proprietary EMRS HIPAA SAFE |
Questions & Answers
NFC Application Ecosystems: Social Media, Payments, Ticketing and Transit Applications – October 25, 2012, 1pm ET/10am PT

• Social Media Applications: Brent Bowen, INSIDE Secure
• Payments Applications: Josh Kessler, MasterCard Worldwide
• Ticketing Applications: Tom Zalewski, CorFire
• Transit Applications: David deKozan, Cubic
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