

Nokia's Ubiquitous Strategy

NFC and mobile applications

The mobile phone has become one of the essentials that consumers carry with them



Users are looking for easy, intuitive and convenient proximity interaction in familiar ways

Links to content from physical objects



- Conveniently accessing digital services related to items that we see in our environment
- Intuitive access to on-line content from physical objects

Simple and easy transactions



- Using a convenient, connected and secure way of paying
- Buying, storing and using tickets where ever, when ever

Sharing experiences



- Easily sharing the rich content that we create every day with our friends and family
- Transferring our digital content* between our own devices in a simple way

As easy as a touch

New exciting, easy and intuitive ways of using mobile phones with touch-based technology



Easy and concrete access to services, content and repeat functions by touching

Example:
Initiation of some
download



Transfer of digital items between devices as a simple gesture of giving

Example: Sharing
URLs



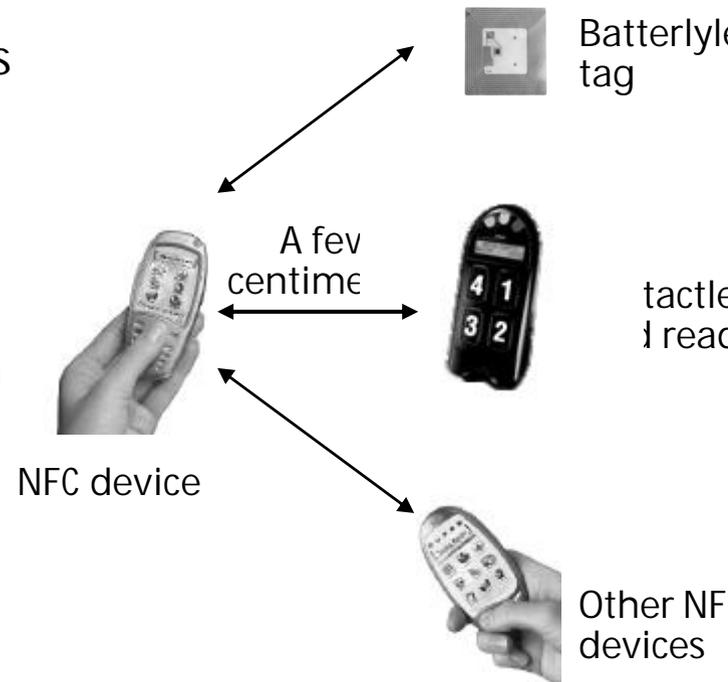
Fast and convenient local payment and ticketing

Example: Public
transport ticket

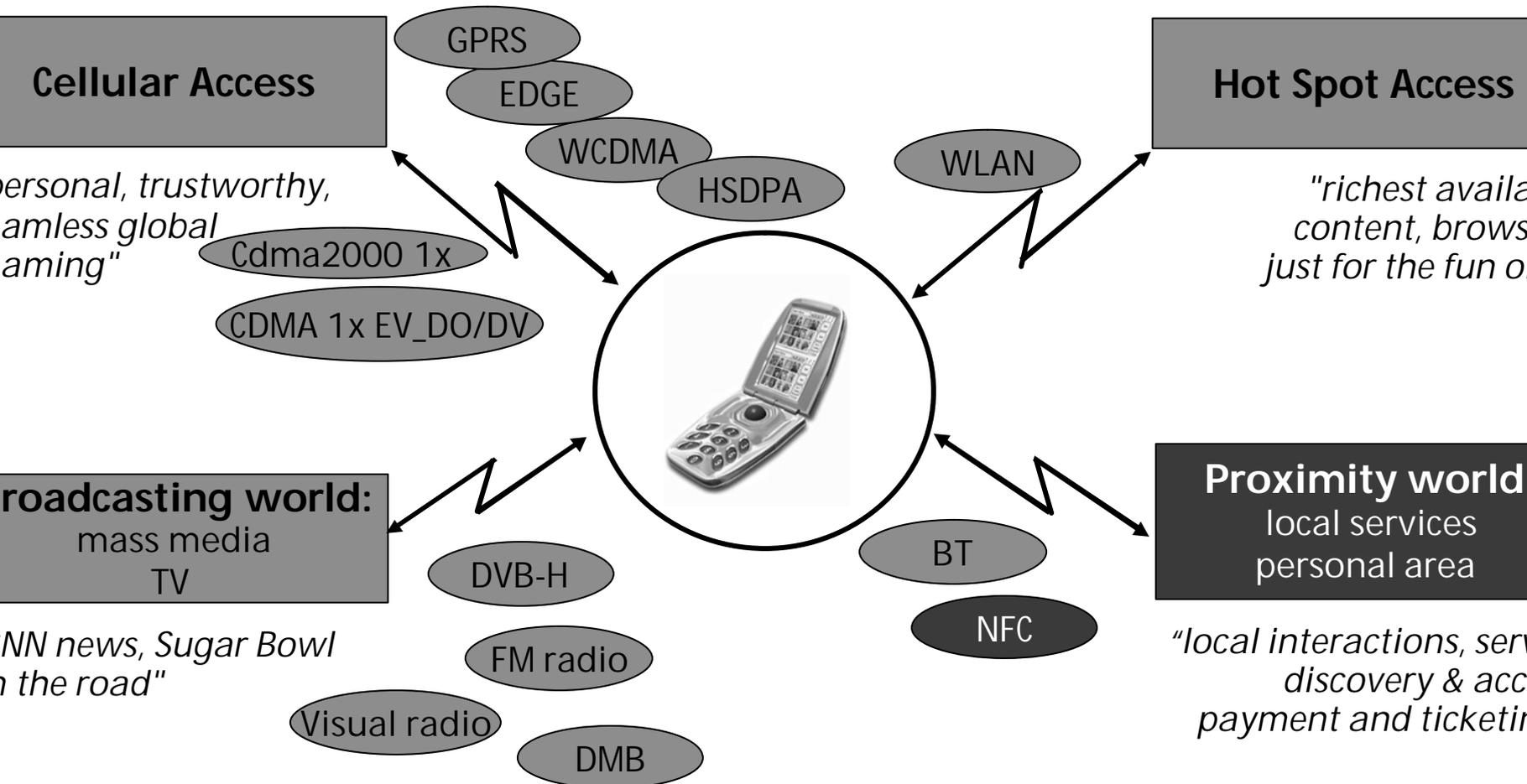
NFC supports the touch-based paradigm

Near Field Communication (NFC) is an evolution of contactless and short range RFID technologies

- Operating distance of a few centimeters optimized for service initiation and discovery, as well as handovers to other bearers
- Standardized in ISO 18092 and backwards compatible with 80% of existing contactless solutions, i.e., MiFare and FeliCa
- Replaces and expands “RFID reader”-only, “RFID tag”-only and “SmartCard”-only solutions for consumers, and adds device to device capabilities for setting up of, e.g., Bluetooth connections
- Works in globally available 13.56 Mhz range
- Data exchange rate between 106 and 848 kbps



Local interactions are a natural step toward multi-radio access of complementing radio technologies



The NFC Forum has generated significant interest

data format and related specifications

- Complete Communication Protocol level specifications
- Agree data format for tags and information exchange
- Develop interoperability guidelines for handover process to other data bearers, e.g. WiFi and Bluetooth
- Develop conformity testing

consumer messages

- Decide on a brand agnostic way to communicate NFC presence in the physical world to consumers, e.g. a symbol or logo as a visual indicator of tag locations
- Consider consumer requirements and assure industry compliance

begin to direct the future development of NFC technology

- Gather the key stakeholders of the NFC ecosystem to discuss the future of NFC in a focused manner
- Develop ideas on how to develop NFC technology further
- Agree on how to present conclusions in other fora, e.g. OMA, UPnP forum and ECMA

Companies are invited to join at:
www.nfcforum.org

Mobile Contactless Ticketing – Event Guide Images



Nokia NFC

- **Phone usage will become increasingly intuitive for users**

Touch to pay and show ticket.

- NFC technology offers intriguing possibilities to enable the phone for credit card payments in the local store and for buying and storing public transport tickets.

Touch to access services or content.

- Users can touch posters to download songs or to browse timetable information, e.g., on a bus stop.

Touch to transfer content.

- Users can share URLs, take photos with camera phones and transfer them to each other or a TV by holding the devices next to each other.

Nokia NFC

- **Service Discovery**

- **Key features**

By simply touching a service shortcut tag with your phone, you can

- Access mobile service
- Access SMS-based services
- Make a phone call
- Send pre-defined text
- Transfer your favorite service shortcuts to other users

Create your own service shortcuts

- **Use cases**

- Download Fun
- Getting Home
- Keep in touch
- Arriving in Paris by train

Nokia NFC

- **Payment and Ticketing**

- **Key features**

- Specifically suited for mobile contact-less payments and ticketing in addition to Service Discovery application
- Incorporate an additional Java smart card chip in the shell for storing secure payment credentials and tickets
- Capable of storing various smart card applications
- Used for local services compliant to the existing contact-less smart card infra structure

- **Uses Cases**

- Canteen
- Bus ticket
- Movie ticket
- Ski Lift



Nokia NFC

- **Nokia RFID Enabled Mobile Phones**
 - The Xpress-on™ RFID Reader shell for Nokia 5140
 - Nokia NFC shell for Nokia 3220
- **Local Interaction Client (LI Client)**
 - A company specific mobile phone Java application for reading and writing to tags and communication with LSI server
- **Nokia Local Interaction Server (LI Server)**
 - The LSI Server architecture consist of the BEA™ Weblogic Application Server, the Oracle™ databases and the LSI Server Subsystems that run as Enterprise JavaBean components on the server
- **RFID Tags**
 - Predetermined operators are automatically performed by touching an RFID Tag (Transponder) equipped object with the RFID reader and writer

Nokia NFC



Nokia 3220



Nokia 5140

Nokia NFC

Field Force Solution Architecture

