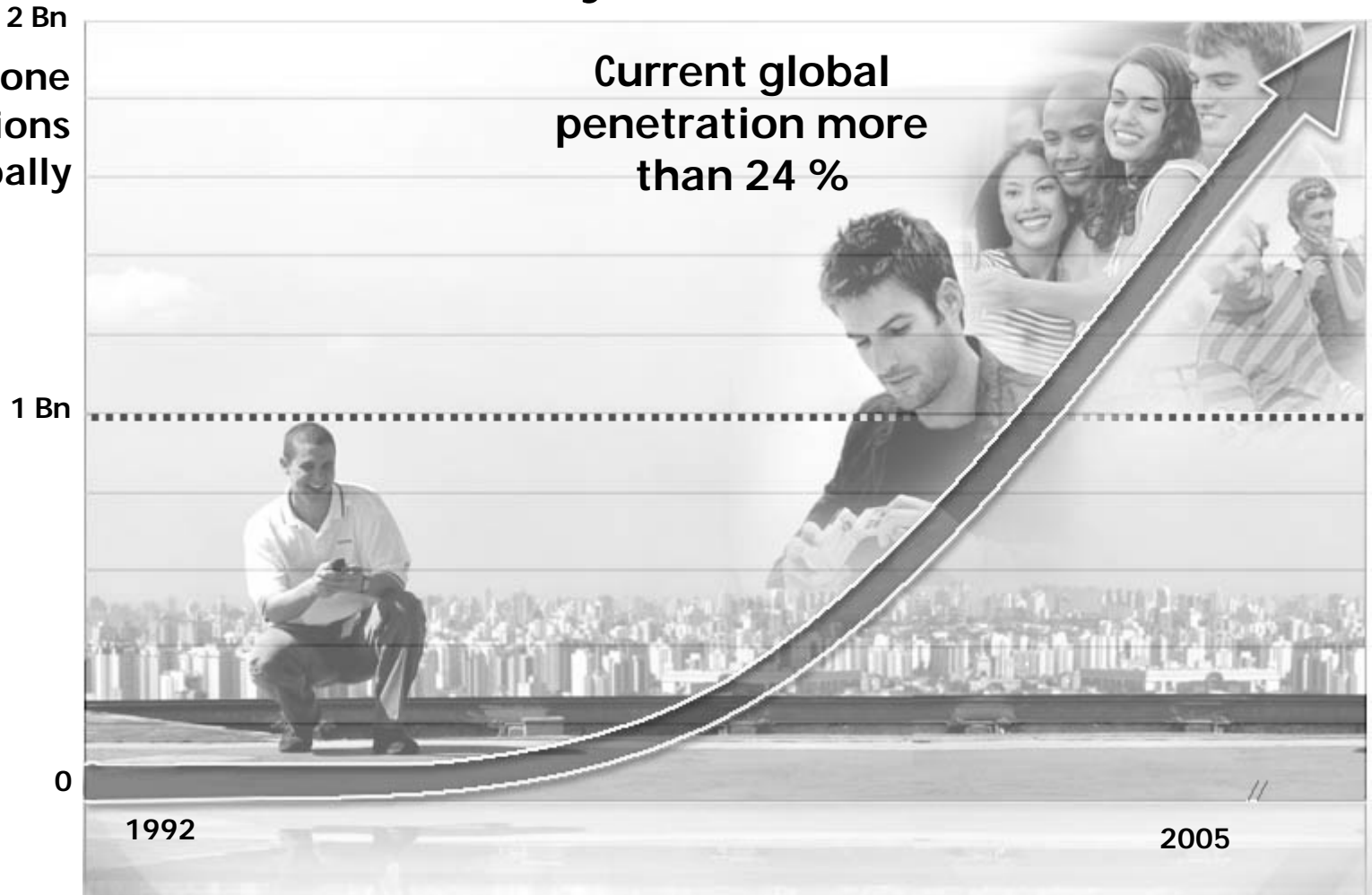


Nokia's Ubiquitous Strategy

# NFC and mobile applications

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

2 Bn  
mobile phone  
subscriptions  
globally



2 bill

# 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

**As easy as  
a touch**

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

# 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 song download



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

Example: Sharing URLs



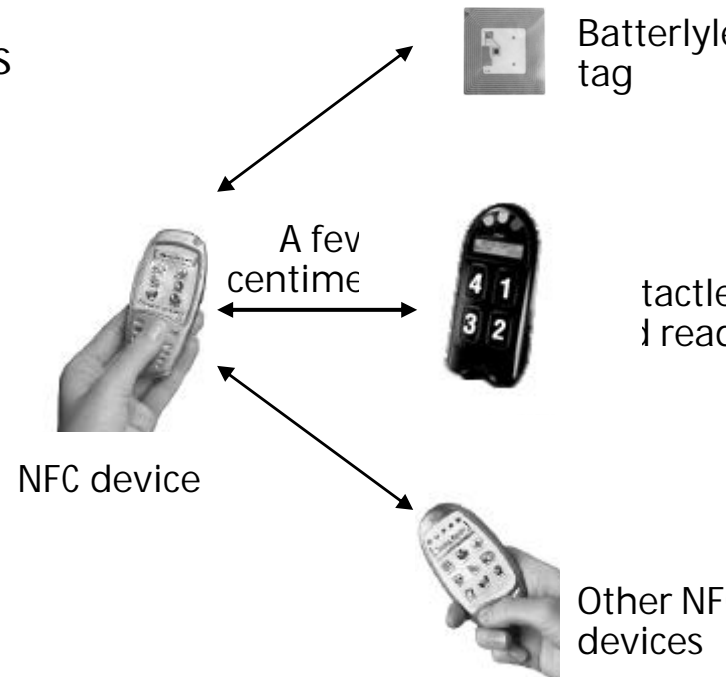
Fast and convenient local payment and ticketing

Example: Public transport ticket

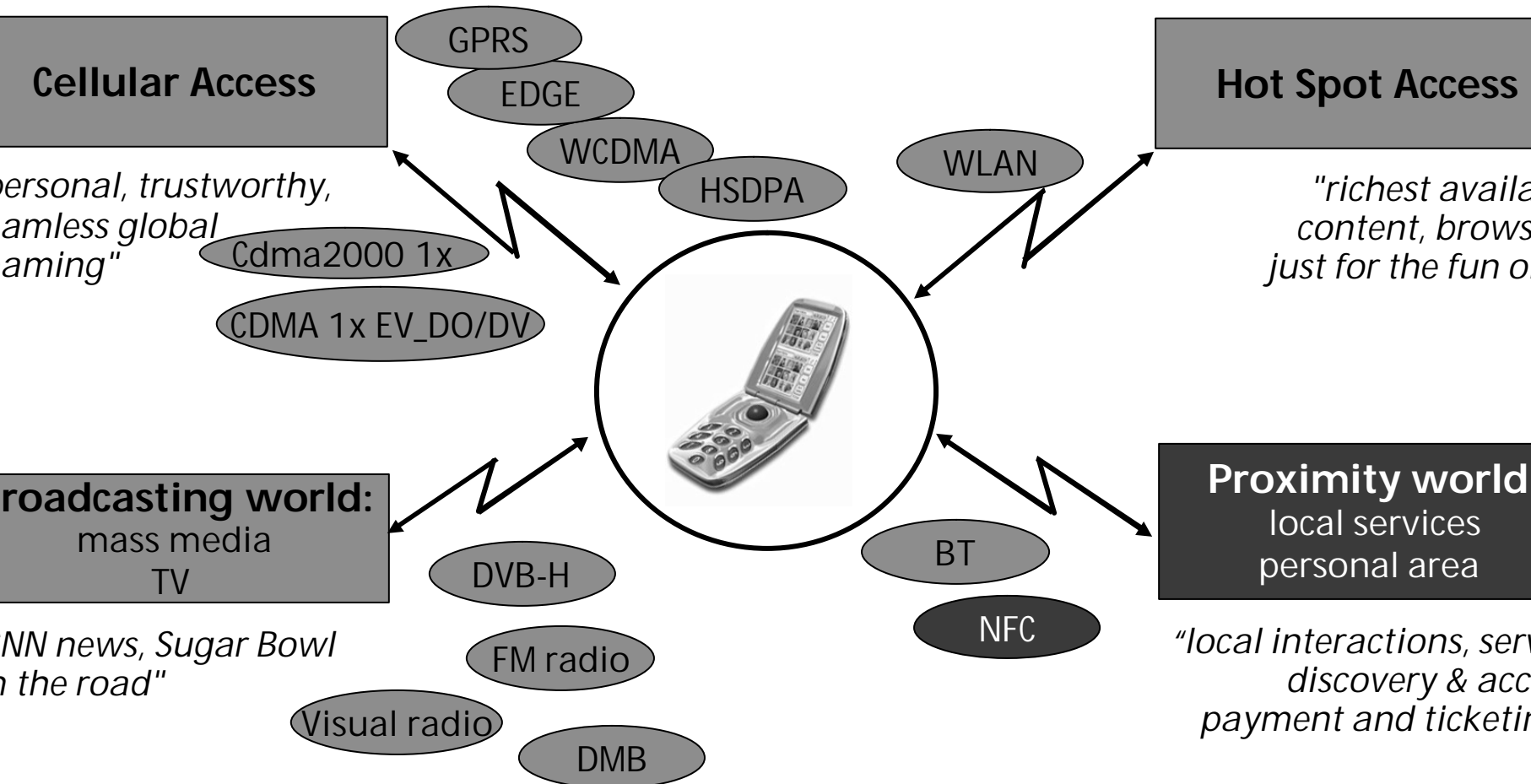
# NFC supports the touch-based paradigm

## 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](http://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

