PLASMADS: 
Smart mobiles meet intelligent environments

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Outline

• Design Goals

• The PLASMADS Architecture

• Ad hoc and Infrastructure Mode

• Concluding remarks
Design Goals from User Perspective

• Anytime/Anywhere
• Open/JustPlay
• Situation-aware
• Timely
• Trustworthy
Architectural Design Space

"peer-to-peer" (P2P)
- application platform
- ad hoc connection

"peer-to-infrastructure" (P2I)
- local infrastructure e.g. airport
- application server
- access points
- infrastructure server

application platform
ad hoc connection

application platform
ad hoc connection

application platform
ad hoc connection
Architectural Considerations

• Considering ad hoc approach only
  What about sparsely populated areas
  What about infrastructure services

• Considering infrastructure approaches only
  What about not equipped areas
  What about additional services and applications provided by other mobiles

• Diversity of platforms
  How to achieve interoperability
Overall Architecture

Application platform on mobile terminal

Applications

API

Profile

Discovery & Matching

Context

Payment

Security

UPnP / SOAP Interface

IP Protocol

UPnP / SOAP Interface

Location

Events & Auras

Profile

Security

Database

Sighting Proxy

Hot spot server

Positioning System

UPnP/Soap Service Directory

UPnP discovery server

UPnP/Soap Interface

Security

Payment

Context

Discovery & Matching

Profile

Applications

API

Application platform on stationary equipment
Initial set-up

mobile terminal

<table>
<thead>
<tr>
<th>Application</th>
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<tr>
<td>Profile</td>
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UPnP / SOAP Interface

(1)

hot spot server

Database

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UPnP / SOAP Interface

Positioning System

UPnP/SOAP Service Directory

(2)
find-like-minded people: ad hoc mode

Diagram:

- Mobile terminal with "find like-minded people" in the middle.
- Links:
  1. Profile, Discovery & Matching, Context, Payment, Security to UPnP / SOAP Interface.
  2. (2) Indicates an interaction or connection point.
  3. (3) Indicates another interaction or connection point.

Context:

- Profile
- Discovery & Matching
- Context
- Payment
- Security

Profiles and matching are connected to the UPnP / SOAP Interface.
find-like-minded people: infrastructure mode

- Mobile terminal
- Profile
- Discovery & Matching
- Context
- Payment
- Security
- UPnP / SOAP Interface
- Profile
- Discovery & Matching
- Context
- Payment
- Security
- UPnP / SOAP Interface
- Sighting Proxy
- Location
- Events & Auras
- Profile
- Security
- Database
- Positioning System
- hot spot server
Concluding remarks

• **Benefits**
  Reduced privacy concerns
  Dual mode for services possible
  Exploitation of ad hoc and infrastructure features possible
  Programming language and platform independent

• **First prototype expected in September 2004**

• **Further work**
  More sophisticated matching algorithms
  Service adaptation
  Measurements