

Shibuya Star

A prototype submission for the IMS Research Competition
Category: Young Adult/Teens

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What is Shibuya Star?

- in situ → for mobile device (PDA)
- satellite view of places on Earth
- allows:
 - coordinating spontaneous action & collaboration
 - location-centric messaging
 - historic messaging (~forum on web)
 - real-time messaging (~IM on web)
- teens & young adults (age 12-26)

Motivation

- Howard Rheingold: “Smart Mobs: The Next Social Revolution”
- Shibuya represents:
 - being hip
 - i-mode generation
 - meeting place



Agora

- forum + IM + location + mobility = agora
- “a place of congregation, especially an ancient Greek marketplace” (αγορά)
- a user-defined region of the physical space,
- that serves as a virtual place for discussion

How to use agoras? (Level 1)

- source of information about a place
- simply read the messages posted by the general community in the past
 - find a hidden store
 - learn about the history of a monument
 - get others' opinion of a restaurant
 - get discount coupons
 - geocaching
- similar to web forum

How to use agoras? (Level 2)

- coordinate physical action via instantaneous in-situ messaging
 - a group of girls and a group of boys arranges to see a movie together while in a mall
 - share details of a potential bulk purchase deal with others nearby (spontaneous team buying/tuangou)
 - two backpacking American couples find each other in Xi'an, China and share their adventures and travel tips over a drink
 - emergency coordination: firefighters; severe weather; ongoing incident
- creates new small groups in the real world

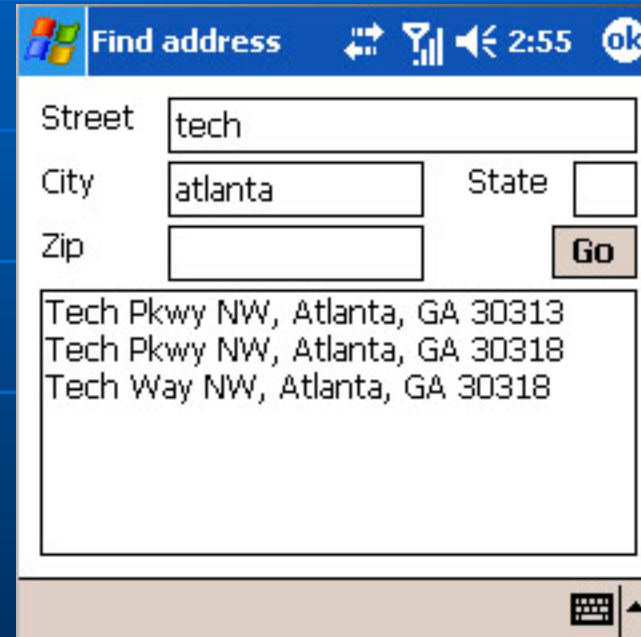
How to use agoras? (Level 3)

- coordinate recurring physical interaction, using historic usage info
 - notification of new political rally
 - inviting friends from last day's grill party
 - reconnect with random encounters (met on holiday; missed encounter)
 - receive coupon based on past activity with significant pattern
- location privacy ensured: others' history is not accessible

Navigation view



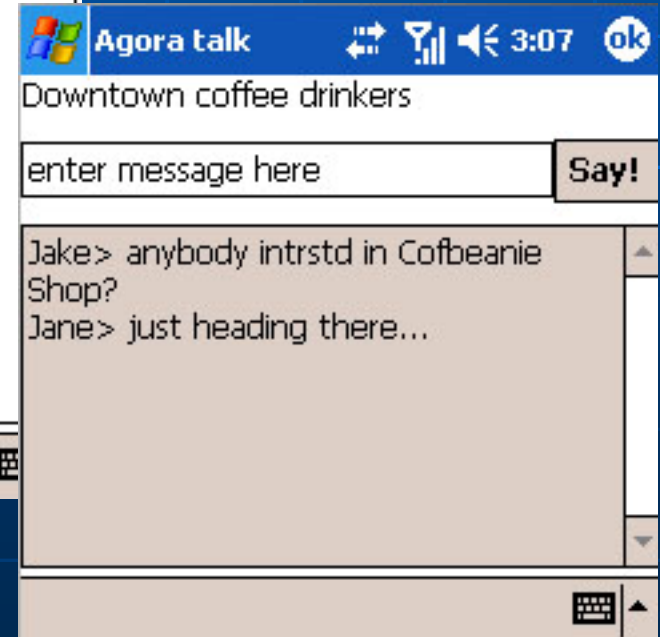
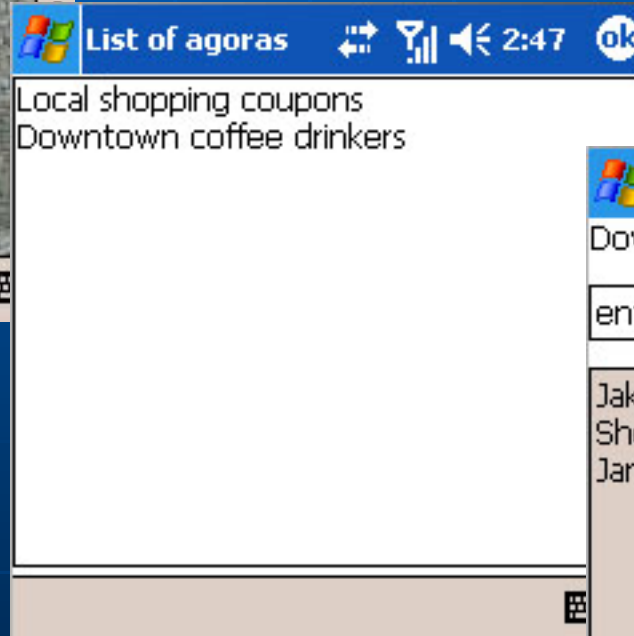
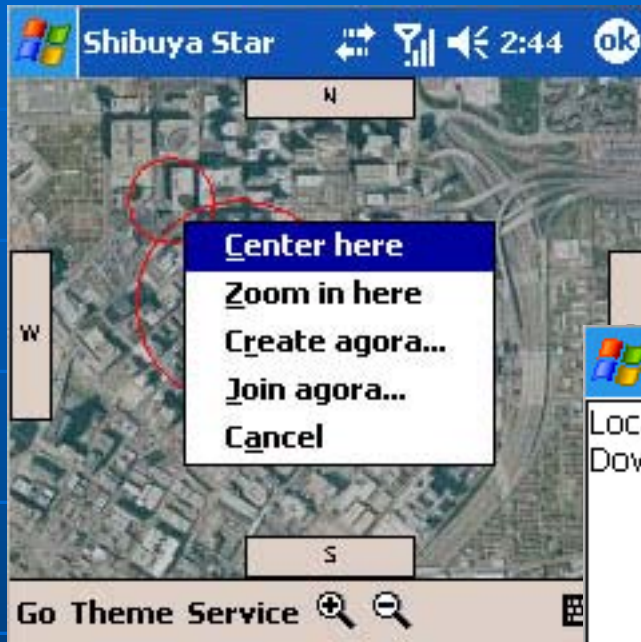
Repositioning



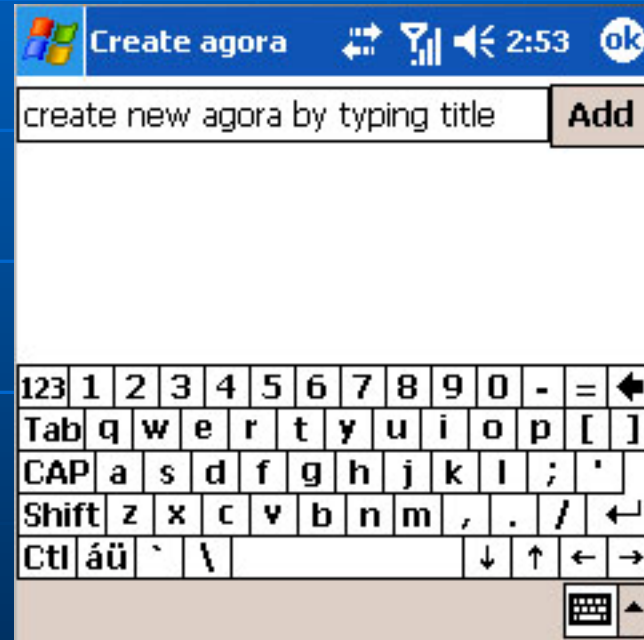
Menu options



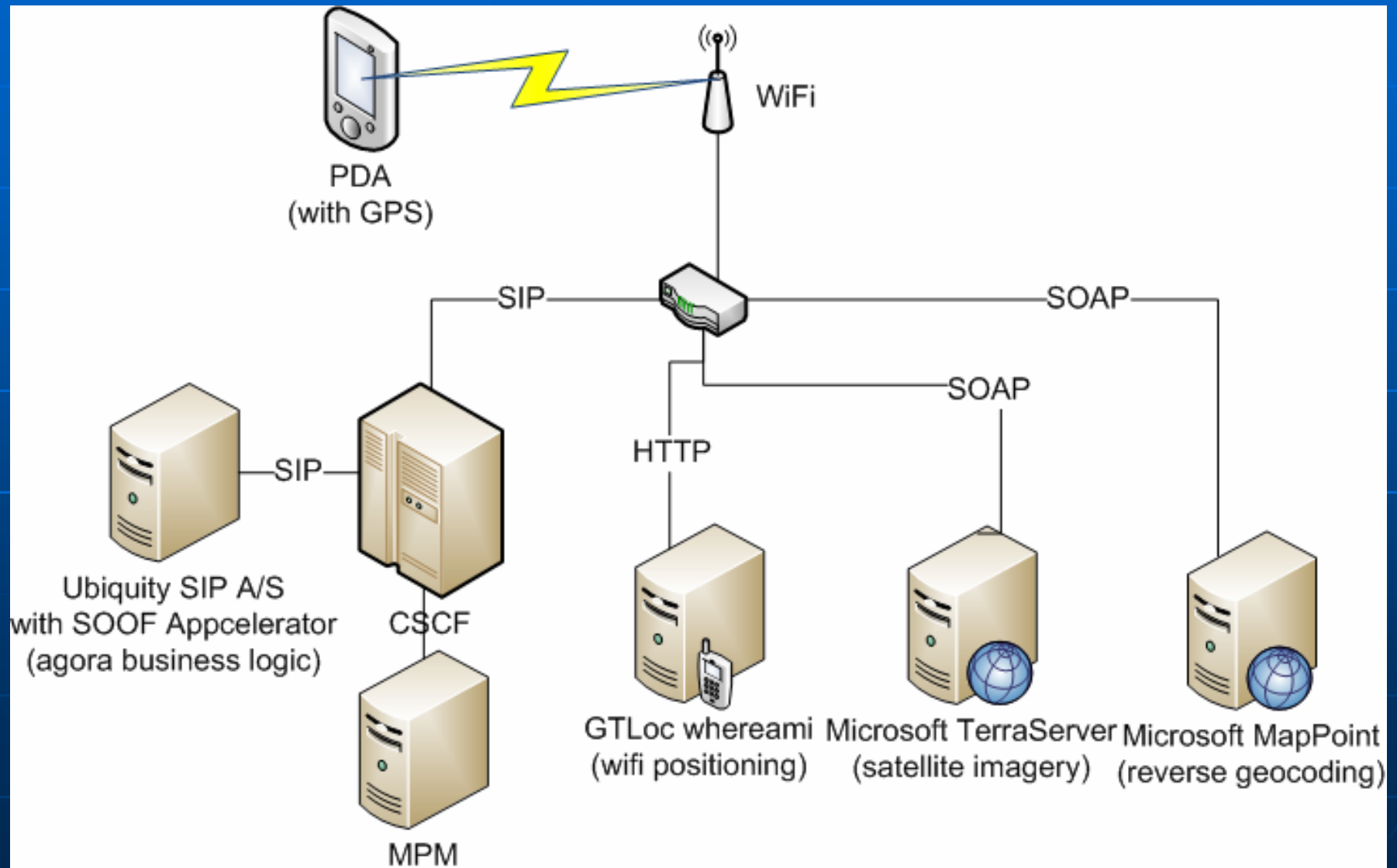
Talk in agora



Create agora



Network architecture

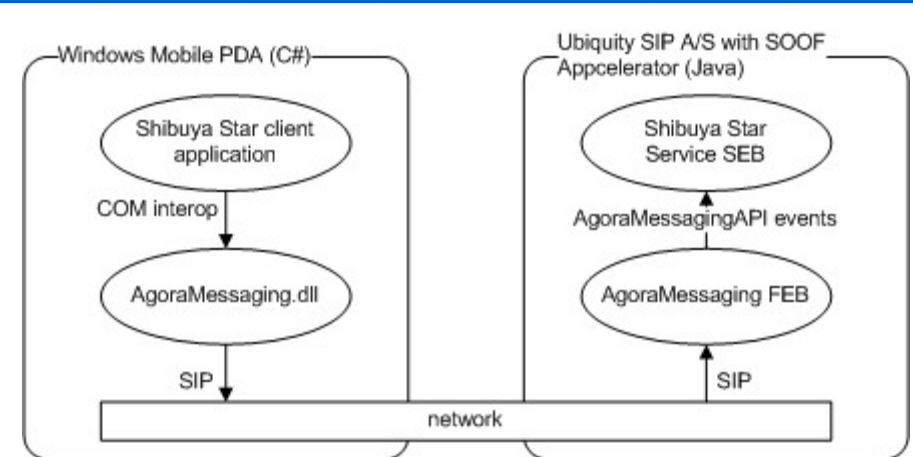


Server-side technologies

- Development tool
 - Eclipse (Java)
- Server & networking
 - Ubiquity A/S with SOOF Appcelerator
 - ISC on :5090
 - Foundation Element Block (FEB) + Service Logic Block (SLB) for SIP
 - Business Logic Block (BLB) for SOAP
 - Siemens Network Emulator (NE)
 - ISC on :15090

SIP/SOAP messaging

```
<?xml version='1.0' encoding='UTF-8'?>
<AgoraMessaging>
  <type>createAgora</type>
  <center>
    <zone>{0}</zone>
    <x>{1}</x>
    <y>{2}</y>
  </center>
  <radius>{3}</radius>
  <description>{4}</description>
</AgoraMessaging>
```



Messages

■ TO server:

- `createAgora(UTMPoint center, double radius, String description)`
- `joinAgora(int agoraID, String userName)`
- `exitAgora(int agoraID)`
- `getAgoras(UTMPoint upperLeft, UTMPoint lowerRight)`
- `postMessage(int agoraID, String message)`

■ FROM server:

- `sendMessageArrived(String message)`
- `sendAgoraCreated(int agoraID)`
- `sendAgoraList(ArrayList agoras)`

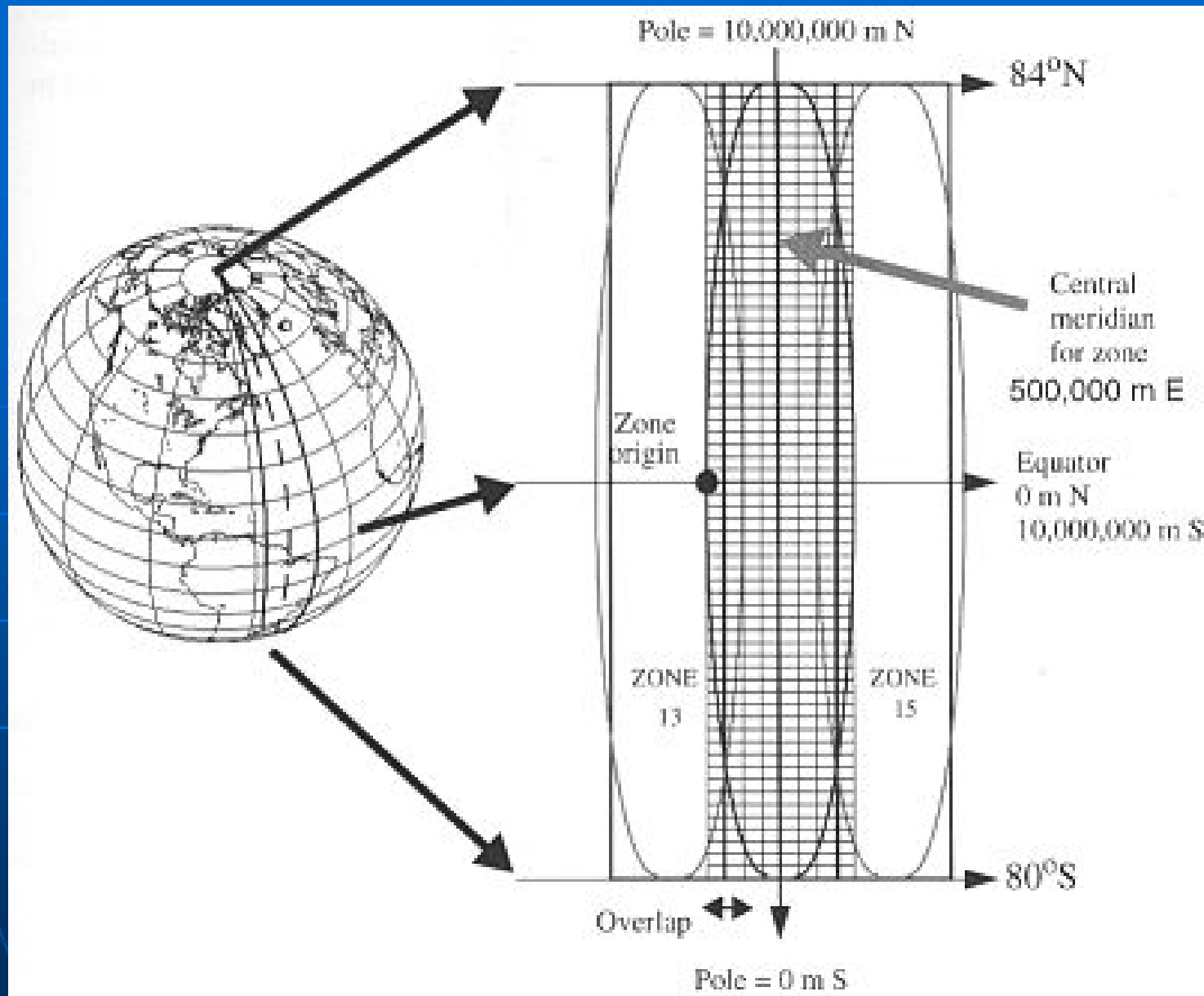
Client-side technologies

- Development tool
 - Visual Studio .NET 2005 Professional (C#)
- Device
 - HP iPaq 6945 PDA
 - emulator with Windows Mobile 2003
- Other
 - .NET Compact Framework 2.0
 - Siemens IMS WIN.NET SDK
 - GeoFrameworks GPS.NET 2.0
 - ASP.NET

TerraServer satellite imagery

- accessible as 200 by 200 pixel image tiles
- MRU (Most Recently Used) caching on PDA





- image tiles identified by UTM coordinates

Business model

- free introductory period (6-9 months)
- usage-based
 - free to view → enticing to start interaction
 - 5 cents to post → perception: “virtually free”
- pre-paid bulk (eg. \$5 for 300 posts)

- context based relevant ads (à la Google)
 - accumulating rich context database:
users + locations + text messages

Future work

■ Functionality:

- push-to-talk live spoken chat
- filtering/search
 - number of messages in last hour/day/week/all time
 - presence of keywords in messages/agora title
- switch to private channel

■ Performance:

- predictive tile caching
- HA (High Availability)

Thank you!