

**Context**

## Pervasive Computing Mobile Networks

Example: Interactive Museum Visit

**Approach**

## an ambient reference is: - a distributed OO language extension - a remote object reference

**when unbound...**

Peer Discovery Channel

Messages may be sent while the reference is unbound

**when bound...**

Asynchronous Communication Channel

reference binds on matching service type

```
service InfoBooth {
  getRoomInfo() { ... }
}
```

asynchronous message sends with future-based return values

**Properties**

## Resilience to Partial Failure...

messages sent while disconnected are buffered

upon disconnection, become unbound...

board = ambient Whiteboard; immediately

board = ambient(1min) Whiteboard; after a timeout period

board = ambient! Whiteboard; never

**elasticity**

## Transitory Addressing...

scope of binding

ambient InfoBooth b where b.expositionType == 'physics';  
service type + filter query: delimit which services to bind to

```
service InfoBooth {
  expositionType = 'physics';
}
```

```
service InfoBooth {
  expositionType = 'minerals';
}
```

## Group Communication...

messages are broadcast

can bind simultaneously to...

cardinality

- exhibit = ambient Exhibit; one matching service
- exhibit = ambient[10] Exhibit; 10 matching services
- exhibit = ambient\* Exhibit; all matching services (unlimited)