

PARS – Multiscreen Web App Platform

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Multiscreen Applications

- A user has multiple devices.
- “Orchestrated” user experience.
- A cooperating set of applications on different devices.

Approaches

- An application uses fixed services on other devices
 - Role of each device is fixed.
 - UI is fixed, and may be inconsistent across devices.
 - UPnP, DLNA, AirPlay
- A set of cooperating applications
 - A user has to pre-install (and launch) apps on all devices.
 - Role of each device is programmable, but still pre-defined.
 - Unified UI across devices.
 - LG Connect SDK, Samsung Multiscreen SDK, DIAL
- A distributed application
 - No pre-installation.
 - Roles of devices can be re-organized during runtime.
 - PARS, COLTRAM, and other works from KAIST, NTT, etc.

Connect SDK

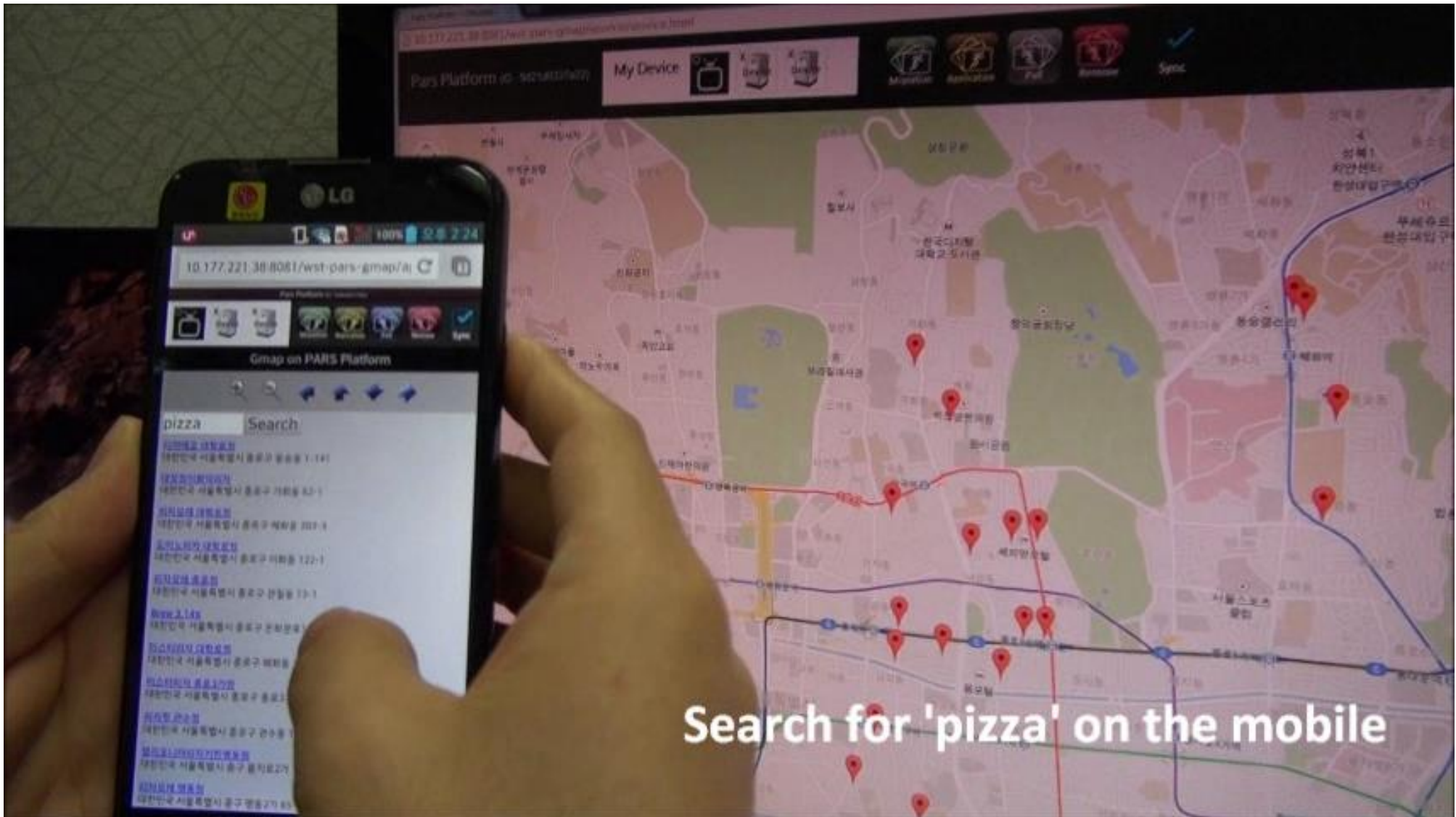
- Multi-platform / protocol support
 - Not only for LG TV



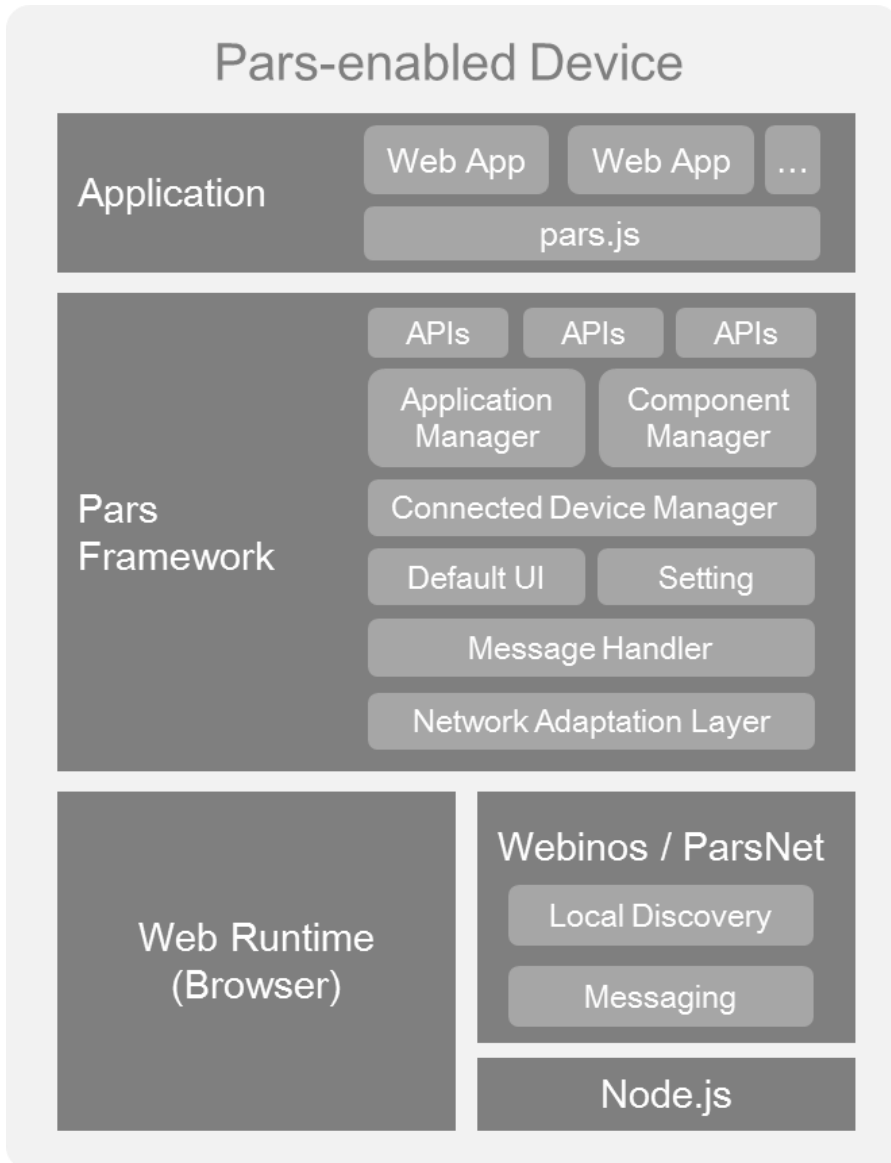
A Distributed “Web” Application

- Roles of devices can be re-organized during runtime.
 - Parts of an app migrate and are replicated across devices.
 - A cross platform is required.
- No pre-installation.
 - Sandbox security model allows executing alien code without installation.

Demo



Architecture



- A PARS app consists of components
 - `<div>`, variables and methods
- Component migration / replication
- State synchronization
- Component management UI

- Local discovery
- Messaging

Standards

	WebRTC	Network Service Discovery	DIAL	Presentation API
Local discovery		✓	✓	✓
P2P messaging	✓			✓
Remote execution			✓	✓

- Interoperability
 - Abstraction to support various underlying technologies, including existing devices
 - **Protocol level** (for interoperability across vendors)
- Security and privacy vs. usability
 - UA or web app or ask to the user
- Time synchronization