Moving Data and Interfaces in an Interactive Workspace

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Interactive Workspaces

Space filled with Devices

- Computing and storage devices
- Various input devices (touch, keyboard)
- Large high-res to small low-res displays

Highly Heterogeneous Environment

- Legacy and COTS products
- Varied modalities (aural v. visual)

Dynamically Configurable

- Mobile devices such as PDAs
- Reconfiguration of "permanent" devices

Three Metaphors

Dynamically Compose Applications into a Single Workspace

- Coordinate Behaviors of (legacy) programs

Move Information Freely between Devices

- Transform Data for Manipulation/Display

Move Application Interfaces among Devices

- Regenerate Application Interface for varied devices

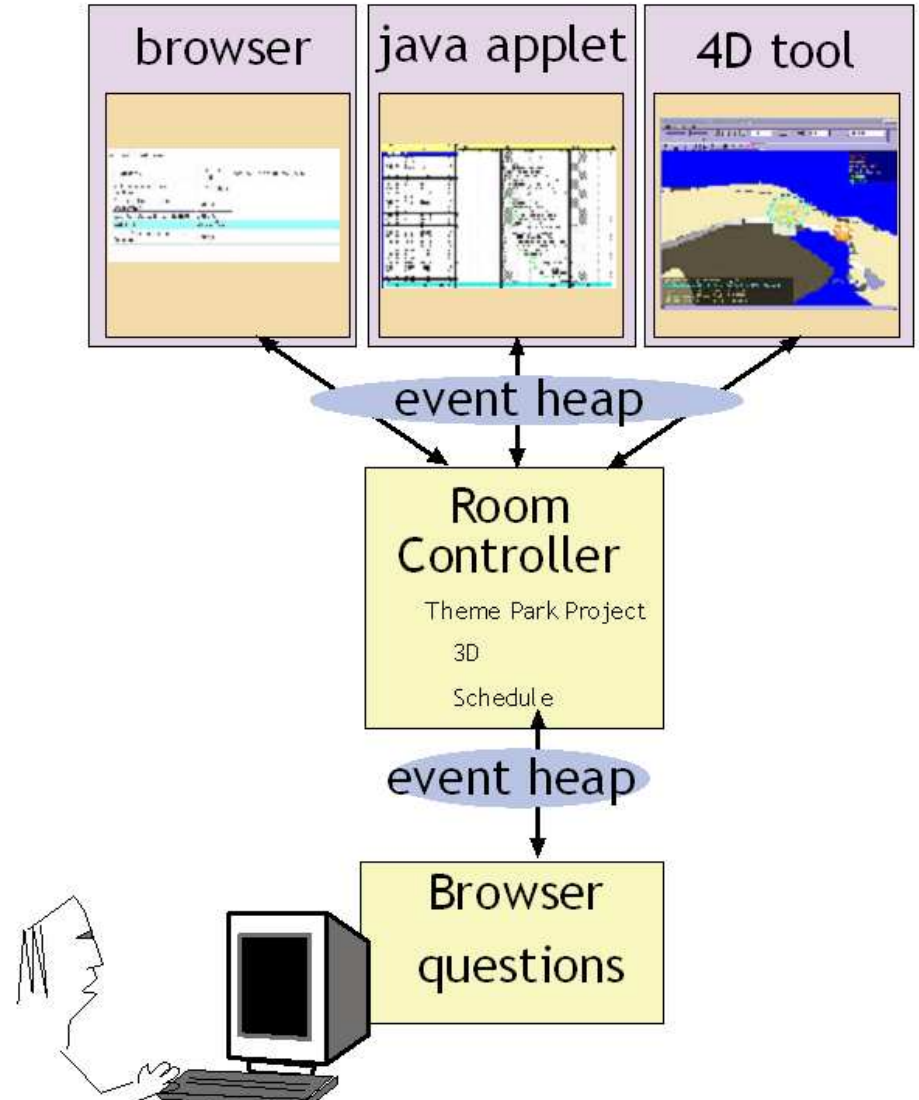
Snap-Together Applications

Individual applications modified to speak in common events

- Compile API into source (e.g., 4D Tool)
- Web based
- Custom App (Java)
- Controlled through VCS

Other examples

- Storyboarding App



Paths

General composition framework for autonomous services

A path is a pipe/filter stream through operators and connectors

Used to mediate data-type mismatches between devices

Virtual Controller System

Any interface on any device

- On-demand generation/lookup
- Hand-designed interfaces
- Automatically generated interfaces

Emphasis on ease of moveable IF development

- Maximize reuse of backend
- Automatic IF customization for a workspace

Infrastructure support for

- Discovery of services
- Interface selection
- Service invocation