Customizing Mobile Applications

By: Bill N.Schilit
Marvin M. Theimer
Brent B. Welch

Presented By: Shawn Marlin

Introduction

- Mobile Computing vs. Desktop Computing
  - Mobile:
    - Ever-changing relationship between system resources and mobile computer.
  - Desktop:
    - At initialization, system resources are discovered.
- Examples of System Resources
  - Printers, Displays, Local Network, …etc

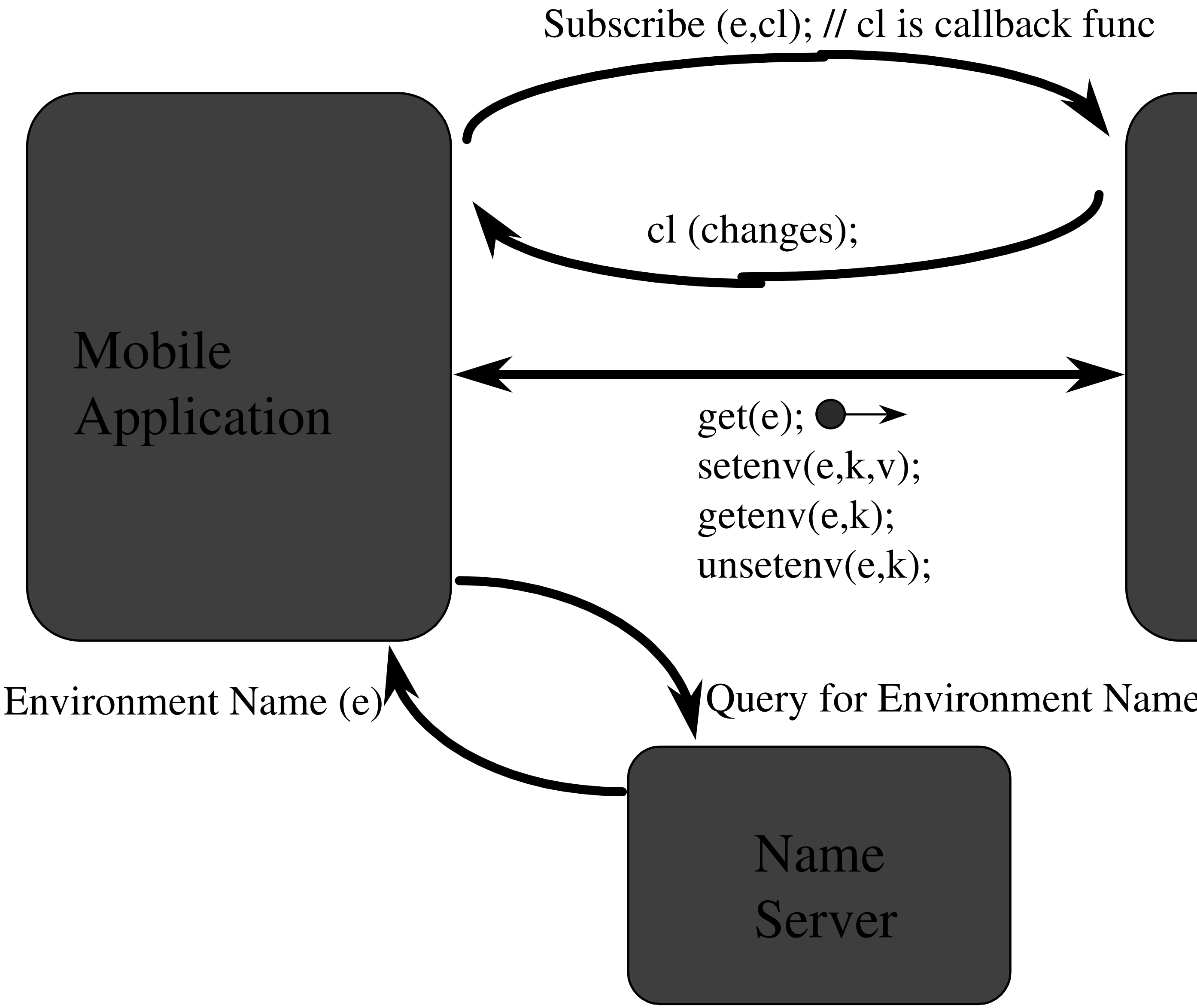
Problems to Solve

- Previous Customization Techniques
  - Command line arguments, Environment variables, “rc” initialization files, databases (ie: “Xrdb”).
- There is no separation of customization from initialization.
- There is no notification mechanism for reporting changes.

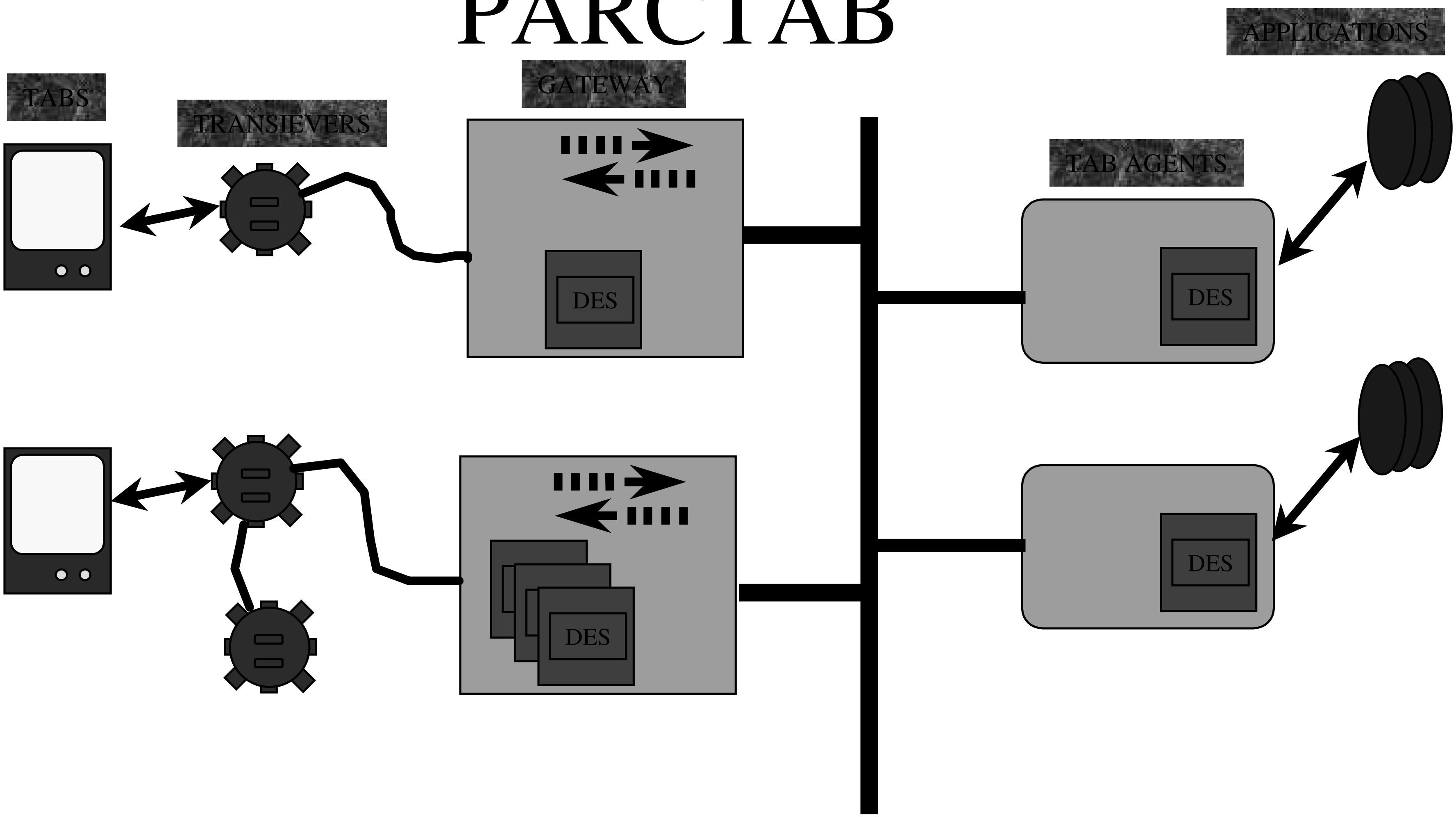
RPC Based Solution

- Dynamic Environment Servers (DES).
  - Mobile User Subscribe to an environment.
    - Attribute-based naming used to delineate environments.
  - DES provides updates via callbacks.
  - Mobile User can asynchronously get or set certain env var.

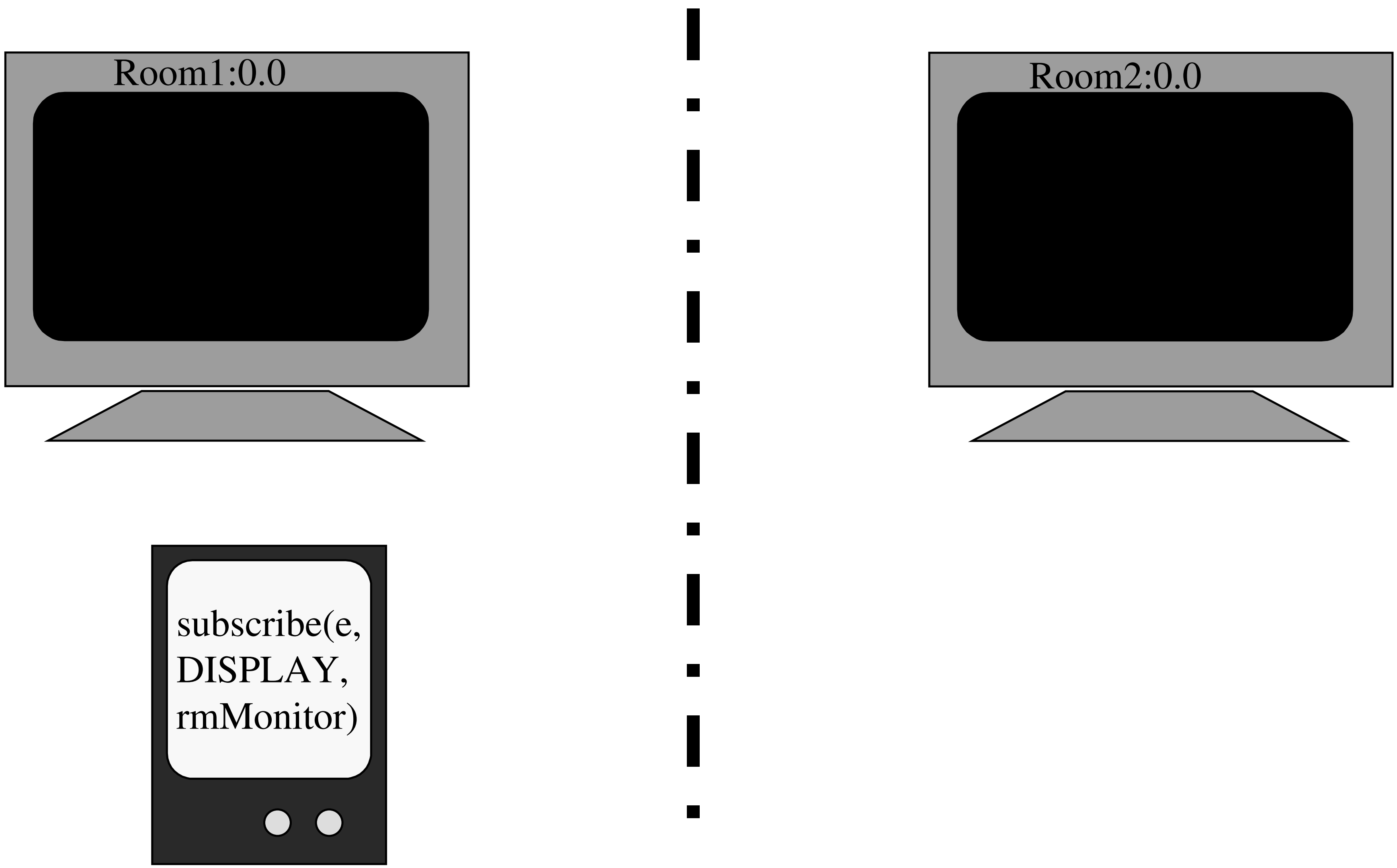
DES Interface



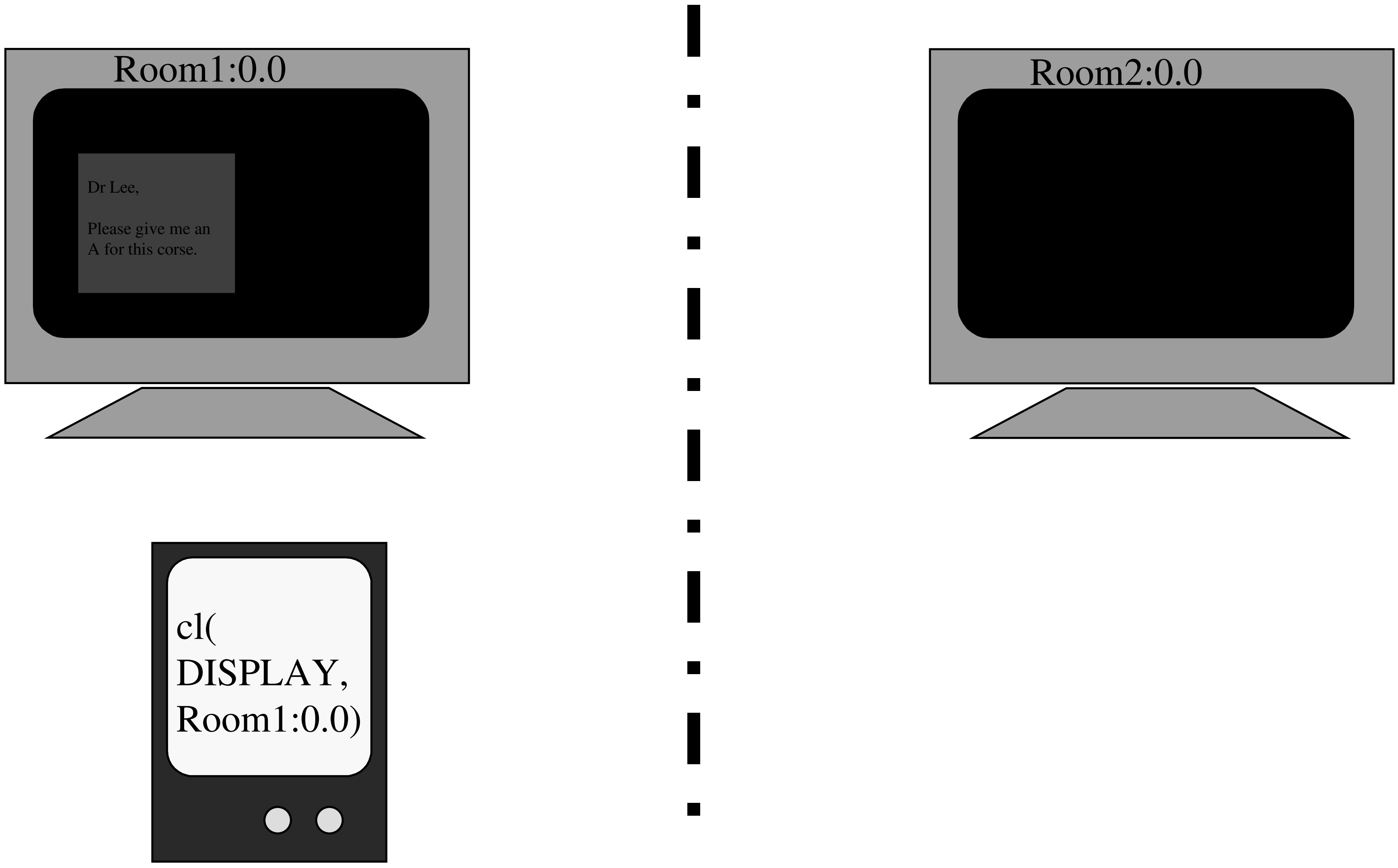
Architecture for Example PARCTAB



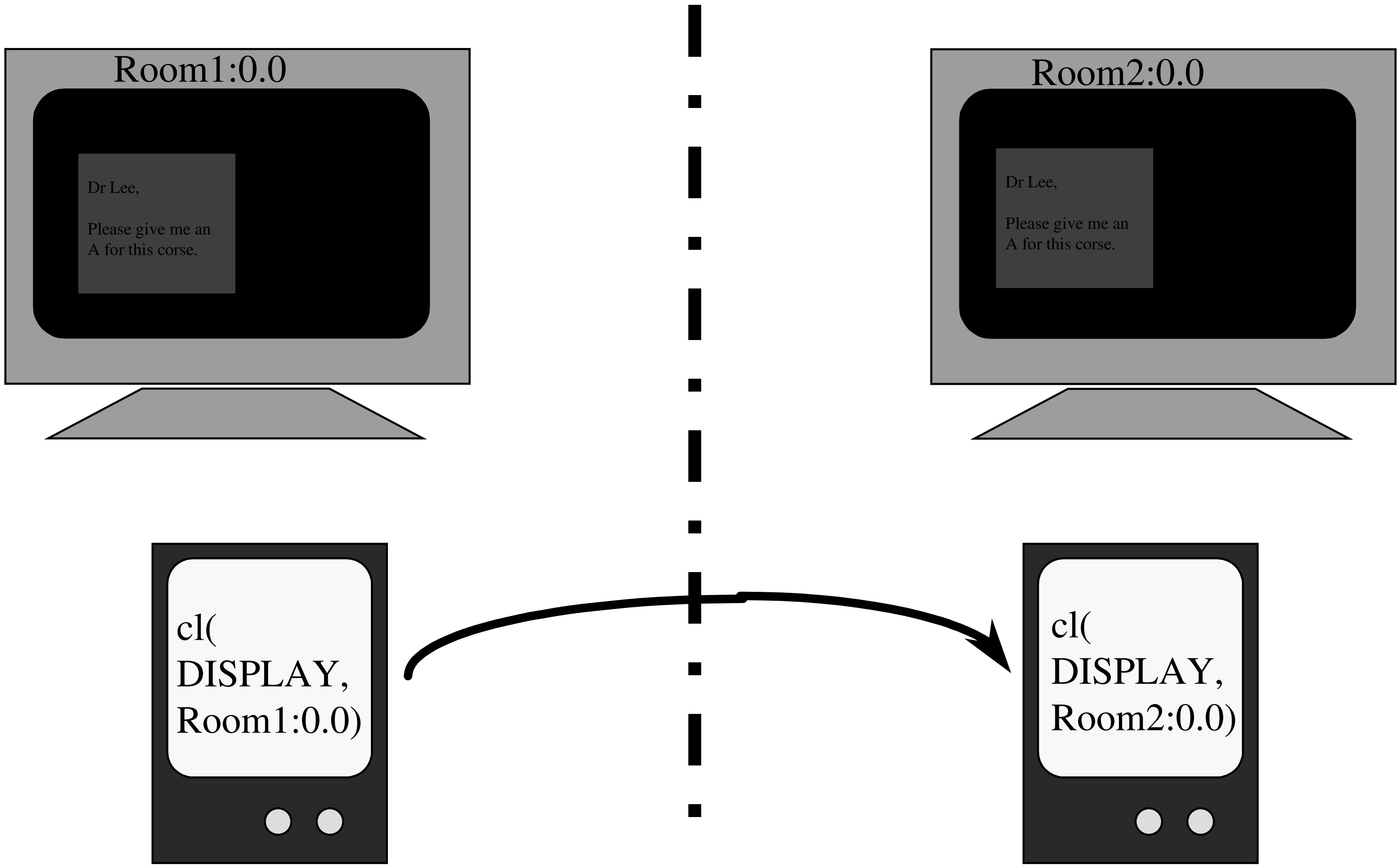
Dynamic Application Example



Dynamic Application Example

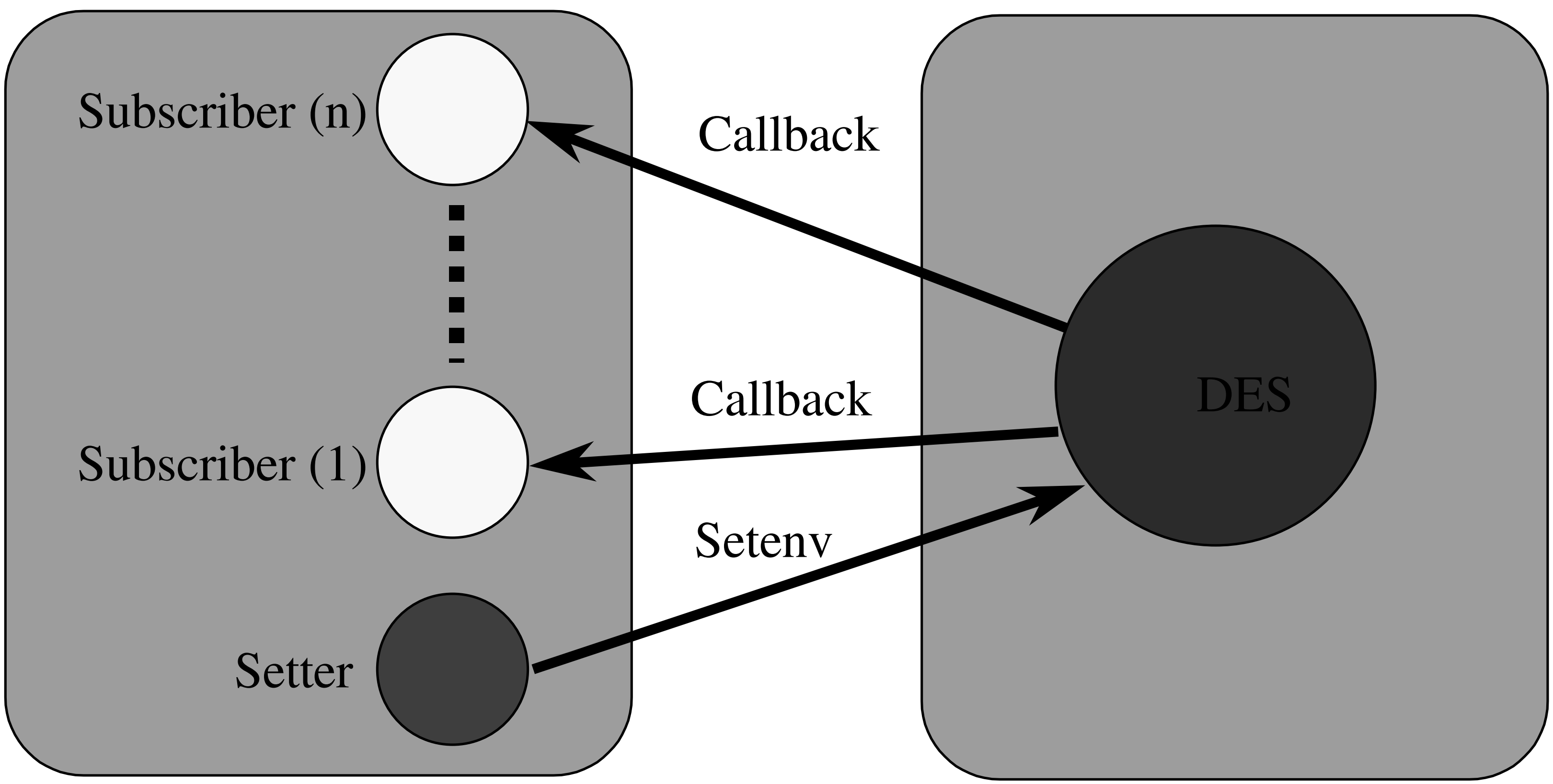


Dynamic Application Example



Performance

- Performance of System is governed by RPC Overhead.



Conclusion

- Mobility necessitates environment awareness.
- Awareness mechanism should be push based.

Criticisms

- Observations too tightly coupled to PARCTAB architecture.
- User Agent resides on Home Node.
  - Good because much of the subscribing and unsubscribing done without PDA.
  - Bad because updates might have to travel too far.
- System did not address disconnected operation.