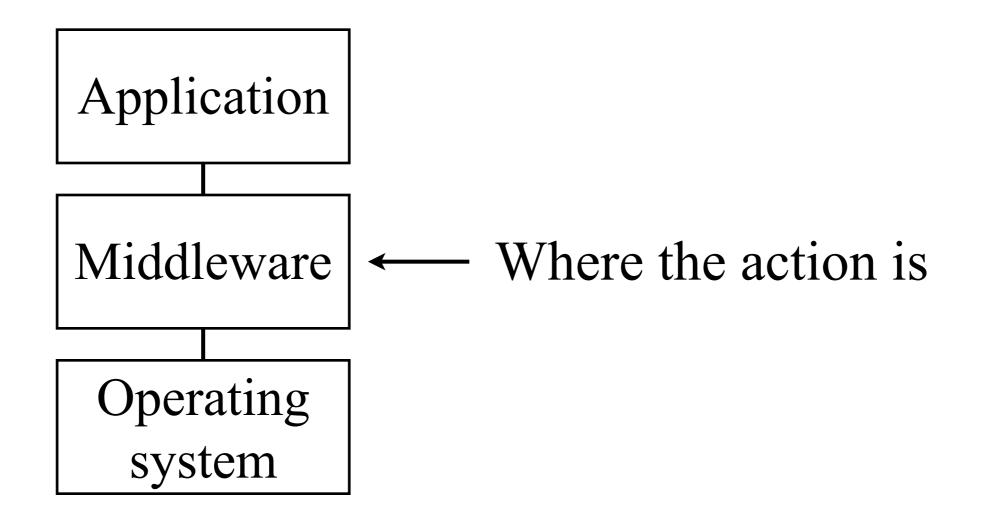
## CDSII: Revision

## General architecture



## Middleware models

#### • RPC

- Object-oriented (OOM)
- Message-oriented (MOM)
- Event-based (EBM)

# Essential internal middleware services

- time/causality
  - vector clocks, clock synchronisation, ...
- replica consistency management
  - quorum assembly, distributed transactions, ...
- group management
  - leader election
- mutual exclusion

## Very useful services for the middleware to provide

#### • naming

- find objects that constitute the application
- access control
  - determine who can do what when under which circumstances
- storage
  - transient doesn't last forever