Architectural Styles

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Prototype feedback
Deliverable #4 discussion
Blackboard vs Event-Based
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Peer-to-peer
Style: Peer-to-peer

- State and behaviour are distributed among peers that can act as clients or servers.

- Components:
  - Peers (aka independent components).

- Connections:
  - Network protocols.

- Data elements:
  - Network messages.

- Topology:
  - Network. Can vary arbitrarily and dynamically.
Style: Peer-to-peer

- Qualities:
  - Decentralized computing. Robust to node failures. Scalable.

- Typical uses:
  - When informations and operations are distributed.

- Cautions:
  - Security. Time criticality.
Architectural representations

- Characteristics of representations:
  - Ambiguity: Open to more than one interpretation?
  - Accuracy: Correct within tolerances
  - Precision: Exact but not necessarily correct

- Architectural models can be overwhelming
  - Model individual concerns with unique views
  - Views overlap and can be consistent or inconsistent
Statechart diagram

- More formal description of system behaviour.
- Poor mapping between states and components.
Component diagram

- Captures components and relationships.
  - Required and provided APIs explicitly recorded.
Deployment diagram

- Provide mapping between physical devices
Sequence diagram

- Focus on inter-component collaboration.
- Capture behaviour for specific scenarios.
Activity

- List the major components and connectors for your system
- Create a basic statechart for your system
- Create a rough component and deployment diagram for two different architectures
- Choose the arch that you think is best for your task; you will motivate this decision to me
- Perform an inter-group architectural review; be critical