

Decentralized Control Approaches

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October 2012



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Everyone knows about classical agents and actors

Agents



Actors



More About Decentralized Control Approaches

- **Publish-Subscribe**
 - e.g., in System C; whole-cell model by Covert et al
- **BIP: Behavior – Interaction – Priority**
 - from VERIMAG
- **Behavioral and Scenario-based programming**
 - from Weizmann, BGU
- **Rule-based systems**
 - e.g., IBM ILOG Business Rule engine, Drools
- **Behavior-based architectures**
 - Brooks; Branicky
- **And what about aspect oriented programming**
 - Kiczales et al.
- ...

Decentralized Control : Desired Traits. . .

- **Alignment of components with required facets of system behavior**
- **Component autonomy**
- **Obliviousness of other components**
- **Compositionality**
- **Naturalness in programming**
- . . .

. . . and challenges

- **Dealing with complexity**
- **Conflict and deadlock resolution**
- **Verification / validation**
- **Performance**
- . . .