UML Diagram Types

Dynamic Models
- activity diagrams
- statechart diagrams
- interaction diagrams
  - sequence diagrams
  - collaboration diagrams
- use case diagrams

Structural Models
- class diagrams
- object diagrams
- packages

Architectural Models
- component diagrams
- deployment diagrams

Architectural Family

- Component Diagram: shows the organization and dependencies among a set of components (i.e., software deployment)
- Deployment Diagram: shows the configuration of run-time processing nodes and the components that live on them (i.e., hardware deployment)

Deployment: Node

defn: physical element that exists at run-time and represents a computational resource (some memory and/or some processing)
- hardware topology
- processor or device on which component may be deployed
**Node**

**Convention**
- cube with name (simple or path name)
- can use visually descriptive icons
- can have adornments (tagged values)
- can have dependency, generalization, and association
- can be nested

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**Node vs. Component**

- components represent physical packaging of logical elements
- nodes represent physical deployment of components
- logical side: classes, interfaces, state machines
- physical side: software is to components as hardware is to nodes

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**Connections**

*def'n:* physical (e.g. ethernet) or indirect (satellite) connection among nodes
- can use roles, multiplicity
- can use stereotypes

**Convention**
- shown as solid line between nodes
Deployment Diagrams

def'n: shows configuration of run-time processing nodes and components that live on them
- shown as vertices and arcs
- class diagrams that focus on system’s nodes
- UML sufficient to describe hardware

Deployment Diagrams

Convention
- nodes
- dependency and association relationships
- can have other relationships (inheritance, aggregation)

Embedded Systems
- model physical devices
- may have noisy, non-linear devices

To model
- identify devices
- provide visual cues
  - at minimum, separate processors from devices
- model relationships
- expand more intelligent devices
Hints and Tips

- focus on one aspect of system’s static deployment
- contain only elements that are essential to context
- provide appropriate detail
- don’t be too minimalist