Deployment Diagrams

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Deployment Diagrams

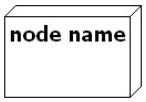
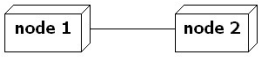
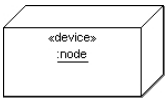
- What existing systems will system need to interact or integrate with?
- How robust does system need to be (e.g., redundant hardware in case of a system failure)?
- What and who will connect to or interact with system, and how will they do it
- What middleware, including the operating system and communications approaches and protocols, will system use?
- What hardware and software will users directly interact with (PCs, network computers, browsers, etc.)?
- How will you monitor the system once deployed?
- How secure does the system need to be (needs a firewall, physically secure hardware, etc.)?

Deployment Diagrams

- show the structure of the run-time system
- capture the hardware that will be used to implement the system and the links between different items of hardware.
- Model **physical hardware elements** and the communication paths between them
- Plan the **architecture** of a system
- Document the deployment of software components or nodes

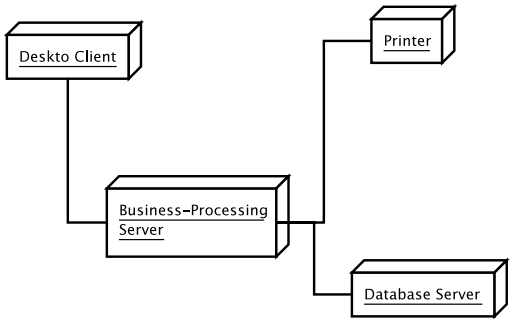
- A Deployment Diagram shows the configuration of run-time processing elements and the software components, processes, and objects.
- Software component instances represent run-time manifestations of code units.
- Deployments Diagrams capture only components that exist as run-time entities.
- A deployment diagram shows the system's hardware, the software installed on that hardware, and the middleware that connects the disparate machines together.
- A Deployment Diagram is a collection of one or more deployment diagrams with their associated documentation.
- Deployment diagrams show the physical configurations of software and hardware.

Deployment Diagrams - Notation

Node	Communication Path	Artefacts
		
<<device>> <<execution environment>>	Deployment Specifications	Deployment of Artefacts
	<<deployment spec>>	<<deploy>>

Communication Association

A communication associations between nodes indicates a communication path between the nodes that allows components on the nodes to communicate with one another



Deployment Planning

- How will your system be installed?
- If different versions of the system will be in production at the same time, how will you resolve differences?
- What physical sites do you need to deploy to and in what order?
- How will you train your users?

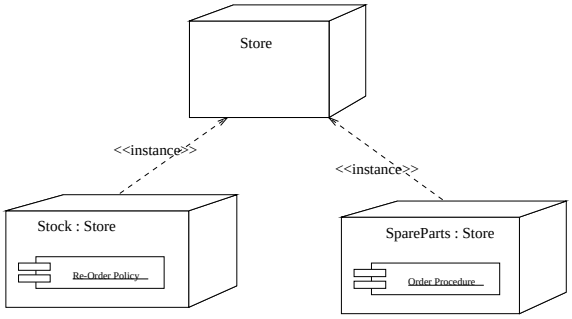
- How will your system be installed?
  - Who will install it? How long should it take to install?
  - Where the installation possibly fail? How do you back out if the installation fails? How long does it take to back out?
  - What is your installation window (during what time period can you install your system)?
  - What backups do you need before installation? Do you need to do a data conversion?
  - How do you know that the installation was successful?
- If different versions of the system will be in production at the same time, how will you resolve differences?
- What physical sites do you need to deploy to and in what order?
  - How will you train your support and operations staff?
  - Do you need to deploy a production support system so that the support staff uses their own environment to simulate problems?
- How will you train your users?
  - What documentation, and in what formats and languages, do your users, and support and operation staff need?
  - How will updates to documentation be deployed?

How to produce deployment diagrams

1. Decide on the **purpose** of the diagram
2. Add **nodes** to the diagram
3. Add **communication associations** to the diagram
4. Add other **elements** to the diagram, such as components or active objects, if required
5. Add **dependencies** between components and objects, if required

Modeling Business Process

- Business modeling using nodes and components is an effective means of capturing non-computer based processes and entities
- This can be done very early in development, to complement the use case model and other business modeling
- Components are the business procedures and documents; the nodes ("run-time structure") are the organization units and resources (human and other) of the business



Readings

- **UML course textbook**
  - Chapter 14 on Deployment Diagrams

Summary

- Deployment Diagrams
  - Rationale
  - Notation
- How to produce Deployment Diagrams