

## Bruegge 99, System Design, Chapter 6

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Quiz No. 8

October 12<sup>th</sup>, 1999**1. What are deployment diagrams used for?**

Deployment diagrams show the relationship among run-time components and hardware nodes. Components are self-contained entities that provide services to other components or actors, and can be refined to include information about the interfaces they provide and the classes they contain.

**2. For your STARS subsystem, give examples of design goals based on:**

- Performance criteria: Aspects that have to do with the speed and space requirements imposed on the system, such as response time, throughput, and memory.
- Dependability criteria: Aspects that have to do with the effort that should be put into minimizing system crashes and their consequences. They are issues related to robustness, reliability, availability, fault tolerance, security, and safety.
- Cost criteria: It includes costs of development, deployment, upgrade, maintenance, and administration.
- Maintenance criteria: Aspects that have to do with how difficult it is to change the system after deployment, such as extensibility, modifiability, adaptability, portability, readability, and traceability of requirements.
- End user criteria: Includes qualities that are desirable from a users' point of view that have not been covered under the performance and dependability criteria, such as utility and usability.

**3. What is the difference between a closed and open software architecture?**

In a closed software architecture a virtual machine can only call operations from the layer below, while in an open software architecture a virtual machine can call operations from any layer below. The design goal in a closed architecture is high maintainability, while in an open architecture it is runtime efficiency.

**4. What is the adapter pattern used for?**

The purpose of the adapter pattern is to encapsulate a piece of legacy code that was not designed to work with the system. It also limits the impact of substituting the piece of legacy code for a different component.