Architectural Styles

Software Architecture

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Learning Objectives

By the end of this video, you will be able to
• Explain what an architectural style is about.
• Explain the characteristics of the client-server style, layered/tiered style, pipe-and-filter style, respectively.
• Explain benefits of adopting a given architectural style.
(Building) Architectural Style
(Software) Architectural Style

- **Vocabulary** of components and connectors
- Composition **constraints**

(Taylor, Medvidovic, & Dashofy, 2009)
Client-Server Style

(Taylor, Medvidovic, & Dashofy, 2009)
Example of Client-Server Style: SVN

(L.palm, 2011)
Example of Client-Server Style: Web Application
Layered/Tiered Style: 3-Tier/n-Tier Client-Server

**Presentation tier**
The top-most level of the application is the user interface. The main function of the interface is to translate tasks and results to something the user can understand.

**Logic tier**
This layer coordinates the application, processes commands, makes logical decisions and evaluations, and performs calculations. It also moves and processes data between the two surrounding layers.

**Data tier**
Here information is stored and retrieved from a database or file system. The information is then passed back to the logic tier for processing, and then eventually back to the user.

(Taylor, Medvidovic, & Dashofy, 2009)
Pipe-and-Filter Style

cat contactbook | grep "illinois" | sort > illini

(Taylor, Medvidovic, & Dashofy, 2009)
Picking an Architectural Style

- Many standard architectural styles
  - Each has strengths and weaknesses
  - Each solves some problems & creates others

- What is important?
  - Flexibility/ease of change
  - Efficiency
  - Reliability
  - ...
References


The End