Web Services

CSC 342 - Web Technologies

Web Server

- A *web server* is a computer system that processes requests via HTTP to distribute information on the Web
- The term can refer to the entire system or the software
- A *static web server* serves hosted files to the client
- A *dynamic web server* consists of a static web server with extra software (commonly an application server and a database) that generates content for each client request

Web Services

- A *web service* is a service offered by an electronic device to another electronic device where the devices communicate over the Web.
- Web services are intended for machine-to-machine communication and exchange data in machine readable formats such as XML or JSON.
- There are two major categories of web services:
  - *REST-compliant web services:* manipulate representations of web resources using a uniform set of stateless operations.
  - *Arbitrary web services:* expose an arbitrary set of operations.

Web Service Categories

- A traditional web service describes a standardized way of integrating web-based applications using the XML, SOAP, WSDL, and UDDI open standards.
  - XML: the data exchange format
  - SOAP: transfers the data
  - WSDL: describes the services available
  - UDDI: lists the available services
- More modern REST-compliant web services expose resources as URLs and perform stateless operations on the resources using HTTP verbs.

Web 2.0

- *Web 2.0* refers to websites that emphasize:
  - user-generated content
  - usability
  - interoperability
- Examples of Web 2.0
  - Social networking sites
  - Blogs
  - Wikis
  - Video sharing sites
  - Mashups
- Web 2.0 applications often utilize web services for their functionality

Web API

- A *web API* is an application programming interface (API) for either a web server or a web browser.
- A server-side web API is a programmatic interface exposing endpoints via the web to a defined request-response message system.
- A client-side API is a programmatic interface to extend the functionality within a web browser.

Web Resource vs. Web Service

- Many Web 2.0 applications have moved away from SOAP-based web services towards collections of RESTful web resources.
- RESTful web APIs are accessible via standard HTTP methods.
- RESTful web APIs tend to be less resource intensive when JSON is used as the data exchange format.