



```
1 <!DOCTYPE HTML PUBLIC "-//W3C//DTD
2      "http://www.w3.org/TR/html4/strict.
3 <html>
4   <head>
5     <title>Example</title>
6     <link rel="stylesheet" href="s
7   </head>
8   <body>
9     <div id="header">
10       <h1><a href="#" title="Back
11         </a></h1>
12     </div>
13     <div id="toolbar">
14       <span class="left">Today <sp
15       <span class="right">
16         <span id="time">&ampnbsp</sp
17         <select id="timezone">
18           <option value="-12">(GMT
19           <option value="-11">(GMT
```

WEB SYSTEMS & TECHNOLOGIES

o. Internet and Web

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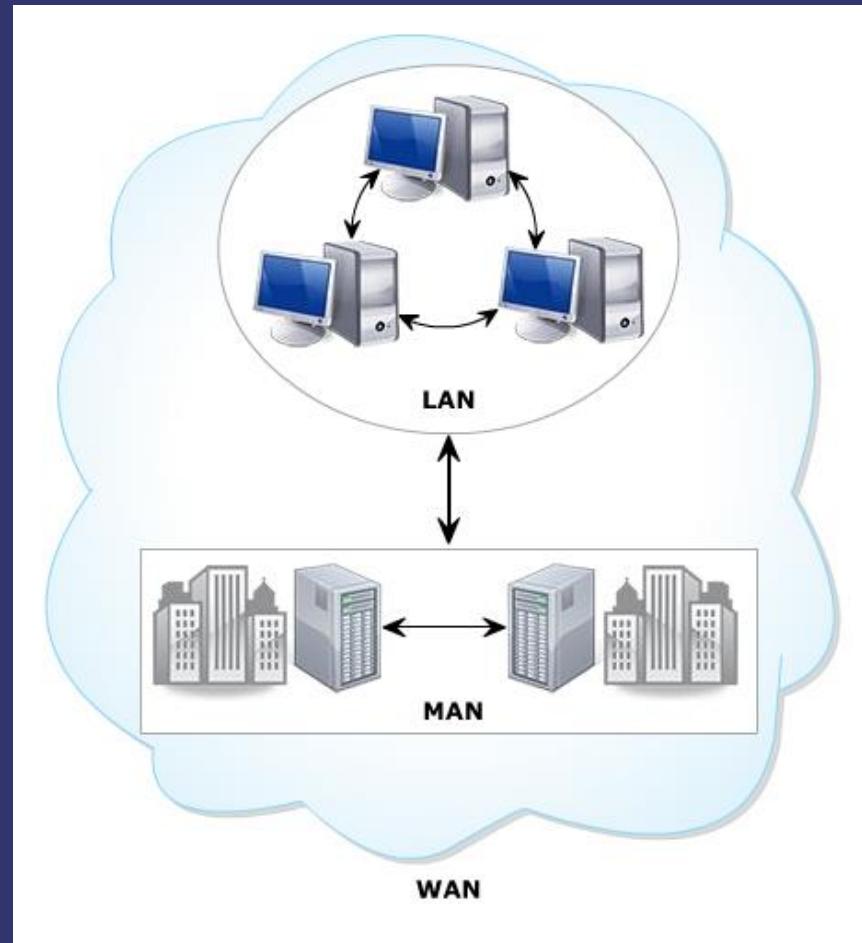
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Introduction of Web

- ◆ The Internet is a vast, international network, made up of computers and the physical connections (wires, routers, etc.) allowing them to communicate.
- ◆ The World Wide Web (WWW or just the Web) is a collection of software that spans the Internet and enables the interlinking of documents and resources.

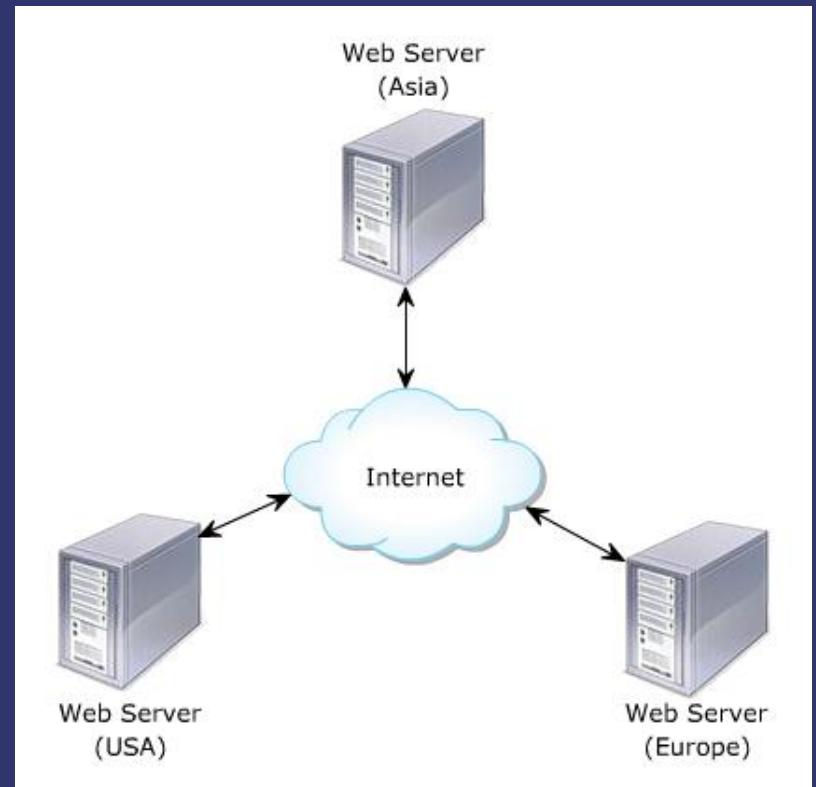
Evolution of web

- ◆ The growth of computing expanded in multiple.
- ◆ Organizations connect together to share data.
- ◆ This makes the beginning of computer networks.



Web and Internet

- ◆ WANs raised a strong need about global data sharing
- ◆ This resulted referred as WWW.
- ◆ Internet is known as the largest WAN.

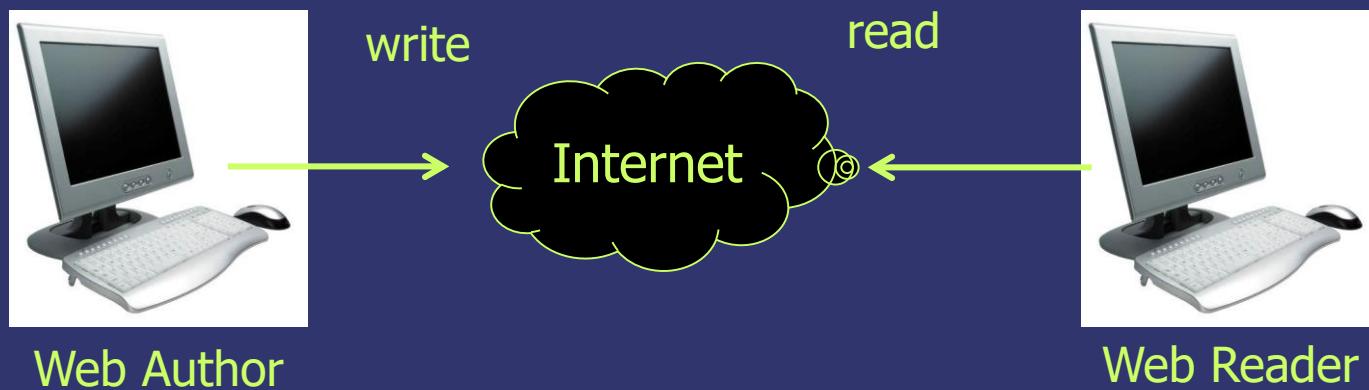
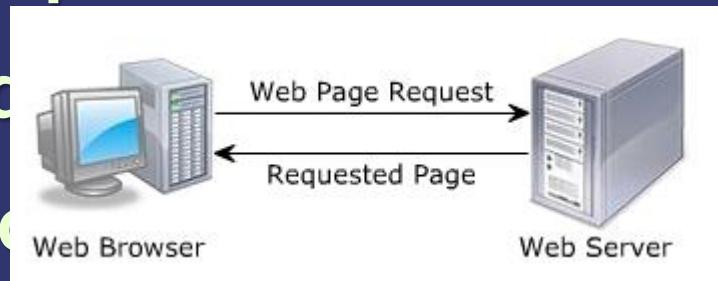


Web can be classified

- ◆ Web 1.0.
- ◆ Web 2.0.
- ◆ Semantic Web.

Web 1.0

- ◆ To be Known as traditional web.
- ◆ Authors write/publish content on the web.
- ◆ The published content is in a single only format.
- ◆ Posing the problem of lack of interactivity.

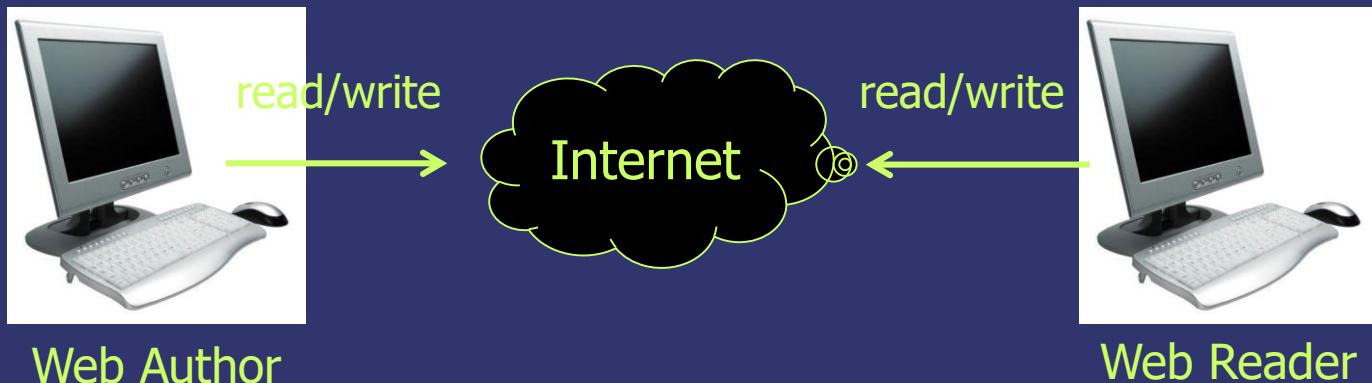


Web 2.0

- ◆ Web 2.0 also called as the read-write web.
- ◆ Readers can interact the authors by providing comments, blogs, queries, rating and so on.

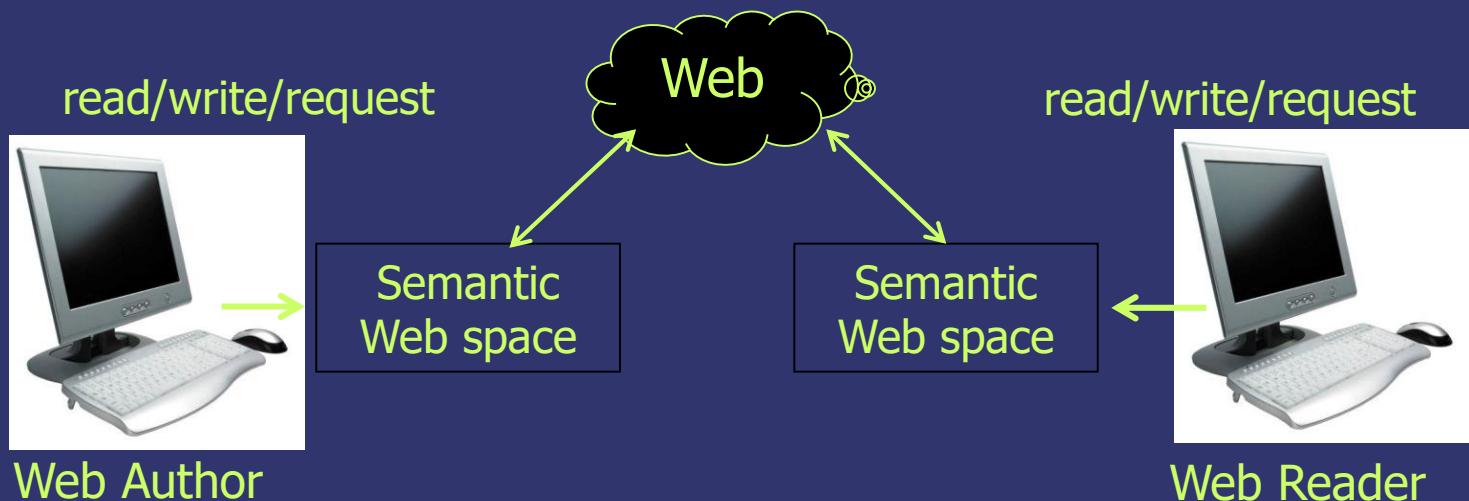
Web 2.0

- ◆ It's great platform for the readers to share their viewpoints with the authors.
- ◆ The Web space is limited in web 1.0 and 2.0.



Semantic web

- ◆ Concept to be expected as the future of web.
- ◆ It is the read-write-request web.
- ◆ The user can send the request for Web space.



Static web pages

- ◆ Static web pages have a limitations.
- ◆ Difficult to maintain.
- ◆ Updated manually.
- ◆ Inconsistency.
- ◆ Don't allow any user interaction.

Dynamic web pages

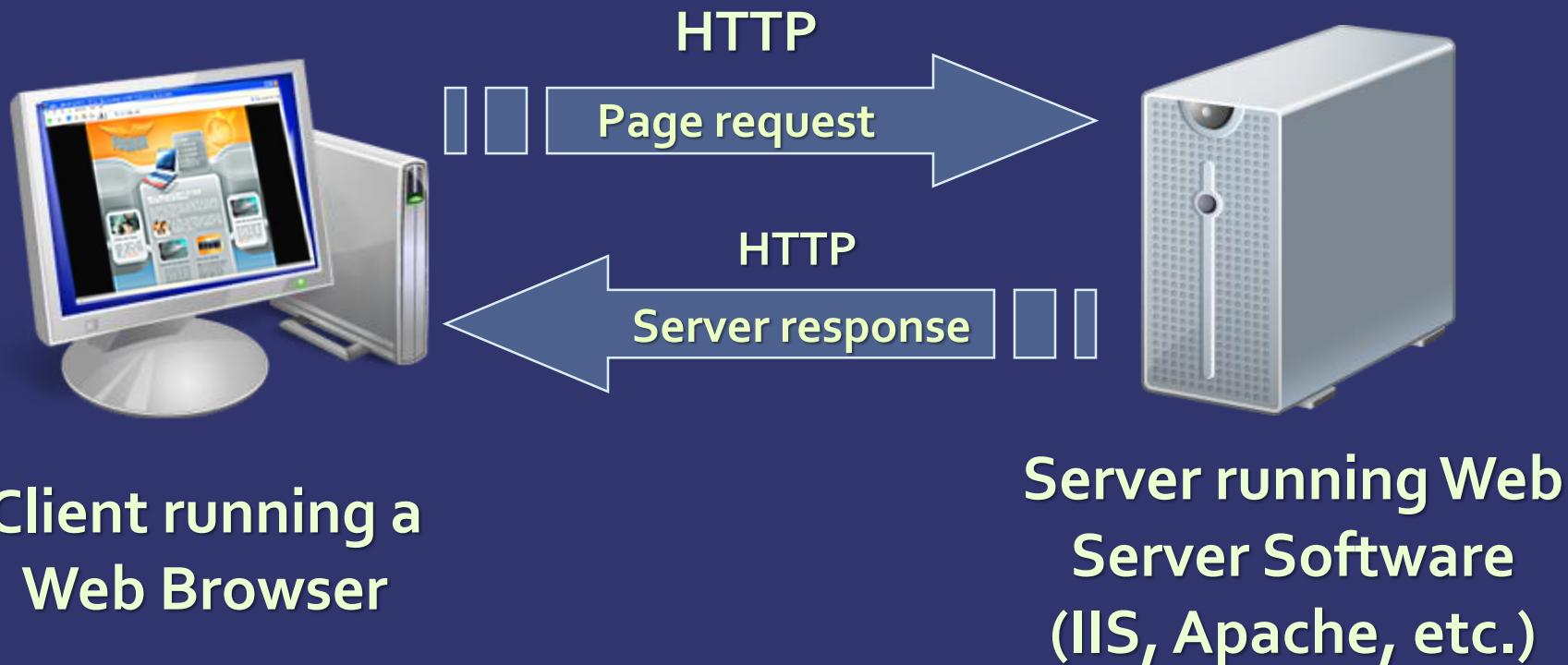
- ◆ Include static as well as dynamic web pages.
- ◆ Allows customizing the content and its appearance in the browser.
- ◆ Generates content “on-demand”.
- ◆ Accepts the user inputs through web browser.
- ◆ Several technologies evolved to make web sites more flexible and dynamic.
- ◆ Variety device such as PDAs, Cell phones, and so on is used XHTML Documents

Types of Web Application

- ◆ **Static Web Application**
- ◆ **Dynamic Web Application**
- ◆ **Shop online or e-commerce**
- ◆ **Portal Web Application**
- ◆ **Animation Web Application**
- ◆ **Web Application with CMS**

Web Application architecture

- ◆ WWW use classical client / server architecture
 - ◆ HTTP is text-based request-response protocol



Server-Side Code

- ◆ Languages/frameworks include but are not limited to Ruby (Rails), Javascript (Node.js), Python (Django), PHP, C#, and Java; but the list of possibilities is infinite. Any code that can run on a computer and respond to HTTP requests can run a server.
- ◆ Stores persistent data (user profiles, instatweets, mybook pages, etc.).

Server-Side Code

- ◆ Cannot be seen by the user (unless something is terribly wrong).
- ◆ Can only respond to HTTP requests for a particular URL, not any kind of user input.
- ◆ Creates the page that the user finally sees (this is generally only true in web applications that choose to render most of their layouts on the server)

Client-Side Code

- ◆ Languages used include: HTML, CSS, and JavaScript.
- ◆ Parsed by the user's browser.
- ◆ Reacts to user input.
- ◆ Can be seen and edited by the user in full.

Client-Side Code

- ◆ Cannot store anything that lasts beyond a page refresh.
- ◆ Cannot read files off of a server directly, must communicate via HTTP requests.
- ◆ Creates the page that the user finally sees (this is generally only true in single page applications).

Introduction to Web Services

- ◆ A Web service is a software module that has a URL or an Internet address so they can be called upon to perform a operation via the Internet.
- ◆ One Web service makes a request of another Web service to perform its task or tasks and pass back an answer creating a highly distributed system.
- ◆ using XML based messages via internet-based protocols.
- ◆ Web Services are latest distributed technology

Introduction to Web Services

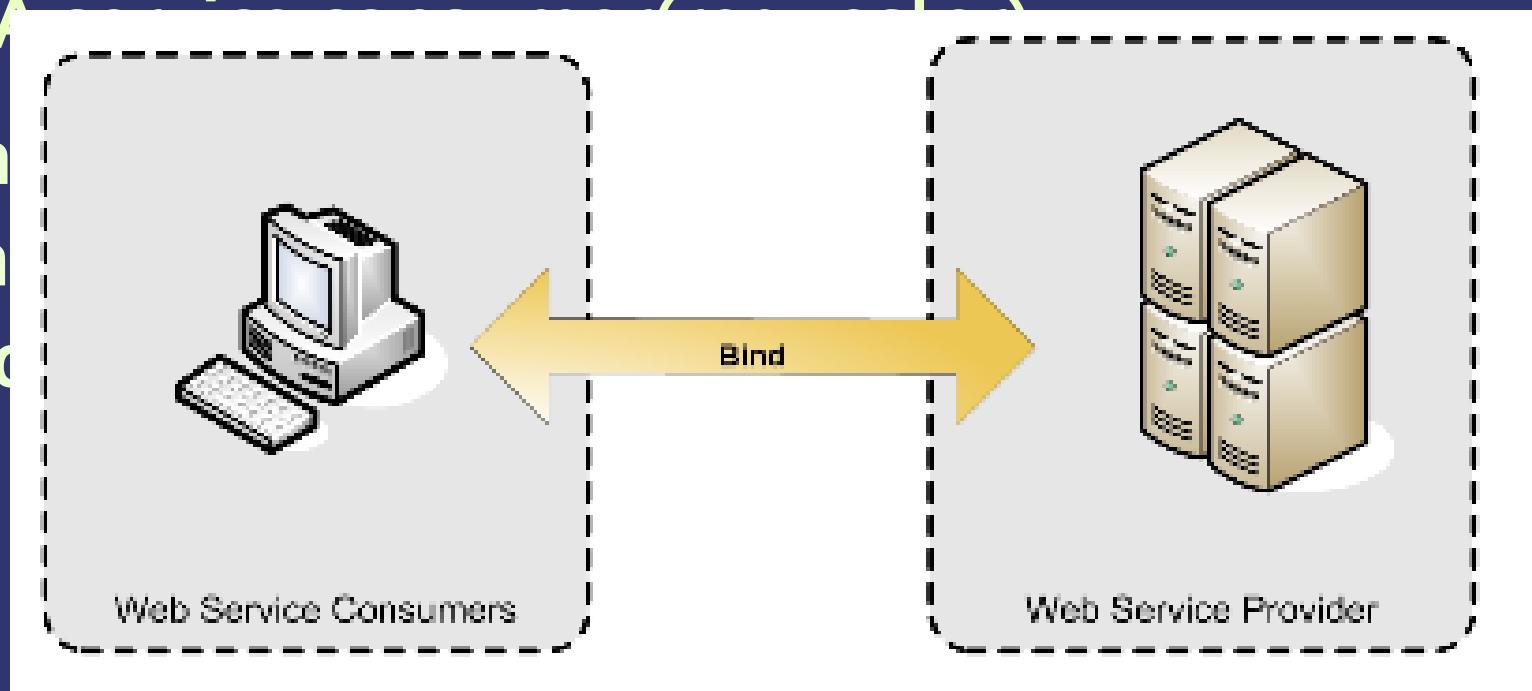
◆ Benefits of Web Services:

- Loosely Coupled
- Ease of Integration
- Service Reuse

Web Services Architectures

- ◆ The simplest Web service system has two participants:
 - A service producer (provider)
 - A service consumer (client)

- ◆ The interface is defined by the provider.
- ◆ The consumer sends a request to the provider.
- ◆ The provider returns a response to the consumer.

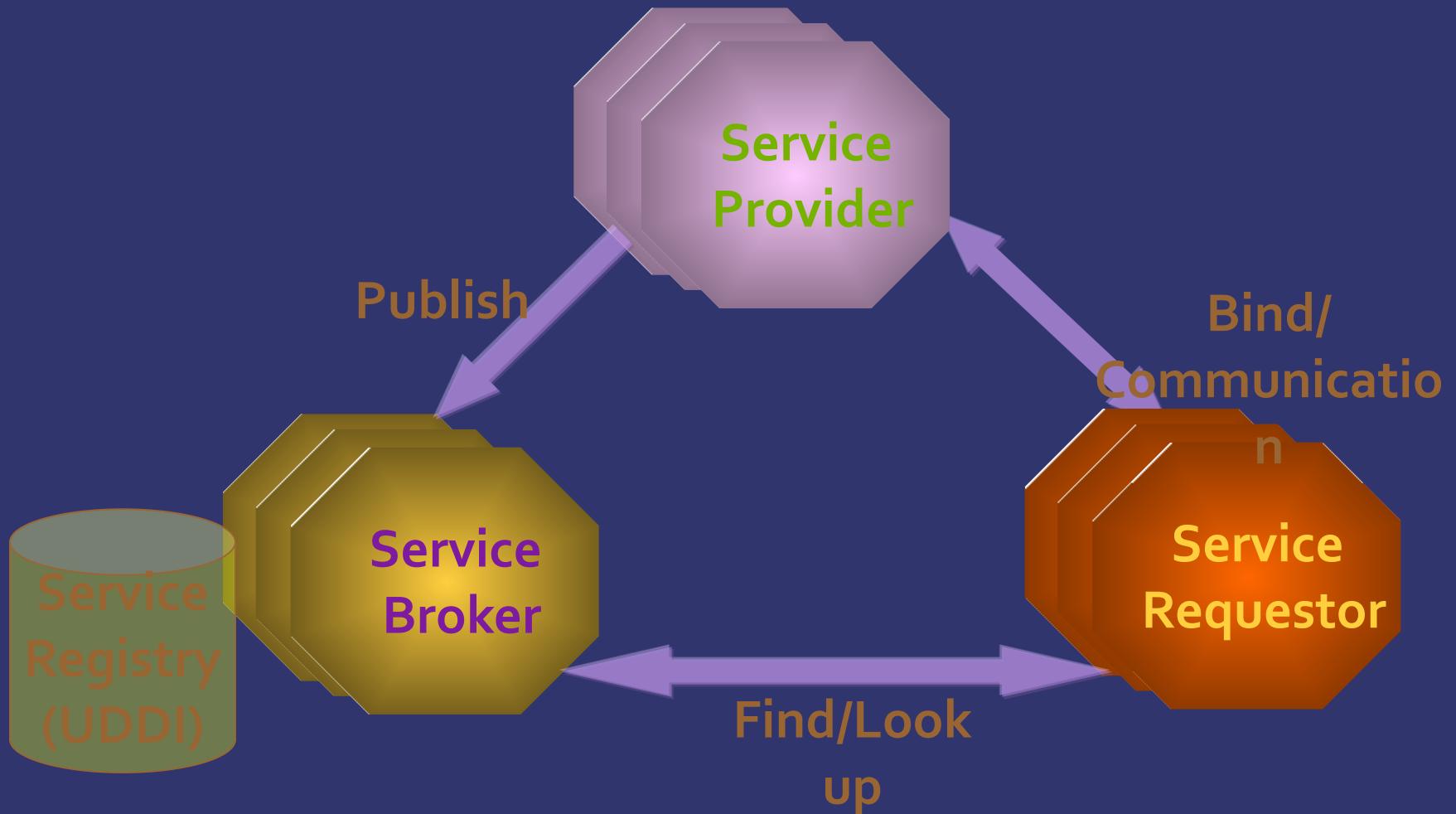


Web Services Architectures

◆ Service-Oriented Architecture

- A broker, acts as a broker for Web services.
- A provider, can publish services to the registry
- A consumer, can then discover services in the registry

Web Services Architectures



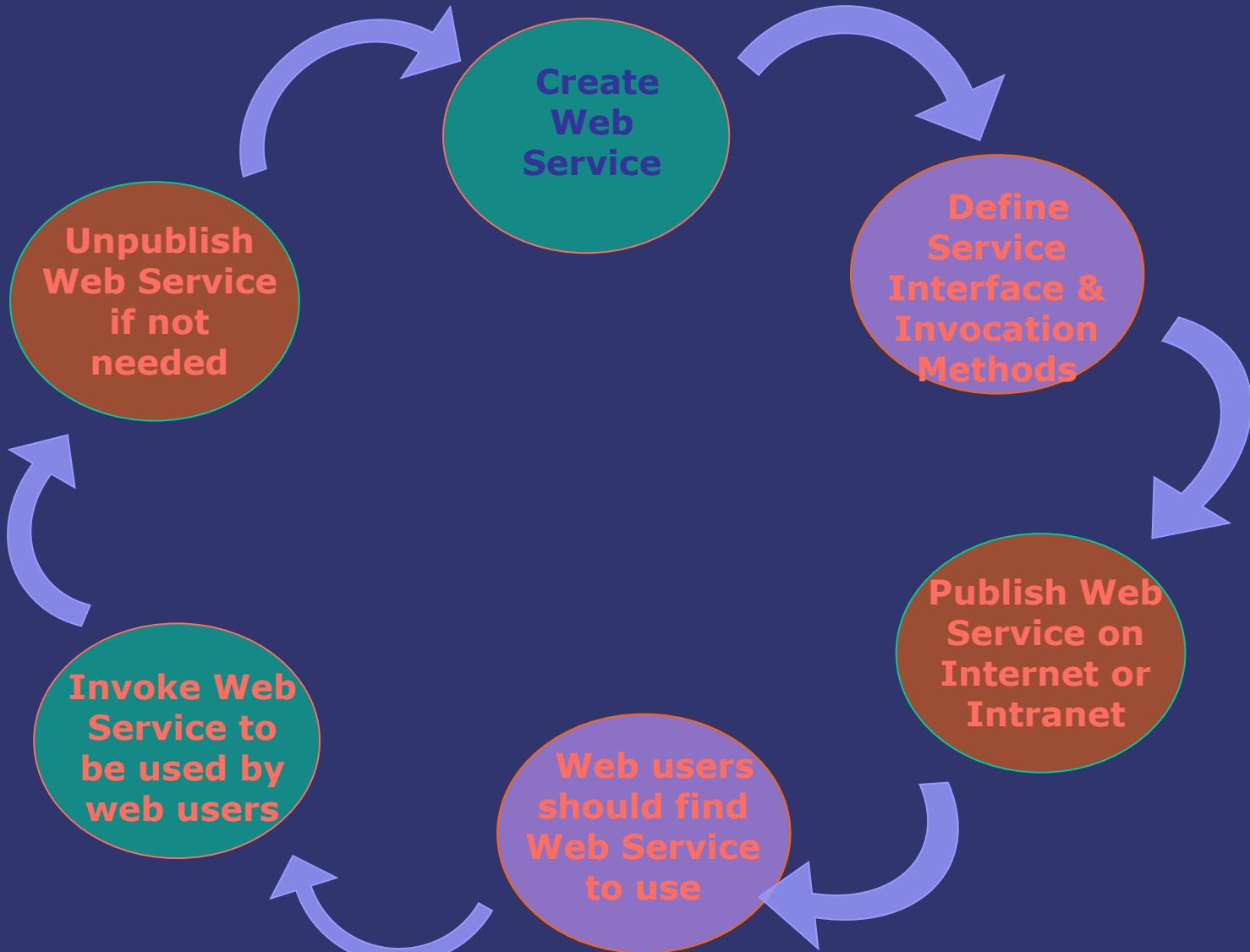
Web Services Conceptual Model

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Life cycle of Web Service

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Web Service Standard

Web Service standard

- ◆ Web services are a set of specifications formulated and accepted by the leading enterprises that provide or avail Web services.
- ◆ Various Web services standards are:
 - ◆ XML: Represents data in a standard format
 - ◆ SOAP: Common, extensible, message format
 - ◆ WSDL: Common, extensible, service description language
 - ◆ UDDI: Maintains registries storing information about service providers and their services

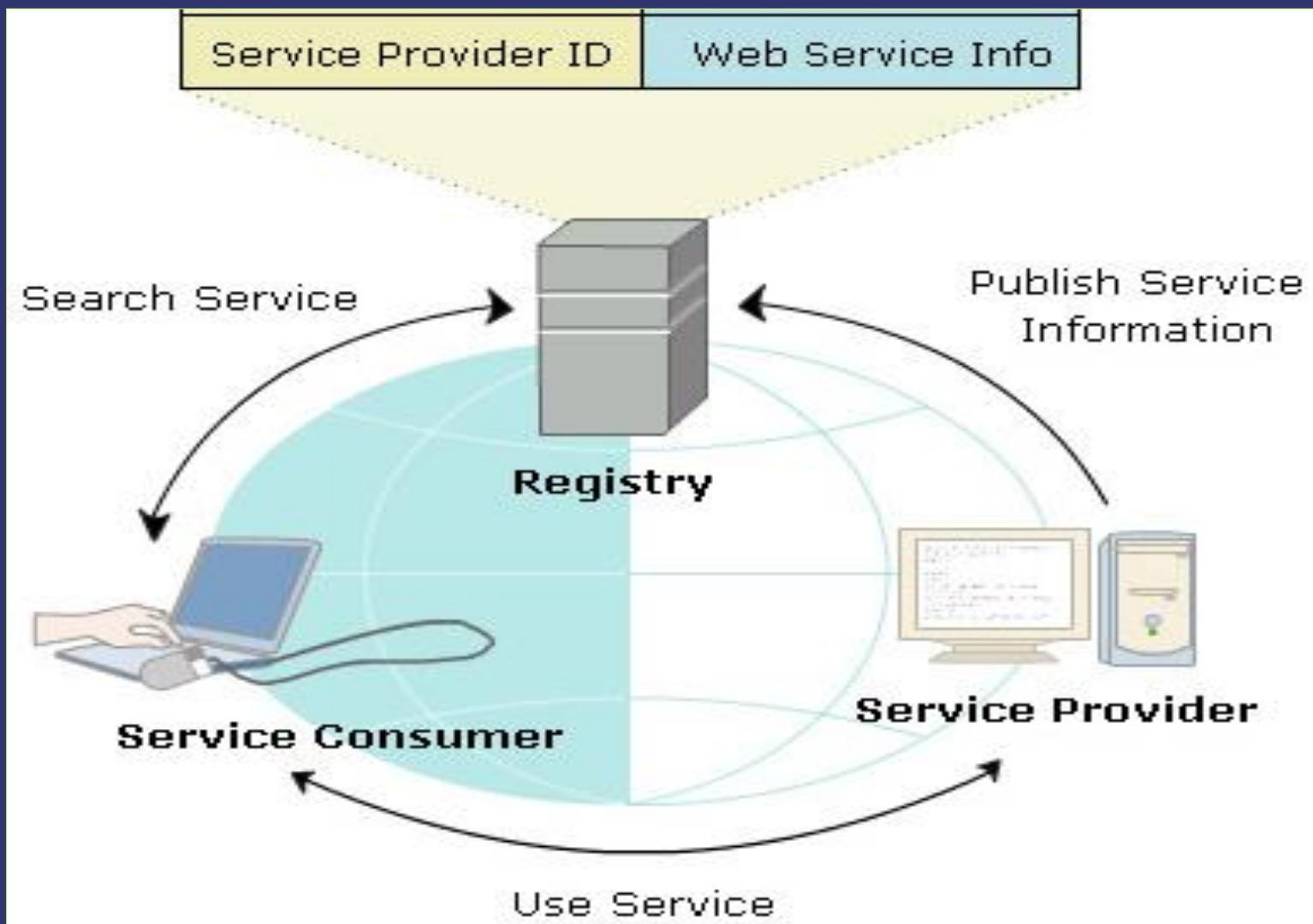
XML – eXtensible Markup Language

- ◆ Extensible Markup Language (XML) is a markup language that defines a set of rules for encoding documents in a format that is both human-readable and machine-readable.
- ◆ The design goals of XML emphasize simplicity, generality, and usability over the Internet.
- ◆ Many application programming interfaces (APIs) have been developed to aid software developers with processing XML data, and several schema systems exist to aid in the definition of XML-based languages.

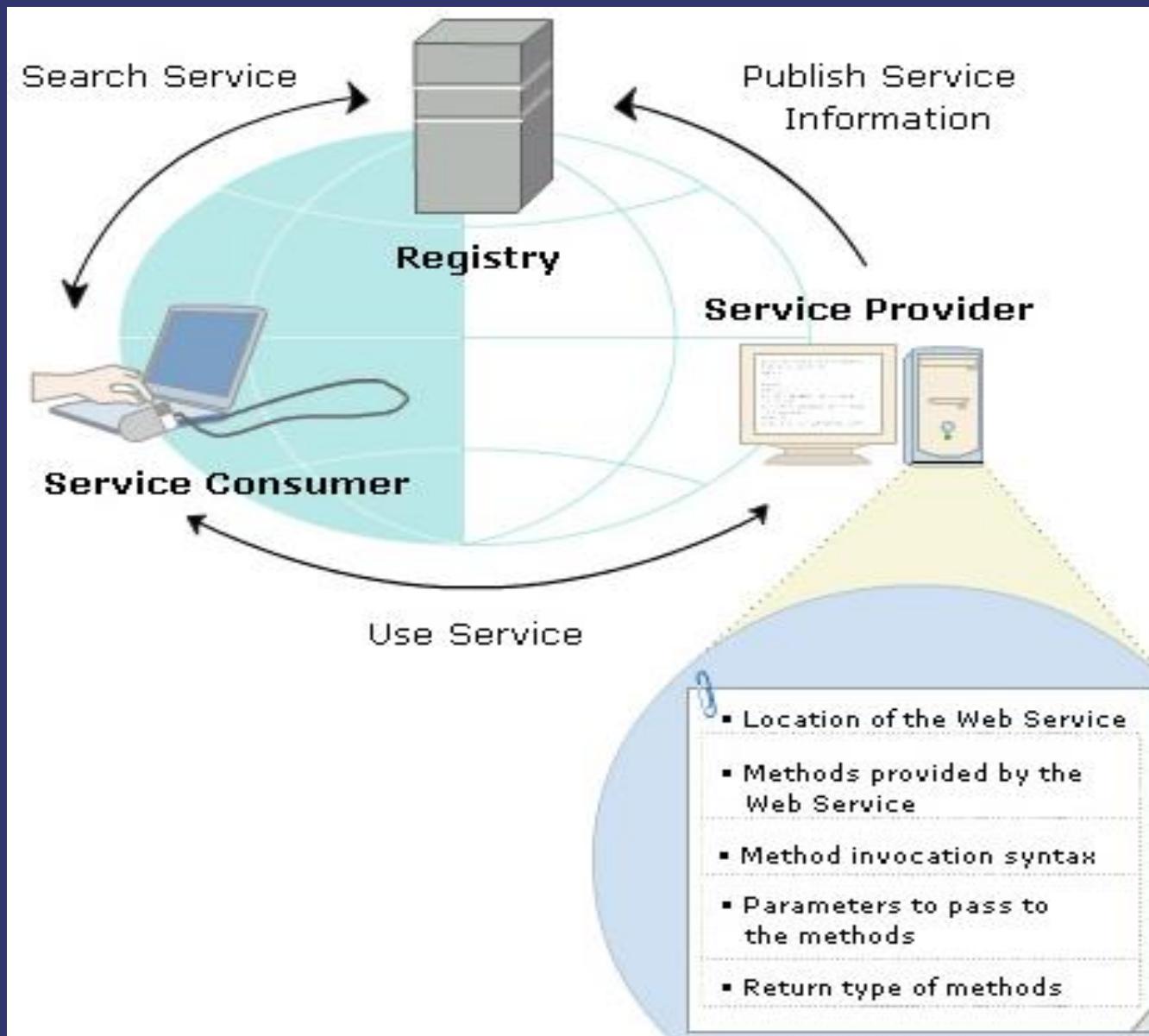
SOAP - Simple Object Access Protocol

- ◆ Is an text-based standard protocol of WS.
- ◆ Enables communication between Web services and Web service clients.
- ◆ Allows different enterprises to communicate and exchange information as SOAP messages

Web Services Registry



WSDL - Web Services Description Language



Questions?