

Lecture 5.b

Web Services I Introduction

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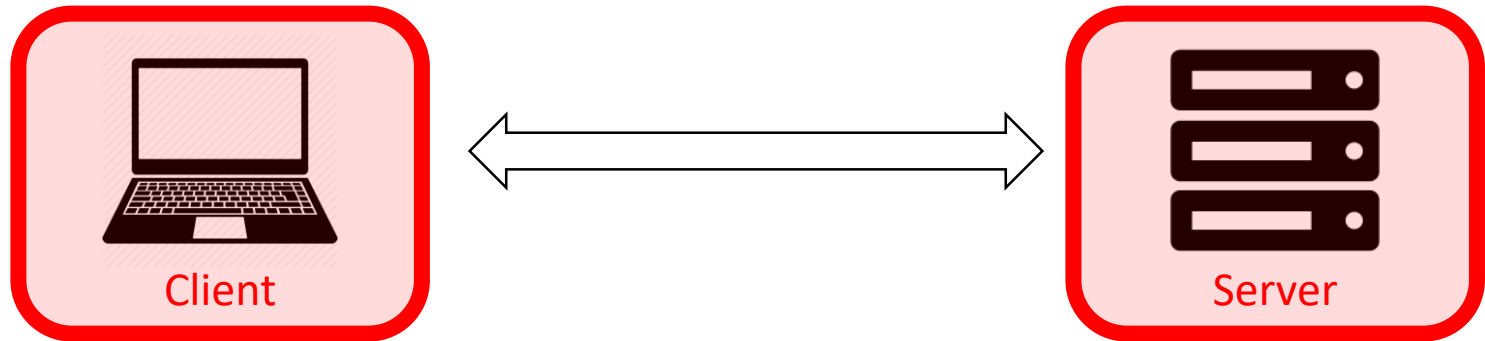
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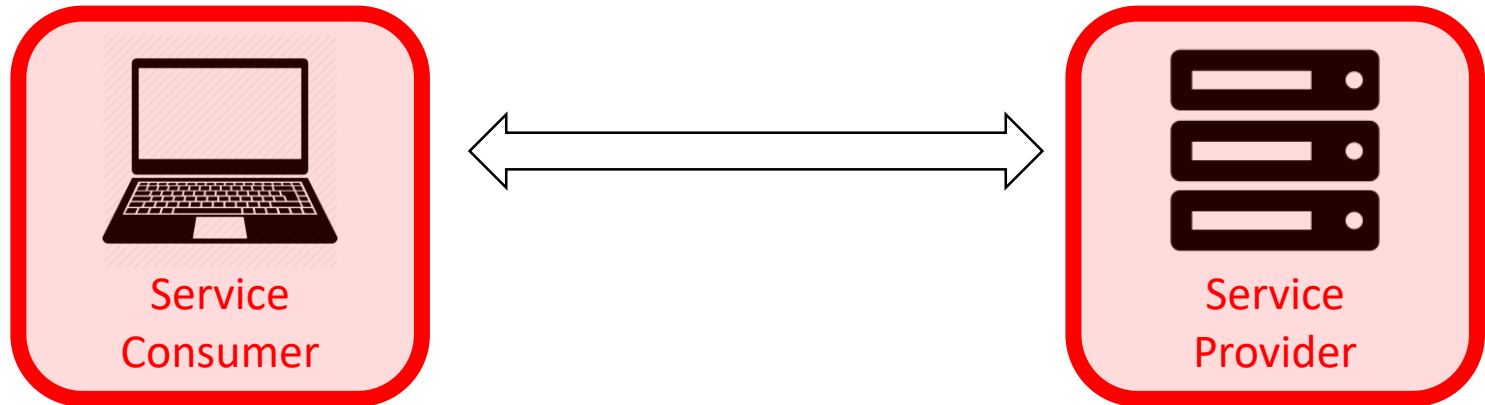
- **Introduction**
 - **Web Services Stack**
 - **Web Services Protocols and Models**
 - **Web Services Communication Modes**

Introduction

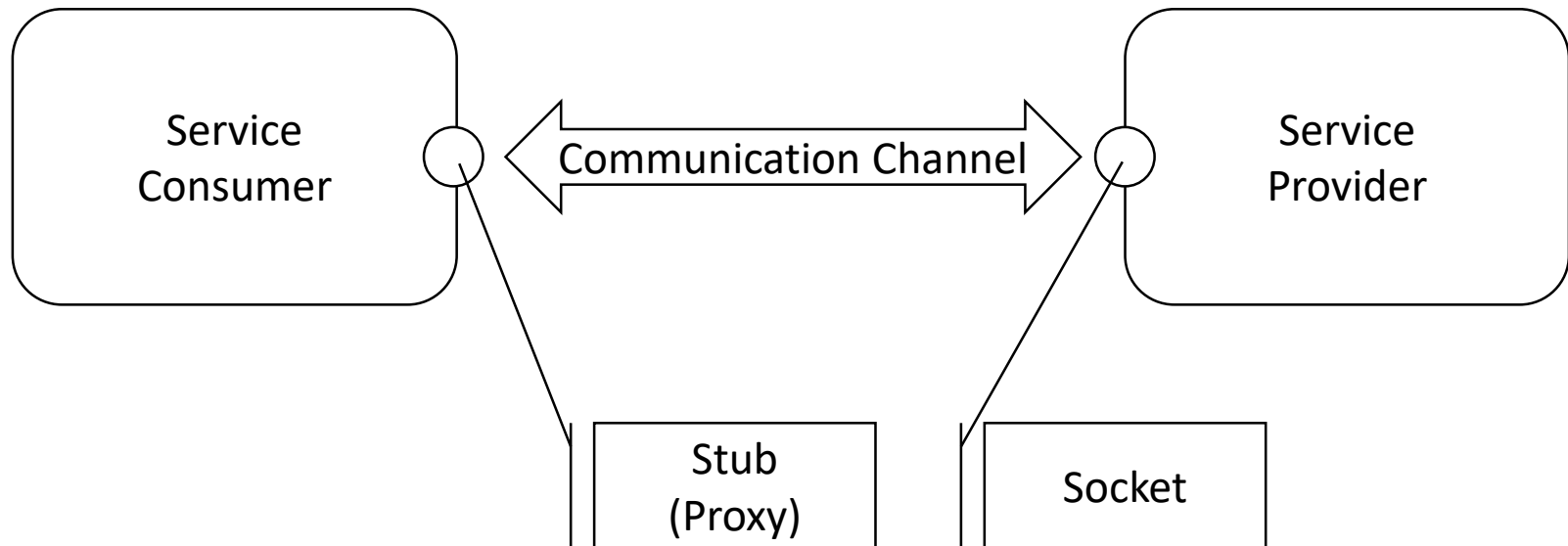
Client Server Architecture



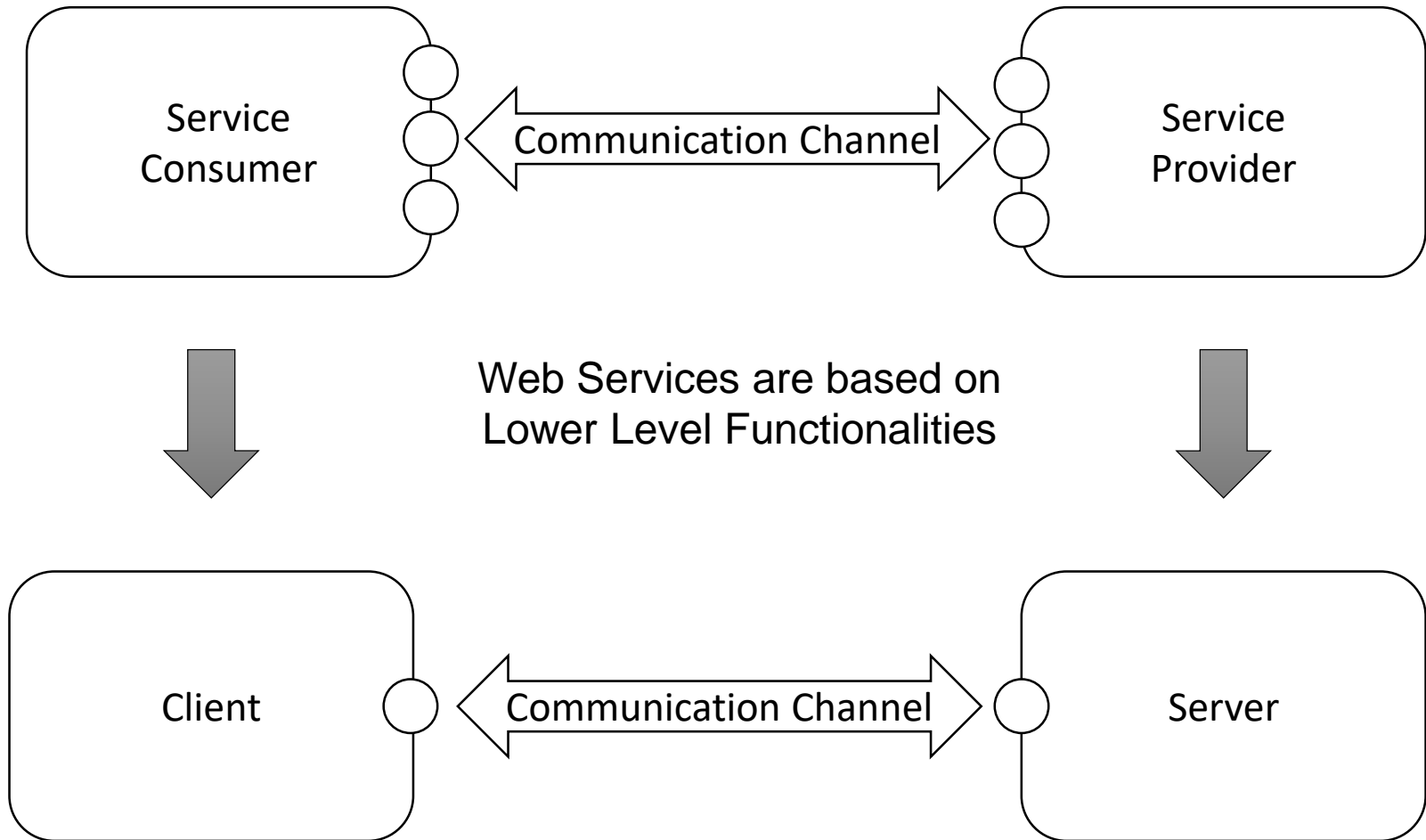
Service Oriented Architecture



Service Oriented Architecture



Service Oriented Architecture



Web Service

Web Services

- **Software Applications**, which are dynamic and adaptable to change and designed to support **interoperable** machine-to-machine (or program-to-program) interaction over a network
- **Extensible Markup Language (XML) applications** mapped to program objects, or databases or to comprehensive business functions

Web Service

Web Services

- Have **modular, well-defined, encapsulated functions** used for loosely coupled integration between applications or systems
- Have a **loosely-coupled architecture** contrary to applications, which are tightly-coupled collections of components well-known at development time
- Provide a **uniform way to describe services** in the network, to locate and access them

Web Service

Web Services

- Identified by a **URI**, whose public interfaces and bindings are defined and described using XML
- Its **definition can be discovered** by other applications that may interact with the Web Service as prescribed by its definition, using XML based messages
- Use an **XML document as a message**, a program sends a request to a Web service across the network, and optionally receives a reply as an XML document

Web Service

Web Services

- **Use Standards to define the format of the message, specify the interface to which a message is sent, describe conventions for mapping the contents of the message in and out of the programs implementing the service, and define mechanisms to publish and to discover Web services interfaces**
- **Service consumers and providers exchange XML based messages using either REST or SOAP protocol:**
 - **Synchronous (RPC)**
 - **Asynchronous (messaging)**

Service Oriented Architecture



Web Service Example

