



Java™ Server

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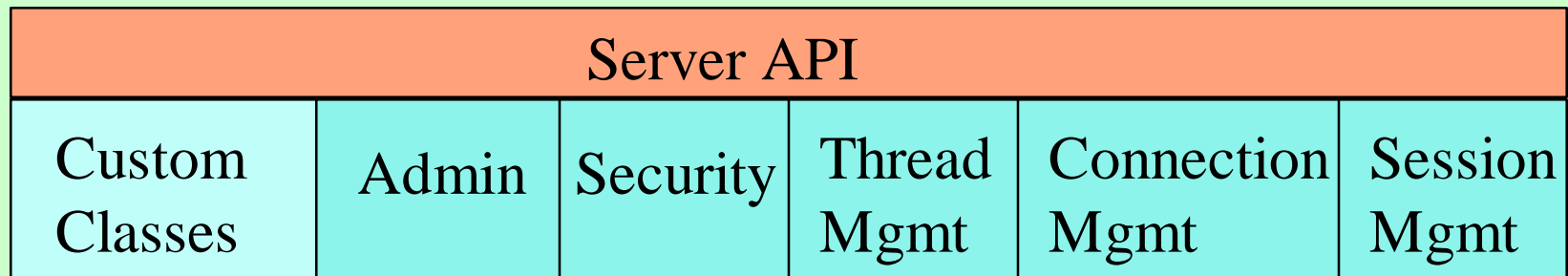
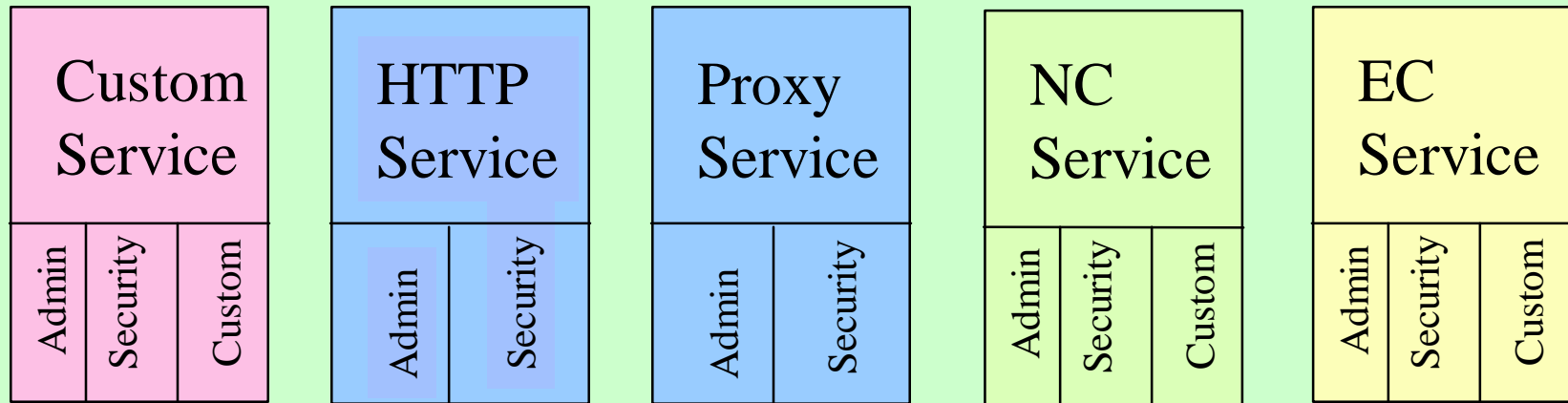
JavaTM Server

- **Java Server Toolkit 1.0**
- **Servlet API (Java Servlet Development Kit)**
- **Java Web Server 1.0**

Java Platform for Servers

- **Portable**
- **Goodbye to memory leaks, pointer smashing and type-safety bugs**
- **Servers need multithreading**
- **Productivity improvements**

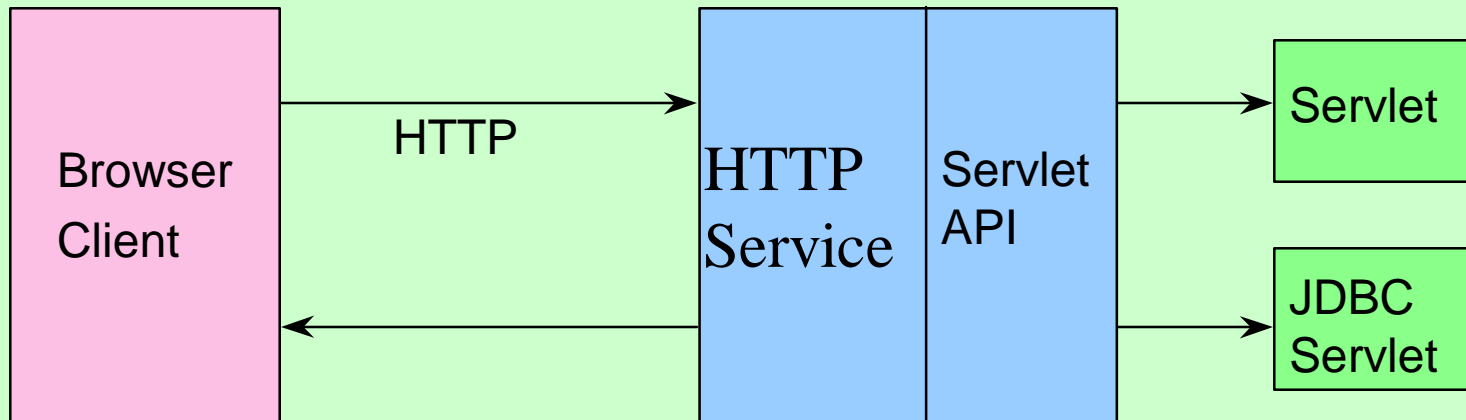
Java Server Architecture



What are Servlets?

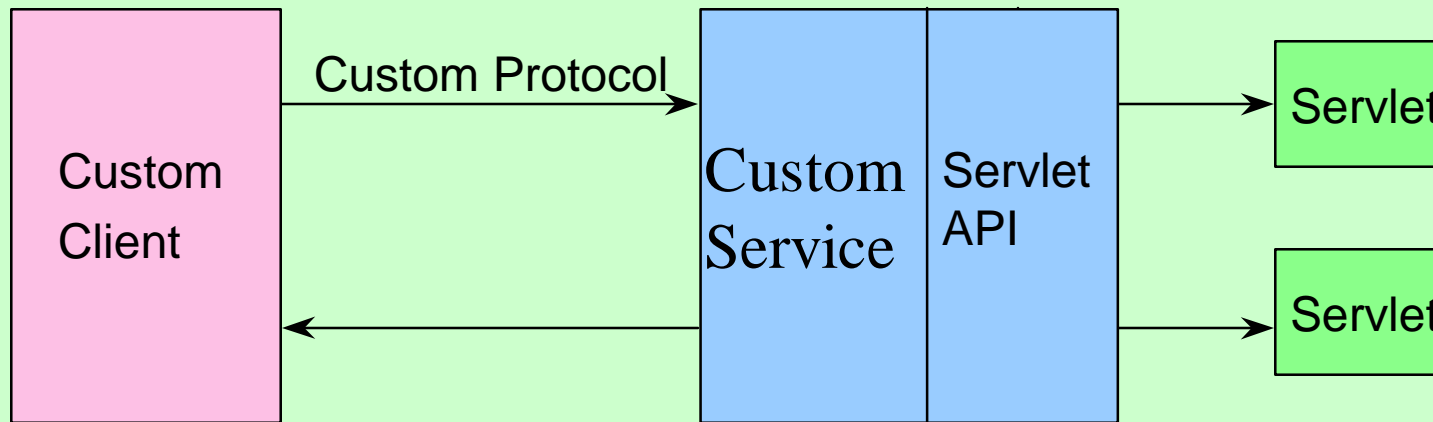
- **A Servlet is a Java program that extends network or information server operation**
- **Servlets are to servers... as applets are to browsers**
- **Standard Java extension API**

HTTP Based Client-Server Architecture



Server API					
Custom Classes	Admin	Security	Thread Mgmt	Connection Mgmt	Session Mgmt

Custom Client-Server Architecture



Server API					
Custom Classes	Admin	Security	Thread Mgmt	Connection Mgmt	Session Mgmt

Java Server Toolkit

- **Server API**
 - Interfaces for underlying classes
 - start/stop services
 - configure parameters
- **Connection Management**
 - Time-out
 - Number of connections
- **Thread Management**
 - Handler threads watermarks

Java Server Toolkit (cont.)

- **Security**
 - **Secure Socket Layer (SSL) 3.0 support**
 - Provides encryption, integrity and authentication (X.509 certs)
 - **Dynamically configurable access control lists (ACL)**
 - **Basic and Digest authentication**
 - **Servlet signing support**
 - Trusted and untrusted servlets can be distinguished

Java Server Toolkit (cont.)

- **Extensible Logging**
 - Log to files with optional roll-over
 - Log across a network
 - Customizable Logging Formats
- **Dynamic Administration**
 - Applet based GUI
 - plug-n-play of admin applets
 - Property based
 - reads from config file
 - Support for loading remote servlets

Java Server Toolkit (cont.)

- **Session Management**
 - Track each simultaneous user session
 - Persistent session storage
- **Web page compilation**
 - Include java code in-line with HTML
 - Pages compile into Servlet
 - Scripting style development

Adding New Services/Protocols

- **Extend *Service* class for service lifecycle support: *init*, *run*, *shutdown***
- **Extend *ServiceHandler* class to handle new connections**
- **Hook into Administration Classes**
 - Provide default service properties
 - Provide service-specific admin applet
 - Optionally, set up autostart

Servlets

- **Dynamically extend the capabilities of servers**
 - Loaded from network or local disk
- **Lightweight - runs as a java thread**
- **Better performance**
- **Platform and web server independent**
- **Easy to maintain**
- **Secure**

Servlet API

- **Standard Java Extension API**
- **package *javax.servlet***
 - interface *Servlet*
 - interface *ServletRequest*
 - interface *ServletResponse*
 - class *GenericServlet*
- **package *javax.servlet.http***
 - class *HttpServlet*

/* SimpleServlet.java */

import javax.servlet.*;

import java.io.*;

public class SimpleServlet extends GenericServlet {

public void service (

ServletRequest req, ServletResponse res)

throws ServletException, IOException {

ServletInputStream in = req.getInputStream();

ServletOutputStream out = res.getOutputStream();

.....

}

}

So Long, CGI

```
import javax.servlet.*;  
import javax.servlet.http.*;  
import ...
```

```
public class FormServlet extends HttpServlet  
{  
    public void doPost (HttpServletRequest req,  
                        HttpServletResponse resp) {  
        Enumeration custInfo =req.getParameterNames();  
        PrintStream out =  
            new PrintStream(resp.getOutputStream());
```



```
resp.setContentType("text/html");

while (custInfo.hasMoreElements()) {
    String name, value;
    name = (String) custInfo.nextElement();
    value = req.getParameter(name);
    ...
    printWriter.println(name + ":" + value);
    ...
}

out.println("Thanks for participating");
out.close();
}
```

Servlet Security

- **Trusted Servlets**
 - System Servlets
 - Servlets in '*servlets*' sub-directory
 - Signed and authorized Servlets
- **Un-trusted Servlets**
 - Un-signed remote Servlets
 - Remote Servlets signed but not authorized
- **Runs in 'Servlet Sandbox'**

Alternatives

- **CGI**
 - **Inefficient; a process is started every time**
 - **Hard to maintain, debug and port**
 - **Weak protection and security**
- **NSAPI, ISAPI**
 - **Works on a specific server and platform**
 - **Crashes the server if code is written poorly**
 - **Code has to be written more carefully**
 - **Weak protection and security**

Servlet Developers Kit

- **Servlet API 1.0**
- **Servlet Runner**
- **Servlet Support for other web servers**

Java Web Server

- **An extensible product for people who want to use a 100% Java Web server**
 - **Intranet developers and Webmasters**
 - **Internet Service Providers (ISPs)**
 - **Small Businesses**
 - **Departmental groups in Enterprise**
- **Provides a more portable solution than existing scripting extensions**

Java Web Server 1.0 Protocol Features

- **HTTP 1.0 support**
- **HTTP keep-alive support**
- **Proxy support and Proxy caches**
- **FTP support**

Java Web Server 1.0 Features

- **Virtual Hosting**
- **Dynamic loading of servlets**
 - **From local host**
 - **Over the network**
- **Administrative support**
 - **Dynamically control server performance via threads**
 - **Single point of administration for all servlets**

Java Web Server Competitive Strengths

- **Extensible via servlets**
 - Native support for Servlets
 - Servlets drop into existing security and administrative framework
 - Single point of administration for services
- **Runs on any platform that supports JDK 1.1**
- **Security is built-in**

Java Server Product Line

- **Developer product**
 - **Java Server Toolkit**
 - **Servlet Developers Kit**
- **End-user product: Java Web Server**
 - **Downloadable binary, free of charge for non-commercial uses. Site licensing for commercial uses**

more information...

Java Server info.:

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