

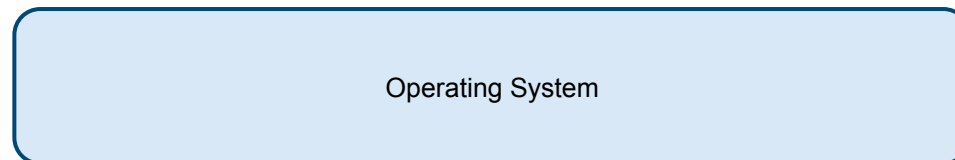
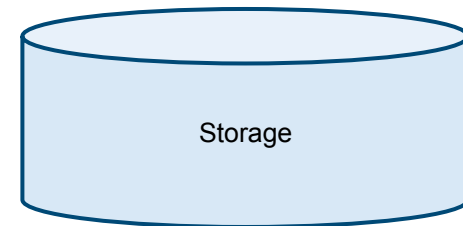
Dynamic Web Pages and Servlets



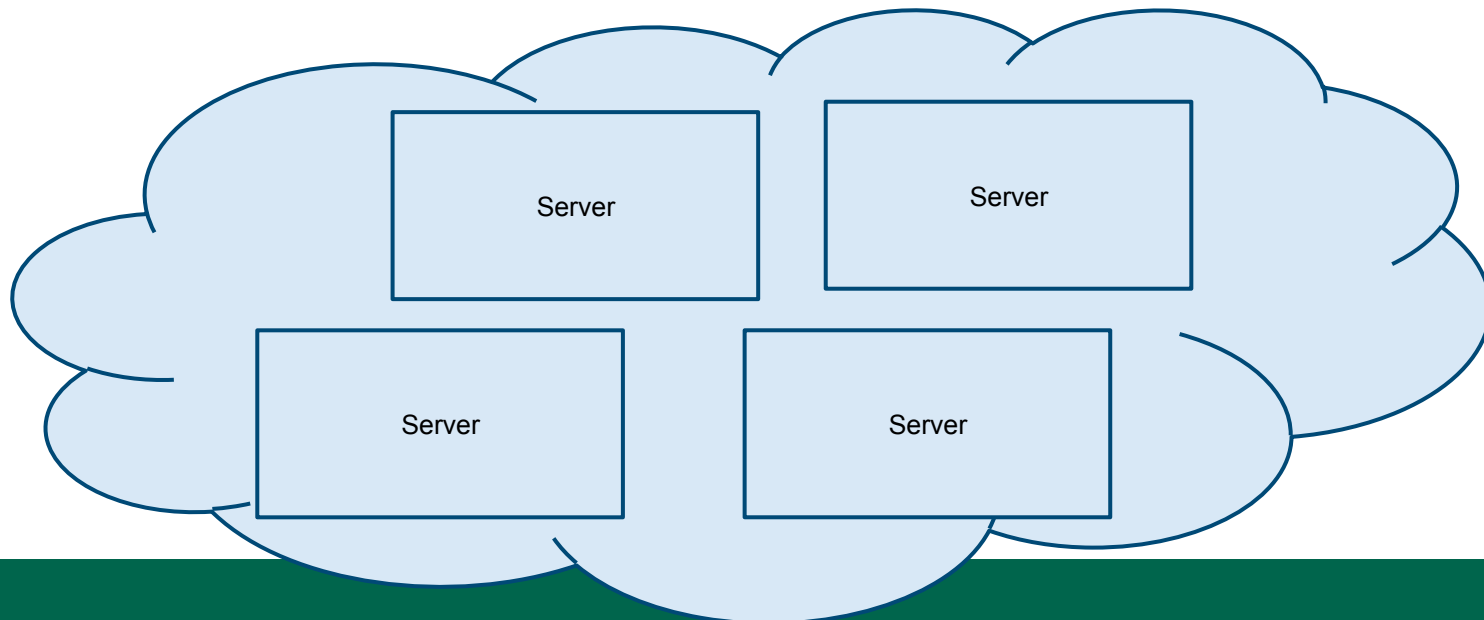
Static Web Pages

- **Static files stored on disk (HTML, images, etc)**
- **Web server**
 - listen for HTTP requests
 - extract path
 - fetch and return contents of specified file
- **Limited use**
 - most web applications you use are *dynamic*
 - facebook, twitter, news sites

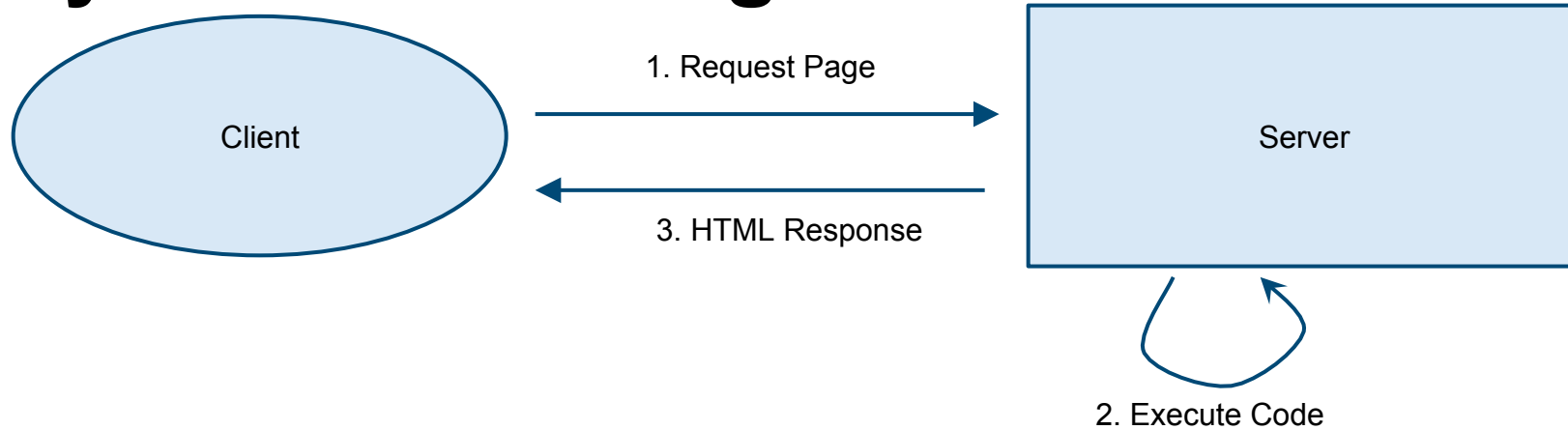
Components



Amazon Web Services, etc

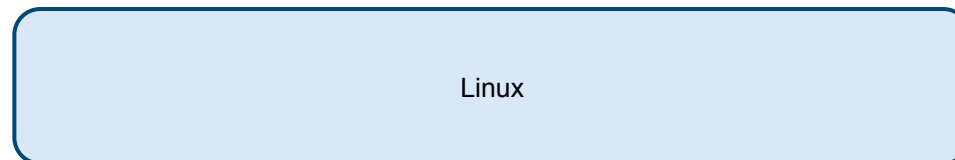
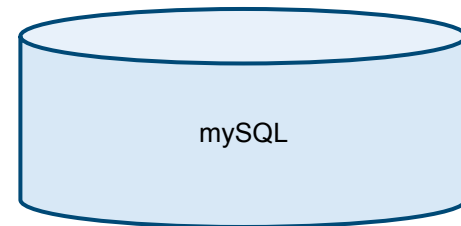
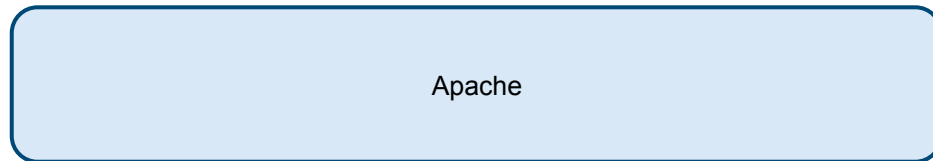
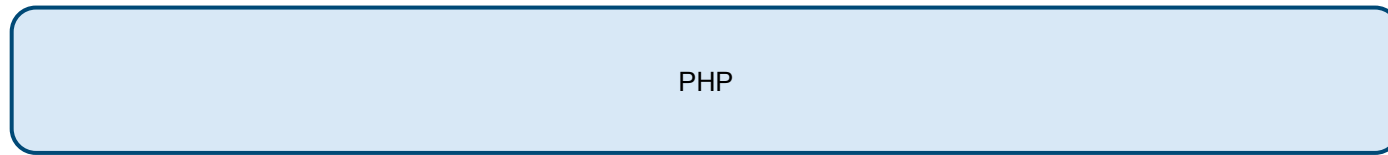


Dynamic Web Pages - Server Side



- **LAMP**
 - Linux, Apache, mySQL, PHP/Perl/Python
- **Note, the client sees only the HTML and/or Javascript**

Components



Python/PHP

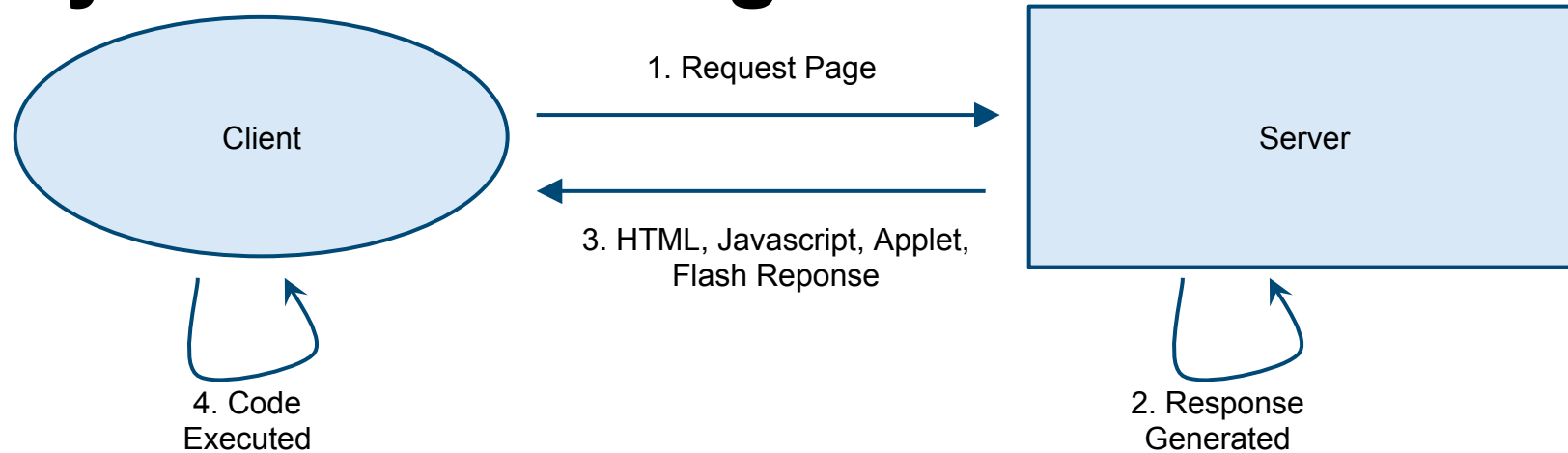
- **Python**

- standard python code
- use print statements to generate the HTML
- Servlets will look like a Java version of this

- **PHP**

- *inside out*
- HTML contains snippets of code
- Java Server Pages (JSP) use a similar model

Dynamic Web Pages - Client Side



- **Server may still generate response dynamically**
- **Client sees both HTML and code**
 - code could be js, etc.
- ***Client* executes code**

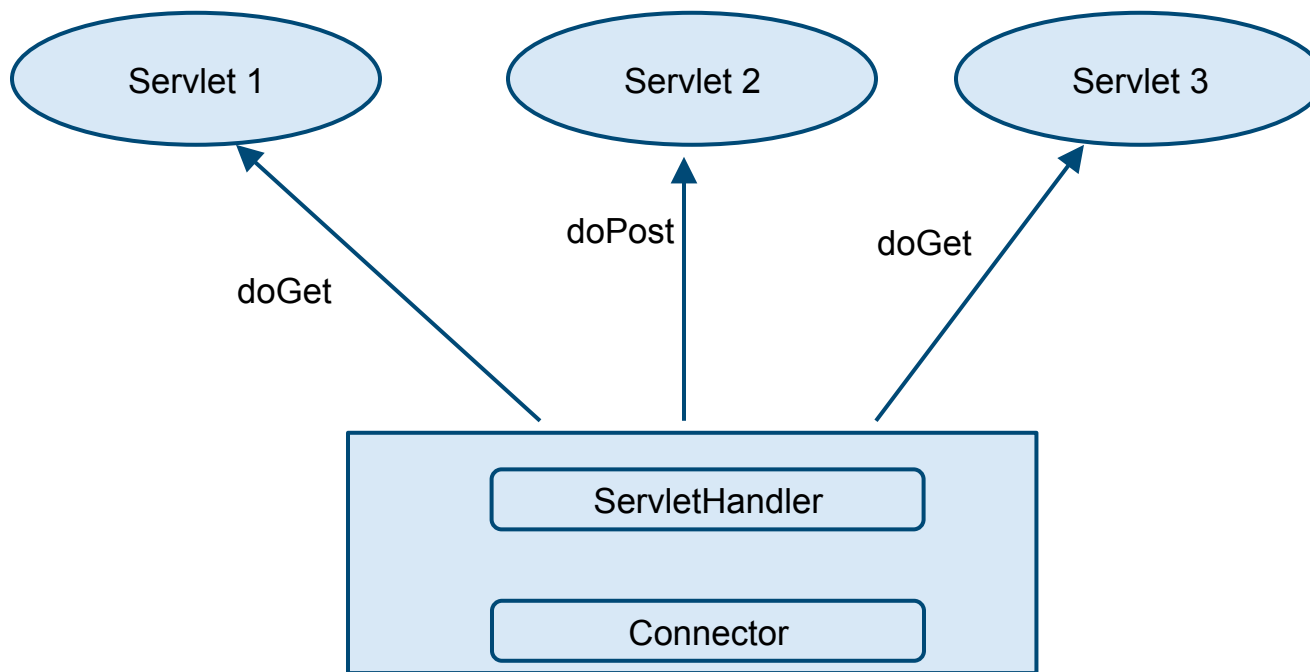
Web Frameworks

- Django – python
- Rails – ruby
- Play – Java, Scala
- Benefits
 - easy to reuse code
 - easy to adhere to standard models (MVC)
 - convenient configuration
 - database mapping
 - URL mapping

Servlets

- **Servlets are an API designed to make it easy to provide dynamic web applications in an object-oriented way.**
- **jetty is a servlet container**
 - provides a web server and implementation of the servlet API
- **Map a URL to a Servlet**
- **HTTP parameters are parsed and packed into an object**
- **Response code/headers are generated from response object**

Overview



SimpleServletExample

- **/hello?name=<name>**
 - returns a hello message customized with name
- **/goodbye?name=<name>**
 - returns a goodbye message customized with name

Other Features

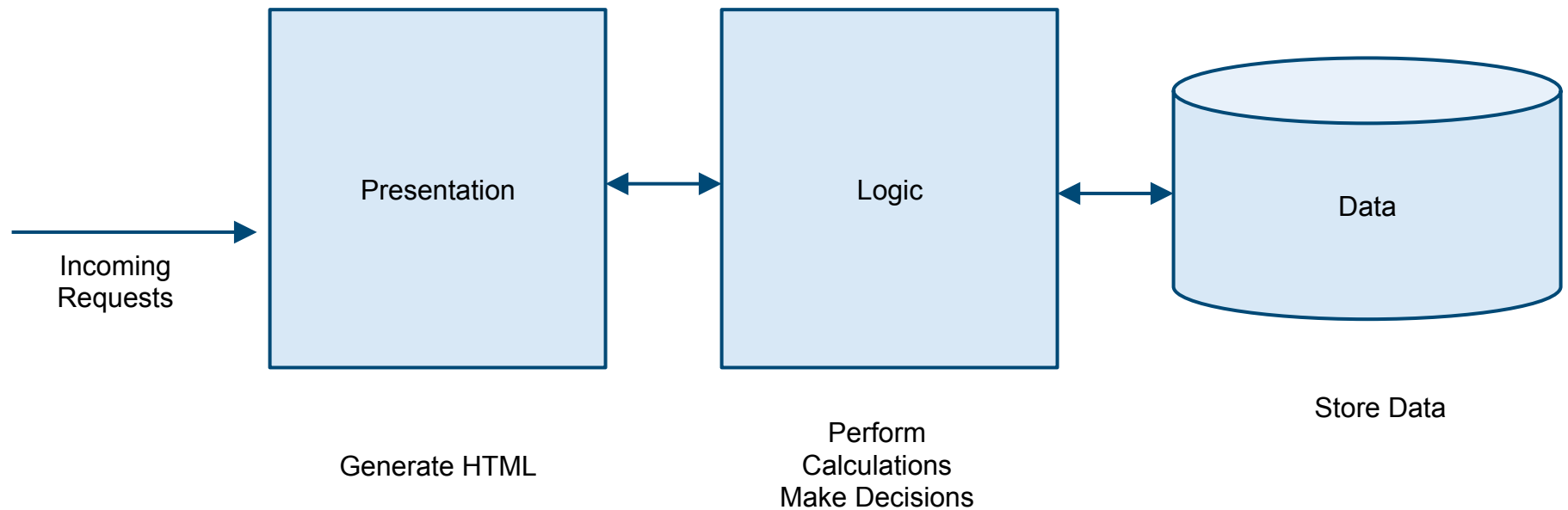
- **ResourceHandler** - can be used to serve static pages
 - in example FileServer class
- **init method**
 - called when Servlet is created, used to initialize state

● **Also see:** http://java.sun.com/j2ee/tutorial/1_3-fcs/doc/Servlets.html

Embedding Jetty

- Useful for development and/or single purpose applications
- The application deploys jetty rather than the other way around
- Alternative: deploy jetty and then deploy several applications using WAR files

3-tier Architecture



Example

<http://s3.amazonaws.com/wernervogels/public/sosp/sosp-figure1-small.png>

- **Data**

- user data
- ads
- images

- **Logic**

- filter data
- prioritize data

- **Presentation**

- generate HTML containing all pieces

MVC

- Same idea, more general model
- Model/View/Controller

- Model - Stores data
- View - Presents data
- Controller - Performs necessary logic