

Active Web Documents

COMP476 – Networked Computer Systems

Types of Web Documents

Web pages can come in a variety of forms. In general, any of these forms can be categorized as one of the following.

1. Static Web Documents - same file sent every request.
2. Dynamic Web Documents - program at the server creates a document and sends it to client.
3. Active Web Documents - program sent from server and run on the client.

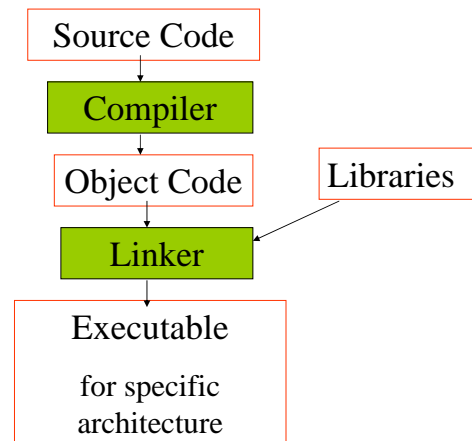
Client Program Challenges

- An executable created on one computer architecture will not run on another architecture.
- An executable for one operating system may not run on the same architecture under a different OS.
- An unknown program from an unknown source could cause serious harm to your system.

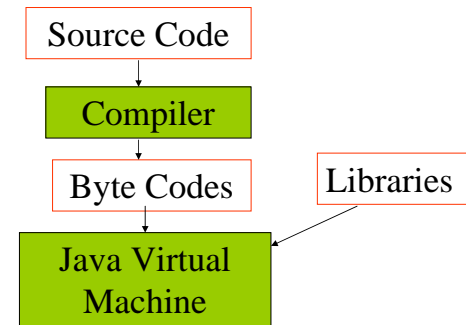
Translated Languages

- Translators read the source code of a program and execute it.
- Translated languages can run on any system that has a translator.
- Translators are:
 - Slow
 - Require large source files
 - Expose the source code
 - Allows others to easily copy it
 - Provide ability for it to be easily modified

Traditional Executable Creation

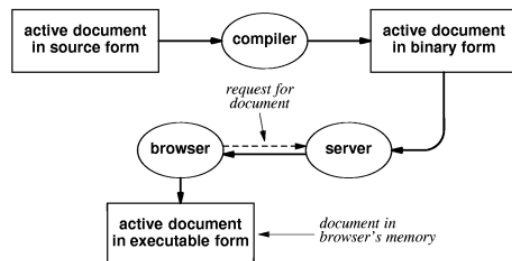


Java Program Creation



Active Documents

- Active documents are programs downloaded from the server to the browser and run on the clients machine.



Java

- Java is the name of a specific technology (by Sun Microsystems) used to create and run active documents.
- In the case of Java these documents are referred to as applets.
- Java applets include three key components.
 - Programming Language – can be used to make conventional programs or applets.
 - Runtime Environment – Provides the facilities to run a Java program.
 - Class Library – Makes applets easier to write.

Java Security Constraints

- Traditional Java execution restrictions
 - Can not read or write files
 - Can open connections only to the server that provided the applet.
- Digitally signed code may perform these function within the limits of a security manager.

JavaScript

- An interpreted language that can be embedded in an HTML document.
- Not really Java.
- Effective for small, simple needs
- Difficult to scale to large applications.

```
<HTML> <HEAD> <TITLE>JavaScript counter</TITLE> </HEAD>
<BODY onLoad="return incrementcount(document.demo);">
<CENTER>
<SCRIPT>
var n;
n = -1;
function incrementcount(form) {
  n = n + 1;
  if (n==0) {
    s = " The button has not been clicked at all. ";
  } else {
    s = " The button has been clicked " + n + " times.";
  }
  form.elements["OutputArea"].value = s;
}
</SCRIPT>
<FORM NAME="demo">
  <INPUT TYPE="BUTTON" NAME="ButtonClick" value=" Click here "
    onClick="incrementcount(this.form);">
  <TEXTAREA NAME="OutputArea" ROWS=1 COLS=42> </TEXTAREA>
</FORM>
</CENTER> </BODY> </HTML>
```

ActiveX

- A Microsoft technology for active documents.
- Objects can be written in several languages including C++ and Visual Basic
- Is not transportable to non-Windows platforms.