Active Web Documents

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 the 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
Active Web Documents

Traditional Executable Creation

- **Source Code**
- **Compiler**
- **Object Code**
- **Linker**
- **Executable**
  for specific architecture
- **Libraries**

Java Program Creation

- **Source Code**
- **Compiler**
- **Byte Codes**
- **Java Virtual Machine**
- **Libraries**

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.

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.