What is ActiveX?

- A marketing name for a set of technologies and services, all based on the Component Object Model (COM)

- It’s just COM!
  - “DCOM” is just COM with a longer wire
ActiveX Bridges the “Islands”

Makes it easy to integrate and reuse any component
Elements Of ActiveX

Component Object Model (COM)
Standard component packaging

Internet/distributed computing

Distributed COM
Internet/distributed computing

Web Pages, Documents, and Applications/Containers

Distributed COM

Macintosh®

Windows®

UNIX®

Components and Services
URLs, hyperlinking, browser frame, HTML, Java VM, etc.

Controls and Applets
C++, Delphi®, Java, Visual Basic®, etc.

Scripting
Visual Basic, Scripting Edition, JScript, Tk/Tk, etc.
Component Object Model (COM)

*Foundation for ActiveX components*

- Versionable, programmable
- Lightweight, fast
- Open standard
  - Language and tool-neutral
  - Works with today’s applications
  - Cross-platform
- ActiveX components are COM objects
- Distributed COM extends interactions between components across networks
COM/DCOM

Let's ActiveX components run anywhere

Client

Object running on client

COM

Remote object on any server

Server

Object running on client
How Does Java Fit With ActiveX?

ActiveX Control
(C++, VB, etc.)

ActiveX Scripting
(VBScript, JScript, etc.)

Java applet

Securely invoke methods

ActiveX Java VM
Code-signing and Sandboxing

- Code-signing - “shrinkwraps” code
  - Identifies publisher; validates integrity of code
  - Doesn’t prevent bugs or malicious operation
  - Gives accountability for market and legal recourse

- Sandbox - code isolated inside virtual machine
  - Doesn’t prevent bugs; limits malicious operation by limiting functionality
  - Least common denominator capabilities
  - Relies on airtight implementation, proven difficult in practice
ActiveX Benefits: Choice

- Mix and match from huge industry arsenal of tools, languages, code and expertise
- Deliver applications for Internet and/or Intranet
- Run components in the browser or other applications (any container)
- Program with any tool or language
- Supports Macintosh®, UNIX® and Windows®
- Integrate components using any scripting language