LiveConnect

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Overview

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Introduction

- LiveConnect:
  - Technology developed by Netscape
  - Allows inter-communication between Java, JavaScript and plug-ins
  - Communication on the client side
  - First available in Navigator 3.0
- Microsoft followed in IE 4.0

Setting Up the Environment

- Enable Java and JavaScript in the browser
- For Java to JavaScript communication

1) Add java40.jar to your CLASSPATH
2) Import netscape.javascript package
3) Grant Java permission to access JavaScript

```
<APPLET CODE=“MyApplet.class” WIDTH=…
HEIGHT=… MAYSCRIPT> … </APPLET>
```

Setting Up the Environment

- For JavaScript to Java communication
  - Methods called by JavaScript are public
- For Java Communication with plug-ins
  1) Add java40.jar to your CLASSPATH
  2) Java plug-ins are compiled with the Plugin class
  3) Java code may need to declare objects of class Plugin

Java to JavaScript

1) netscape.javascript package
2) Accessing JavaScript Functionality

netscape.javascript Package

- 2 classes: JSObject and JSException
- JSObject acts as a wrapper for JavaScript objects
- Commonly used JSObject methods include getWindow(), getMember(), setMember(), call() and eval()
- JSException used to throw exceptions when JavaScript errors occur

Accessing JavaScript

- Create reference to JavaScript window

```
JSObject window = JSObject.getWindow(this);
```

- Reference JavaScript objects and properties

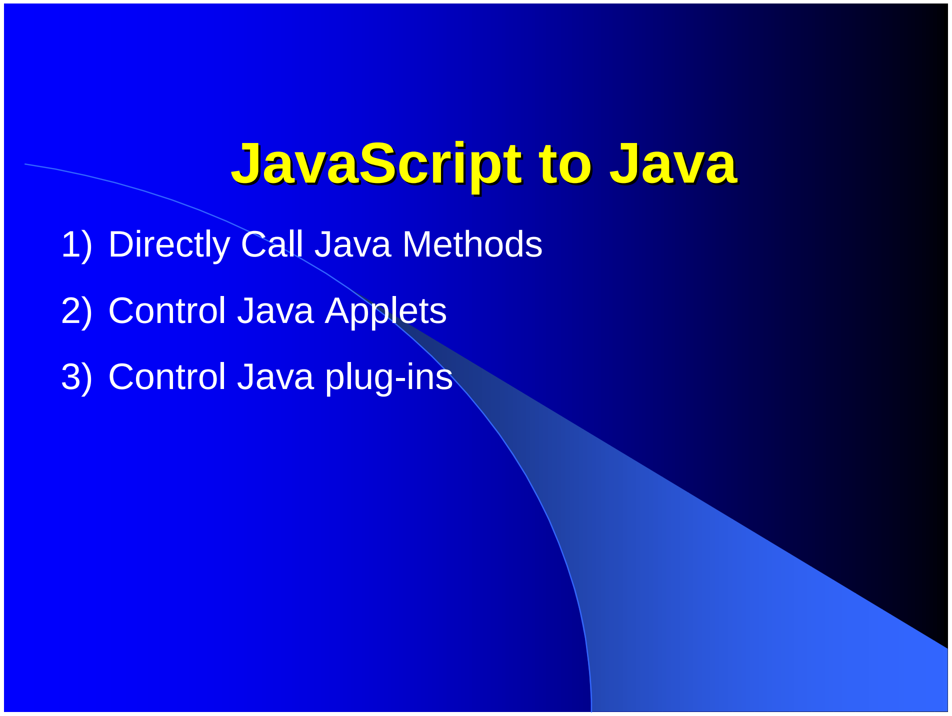
```
JSObject doc = (JSObject)
window.getMember(“document”);
```

- Set object properties

```
doc.setMember(“bgColor”, “blue”);
```

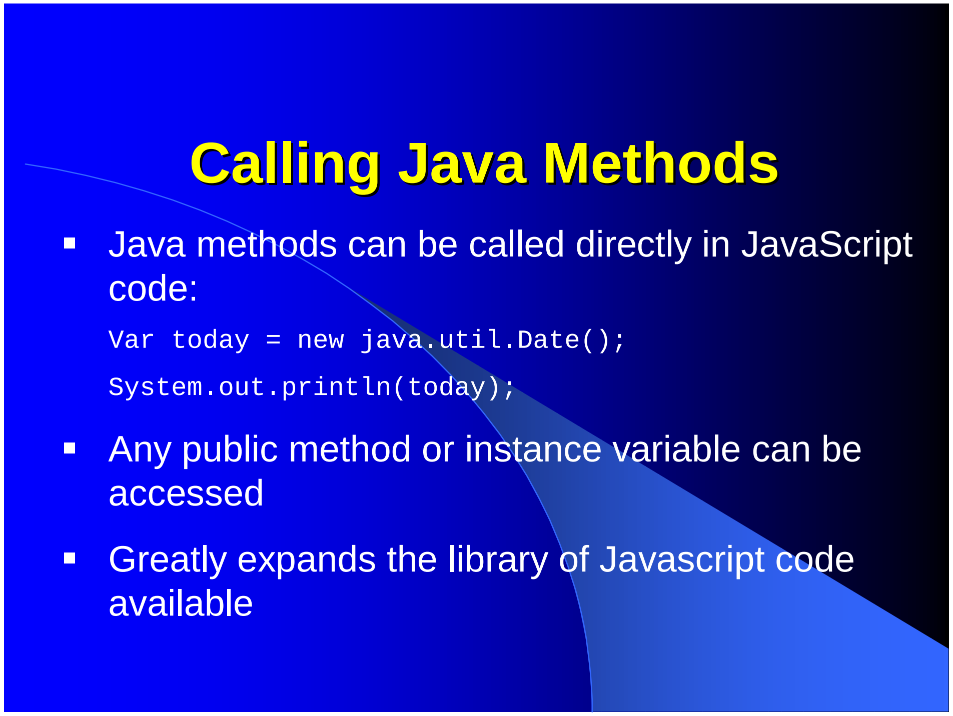
- Call JavaScript functions

```
window.eval(“alert(\”An alert message.\”);”);
```



JavaScript to Java

1) Directly Call Java Methods
2) Control Java Applets
3) Control Java plug-ins

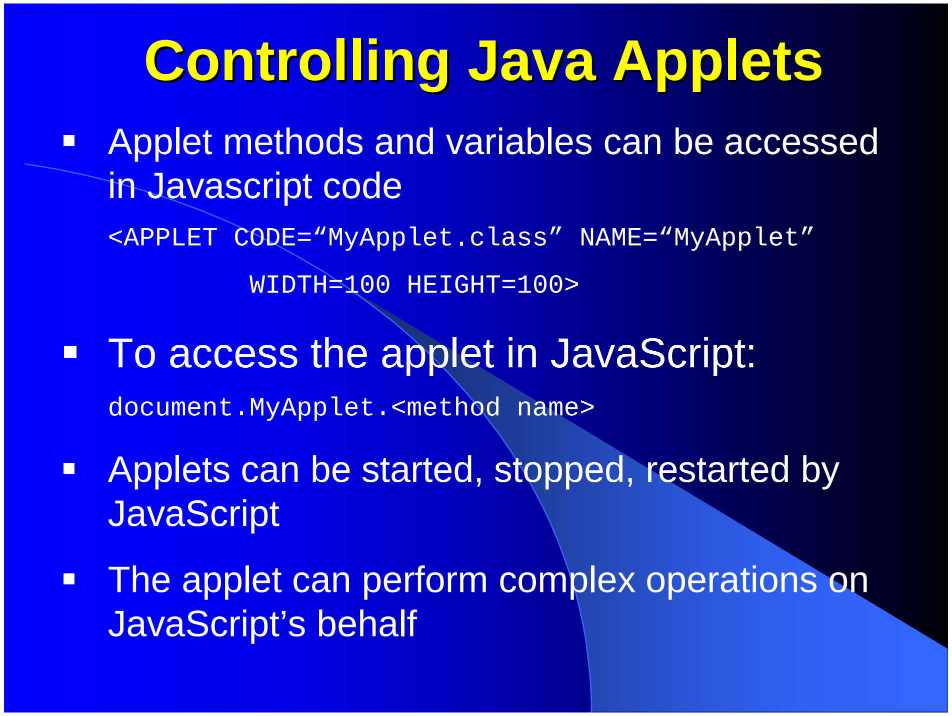


Calling Java Methods

- Java methods can be called directly in JavaScript code:

```
Var today = new java.util.Date();
System.out.println(today);
```

- Any public method or instance variable can be accessed
- Greatly expands the library of Javascript code available



Controlling Java Applets

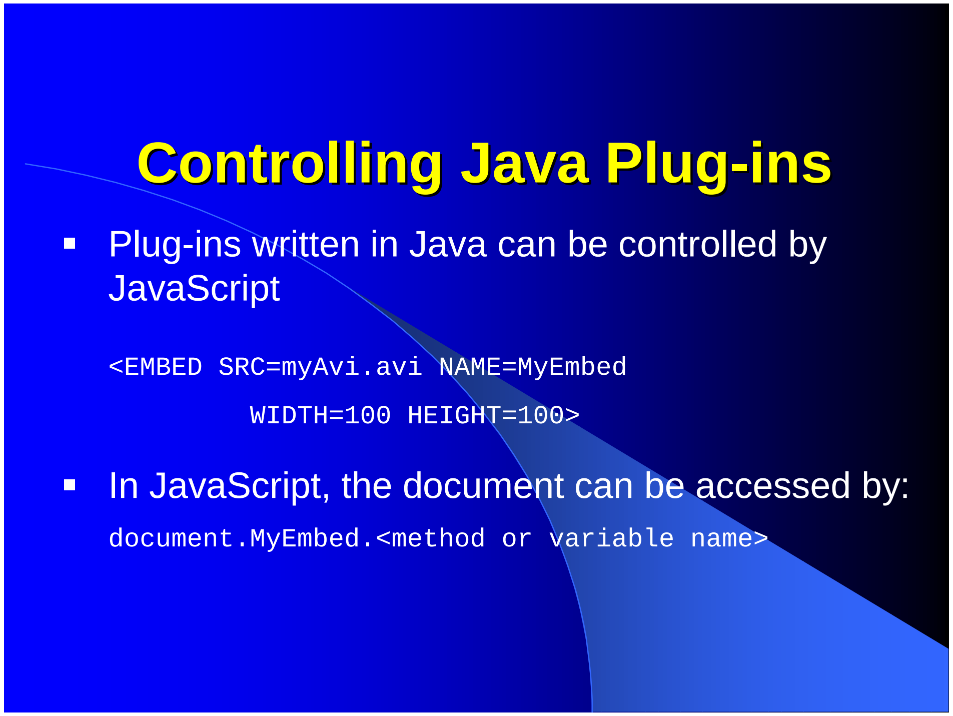
- Applet methods and variables can be accessed in Javascript code

```
<APPLET CODE=“MyApplet.class” NAME=“MyApplet”
        WIDTH=100 HEIGHT=100>
```

- To access the applet in JavaScript:

```
document.MyApplet.<method name>
```

- Applets can be started, stopped, restarted by JavaScript
- The applet can perform complex operations on JavaScript’s behalf



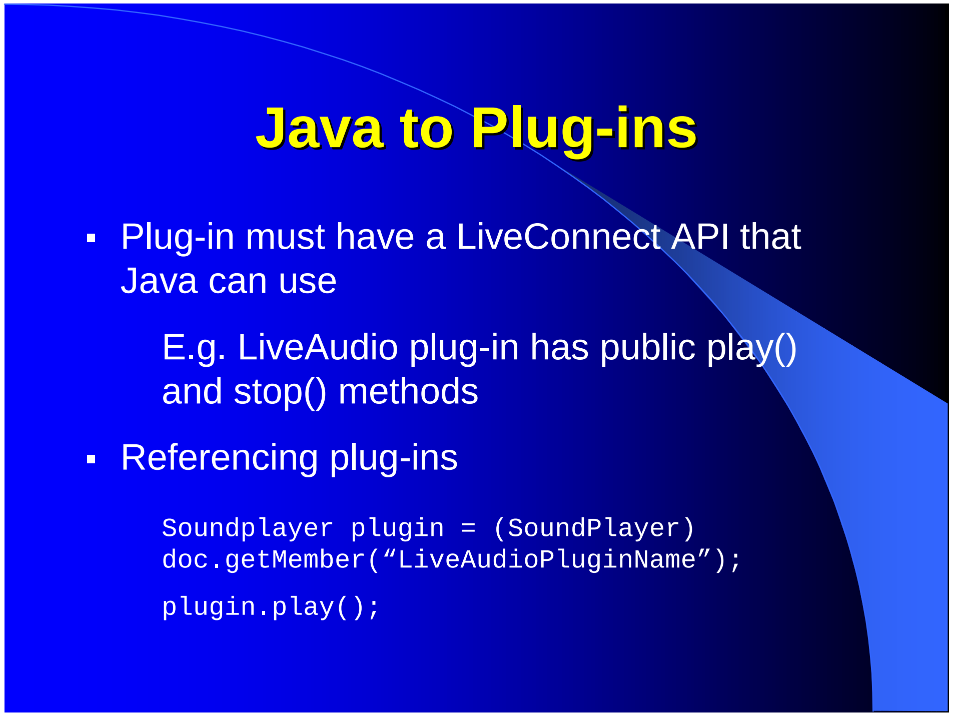
Controlling Java Plug-ins

- Plug-ins written in Java can be controlled by JavaScript

```
<EMBED SRC=myAvi.avi NAME=MyEmbed
        WIDTH=100 HEIGHT=100>
```

- In JavaScript, the document can be accessed by:

```
document.MyEmbed.<method or variable name>
```



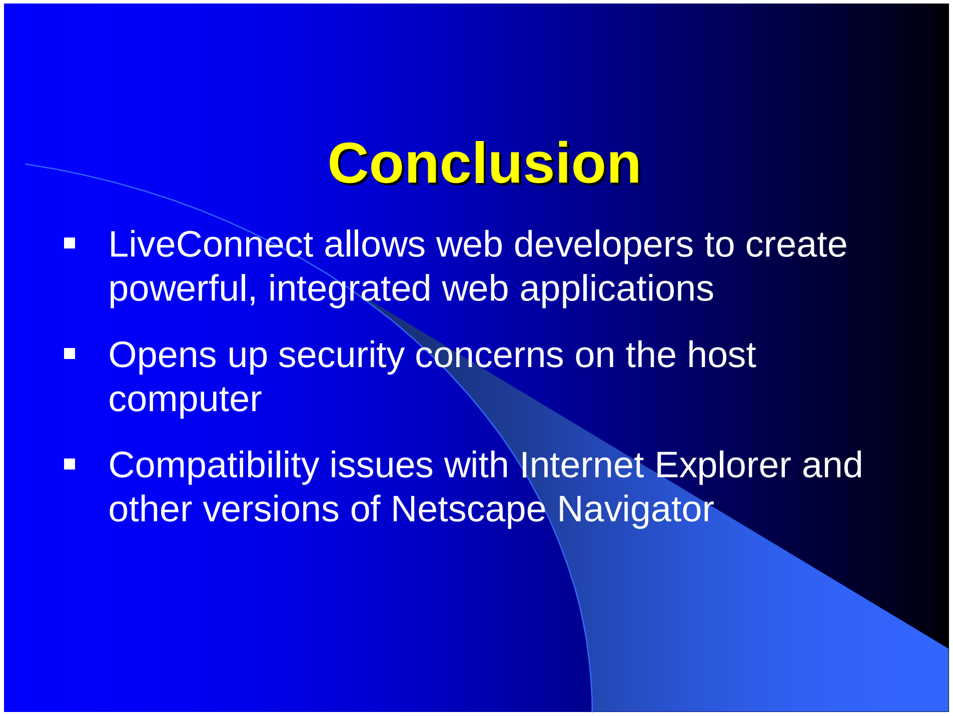
Java to Plug-ins

- Plug-in must have a LiveConnect API that Java can use

  E.g. LiveAudio plug-in has public play() and stop() methods

- Referencing plug-ins

```
Soundplayer plugin = (SoundPlayer)
doc.getMember(“LiveAudioPluginName”);
plugin.play();
```



Conclusion

- LiveConnect allows web developers to create powerful, integrated web applications
- Opens up security concerns on the host computer
- Compatibility issues with Internet Explorer and other versions of Netscape Navigator