Java

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This past month, Java was in the news for a major security vulnerability, causing even mainstream news media to recommend that everyone disable Java on their computers. So what is Java, what's it good for, and should we really be concerned?

What is Java?

Java is a programming language, specifically designed to be independent of the underlying platform, so you can write an application once with confidence it will run on many different platforms. This is accomplished by implementing a Java Virtual Machine on different target platforms. The Java app runs on the Virtual Machine. Java is reportedly one of the most popular programming languages in the world, with many businesses deploying enterprise applications to streamline support for users across different runtime environments.

In 1995 two friends and I launched an Internet start-up. We developed and hosted websites for a variety of businesses and ministries. We ran Sun servers for our development and production environments. In our first year, Sun Microsystems introduced Java to the world and we immediately jumped on it as a way to differentiate our clients' sites with interactive "applets" that ran within the browser. At the time, websites were static presentations of information – Flash wouldn't be introduced until 1997. Our early adoption of the language gained us some local media attention and the undying support of our Sun account team.

The language continued to mature. In 1998, Java 2 was released in three versions – J2EE for enterprise class applications, J2ME for mobile phones, and J2SE – the standard version for most web applications. In 2006, Sun released Java to the open source community with GNU GPL licensing. In 2009, Sun was acquired by Oracle, a company that highly values tight control over products and is intensely focused on maximizing profits. Obviously, those values are inconsistent with the open source ethos.

By the way, Java has almost nothing to do with JavaScript. JavaScript borrowed the Java name because Java was such a "hot" concept at the time that the ECMA script standards were being defined.

What's so great about Java?

Java was designed to be very similar to C and C++ to make it easy for programmers to learn. However, Java was also designed to be simple, specifically more simple than C. Java only has 50 commands. Java is inherently object oriented.

Java is compiled, but runs on the Java Virtual Machine (JVM). As a compiled language, Java is high performance. The JVM has been ported to many platforms, so Java applications are "Write Once, Run Anywhere."

When originally developed, the revolutionary concept that Java introduced was truly interactive and dynamic content within a web page. Sun introduced the concept of an applet – a program that could be run within the web browser. That applet could interact with the user, enabling games, multimedia players and other creative concepts. Today, we are used to this functionality – thanks to the success of Adobe Flash (originally Macromedia Flash). But prior to Java, the web was a much less interactive place.

With the introduction of the Enterprise Edition of Java, applets moved onto the server and "servlets" were born. Server-based Java is most often used to deliver up dynamic web pages in a way similar to PHP or ASP.NET. Java provides a robust, high performance programming environment for developers to create powerful web services.

Applets run on the client side – running in the Java Virtual Machine within the end-user's browser. Servlets run on the server side – running in the Java Virtual Machine on the server. With servlets, the end user doesn't need to have Java on their computer and doesn't have any idea that Java is involved.

What is dangerous about Java?

If you're like me, you mostly notice Java when a notice pops up telling me I need to upgrade the Java Virtual Machine. For years, Java has just been a nuisance to me. But, the latest security flaw has made me more aware of the real dangers with Java.

Apparently, Java security problems are not uncommon. Because Java is enabled, by default, in most browsers, criminals often target security holes in Java to accomplish their malicious goals. When the browser loads a web page with Java code, it runs the code on the Java Virtual Machine with the browser. Since Java is a powerful language, clever hackers find ways to overcome the intended security protections within Java.

Oracle responds to new threats when they happen, but doesn't seem too concerned with making Java more secure. Perhaps Oracle isn't motivated to make open source tools overly appealing. Oracle has acquired a number of open source tools over the past few years, some of which (e.g. MySQL) provide a free alternative that threatens Oracle's core revenue streams.

What can you do about it?

Given the frequent security threats, make sure you have the latest version of the Java Virtual Machine. You can get the latest version at http://www.java.com/en/download/index.jsp. But, unless you use websites that depend on Java applets, there's really no reason to keep Java enabled on your computer. These days, Java applets are fairly rare. Flash,

JavaScript, and HTML5 have all surpassed Java applets in popularity for developing and delivering interactive web content.

The latest versions of Java include a Control Panel which make it easy to disable Java in your browsers. In Windows XP, Vista, and 7, Java will appear as one of the options under Start/Control Panel. In Windows 8, search for Java Control Panel by pressing the Windows Logo Key + W.

Once you open the Java Control Panel, select the "Security" tab. Uncheck the "Enable Java content in the browser" checkbox. Click the "Ok" button. You're done.

Note that Java servlets do not represent the same threat (and don't require Java enabled in your browser). Also note that Java's vulnerabilities have nothing to do with JavaScript. I would not recommend disabling JavaScript in your browser.

It is my hope and prayer that these articles on the power and danger of technology will encourage you in your daily walk with Christ. Whether it is Java, the printing press, radio, television, personal computers, the internet, the cloud, mobility, or Wi-Fi, new technologies continue to advance our ability to know God and to serve Him, wherever we go.

Russ McGuire is an executive for a Fortune 100 company and the founder/co-founder of three technology start-ups. His latest entrepreneurial venture is Hschooler.net (http://hschooler.net), a social network for Christian families (especially homeschoolers) which is being built and run by seven young men under Russ' direction.