



# JavaOne™ TODAY

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The Moscone Center

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## INSIDE THIS ISSUE:

- 2 TODAY's Question
- 3 Daily Prompt
- 4 TODAY's Crossword Puzzle
- 5 Who's That Rock Star?
- 6 Code Talk
- 6 TODAY's Sudoku Puzzle
- 7 Mobility General Session
- 8 Introduction to AJAX
- 12 Conference UPDATES
- 13 JFC/Swing
- 14 JavaPro Awards
- 14 Puzzle Answers

[java.sun.com/javaone/sf](http://java.sun.com/javaone/sf)

## Demos Dazzle at 'Roadmaps' Session

Ed Ort  
May 2006

If you've attended past JavaOne<sup>SM</sup> conferences, you know that one of the highlights is the Java<sup>TM</sup> Platform "Roadmaps" session, where Sun's top technical folks outline the key directions for the next releases of the Java platform.

At last year's JavaOne conference, Sun vice president and Fellow Graham Hamilton highlighted some of the cool things planned for the next release of the Java platform for the desktop—Java<sup>TM</sup> Platform, Standard Edition (Java<sup>TM</sup> SE) 6 (code named "Mustang"). Sun Distinguished Engineer Bill Shannon did the same for the next release of the Java platform for the enterprise—Java<sup>TM</sup> Platform, Enterprise Edition (Java<sup>TM</sup> EE) 5.

A year has passed, and the future is now. Shannon noted happily and to much applause from the crowd during the Technical Session on Tuesday that "Java EE 5 is done. The Java EE 5 specification was approved by the Java Community Process<sup>SM</sup> (JCP<sup>SM</sup>) two weeks ago, and last week we released the Java EE 5 SDK." Java SE 6 is in the homestretch—it's scheduled for final release in October.

With the availability of Java EE 5 and the near availability of Java SE 6, this session gave Hamilton and Shannon an opportunity to reit-



Attendees experience the Power of Java on the Pavilion Floor, which is open from 11 a.m.–7 p.m. Thursday.

erate the themes that they highlighted in last year's session. But more than that, it gave them a chance to show off some of the new platform features by lacing their talk with some impressive demonstrations of Java SE 6 and Java EE 5 in action. Hamilton also shared a peek at some of the neat things planned for Java SE 7 (code named "Dolphin") and Shannon discussed possible future directions for Java EE.

### Impressive Demos

Four snazzy demos highlighted the session: **Native Look and Feel on Windows**—A lot of work has gone into enhancing desktop support in Java SE 6. One area of particular emphasis is the native look and feel of Swing applications in Windows. This effort has been a resounding success. In this demo, Chet

See ROADMAPS, page 10

## Motorola General Session Explores Java and Mobile: The Next Big Thing

Steve Meloan  
May 2006

As wireless broadband, personalized entertainment, and peer-to-peer communication continue to merge, mobile devices are experiencing an explosive period of growth and evolution—and appear to be the next likely landing spot for such technologies. Ten times as many people bought cell phones in 2004 as bought personal computers. And there are now more than 1 billion Java technology-enabled phones in the world—with more than 70 percent of wireless applications under construction using the Java technology runtime environment.

As a Fortune 100 company, with sales of more than \$36.8 billion in 2005, Motorola sees Java technology as an important key to enabling the next big things in mobile,

including its own Seamless Mobility initiative—easy, uninterrupted access to the communication, information, and entertainment you want anywhere, anytime, on any device or technology.

In Thursday's General Session, from 5:15 to 6 p.m., Rob Shaddock, corporate vice president and chief technology officer, Mobile Devices Business, Motorola, Inc., and Christy Wyatt, vice president, Ecosystem and Market Development, Mobile Devices Business, Motorola, Inc., will discuss "Java and Mobile: The Next Big Thing," examining not only the technology, but also the business ecosystem needed to support and monetize change.

Shaddock and Wyatt will explore Java technology as a deployment platform for powerful new mobile applications and ways to best enable the Java technology development community to drive innovations for the next gen-

See MOTOROLA, page 9

## IBM General Session Encourages Healthy Projects—The Eclipse Way

Steve Meloan  
May 2006

IBM is the world's largest information technology company. But no matter what the company size or project scope, every successful software development effort has common characteristics, practices, and structural underpinnings. In Thursday's General Session, 8:30 to 9:15 a.m., IBM Distinguished Engineers Erich Gamma and John Wiegand will offer a talk entitled, "Java in the Trenches—Reflections Along the Eclipse Way."

After many years of refining its development practices, the Eclipse team reflects on the Eclipse way of doing software—hitting projected delivery dates with precision

and quality. How do they achieve this? Gamma and Wiegand will tour the team's practices, detailing these practices through inside stories from the group's experience and exploring how the practices create feedback loops within the entire community—from users to developers to researchers to product organizations. Building on this experience, they will reflect on how software development tools can help developers further improve their effectiveness.

Gamma led the team that built the award-winning Eclipse Java Development Tools (JDT), and he is currently serving as a member of the Eclipse project management committee. He is also a member of the Gang of Four, known for their book,

See IBM, page 4

## TODAY's Question: What do you need Sun to do more of to provide AJAX support?



"For most of my projects, the deadline is yesterday. The easier Sun can make it for me, the more I'll use it."

Darlene Hopkins  
Developer



"I need online examples. I understand the technology. It's pretty basic. Give us some examples and code samples that we can cut and paste."

Andrew Smith  
Chartwell Technology



"I need easy access to tutorials, sample applications, and reusable code. Put them on the Sun Developer Network."

Ram Shanka  
Technoprism



"Integrate AJAX to the Java EE standard. The more tightly woven Java EE and AJAX are, the more effective I can be."

Dionysis Eliakopoulos  
Developer

### New for 2006: Startup Exhibitor Alley

The Startup Exhibitor Alley, new in the JavaOne Pavilion, hosts companies that are first-time participants in the Conference. Meet with smaller, creative companies introducing their innovative solutions and services to the global Java community and learn how their products will enrich your development experience. Stop by and welcome our new startup exhibitors to the Conference—Caucho Technology, Codign Software, Elixir Technology, Green Point, Inc., IS Squared, Kallisto Productions, Inc., Paremus, and SolovatSoft.

### Win Prizes for Submitting Session Evaluations

Here's your chance to win a \$75 gift certificate redeemable at the Retail Store at the JavaOne conference or a \$75 gift certificate to the Java Wear and Books online catalog store. Be sure to turn in your session evaluation forms daily for entry into the drawing. We announce five winners each day of the Conference.

The more evaluations you turn in, the greater your odds of winning!

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## <daily prompt/> Day 3: We're More Than Halfway Through!

Robert Eckstein  
May 2006

Wow, is it Thursday already? I keep forgetting that time flies when you do nothing but sleep, eat, and attend sessions.

Okay, whatever you do, don't miss the Thursday "After Dark" Bash. Our guests are the MythBusters, from the hit show on the Discovery Channel. What's that? You don't watch it?

Well, you will after seeing this. The MythBusters are a pair of special effects wizards who take on some of the most popular myths and urban legends spanning the Internet. Is a gunshot lethal underwater? Can you really clean out a cement truck with explosives? Can Mr. Bean paint an entire room with only a paint bucket and a stick of dynamite? Can you really escape from jail with only salsa and a radio? Sometimes the answer is obvious; sometimes the answer is surprising. But it's always an entertaining watch.

However, to get in—and I must confess that I have no idea what the MythBusters are planning for the "After Dark" Bash—you'll

need to pick up a wristband at the Registration Counter in the North Upper Lobby on Thursday after 3 p.m. The MythBusters will be in the Moscone Center Hall A from 7 to 10 p.m. on Thursday night.

Well, the must-have gadget for the conference is officially the \$199 SavaJe phone. Now,



if you're curious, I talked to some of the people at the SavaJe booth yesterday, and they said that these devices should work with the existing SIMM cards that are inside your cell phone. However, you may want to check

with the people at the booths to see if your carrier is supported. Also, the phones tend to sell out pretty quickly, so if you want to buy one, be sure to purchase early in the day, or you may be out of luck.

At press time, they were still on sale in the Esplanade. However, if they're out—and the way they were selling on Wednesday, they may very well be—be sure to visit their web site at <http://www.savaje.com> and place an order.

By the way, did you notice that the massage chairs are back this year? This time, they're at the far side of the JavaOne Pavilion. So, if your

shoulders get sore from lugging around that laptop or your back is in need of some therapy, drop by, grab a chair, and get some quick muscle relief. When I passed by on Tuesday afternoon, the lines weren't bad at all. On Thursday, the massage therapists will be there until 7 p.m.

Wow, full house on that "Introduction to AJAX" talk on Tuesday afternoon. Did you know how easy it was to work with AJAX? Did you know that you could implement your own version of Google Maps in less than 250 lines of code? That was a fascinating session to watch, and I hope that you had a chance to see it. Maybe if enough people request it, we can get the Conference organizers to set up a streaming video of that session, but if that fails, you can always download the PDFs of the session slides off the JavaOne conference web site.

I also got a chance to attend the "Desktop Java Technology Today: Deep Dive" session, given by some of the Java SE people. Did you know that 63 percent of respondents cited desktop enhancements as the Mustang features that appealed most to them? Even better, did you know that 87.5 percent of all PCs run Java technology, and more than 65 percent of all Java technology-enabled PCs run the Java SE platform? Monthly Windows JRE downloads passed more than 30 million in January 2006, and the curve is growing exponentially.

With all that, it was nice to see some of the Mustang enhancements coming from the desktop group, such as tray icons, native support for splash screens, faster image loading and processing, and the inclusion of SwingWorker and the Matisse GroupLayout in the core libraries. If you work with the Java Desktop APIs, then you're sure to like the latest improvements in Mustang. We put some articles on these features up on java.sun.com a few months ago, so that's always a great place to search for more information.

Have you seen the shirts that say "i have a friend"? While the cynic in us may be tempted to think that people at our Conference have just now mastered basic social skills, these people are actually our heroes: They are attendees who referred one or more friends to the JavaOne conference. So, if you don't have a friend (shirt, that is), be sure to get one next year. There will be other great prizes, as well, if you refer several people.

Finally, to repeat what I mentioned on Monday: If you're turned away from a session that's full, be sure to let us know, and I'll pass your request for a repeat on to the Conference organizer. Email [Robert.Eckstein@sun.com](mailto:Robert.Eckstein@sun.com). And thanks to those who already let us know about some of the sessions.

Have a good Thursday, and I'll see you tomorrow for a Conference wrap-up. ■

## The Power of Java



Attendees head to sessions to immerse themselves in Java technology for the day. Check out [java.sun.com/javaone/sf](http://java.sun.com/javaone/sf) for PDFs, podcasts, webcasts, and more.

### Informal Q&A with Jeff Jackson

Take part in an informal Q&A discussion Thursday with Jeff Jackson and other Java™ technology Rock Stars. To learn more, register and log in to the JavaOne Conference Event Connect tool. <http://java.sun.com/javaone/sf/eventconnect.jsp>

### Lunch Table Talks

Every day in the lunch area, you can grab your lunch and head for a table featuring a technology or industry on which you are currently focused. Chat with your peers, play one of the games, and stay connected with your new contacts using the JavaOne Conference Event Connect tool.

Get connected today!

## IBM

Continued from page 1

*Design Patterns—Elements of Reusable Object-Oriented Software.* Wiegand is the principal architect of the Eclipse platform infrastructure and played a central role in the development of IBM Rational Developer Tools, IBM Visual Age for Java, and IBM Visual Age Micro Edition. Wiegand is also a member of the Eclipse project management committee.

The Eclipse project focuses on providing a vendor-neutral, open-source, robust, full-featured, commercial-quality, industry platform for the development of highly integrated tools and rich client applications. The Eclipse platform is written in the Java programming language and provides a

plug-in framework based on the Open Services Gateway Initiative (OSGi), which makes it easy for others to extend the platform's capabilities.

Gamma and Wiegand have been tuning their agile software development practices for years, building on experience gleaned throughout their careers, and they have refined their practices further since the inception of the Eclipse project, hosted by the Eclipse Foundation.

"Over the past six years, we've continually honed our practices," said Gamma. "We've tried out many things. The things that didn't work, we stopped doing. And the things that did work, we kept on doing."

Other projects inside and outside of IBM have found the Eclipse way useful for their software development as well.

One key aspect of the Eclipse way involves

ensuring project health. Project health impacts many different facets of a software development undertaking and addresses the state of the project over time, not just at a particular point in time.

"There are a number of different metrics you can look at when defining project health," said Wiegand. "The key is to find measures that make sense for your particular project and then to monitor them."

Ultimately, keeping a project healthy is the responsibility of the entire development team. A healthy project is better able to respond to stress, unanticipated change, and new directions.

Project health stems first and foremost from developer accountability. But this is very different from leveling blame. It instead implies accurately assessing a problem, taking responsibility, defining and considering the

available choices, then choosing the best path forward.

"Ensure that the decisions are made by the developer closest to the situation," elaborated Wiegand. "They have the best context."

Another important aspect of project health is ensuring that the project is constantly moving forward. This is achieved by establishing continuous and manageable milestones—breaking the overall release time line up into predictable intervals. From experience, the Eclipse developers have found six weeks to be the ideal milestone granularity for their release cycles—long enough to get something visible accomplished but short enough to require the focus to succeed.

Optimum healthy software development also requires project transparency. This means that everyone in the community knows what's happening without needing to ask. The project plans are visible, what people are working on is visible, and the interaction between developers and users is visible.

And lest anyone come to believe that software development is primarily a one-way process from developer to user, the Eclipse team sees its user base as a vitally important part of the development process. One interesting proof point is that more than 24,000 registered Bugzilla users are at Eclipse. A healthy software project is one with an actively engaged community that tracks development progress and provides continuous feedback—in the form of newsgroup entries, bug reports, plug-in development, and articles.

Transparency opens the door for these feedback channels; contributions can only occur when the community sees what is happening.

Gamma and Wiegand consider such a tight feedback loop between developer and user to be the key to producing a quality shippable product.

"We call this Live Beta," said Gamma. "There's always something to download. And by doing so, there's a continuous feedback stream. The users feel empowered and are motivated to provide feedback."

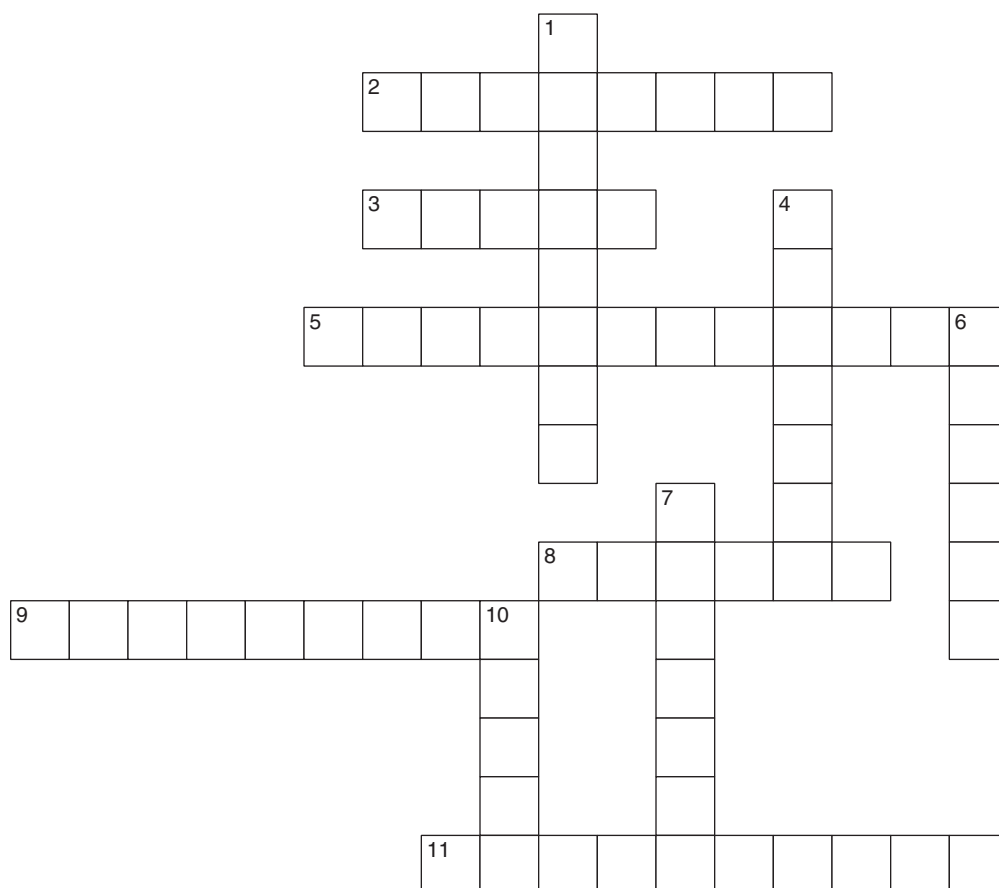
"We don't want to have a firewall between our developers and our users," added Wiegand. "With a tight feedback loop, where users are able to see the contributions they've made, it encourages them to stress the system even further and to find new areas for improvement."

In addition to their Eclipse efforts, Gamma and Wiegand have turned their attention to software tools with team awareness, process awareness, and project health awareness. These tools will empower globally distributed development efforts such as their own.

"Jazz is a team collaboration platform that we're currently working on," explained Wiegand. "It's a joint project between IBM Rational and IBM Research. It's still at an early stage, but we'll offer a sneak-peek onstage and then show Jazz in action at our Thursday evening gathering." The gathering is 7:30 p.m. in Great Room 1 and 2 at the W Hotel.

"We see Jazz as the next step in developer productivity," added Gamma. "We're moving forward from supporting individual developers to helping teams of developers be more productive in all their activities." ■

## TODAY's Crossword Puzzle



## Across

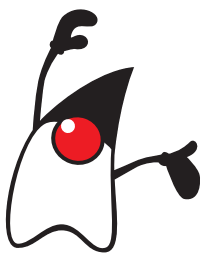
2. One way to weave a site
3. Nothing special about these objects
5. Alice's 3D desktop
8. I still haven't found what I'm looking for
9. The class that nobody knows
11. Java in a mirror

## Down

1. RMI for AJAX: Direct Web \_\_\_\_\_
4. The next JDK to surface
6. The season for dependency inversion
7. Darkness from light, try to code right
10. Replacing your struts?

Contributed by O'Reilly Associates





## Who's That Rock Star? Eamonn McManus

Janice Heiss  
May 2006

**S**napshot: Eamonn McManus is the special lead of the Java™ Management Extensions (JMX™) team at Sun Microsystems. As such, he heads the technical work on JSR 255 (JMX API 2.0) and JSR 262 (Web Services Connector for JMX Agents).

**Q:** The most important thing to understand about the JMX API is...?

**A:** It is present in the core Java platform and provides a very simple way to make applications remotely monitorable and manageable.

**Q:** The most important recent development in JMX technology is...?

**A:** There are several, but I'd cite support for the JMX API in the Spring dependency-injection framework, and the "Glassbox Inspector" project on java.net, which uses AOP to add JMX monitoring to existing code.

**Q:** The future of JMX will include...?

**A:** A couple of things. Having the Web Services Connector defined by JSR 262 will allow the JMX API to fit into the web services world. In particular, it will open up access to the JMX world for other languages, such as Perl, C#, or JavaScript. In our session on Tuesday, my colleague Jean-François Denise demonstrated an AJAX client that accesses JMX instrumentation directly from JavaScript in a browser, using the new connector.

The other main thing is the work being done in JSR 255 to define the next major version of the JMX API, 2.0. The most important theme here is scalability. Scaling to very large numbers of managed objects (MBeans) and to large numbers of distributed agents (MBean servers) poses many challenges, which we are addressing with new concepts such as Virtual MBeans, Cascading (Federation), and a new Event Service.

**Q:** Mustang adds what to the JMX API?

**A:** The changes in Mustang are incremental; the major changes will happen in Dolphin (Java SE 7) with the integration of JSRs 255 and 262. The two major changes in Mustang generalize existing features of Tiger:

- "MXBeans" solve the problem of atomic snapshots—collections of related information obtained at the same time—without requiring clients to have any non-standard classes. They were introduced with the

java.lang.management package in Tiger, but there was no way to define your own MXBeans. Mustang adds this ability.

- "Descriptors" allow you to extend the metadata to your managed objects (MBeans). Today, a client can examine an MBean to find out the names, types, and descriptions of its attributes and operations. With Descriptors, the MBean designer can add such information as units, possible values, metric semantics, and resource bundles for descriptions. Descriptors have always been a part of Model MBeans, but in Mustang they are available for all types of MBeans.

**Q:** The Java class that you couldn't live without is...?

**A:** java.lang.reflect.Proxy. This little jewel is greatly unappreciated and well worth the time to understand how it works. An example in the API documentation would be very helpful. In the JMX API, the class javax.management.StandardMBean turns out to have a host of uses, well beyond what we imagined when we designed it.

**Q:** Favorite Java technology book?

**A:** Josh Bloch's *Effective Java* is the best.

**Q:** What do you do when you feel stumped?

**A:** Sun's JMX team is located in Grenoble, France, at the foot of the Alps. If I'm stumped, I stare out my office window at a nearby mountain. It might not always help me find the answer, but it does help me keep a sense of proportion!

**Q:** Can you describe the process of writing code?

**A:** At its best, writing code happens in a state of "flow" or immersion. It isn't really describable, but you know it when you're in it. It's not easy to attain, and most of the everyday work we do doesn't allow it. To maximize your chances, you should ensure that you won't be interrupted when you're coding something big, and master your tools. Mastering your tools means being able to type fast without looking at the keyboard, knowing all the things your IDE can do to speed up your development, and knowing the key APIs by heart.

You may also want to arrange to have a nearby mountain to stare at.

**Q:** What would you tell a student or an engineer new to Java technology to study?

**A:** Read and understand *Effective Java*. Study a good API in detail to understand how it works and why it was designed the way it was. Not all APIs are equally good in this respect. java.util.concurrent is an excellent candidate, if only because the package documentation takes you through a tour of the important classes.

It would be invidious to name an API to avoid, but it's instructive to look through what's deprecated. (See the "Deprecated" link at the top of the JavaDocs pages.)

This isn't specific to the Java language, but remember that correctness and simplicity are paramount. Don't get obsessed with performance. Don't forget about security. Especially if you are designing an API, consider how it will evolve, and validate it by coding up lots of use cases. Try not to choose how to do things by what would be trendiest or most fun.

"If it hasn't been tested, it doesn't work." And if it hasn't been tested, well, it doesn't work well.

I have a lot more to say on this subject on my blog. See, for instance, [http://weblogs.java.net/blog/emcmanus/archive/2005/12/java\\_api\\_design.html](http://weblogs.java.net/blog/emcmanus/archive/2005/12/java_api_design.html).

**Q:** What do you see as the most important Java API in five years?

**A:** There are so many to choose from! Everything related to XML, including web

services, is going to remain important. The scripting API, javax.script, is very promising, and I think we're going to see much more usage of the Virtual Machine for the Java™ platform (Java Virtual Machine or JVM™) in conjunction with multiple languages and not just the Java programming language.

**Q:** Where in the process of programming do you have the most fun?

**A:** Realizing that there's a much better and simpler way to do what you've done and ripping out all the tedious code that the new design makes obsolete.

Check out McManus's blog at: <http://weblogs.java.net/blog/emcmanus>. ■

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# Code Talk

## With Click and Hack, the Type-It Brothers

By Neal Gafter and Joshua Bloch  
March 2006



**Neal:** Welcome back to Code Talk. Tuesday we gave the following program and asked you to complete it by adding a declaration for `Enigma`. The program must output `false`, but you may not override `equals`.

```
public class Conundrum {
    public static void main(String[] args) {
        Enigma e = new Enigma();
        System.out.println(e.equals(e));
    }
}
```

**Josh:** You can't do that! The `Object.equals` method tests for object identity, and the object passed to `equals` by `Enigma` is certainly the same as itself. If you can't override `Object.equals`, the main method has to print `true`, right?

**Neal:** Not so fast, cowboy. Although the puzzle forbids you to *override* `Object.equals`, it's perfectly fine to *overload* it, which leads to the following solution:

```
final class Enigma {
    // Don't do this
    public boolean equals(Enigma other) {
        return false;
    }
}
```

**Josh:** Well, this does solve the puzzle, but it is a very bad thing to do. It violates the advice in *Effective Java* Item 26, and *Java Puzzlers* Puzzle 58: If two overloadings of the same method can be applied to some parameters, both overloadings should have identical behavior. In this case, `e.equals(e)` and `e.equals((Object)e)` return different results.

**Neal:** I can see how that could get a bit confusing.

**Josh:** Yes indeed. Well, on to my puzzler. Yesterday I gave the following snippet of code, which won't compile, and asked why not:

```
public class Outer {
    class Inner1 extends Outer {}
    class Inner2 extends Inner1 {}
}
```

**Neal:** This program looks too simple to have anything wrong with it, but `javac` gives me this mysterious error:

```
Outer.java:3: cannot reference this before supertype constructor has been called
    class Inner2 extends Inner1 {}
    ^
```

**Josh:** The problem is that the compiler-generated default constructor for `Inner2` can't find an appropriate enclosing instance for its `super` invocation. Let's look at the program with the default constructors included explicitly:

```
public class Outer {
    public Outer() {}
    class Inner1 extends Outer {
        Inner1() {
            super(); // invokes Outer() constructor
        }
    }
    class Inner2 extends Inner1 {
        Inner2() {
            super(); // invokes Inner1() constructor
        }
    }
}
```

Because the superclass of `Inner2` is itself an inner class, an obscure language rule comes into play. As you know, the instantiation of an inner class such as `Inner1` requires an enclosing instance to be supplied to the constructor. If it isn't provided explicitly, the compiler uses the nearest enclosing instance of an appropriate type. For this program, that is `this`. So the compiler treats the `Inner2` constructor as if it were written like this:

```
Inner2() {
    this.super();
}
```

If we feed this to the compiler, the error message makes a lot more sense:

```
Outer.java:12: cannot reference this before supertype constructor has been called
    this.super();
    ^
```

Now the problem is clear: The default `Inner2` constructor attempts to reference `this` before the superclass constructor has been called, which is illegal.

**Neal:** You can generally avoid this sort of problem by making your nested classes static. Following the advice of *Effective Java* Item 18, most nested classes should be static, and it's almost always wrong for a nonstatic nested class to extend its enclosing class.

**Josh:** Excellent advice from a fine source. We'll wrap up with a little problem that we ran into recently. What does this program print?

```
class BinarySearch {
    static int f(int i) { return (i < 1234567890) ? 0 : 1; }

    static int binarySearch(int min, int max) {
        while (min < max) {
            int mid = (min + max) / 2;
            if (f(mid) >= 1)
                max = mid;
            else
                min = mid+1;
        }
        return max;
    }
    public static void main(String[] args) {
        System.out.println(binarySearch(0, Integer.MAX_VALUE));
    }
}
```

**Neal:** I'm not sure, but I've put it at <http://www.javapuzzlers.com/BinarySearch.java> so our readers can download it and see if their answers are right.

**Josh:** That's it for this year. If you've enjoyed these puzzles, you can find many more in the book *Java Puzzlers: Traps, Pitfalls, and Corner Cases* at the JavaOne conference bookstore. And finally, don't code like my brother.

**Neal:** Don't code like my brother. ■

## TODAY'S Sudoku Puzzle

Rating: Difficult (answers on page 14)

3	1			6			5	
	5	9		3				
			4	8				
	2		9			7		8
		5						
8			1					2
6				1		8		
2					4			9
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# Mobility General Session Demonstrates How Far Mobility Has Progressed

Richard Marejka  
May 2006

Opening day of the JavaOne<sup>SM</sup> conference always seems to go by faster than any other day of the event. On day one, time seems compressed; it takes a day to get into that “zone” that athletes talk about where time appears to slow down while they operate at game speed. The zone where attendees can navigate the crowds, attend their sessions, grab lunch, and keep going late into the evening always eludes me on day one. Those in the zone attended the Mobility General Session, featuring Alan Brenner, senior vice president of the Client Systems Group at Sun.

The presentation ran flawlessly, with a pace that kept the audience engaged. The demonstrations showed just how far mobility has progressed in the last few years. It was great to see real demonstrations, not slide-ware or pre-beta hardware and software duct-taped into execution. All of the demos involved real hardware, software, and content—all items that any developer can access today.

Brenner outlined three themes for the presentation: “Where We Are Now,” “What’s Next,” and “Fueling New Markets.”

## Where We Are Now

Entertainment was a key element in the first wave of mobility. Primarily taking the form of bundled and downloadable games, it served two purposes in the market:

1. It engaged users, creating demand and illustrating potential.
2. It pushed the hardware and software limits of the devices, resulting in a broader, richer software platform, and leading edge hardware devices.

The first demo, “Groove Mobile Music Service,” highlighted entertainment. The service includes the basic “purchase and download” scenario, but also includes track preview and browse use cases, providing an experience equivalent to that provided by online, desktop-based services. Groove Mobile is the mobile music store for carriers in all geos.

Sports fans and developers alike closely followed Oke Okara, senior director of product development at Mobile ESPN for another demo. The Mobile ESPN service, which delivers sports news, was launched in February 2006. The most compelling aspect of the application was the UI, which showed that considerable effort had gone into making it both visually appealing and efficient. The interface consists of a “side-line” running vertically on the left side of the display, a bottom “ticker” for score

updates, and a main display area. The main area is capable of displaying video as well as text. The video model is “download and play” rather than streaming video, trading costly network time for on-device storage. This was a great example of an information service done right.

The Bango.com demo was example of the breadth of the mobility ecosystem. Their tagline, “Mobile billing made easy, Mobile content made accessible,” aptly describes their business. For developers who are not business-oriented, Bango can be a sales, billing, and payment agent, allowing developers to do what they do best.

## What’s Next?

The clear message for “What’s Next?” is Mobile Service Architecture (MSA) as defined in JSR 248. MSA defines a rich platform for the next generation of devices. It includes security and commerce for safe and secure transactions. Graphic capabilities cover not only the currently deployed Mobile Media APIs, but also 3D graphics and Scalable Vector Graphics, enabling more visually appealing applications.

Communications are greatly enhanced with the inclusion of SIP (JSR 180) and Bluetooth (JSR 82) into a group that already includes the widely deployed SMS and MMS standards. Social networks are enhanced when Location (JSR 179) and Personal Information Management (PIM) as defined in JSR 75 are considered. Finally, application connectivity, both the familiar Web Services and Content Handler, are part of MSA.

This may read like a laundry list of JSRs to some developers; others will see it as enabling services that are not possible today.

Consider one scenario: navigating your way to a social event in unfamiliar territory. The event and attendees are referenced in your Personal Information (JSR 75). You are reminded when to leave and where you’re going. The event location and your current location are available (JSR 179), which uses a web service (JSR 172) to plot your course (JSR 226). Should you take a cab or a bus to shorten the trip? A little short of cash for either? No problem. Pay using your mobile device (JSR 177, JSR 229). During the trip, you can remain in contact (JSR 120, JSR 205) for last-minute changes in location.

MSA, by defining a common platform, will enable the next wave of services, just as JTWI and MIDP 2.0 created the first wave. Expect the tools, specifically NetBeans and the Sun Java Wireless Toolkit, to support MSA. And of course, the device and appli-

See **MOBILITY**, page 8

## 2006 JavaOne “After Dark” Bash

Thursday, May 18, 2006  
7–10 p.m.  
Moscone Center, Hall A



### Join us for the annual “After Dark” Bash!

This year’s program will captivate you like never before: Weird and wacky experiments, bubbling potions, and strange results will create an atmosphere you will not want to miss! Let the mad scientist emerge from within!



### Myth or urban legend?

Just call on mythbusting team Adam Savage and Jamie Hyneman to put things to the test. Each week these special-effects experts take on three myths and use modern-day science to show you what’s real and what’s fiction on Discovery Channel’s *MythBusters*. Join Adam and Jamie as they share bloopers, blunders, and offbeat stunts. Enjoy clips of trial and error from their popular weekly series, and see how these mythbusters shake (or break) things up.



Special appearance by  
**Johnathan “Fatal1ty” Wendel**,  
the most accomplished, professional PC Gamer in history

No one has ever come close to the earnings, titles, and media coverage of Fatal1ty. His record of success speaks for itself. He presently reigns as the only five-time World Champion, winning each title in a different game, a feat never before accomplished. Play Quake 4 with Fatal1ty and witness how this pro shakes up the video game world!



### AC/DShe

Don’t miss AC/DShe, the all girl AC/DC tribute band doing Bon-era songs. These gals have been committed to staying true to the heart pounding rhythms and high energy presentation of early AC/DC!

Enjoy these and other popular activities, interactive games, and food and drinks. Pick up your wristband for entrance to the bash at the Registration Counter in North Upper Lobby, on Thursday, May 18, after 3 p.m.

# 'Introduction to AJAX' Session Dispels Myths

John O'Conner  
May 2006

Ben Galbraith and Dion Almaer, founders of Ajaxian.com, spoke to an enthusiastic crowd on Tuesday afternoon during their session, "An Introduction to AJAX."

Using simple but effective examples, the two made a compelling argument for using Asynchronous JavaScript with XML (AJAX) to create dynamic, responsive applications that are easy to deploy and that require nothing more than a common web browser.

AJAX represents a new way to process data in web pages, making it possible to update portions of a page rather than the entire page. Microsoft introduced parts of the technology in Internet Explorer as early as 1997, and Mozilla reproduced the functionality later in 2002. Most updated and current browsers support AJAX.

Of course, JavaScript™ technology is at the heart of AJAX. JavaScript is a scripting language that developers used in the past to create interesting mouse roll-over behaviors, to animate buttons or backgrounds, and to perform minimal error checking of HTML form data before sending the form to the server. Those abilities are simple, even trivial, compared to what AJAX can do.

Providing much more than visual manipulation of page components, AJAX allows interactive requests and responses between a browser and a server, updating only those portions of a page that require it.

At the heart of AJAX is an object called XMLHttpRequest. An XMLHttpRequest object allows you to send and receive HTTP data asynchronously as you interact with a common HTML document. As you point, click, drag, drop, or enter data on web page components, AJAX allows JavaScript technology objects in the page to interact with a server. Because your page can send and receive data asynchronously, your interactions with the page are not suspended as the page communicates with a back-end server. The result is a responsive, changing web page that behaves much like a rich desktop client application.

AJAX applications can get several kinds of data back from a server:

- XML data—Your JavaScript code can request additional data to fill in form contents and so on.
- HTML data—As a result of your request, your AJAX code can change the type or appearance of graphical components on a page.
- JavaScript code—Finally, your AJAX code can retrieve additional JavaScript technology instructions from a server.

## Dispelling Myths

Galbraith and Almaer also tried to dispel several AJAX myths during their presentation:

### • Myth number 1: AJAX is hard.

The HTML file that the presenters used in their demonstration contained two text

fields: a city and state field and a zip code field. After reading a zip code that the user typed into the first field, Galbraith and Almaer's AJAX code constructed an XMLHttpRequest, sent the request in the background, retrieved city and state information for that zip code, and filled in the second field. Although a somewhat trivial demo, it clearly showed that AJAX code is not hard to understand or difficult to write.

### • Myth number 2: Cross-browser differences are difficult to manage.

Unfortunately, different browsers implement the functionality of XMLHttpRequest differently. The call to create this object is different, for example, between the Microsoft Internet Explorer and the Mozilla Firefox browsers. If this were the only difference, I would say that you should not even consider cross-browser differences as you decide whether to adopt AJAX. However, you can handle other differences by using popular and available AJAX libraries.

### • Myth number 3: If you want rich effects and widgets, desktop applications are a better choice than AJAX.

Technologies such as JavaServer™ Faces provide rich, usable graphical components that you can manipulate and combine with AJAX code to provide interactive, visual experiences similar to those available from desktop applications.

### • Myth number 4: Off-line modes of operation are impossible.

They are definitely not impossible. The availability of embeddable Java technology databases such as Apache Derby allows developers to cache pages and data necessary for many off-line uses.

### • Myth number 5: Client-side validation is a pain.

There are so many libraries available that many common validation scenarios have well-tested, accessible solutions. Moreover, AJAX provides the ability to validate data across the network with little or no delays in the user experience. For example, a popular library called Direct Web Remoting (DWR) can assist with cross-network data validation.

## What Can AJAX Do for Your Browser-Based Application?

### 1. AJAX can increase participation.

Because users don't have to wait for page reloads or jump to other pages every time they interact with your site, they are more likely to answer questions and rate products, for example.

### 2. It can improve portals and forums.

Specific portal areas on a page can update themselves without entire-page refreshes. Content stays fresh.

### 3. It provides rich client-side validation.

As you experiment with AJAX, remember that you don't have to write all your own code. The many existing AJAX frameworks can simplify your project code and save you time. Some of the most popular libraries and frameworks are the following:

- Prototype  
<http://prototype.conio.net/>

- Script.aculo.us  
<http://script.aculo.us/>
- Dojo  
<http://dojotoolkit.org/>
- DWR  
<http://getahead.ltd.uk/dwr/>

Given the excitement around and capabilities of AJAX, should you abandon the Java technology, rich-client desktop? Absolutely not. Both AJAX and desktop technologies have their advantages and disadvantages. You might consider the following points when deciding where AJAX fits into your development plans. AJAX benefits:

- Easy development model
  - Easy deployment
  - Mash ups
  - Clean separation of user interface (UI) and business logic
  - Ultimate hackability
- Desktop Java technology benefits:
- Greater speed than JavaScript technology
  - Advanced graphics
  - Tight integration with the operating system
  - Mature UI toolkit
  - Security or lack of hackability

Numerous AJAX sessions are available at this year's JavaOne conference. Remember to register and check for session changes using the JavaOne conference ScheduleBuilder, <http://java.sun.com/javaone/sf/schedule-builder.jsp>. The following technical sessions, Hands-on Labs, and Birds-of-a-Feather (BOF) sessions may interest you:

AJAX: Riding the Web Application Horse a Little Further (LAB-4255)

Thursday, May 18, 9:45-11:15 a.m.

Java™ Technology, AJAX, Web 2.0, and SOA (TS-4372)

Thursday, May 18, 11 a.m.-12 p.m.

Using the Dojo Toolkit to Develop AJAX-Enabled Java™ EE Web Applications (TS-3577)

Thursday, May 18, 2:45-3:45 p.m.

Smackdown for AJAX Programming Models and Frameworks (TS-2991)

Thursday, May 18, 4-5 p.m.

Java™ BluePrints Application: Creating AJAX-Enabled Web 2.0 Java Pet Store Demo Software (BOF-2594)

Thursday, May 18, 7:30-8:20 p.m.

Evolving JavaServer™ Faces Technology: AJAX Done Right (TS-116)

Friday, May 19, 12-1 p.m.

Introduction to AJAX (TS-4489)

Friday, May 19, 2:30-3:30 p.m.

AJAX and Persistence: Emerging Patterns and Pain Points (TS-8614)

Friday, May 19, 2:30-3:30 p.m.

JavaServer™ Faces, AJAX, and Portlets: Developing Apps Without Distress (TS-6877)

Friday, May 19, 3:45-4:45 p.m. ■

## MOBILITY

Continued from page 7

cation testing will be there to assure conformance and protect everyone's investment.

### Fueling New Markets

The final part of the Mobility General Session focused on what comes after MSA and where new opportunities exist. The wave after MSA will include better graphics capabilities. These graphics, as defined in the Advanced Graphical User Interface (JSR 209), bring layout capabilities, rich components, and better 2D graphics. These three items, combined with the arrival of CDC-based devices, will bring parts of the Java SE platform to mobile devices.

Gaming, a key part of the first wave, will improve with the roll-out of Open GL ES (JSR 239). Future devices will feature hardware accelerated graphics and 3D capabilities beyond the current capabilities defined in MSA. Online gaming will extend into the mobility community.

Web 2.0 and Java technology being defined in JSR 290 will create a unique integration between markup and Java. Java will be used to load, render, and manipulate markup, and at the same time, Java can be embedded in the markup. The result: better and more diverse UI elements adaptive to both the user and the device.

The final demo, perhaps the most technically impressive, showed four applications running concurrently on the SavaJe device. Each application highlighted a different mobility technology: audio, 2D graphics, 3D graphics, and a MIDlet.

Sprint's director of developer programs, Jared Peterson, offered some final thoughts on the mobility marketplace. Jared told the crowd that most of Sprint's approximately 40 million subscribers have a Java technology-enabled phone. Sprint sees traditional revenue streams (voice) as somewhat flat as the market matures. In contrast, data services are clearly the new growth area. With a large percentage of their subscribers already Java technology-enabled, Sprint is positioning to feed the need for these data services.

So what can you do? As Jonathan Schwartz has said, "Innovation happens elsewhere." The mobility General Session showed just how large that "elsewhere" has become. There are tremendous opportunities in all areas of Mobility. It's no longer just application development; graphic design, content development, and business are now integral parts of the ecosystem. ■



## MOTOROLA

Continued from page 1

eration of must-have devices. They will also introduce Motorola's new MOTODEV developer program, chartered with establishing a broad business and developer ecosystem that will speed the pace of innovation while creating new business channels and revenue streams.

Most innovations, Shaddock believes, will come from "enabling technology." For example, advances in radio technology are on the brink of changing the way a mobile device connects with the Internet. Many devices are becoming multimodal and beginning to incorporate WiFi. Speed is also a factor. New high-speed data technologies—such as High-Speed Downlink Packet Access (HSDPA) and 1x Evolution-Data Optimized (EVDO) Rev A—are bringing DSL-like speeds to the mobile device, causing carriers to optimize their networks for efficient low-latency delivery of data.

Next-generation services such as Worldwide Interoperability for Microwave Access (WiMax) take that one step further in performance and cost reduction. With a fast, direct connection to the Internet, these services will challenge the existing operator data services and create new opportunities for developers.

There are many more opportunities—

along with the associated challenges they create. Shaddock stated, "One of the core challenges mobile developers face today is the ever-increasing pace of development in the mobile device business. Manufacturers leverage new technology to make the cell phone not only the de facto voice communication device but also the de facto mobile device to manage and share your content and interact with the digital environment."

Standardization is sometimes slow to keep pace with the rate of introduction of new technologies. Additionally, manufacturers continue to believe that enabling some features not available in a competitive product will create substantial differentiation. In practice, this has slowed innovation on a broad scale across the mobile device universe and has effectively discouraged the kind of entrepreneurship associated with the wired Internet. This all boils down to increased complexity for the developer.

This is where Wyatt and her team step in. To create must-have products and applications that are both innovative and easy to use, developer initiatives and communities play a vital role. With this goal in mind, Motorola recently announced the launch of MOTODEV, an integrated developer resource that combines Motorola-wide tools and technical support with the establishment of a broad business ecosystem—including developers, service providers, and business and channel allies. The MOTODEV community will speed the

pace of innovation while growing and managing new business opportunities.

MOTODEV combines Motorola's existing developer initiatives—MOTOCODER, iDEN, and Horizon—into a seamless web site, giving developers access to all things MOTO, from mobile devices to digital set-top boxes. Registration on the MOTODEV online portal provides the following:

- Motorola's development tools, sample code, and software development kits (SDKs)
- A full online library of documentation, device specifications, developer guides, media guides, and white papers
- A searchable online technical knowledge base
- Technical-support engineering experts to answer development questions
- Invitations to workshops and special events
- Mobile-device loaner program
- Monthly *MOTODEV* newsletter to keep you up-to-date

Upcoming phases of the MOTODEV initiative will introduce new business services to help developers build and market their applications, provide richer technical services, and establish a robust open developer community.

As an example of supporting innovation among the Java technology developer community, Motorola brought its premier coding competition, 2006://CODE:MOTO, to the JavaOne<sup>SM</sup> conference.

- The contest has two categories:
- Best Java technology gaming/multimedia application

- Best Java technology productivity application (consumer and/or enterprise)

Submissions must run on one or more of the following devices: RAZR, SLVR, PEBL, or iDEN.

Developers could either code their entries ahead of time or create their masterpieces while at the Conference. Motorola provided an on-site lab, high-end workstations, Motorola technical-support engineers, and plenty of food and drink to keep developers coding.

The winners will be announced at the Motorola General Session, with each contest category boasting a grand prize and runner-up winner. The grand prize package will include marketing exposure from Motorola and promotion on the MOTODEV site; one-on-one meetings with each judge to discuss channel opportunities; onstage recognition during the Motorola General Session; RAZR, PEBL, SLVR, and i870 mobile devices; a \$500 prize; and a commemorative plaque. The runner-up package will include marketing exposure from Motorola and promotion on the MOTODEV site; one-on-one meetings with each judge to discuss channel opportunities; onstage recognition during the Motorola General Session; one of the mobile devices featured in the competition, and a commemorative plaque.

To experience the new MOTODEV developer network firsthand and learn more about the 2006://CODE:MOTO contest, visit [www.motorola.com/developer](http://www.motorola.com/developer). ■



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[java.sun.com/compatible](http://java.sun.com/compatible)

## ROADMAPS

Continued from page 1

Haase, an architect in the Java Client Group at Sun, launched an appointments desktop application that displayed a Swing-based GUI on Windows.

You would be hard pressed to see any difference between the Swing GUI and the native Windows user interfaces and widgets on the screen. Haase then quickly switched to a beta version of Vista (the next major version of the Windows operating system), and the look and feel of the Swing GUI changed immediately to a Vista look and feel. The application was also interesting because it demonstrated the rich client support in Mustang for web services. The application accessed a Google calendaring web service.

Haase completed the demo by iconifying the application to the Windows system tray and then launching a native browser from the system tray. Support for iconifying to the system tray and the ability to launch native tools are two new desktop integration features in Mustang.

**Web Services With Java EE**—Ease of development is a major theme of both Java SE 6 and Java EE 5. One place where developers will find things markedly easier is web services. It's much simpler to develop and consume a web service in Java EE 5 than before. To demonstrate that, Ludo Champenois, a senior staff engineer at Sun and the chief architect for Java EE developer support in NetBeans™, showed how quick and easy it is to build, deploy, and test a web service.

Champenois used the newly released NetBeans 5.5 beta for the demonstration. After building and deploying the web service, Champenois easily built a client for the web service, deployed it, and tested it. Then he quickly turned the web service into a transactional web service implemented as an Enterprise JavaBeans™ (EJB™) 3.0 stateless session bean. (EJB 3.0, a part of Java EE 5, is yet another area where developers will see dramatic simplification in what they need to code.)

Champenois then compiled, deployed, and tested the web service in just a few quick steps. Finally, he demonstrated the new Java Persistence API by adding database interaction to the transactional web service. In a few clicks, Champenois created an entity (what used to be called an entity bean) that represents the persistent database data and tied it to the web services application.

As a backdrop to the demo, Shannon showed the highly streamlined source code for the web service, the client, and the entity. Annotations do a lot of the streamlining and eliminate the need for deployment descriptors.

**Visual Basic (VB) for Java**—One of the future goals of Java SE is giving Visual Basic developers easy access to the Java platform. There is an ongoing effort called Project Semplice to make this happen. Tor Norbye, a senior staff engineer at Sun Microsystems, demonstrated some of this vision using the Sun Java™ Studio Creator tool. Norbye is one of the technical leads on Java Studio Creator

and wrote its visual webform editor.

In this demo, Norbye created a simple web application that converts temperature in Fahrenheit to Celsius. He showed off Creator's nifty visual development capabilities by doing a drag and drop to create the user interface for the application. Then he showed the source code and pointed out that it's not Java code, but rather Basic code (which in this case is much simpler to use to express the logic of the program). He also pointed out an interesting interplay between the Java platform and Basic.

"Celsius and Fahrenheit represent standard JavaServer™ Faces (JSF) technology components. Also the event handler for the application is being called from a Java web framework (JSF). So we actually have Java calling into Visual Basic, calling back into Java," he said.

Then came some VB-to-Java technology magic: He compiled the VB application source code, and, voila, it generated Java classes. Norbye then ran the application, and it correctly converted a Fahrenheit temperature that he entered into Celsius.

Hamilton noted that the objective of the project is not to enable users to run existing VB applications in Java. He explained, "Existing Visual Basic applications are full of calls on Windows APIs. We're not trying to clone the Windows platform."

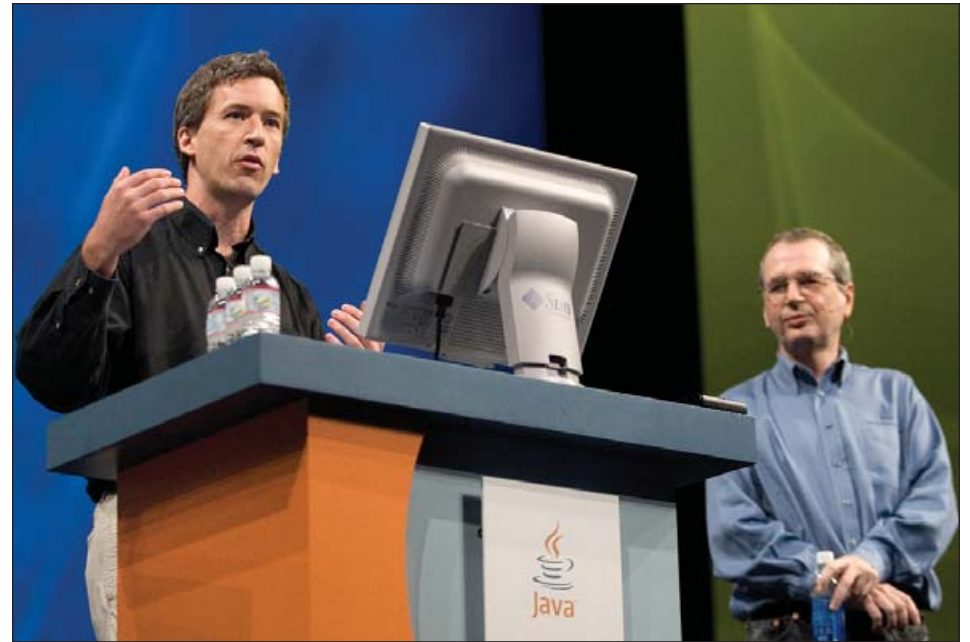
Instead, the idea is to leverage specific VB language skills to code new Java applications using Java APIs on the Java platform.

**JavaScript in the Web Tier**—AJAX, an efficient way for a web application to handle user interactions with a web page, is definitely one of the hottest topics in the Java community. AJAX is supported in the Java SE and Java EE platforms, and that support will grow. On the Java EE side, that growth will add JavaScript to the web tier, complementing client-side JavaScript support.

An effort called Project Phobos is working on providing that server-side scripting support. Developers will be able to embed JavaScript in JavaServer™ Pages (JSP) technology pages. The web tier will also support JavaScript servlets, which can be invoked on incoming POSTs and GETs. To demonstrate these capabilities, Sun senior staff engineer Roberto Chinnici ran a web application that did an interesting mash-up of a user-contributed news site known as reddit and the social bookmarking site named del.icio.us. The application takes an RSS feed off reddit and adds links to a del.icio.us bookmarked list. Chinnici showed some of the "whizzy" effects that AJAX enables for web pages and some other interesting capabilities such as attaching notes to added items and providing tool tips.

He also showed that the server-side implementation uses JavaScript, that JavaScript is used in JSP pages, and that free-standing JavaScript servlets process incoming requests.

In his discussion of this support, Shannon said that he envisions developers working in two AJAX-related styles: using high-level JSF components that are AJAX-enabled (where JavaScript is used behind the scenes) and doing "raw AJAX," where developers hand write AJAX code (though increasingly using toolkits such as Dojo).



Chet Haase (left), senior staff engineer at Sun, gives a demo on Native Desktop Integration at Tuesday's Technical General Session while Graham Hamilton, vice president and Sun Fellow, looks on.

The Java web tier will support both styles of working with AJAX.

### Openness: A Great Success

Beyond these enticing demos, one of the things that pervaded Hamilton's and Shannon's talks is the major impact that the Java community has made on Java SE 6 and Java EE 5. An important take-away from the session is that openness has been a great success and that the Java community should expect even more openness in the development process for future Java SE and Java EE releases. Community involvement has been a driving theme in Java SE 6 and Java EE 5.

At last year's JavaOne conference, Hamilton and Shannon highlighted Project Peabody and Project GlassFish™, community efforts that were established for collaborating on future Java SE and Java EE releases. Those efforts have borne fruit. Hamilton noted that community involvement in Mustang has been extremely successful. He said that community-based feedback to the weekly snapshot releases of Mustang has been great. It's allowed the community to pick up on new features and fixes. And giving the community access to the source has enabled developers to contribute fixes and features early and often.

Hamilton said, "This is working out really well for us and very well for the community, so expect even more openness with the Dolphin release."

Shannon underscored the significant contributions made by the Project GlassFish community, a community that has grown to more than 2,200 members. The Project GlassFish community built an open source Java EE application server that is the reference implementation of Java EE 5. In addition, the bits in the GlassFish application server went into the Java EE SDK, and the recently released Sun Java System Application Server Platform Edition (PE) 9. Shannon encouraged the audience to explore the GlassFish community and to download the latest builds (there have been almost 300,000 downloads of GlassFish to date).

### Mustang's Systemic Properties

Hamilton started off his Mustang talk by

covering what he termed "systemic properties," enhancements that permeate the release. These include compatibility, stability, and quality.

At last year's JavaOne conference session, Hamilton said that these themes continue to be the single-most important focus for the Mustang team. Hamilton said that this focus has led to many internal process improvements. Complementing that focus is a more open community-based development model.

As mentioned earlier, through access to weekly snapshots, the Java community has played a key role in identifying and fixing bugs. The focus on quality has also led to some novel contests such as the Mustang regression challenge, where the community helped identify regressions.

A *regression* is a bug in which a function works in a previous release of the Java platform, but doesn't work in the current release. Hamilton said that 72 regressions were uncovered this way. Another contest, called "Crack the Verifier," asked the community to help validate the new bytecode verifier that's part of a new security model in Mustang.

Hamilton noted that performance has improved significantly in every release of the J2SE platform and that trend continues in Java SE 6. Users should see performance improvements in many areas of the platform, on both the client and the server. Hamilton backed this up with two graphs. One showed the reduction in time that a grey rectangle or flicker appears when a window is moved on the screen and exposes part of a Swing application (this is a result of the application having to repaint). The grey rectangle exposure time for J2SE 5.0 is 200 milliseconds. That has dropped to 33 milliseconds in Mustang. A second graph compared the performance of the SpecJBB2000 business benchmark running in J2SE 1.3, J2SE 1.4.2, J2SE 5.0, and Java SE 6. The graph showed that Java SE 6 was faster running the benchmark by about 20 percent compared to J2SE 5.0 and more than three times faster than J2SE 1.3.1.

### RAS: Monitoring and Management

Hamilton said that monitoring and management were key values in the J2SE 5.0

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“Tiger”) release and that Mustang adds to that. Some of the significant additions are more JVM-level diagnostics, improved `OutOfMemory` diagnostic handling, attach-on-demand support that allows developers to attach the JConsole tool to any application for monitoring (Hamilton said that JConsole was “one of the surprise stars of Tiger”), and an assortment of upgrades to the JConsole tool and Java Management Extension (JMX) technology.

### Mustang’s New Features

Hamilton went on to cover some of the important new features in Mustang:

**Scripting**—Mustang adds a new framework, covered by JSR 223, that allows scripting languages to access information developed in the Java platform. Also included is a JavaScript technology engine that’s based on the Mozilla browser Rhino implementation. Hamilton also mentioned a Scripting project on java.net designed to provide additional scripting engine implementations that developers can use in their Java applications.

**Desktop Enhancements**—In addition to the desktop enhancements covered shown in the native look-and-feel demonstration, there are Mustang enhancements for various graphical APIs, including `JTable` (better support for sorting), `SwingWorker`, and  `GroupLayout`. Mustang also boosts the performance of Java 2D pipelines (particularly in Swing).

**Web Services**—Mustang includes support for Java API for XML-based Web Services (JAX-WS) 2.0 (JSR 224) and Java Architecture for XML Binding (JAXB) 2.0 (JSR 222). JAX-WS provides a standard way of developing and accessing web services (it’s also simpler to use than its predecessor, JAX-RPC). JAX-WS defines the interoperation model for web services. JAXB defines the XML data binding model for web services. It provides an automatic mapping between Java objects and XML schema, saving developers from having to worry about mapping details. Hamilton also mentioned the Tango project, an effort that extends the basic web services interoperability provided by JAX-WS between Java and .NET environments. This effort is designed to deliver much richer protocol support in areas such as web services security and messaging. Hamilton said that this support should be available on top of Mustang and on top of Java EE 5 in 2007.

Hamilton also stressed that even if you’re not interested in these newer features, it makes sense to move to Mustang to take advantage of its systemic features.

“Even if you’ve got older applications that are written to 1.4 or 5.0 APIs, you may want to quickly move those applications to Mustang to benefit from the improved performance, improved monitoring and management, and improved stability and reliability,” he said.

### Java EE 5—It’s All About Ease of Use

Shannon followed Hamilton with a segment that highlighted the many simplifications that have been made in Java EE 5. Shannon noted that Java EE 5 makes things easier for developers by drawing even further on its declarative programming style, removing a number of ungainly require-

ments and offering more powerful frameworks that mean less work for developers. Annotations are a big part of this simplification.

Shannon noted, “Originally we used deployment descriptors to communicate declarative information to the container. In Java EE 5, we’ve added the ability to use Java language annotations to communicate this information.”

In many cases, annotations remove the need for deployment descriptors. Annotations can be used extensively in Java EE 5 to do things as varied as define web services, map Java classes to databases, and specify external dependencies. As extensively as annotations are used in Java EE 5, Shannon said that it’s only a start. “We’re scratching the surface of what’s possible.”

Web services simplifications were highlighted in Shannon’s talk, with some impressive demonstrations and J2EE 1.4-versus-Java EE 5 comparisons. The web services support in Java EE 5 is centered on JAX-WS 2.0 and JAXB 2.0. Shannon noted that these technologies support the latest World Wide Web Consortium (W3C) standards for web services, such as SOAP 1.2, and the latest Web Services Interoperability Organization (WS-I) standards, such as the WS-I Basic Profile 1.1. He also said that Java EE 5 implementations are starting to support WS\* specifications such as WS-Security and will support emerging WS\* specifications over time.

Another area of simplification in Java EE 5 is EJB 3.0 technology. Because EJB 3.0 supports a Plain Old Java Object (POJO) approach, annotations, and dependency injection (where the container provides the resources that an application needs rather than the application having to find the resources), what developers must code to use EJB technology is dramatically reduced.

Shannon said that because of these simplifications, “you don’t need to understand all of the EJB APIs and EJB interfaces in order to write applications that take advantage of the power of the EJB container.”

The Java EE 5 platform also includes a new persistence API that defines a single model for implementing persistence in Java EE as well as in Java SE. It’s much simpler to use than the previous EJB container-managed persistence model. Shannon said that feedback on the new persistence API has been overwhelmingly positive.

Another ease-of-use “biggie” in Java EE 5 is JSF 1.2 technology, which gives developers a standard framework for building web applications in Java EE. Developers can use pre-packaged JSF components in building their applications, significantly reducing new code development. Shannon said that there are currently more than 200 JSF components available from more than 20 vendors. JSF 1.2 includes some important capabilities, such as support for AJAX (Shannon mentioned that the Java BluePrints Catalog includes several AJAX-enabled components for JSF), and an easy-to-use but powerful expression language that it shares with JSP technology.

An area of simplification in Java EE 5 that’s not often cited is application packaging. In many cases, Java EE applications no longer

require deployment descriptors, and, in general, require fewer XML files. These simplifications can significantly reduce the number of files in an application. Shannon pointed out that Adventure Builder, a sample application, has gone from 67 classes in J2EE 1.4 to 43 classes in Java EE 5. And the RosterApp sample application has gone from 17 classes and nine XML files in J2EE 1.4 to seven classes and one XML file in Java EE 5.

Shannon stressed that all the new Java EE 5 features and simplifications have not been added at the expense of compatibility, “so your investment in J2EE 1.4 is protected in Java EE 5.”

### The Future

Both Hamilton and Shannon talked a bit about directions for the future. Hamilton said that the expert group is considering some “thoughtful changes” to the Java language for the Dolphin release. This includes direct support for XML and support for “super packages.” Direct support for XML allows for inline XML literals as well as intermixing Java expressions in XML. It also might include lightweight support for XPath expressions to simplify getting and setting chunks of XML.

A super package is essentially a package of packages. It allows for large applications to be structured as a set of packages within one super package. This feature would also allow the packages to share state without exposing that state externally.

Some other enhancements for Dolphin include desktop improvements, such as more Java 2D desktop acceleration and Swing support for bean binding, better packaging as specified by the Java Module System specification (JSR 277), support for the lightweight BeanShell scripting language (JSR 274), better JVM performance, and the addition of new JVM bytecodes for non-Java languages (JSR 292). Hamilton said that the new bytecodes would allow for better support of dynamic languages such as Groovy and Python. And that’s not all of it. Hamilton said, “There are more than 100 serious major features that are being considered.”

Shannon was more general than Hamilton when covering future directions for Java EE. He said that it’s still too early to say anything definitive. A lot of the future direction depends on feedback from the community. He urged the audience to give specific feedback on Java EE 5.

“Where did we not make it quite easy enough yet? What can we do to make it even easier? What did we do right?” he asked.

Shannon also said that there are various possible directions for growth. “We can grow upwards, downwards, and sideways.”

What Shannon meant by “grow upwards” is to expand Java EE into areas such as composite applications or adding portlet support to Java EE applications. By “growing downwards,” he meant adding things that enable lower-end applications to work with Java EE. This might include more support for scripting, support for web-hosting and application-hosting environments, and support for web-based distributed authoring and versioning (webDAV), as well as more support for tools. By “grow sideways,” he meant enhancing Java EE in the space in which it already exists. This might include a refinement of current support such as polishing current APIs, enhancing the current support for AJAX and web frameworks, and adding more support for WS\* specifications. Shannon ended by stressing the importance of feedback from the community.

“We need your feedback to guide us in determining which of these are most important to work on first,” he said.

### Help Get the Word Out

Hamilton concluded the session by exhorting the crowd to get the word out about Java EE 5 and Mustang.

“Java EE 5 is here now—it’s a no-brainer for new projects. Mustang arrives in October with many systemic upgrades and great new features.”

Judging by the buzz created in this session, no exhortation was needed—developers will have little trouble spreading the word about the terrific things in these platform releases. ■

## Book Signing Schedule, Thursday, May 17

Time	Author	Book Title	Publisher
11–11:30 a.m.	Kito Mann	<i>JavaServer Faces in Action</i>	Manning
12–12:30 p.m.	Rob Harrop	<i>Pro Spring</i>	Apress
12:30–1 p.m.	Rod Johnson	<i>Professional Java Development With the Spring Framework</i>	Wiley
1–1:30 p.m.	Pat Niemeyer	<i>Learning Java, Third Edition</i>	O’Reilly
1:30–2 p.m.	Jonas Jacobi	<i>Pro JSF and Ajax: Building Rich Internet Components</i>	Apress

Visit the Bookstore and get a FREE Sun Microsystems Press (SMP) or Java Series book when you buy 2 SMP and/or Java Series titles of equal or higher value. Look for titles that feature the Sun logo, including books in the Prentice Hall Sun/Core Series and the Addison-Wesley Java Series. While supplies last!

# Conference UPDATES

## ADDITIONS

**TS-9925 | XXL—Large Java Card™ Technology-based (U)SIM Cards—The Advanced Mobile Communication Enabler for the Future**

Leading Edge • Java ME  
Simon Reed and Sagem Orga. Thursday, May 18, 2:45–3:45 p.m., Esplanade 303.

**BOF-1234 | JSR-291: Dynamic Component Support for the Java™ SE Platform**

BJ Hargrave and Jim Colson, IBM, and Richard Hall, LSR-IMAG. Thursday, May 18, 10:30 p.m., Esplanade 302.

**TS-8152 | Enabling the IP Multimedia Sub-system (IMS) with Java Technology**

Leading Edge • Java ME  
Phelim Odohererty, BEA Systems, Inc.; Alka Gupta, Sun Microsystems, Inc. Friday, May 19, 10:45–11:45 a.m., Esplanade 303.

**TS-6696 | Testdriving the Rich Client Platforms**

Advanced How-To • Java SE • Desktop  
Mikael Boman, Citerus. Friday, May 19, 12–1 p.m., Esplanade 303.

**TS-6037 | To Know the Dependencies is to Understand the Architecture**

Advanced How-To • Tools  
Neeraj Sangal, Lattix, Inc. Friday, May 19, 1:15–2:15 p.m., Esplanade 304/306.

**TS-9764 | Smartcard Managers Overview Basics, Standards, Federal Mandates and Examples**

Tutorial • Java ME  
Seth Meltzer, U.S. Treasury/IRS. Friday, May 19, 1:15–2:15 p.m., Esplanade 303.

**TS-6218 | How to Write APIs That Will Stand the Test of Time**

Advanced How-To • Java SE • Core Platform  
Radim Kubacki, Tim Boudreau, and Jaroslav Tulach, Sun Microsystems, Inc. Friday, May 19, 2:30–3:30 p.m., Gateway 102/103.

**TS-6673 | Federated Web Services with Mobile Devices**

Advanced How-To • Java ME  
Rajeev Angal and Pat Patterson, Sun Microsystems, Inc. Friday, May 19, 2:30–3:30 p.m., Esplanade 301.

**TS-9180 | Java Technology on the Client**

Tutorial • Java SE • Desktop  
Duane Nickull, Adobe Systems. Friday, May 19, 2:30–3:30 p.m., Hall E 135.

**TS-8360 | Using Java Technology-based Neural Networks to Predict Trauma Mortality**

Leading Edge • Cool Stuff  
Robert Gatliff, Memorial Health, Savannah, Ga.; Brian Briggman, Software Consultants Inc. Friday, May 19, 2:30–3:30 p.m., Gateway 104.

**TS-8614 | AJAX and Persistence: Emerging Patterns and Pain Points**

Leading Edge • Java EE • Web Tier  
Larry White, Smitha Kangath, and Craig Russell, Sun Microsystems, Inc. Friday, May 19, 2:30–3:30 p.m., North Meeting Room 121/122.

**TS-8943 | NetBeans Common Framework for Information Visualization**

Leading Edge • Tools  
David Kaspar, Martin Ryzl, and Peter Liu, Sun Microsystems, Inc. Friday, May 19, 2:30–3:30 p.m., Esplanade 303.

**TS-9056 | Java Technology-Based Persistence API for Dummies**

Tutorial • Java EE • Core Enterprise  
Prasad Gopinath, Mitesh Meswani, and Marina Vatkina, Sun Microsystems, Inc. Friday, May 19, 2:30–3:30 p.m., Hall E 134.

**TS-6224 | Six Things I Want in an XML Binding Layer**

Advanced How-To • Java EE • Web Tier  
Blaise Doughan, Oracle Corp, and Shaun Smith, Oracle TopLink. Friday, May 19, 2:30–3:30 p.m., Esplanade 307-310.

**TS-6264 | Secure XML Processing using Chip Multi-Threaded Processors**

Advanced How-To • Java EE • Web Tier  
Pallab Bhattacharya, Biswadeep Nag, and Kim Lichong, Sun Microsystems, Inc. Friday, May 19, 3:45–4:45 p.m., North Meeting Room 121.

**TS-6877 | JavaServer Faces, AJAX and Portlets: Developing Apps Without Distress**

Advanced How-To • Java EE • Web Tier  
Brendan Murray, IBM. Friday, May 19, 3:45–4:45 p.m. Esplanade 307-310.

**TS-8339 | XJ: Facilitating XML Processing in Java Technology**

Leading Edge • Java SE • Core Platform  
Mukund Raghavachari, IBM. Friday, May 19, 3:45–4:45 p.m., Gateway 102/103.

**TS-9123 | How NikeID Hurdled the Java Technology and Flash Barrier**

Technical Case Study • Cool Stuff  
Travis Davidson, Kirk Jones, and Jonathan Hager, Nike, Inc. Friday, May 19, 3:45–4:45 p.m., Gateway 104.

**TS-9263 | Recommendations for Web Services Development**

Tutorial • Java EE • Core Enterprise  
Mark Basler, Nazrul Islam, and Satish Viswanatham, Sun Microsystems, Inc. Friday, May 19, 3:45–4:45 p.m., Hall E 134.

## REPEAT SESSIONS

**TS-3396 | Enterprise JavaBeans™ 3.0**

Leading Edge • Java EE • Core Enterprise  
Repeating Thursday, May 18, 12:15–1:15 p.m., Hall E 134.

**TS-4489 | Introduction to AJAX**

Tutorial • Java EE • Web Tier  
Repeating Friday, May 19, 2:30–3:30 p.m., Esplanade 304/306.

## SCHEDULE CHANGES

**TS-3576 | Visual Basic and the Java™ Platform**

Leading Edge • Java SE • Core Platform  
Old schedule: Thursday, May 18, 1:30–2:30 p.m.  
New schedule: Thursday, May 18, 9:45–10:45 a.m., North Meeting Room 120/121.

**TS-9542 | Creating Good, Simple, Single-Server Web Applications**

Tutorial • Java EE • Web Tier  
Old schedule: Friday, May 19, 1:15–2:15 p.m., Esplanade 303.  
New schedule: Was held on Wednesday, May 17.

**TS-9764 | Smartcard Managers Overview Basics, Standards, Federal Mandates and Examples**

Tutorial • Java ME  
Old schedule: Friday, May 19, 3:45–4:45 p.m., Esplanade 303.  
New schedule: Friday, May 19, 1:15–2:15 p.m., Esplanade 303.

## EXHIBITOR UPDATES

**ajile Systems, Inc.**

920 Saratoga Ave., Suite 209 San Jose, CA 95129  
408-557-0829 | www.ajile.com

Booth 1422

ajile Systems develops, manufactures and markets a family of low power, direct execution Java™ technology processors, embedded with real-time kernel and Java technology OS based on the Sun Microsystems Java ME™ platform.

**Amazon.com**

1200 12th Ave. South, Suite 1200  
Seattle, WA 98144  
206-266-1000 | www.amazon.com

Booth 1619

Amazon.com, a Fortune 500 company based in Seattle, opened on the world wide web in July 1995 and is now the world's leading e-commerce technology company. Amazon.com seeks exceptionally well-qualified candidates and offers competitive compensation and benefits.

**Axalto Inc**

8311 North FM 620 Road, Austin, TX 78726  
512-257-3900 | www.axalto.com

Booth 1521

Axalto, world leading provider of microprocessor cards, innovates to make interactions with the digital world more personalized, protected and simple to use. With activities across telecommunications, finance, retail, transport, entertainment, healthcare, personal identification, information technology and the public sector.

**JackBe**

4600 North Park Ave., Suite 200  
Chevy Chase, MD 20815  
240-722-7620 | www.jackbe.com

Booth 517

JackBe provides complete enterprise AJAX solutions that dramatically improve the usability and productivity of web applications. Our world-class AJAX products, proven Ready/Set/Go methodology and expert consulting services deliver the business benefits of AJAX with minimum risk and the fastest time-to-market.

**MetaMatrix, Inc.**

1601 Trapelo Road, Suite 140  
Waltham, MA 02451

800-734-1630 | www.metamatrix.com

Booth 416

MetaMatrix is the leading provider of data services management software that makes distributed information accessible and manageable, breaking through traditional barriers of location, structure, semantics, and context. MetaMatrix is in use at organizations like Merrill Lynch and the Defense Information Systems Agency.

**Opera Software**

47 2416 4000 | www.opera.com

Waldermar Thranes gt 98 PB 2648 St.

Hanshaugen 0131 Oslo, Norway

Booth 316

Opera Software is a global leader in web browser technologies for PCs, mobile phones, and other devices. With Opera Mini, the web browser for low- and mid-range handsets, Opera is now bringing the Internet to the world's 700 million Java™ technology-enabled phones.

**Palantir Technologies**

Palo Alto, CA

650-380-1446 | www.palantirtech.com

Booth 438

Palantir enables professionals to visualize and interact with vast amounts of structured and semi-structured data in new ways. Palantir is backed by some of the world's top entrepreneurs, and does exciting work with multi-billion dollar hedge funds and global intelligence organizations.

**SMS.ac**

255 G. St., Suite 723, San Diego, CA 92101

619-696-1159 | www.sms.ac

Booth 1634

SMS.ac is the world's largest mobile community and marketplace, meshing together a growing, interactive society of 50 million members in 180+ countries with hundreds of mobile operators to create a global wireless communications network for the exchange of information, products and services.

## STARTUPS

IS Squared . . . . . 1616

SolovatSoft . . . . . 1616

Kallisto Productions, Inc. . . . . 1616

## BOOTH CORRECTION

Fiorano Software Inc. . . . . 538



# Be More Productive Developing Swing Applications

Dana Nourie

May 2006

The room was full for this session on speeding up Java™ Foundation Classes/Swing (JFC/Swing) production. The speaker, Ben Galbraith, asked the audience to raise their hands to show who had experience with Swing, who was just learning, and who considered Swing a productive technology to create user interfaces (UIs). The room was evenly divided between experienced and new users, and only a few hands went up in response from those who considered Swing a productive environment in which to create UIs.

Galbraith agreed that Swing technology could be difficult, but he demonstrated how to simplify this technology and make it more productive.

## Use a Cross-Platform Look and Feel

Developers know that creating widgets for a specific platform can reduce the number of users for their applications. And there is the problem of varying monitor sizes and different resolutions. But Swing's `plaf` widgets for look and feel can be unappealing, and creating custom widgets can be even trickier, time-consuming, and difficult to use effectively. Vendors are unable to support a small set of looks, let alone a larger base. According to Galbraith, the solution lies in creating a cross-platform look and feel using the JGoodies Plastic family, which has the following benefits:

- Improved readability, legibility, and usability
- Improved aesthetics, which look good on most desktops
- Simplified multiplatform support
- Precise microdesign

See <http://www.jgoodies.com/products/> for details.

## Use a GUI Builder

In the recent past, graphical user interface (GUI) builders were difficult to use and did not do everything that developers needed them to. That has changed dramatically, especially in the last two years. Now, you can get great GUI builders that save a lot of time and frustration. What you can do in a few minutes in the builder would likely take you much longer to code by hand.

Galbraith recommends the following IDEs:

- JForm Designer: <http://www.jformdesigner.com>
- NetBeans™ IDE: <http://www.netbeans.org>
- JetBrains' IntelliJIdea: <http://www.jetbrains.com/idea>

Secondly, Galbraith recommends decoupling your applications from your GUI builder. Load the UI definition at runtime and bind behaviors to them. Dynamic and static GUI building can be mixed easily, and you can tweak a visually built GUI. This is often not the case with handwritten code, where inconsistencies and typos can have you searching line after line of code for errors.

## Avoid Swing's Default Layout Managers

Learning all of Swing's default layout managers can take a while, and getting all your objects where you want them and the size you need them in the managers can be difficult. According to Galbraith, everything you need is in two modern layout managers:

- JGoodies FormLayout: <http://www.jgoodies.com/products>
- GroupLayout: <http://www.netbeans.org>

FormLayout is a powerful, flexible, and precise general-purpose layout manager. It places components in a grid of columns and rows, allowing specified components to span multiple columns or rows.

GroupLayout is the layout manager at the core of Matisse, the new GUI builder in NetBeans IDE 5.0. GroupLayout will also be included in the final release of Java™ Platform, Standard Edition (Java SE) 6, code-named Mustang.

## Externalize Widget Styling

Manually styling widgets leads to inconsistencies and can be impossible to get right. For instance, setting a font in bold in most GUI builders results in hard-coding the font family or type. Instead, consider using Cascading Style Sheets (CSS) to style Swing components. CSS can provide simple styles for your Swing fonts in much the same way as they do for the web.

For example, this is a sample of CSS:

```
foo { font-family: Arial,sans-serif; border: 1px solid black }
.bar { margin: 4pt }
```

Then use client properties to assign selectors, like this:

```
org.galbraiths.clarity.styleClass
org.galbraiths.clarity.styleId
```

Or you can use Swing's name property. In this way, you use an external file:

```
JTextField.myStyleClass {
font-size: -2pt;
font-weight: bold;
font-family: Courier New;Courier;
}
```

Through your code, you indicate this:

```
JComponent.putClientProperty("style", "font-size: -2pt; _");
```

Then you apply the styles at runtime:

```
JFrame frame = new JFrame("My Frame");
RuntimeForm form = RuntimeFormFactory.getRuntimeForm("Foo");
frame.getContentPane().add(form.getRootComponent());
FormDecorator.decorate(frame.getContentPane());
frame.pack();
frame.setLocationRelativeTo(null);
frame.setVisible(true);
```

## Employ Declarative Widget Configuration

Performing common configuration on widgets can be tedious. Tables are the best example if you consider the amount of code required to center a column's contents. A declarative widget configuration system—such as DSL, XML, a properties file, or whatever else you prefer—helps dramatically.

## Use Binding and Validation Frameworks

Getting and setting values on widgets and converting them to the appropriate type is tedious, and so is displaying meaningful error messages to the user. Binding and validation frameworks perform all of this plumbing for you.

- Use `PropertyChangeListener` and Swing listeners
- Manually invoke `firePropertyChange` in all setters
- Copy values at explicit moments, such as `copyValuesFromUI()` and `copyValuesToUI()`
- Use listeners with widgets, but explicitly copy them from beans

Recommended key binding frameworks:

- JGoodies bindings
- SwingLabs bindings

Key validation frameworks:

- JGoodies validation

## Enhance Swing's Action

Event handling in Swing has a few weaknesses. Disabling components properly is tricky, and threading can be painful and tedious. Reusing event-handling logic across multiple event types is repetitious.

To overcome these annoyances and speed up production, `Action` can be subclassed and enhanced. You can also add a lot of convenience functionality to `Action` in the process. Create a simplified Listener API. Enhanced `Actions` can emulate this approach:

```
bindAction(action, component, Event.MouseClicked);
```

You can define a sensible, default event mapping for components that don't natively support actions, such as `bindAction` on a `JTable` binds to selection changing.

## Introduce a Form Concept

The act of creating and displaying a screen and handling navigation is time-consuming. Standardizing how these elements are resolved increases development speeds and productivity.

Unfortunately, time ran short for this session, but Galbraith demonstrated that you can achieve tremendous productivity with Swing by focusing on a single look and feel, using a GUI builder and new layout managers, reducing API complexity—and the amount of code you need to write—by externalizing styling and configuration, automating binding and validation, and standardizing forms. ■

# Top Java Products Honored

## Java Vendor Community Convenes to Honor Top Products, Leaders

Editors of *Java Pro*  
May 2006

IBM, Sun, and Oracle each earned several awards at the Java Technology Achievement Awards gala held Wednesday night at the W Hotel. The event, cosponsored by Sun Microsystems and *Java Pro*, honored the top products of 2006 as selected by *Java Pro* readers. It also comprised the Java Community Awards, selected by a panel of *Java Pro* editors and presented to individuals and organizations that have contributed the most to Java technology.

Fawcette Technical Publications vice president of publishing Jeff Hadfield conducted the awards ceremony, with a special welcome from Richard Green, executive vice president of Sun Software, who congratulated the winners for their outstanding technical achievements and pointed out the diversity and innovation that is the hallmark of the Java technology marketplace.

### 2006 *Java Pro* Readers Choice Awards Winners

*Best Mobile Development Tool*  
Oracle  
JDeveloper

*Best Web Services Development Toolkit*  
Sun Microsystems  
Java Web Services Developer Pack  
*Best IDE*  
Eclipse Foundation  
Eclipse  
*Best Java Development Suite*  
Eclipse Foundation  
Eclipse  
*Best Visual Bean/Component*  
BEA  
WebLogic Workshop  
*Best Java Reporting Tool*  
Business Objects  
Crystal Reports  
*Best Java Graphics Tool*  
Apache  
Batik SVG Toolkit  
*Best Team Development Tool*  
Apache  
Ant  
*Best Java Modeling Tool*  
IBM  
Rational Rose XDE Professional  
*Best Java Performance/Testing Tool*  
JUnit.org  
JUnit  
*Best Java Messaging Tool*  
IBM  
WebSphere MQ  
*Best Java EE Application Server*  
JBoss Group  
JBoss Application Server  
*Best Java Enterprise Portal Technology*  
IBM  
WebSphere Portlet Factory

*Best Enterprise Application Integration Technology*  
IBM  
WebSphere Application Studio, Integration Edition  
*Best Java Data Access Tool or Driver*  
BEA  
WebLogic Liquid Data  
*Best Java Optimization/Profiling Tool*  
Oracle  
JDeveloper  
*Best Web Services Management Tool*  
IBM  
WebSphere Studio Site Developer  
*Best Installation Tool*  
Macrovision  
InstallAnywhere  
*Best Java Virtual Machine*  
Sun Microsystems  
Sun Microsystems SDK/JDK  
*Best Pure Java Packaged Client/Server or Distributed Application*  
db4objects  
db4o  
*Best Pure Java Packaged Client/Server or Distributed Application*  
Spectrum Software  
SpectrumSCM

**Java Community Awards**  
*Outstanding Contribution to Java Technology*  
Bill Shannon, Sun Microsystems  
*Outstanding Contribution to the Java Community*  
Sun Microsystems, JSR 220 Enterprise JavaBeans 3.0  
Oracle, JSR 220 Enterprise JavaBeans 3.0. ■

## JavaOne Pavilion Passport Program

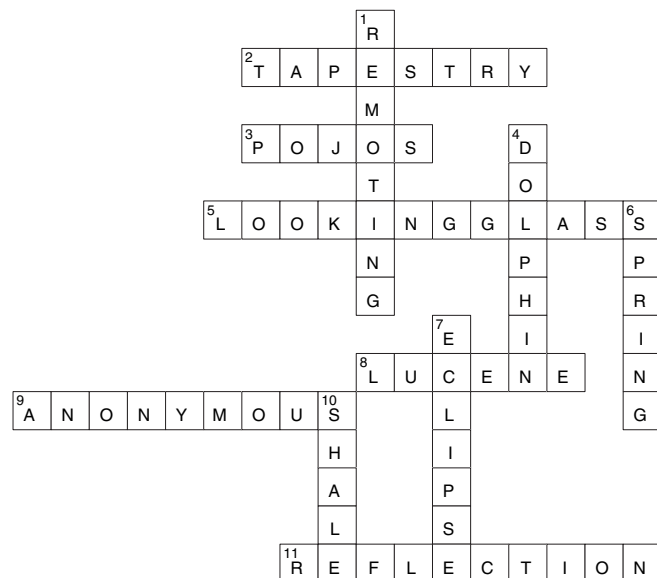
Today is the last day to meet the cosponsors and exhibitors in the JavaOne Pavilion. To participate in the JavaOne Pavilion Passport Program, simply have your Java Card electronically stamped (scanned) at each participating cosponsor and exhibitor booth during Pavilion hours.

Once you have obtained a stamp, have your Java Card scanned and validated at the JavaOne Pavilion Passport Program Validation Center. You will then be automatically entered into the JavaOne Pavilion Passport Program electronic raffle!

The electronic raffle takes place daily when the Pavilion closes. Attendees need not be present to win. Winners are announced the following day at the JavaOne Pavilion Passport Program Validation Center and are also contacted by email.

Participating cosponsors and exhibitors: Actuate, BEA Systems, Inc., Compuware, IBM, ICESoft, Justsystems, Motorola, Nokia, Oracle, Quest Software, SAP, Sun Microsystems, Inc., and Terracotta.

## Answers to TODAY's Crossword Puzzle



## Answers to TODAY's Sudoku Puzzle

3	1	8	7	6	9	2	5	4
4	5	9	2	3	1	6	8	7
7	6	2	4	8	5	9	1	3
1	2	6	9	5	3	7	4	8
9	4	5	8	2	7	1	3	6
8	3	7	1	4	6	5	9	2
6	9	4	3	1	2	8	7	5
2	8	1	5	7	4	3	6	9
5	7	3	6	9	8	4	2	1



# Service Oriented Business Integration

Integration services are at the heart of any Service Oriented Architecture. Integration solutions have traditionally required the use of non-standard technologies to create functional systems. Java™ integration efforts are focused at standardizing the core architectural elements of an integration architecture.

**Project Open-ESB**, initiated by Sun™, is an open community effort to create an open source service bus leveraging the latest industry standards such as Java Business Integration (JSR208). This project provides developers the opportunity to collaborate within the projects and contribute to defining the next generation of OPEN enterprise service bus, releasing the shackles of existing proprietary solutions. For more information, please visit: <http://open-esb.dev.java.net>.

**Java Business Integration (JBI) specification (JSR 208)** defines the core of a service oriented integration bus and component architecture for SOA. It standardizes the common message routing architecture, plug-in interfaces for service engines and bindings, and a mechanism (Composite Service Description) to combine multiple services into a single executable and auditable unit of work. For more information, please visit: <http://java.sun.com/integration>.

## At the Pavilion

### Sun

**Java Business Integration (JBI) Community**  
- Pod #746

**Project Open Enterprise Service Bus (Open ESB) and Open Integration Community**  
- Pod #744

**Sun Java Composite Application Platform Suite**  
- Pod #704

### Partners

**Fair Isaac Corporation**  
- Booth #1312  
**JBoss, Inc.** - Booth #768  
**LogicBlaze, Inc.** - Booth #202  
**TIBCO Software, Inc.**  
- Booth #422

## Learn more about Java™ and integration services

Plan to attend one or more of the following tech sessions to learn more about Java and integration services:

**TS-3175 Building a Web Service with BPEL and Java EE Platform**  
Thursday, May 18, 1:30 p.m. - 2:30 p.m.

**TS-1076 Practical SOA Business Integration Using OpenESB**  
Thursday, May 18, 4:00 p.m. - 5:00 p.m.

## JBI Community Continues to Grow

The JBI community continues to grow, with the following companies:

AC Corporation	Fair Isaac Corporation	LOCHERT	Pervasive	Synoptica Limited
Active Endpoints	I.D.I Technologies	LogicBlaze, Inc.	Polar Lake	SYSTEMA Computer
Applation, LLC	Indorion, Inc.	May Consulting Corp.	Prima Solutions	Solutions Corp.
Cap Gemini	Intalio, Inc.	Merge3 Technologies	Prometheus	TIBCO Software
Cape Clear	Integer Software	Group, LLC.	Technologies, LLC	Trace Financial
Chana Cohen Systems Ltd.	Solutions Pvt Ltd	Nordija A/S	Psion Teklogix, Inc.	Yaaman, Inc.
Consulting an Enterprise	IONA Technologies	Optimal Solutions	Sonic Software	
Integrations S.A de C.V	JBoss, Inc.	Pardus d.o.o.	Sun Microsystems	

For more information on the JBI community or to join the Sun Partner Advantage JBI Offering, please visit: [www.sun.com/partners/JBI](http://www.sun.com/partners/JBI)



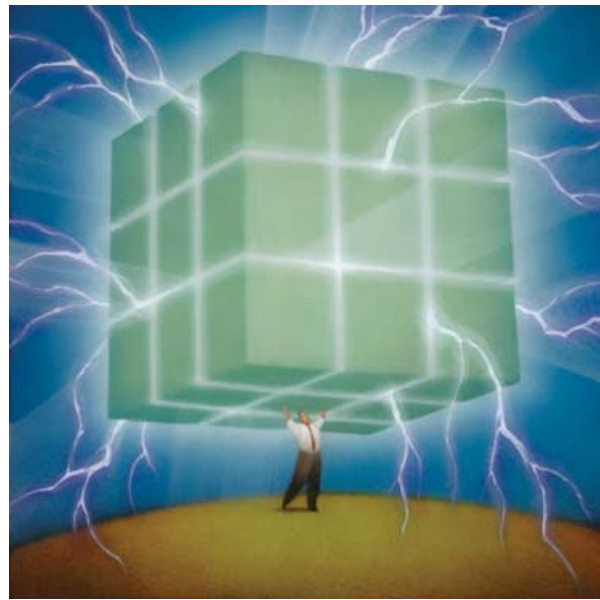
Sun Microsystems, Inc. 4150 Network Circle, Santa Clara, CA 95054 USA Phone 1-650-960-1300 or 1-800-555-9SUN Web [sun.com](http://www.sun.com)

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