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A JCP Primer for Executives
The Java Community Process — A Hidden Force in Business

— Sun Microsystems, Inc.

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Introduction

Many executives have heard high-tech suppliers tout the wonders of standards-based technology. Hurwitz Group supports the notion that effectively engendered standards encourage vendor cooperation, drive technology adoption, and motivate the development of state-of-the-art technology. At the same time, standards managed in an overly academic fashion fall by the market wayside, adapting too slowly to the real world swamped in changing business conditions. Successful standards eventually mirror the demands of the business community, not academic dogma.

If you go looking for proof that standards can change and drive business models, you need look no farther than Internet standards. Athough executives will not likely submit to a test that measures their ability to decipher the now commonplace Internet standard acronyms like TCP/IP, HTTP, and HTML, most executives realize that agreement on networking protocol standards made the Internet real for business. The effective birth, maturation, and sustenance of Internet standards has proven essential to the sensational and ongoing, albeit controversial, penetration of web-based technologies into business.

Java™ technology has also grown dramatically in prominence as a core technology used for business solutions. The Java Community Process™, or JCP, shoulders the responsibility for the care and feeding of the Java technology standard. JCP traces its roots back to the research and development labs of Sun Microsystems, and then to the JavaSoft unit at Sun Microsystems, before emerging as the multisponsored JCP. Even with the strong Sun heritage, the community spirit that burst onto the scene regarding Java technology in 1995, now embodied by JCP, has largely supplied the force behind the adoption and evolution of Java technology. JCP's job, therefore, consists of keeping the momentum going, while ensuring that Java technology brilliantly serves its intended market: *business* information technology.

This paper offers an executive perspective on Java technology, and in particular delves into JCP's role. The intention here is not to offer an introductory course on Java-speak, or to attempt to turn executives into technicians. Rather, this content aims to familiarize executives with the business underpinnings of Java technology, and with how JCP ensures that the needs of business are placed at the top of the queue in the ongoing rollout of core Java technology.

Java Technology's Role in Your Organization — JCP's Role in Java Technology

Curing Executive Sleep Disorder

What keeps executives up at night? Undoubtedly, obtaining the best possible return on technology investments ranks as one of the principal challenges facing senior management in today's business environment. The trick to optimizing technology investments, as in so many executive endeavors, involves balancing the short term and long term — successfully meeting tactical business demands without undercutting strategic intentions.

The other aspect of information technology that haunts executives revolves around answering the question: "Are we investing in technology for technology's sake, or making technology investments based on business value?" Although executives usually understand and even appreciate falling in love with technology for technology's sake, they also understand that technology investments need to stand the test of business value first. In addition, they understand that totally curbing technology creativity and innovation can prevent competitive differentiators from rising to the surface. Again, savvy executives aim for balance, for example, ensuring that the business value of technology receives the highest priority, yet encouraging technical ingenuity.

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Java Technology Means Business to Your Organization

Java technology's basic value proposition to organizations, for profit and nonprofit organizations alike, centers on the concept that technology used for business solutions should be just that — business oriented. Business developers should not need to worry about underlying infrastructure technologies, like hardware, operating systems, device drivers, database access, messaging, and other forms of middleware. Their expensive yet essential skills should deliver on business requirements, not technology requirements. Java technology's mantra of "Write once, run anywhere," therefore, produces value more far-reaching than technology value, extending directly into business value, including:

▶ By buffering business technology from infrastructure technology, Java technology helps companies excel at delivering solutions that meet near-term "time-to-value" business demands.

▶ Java technology offers a strategic architecture that cuts across operating systems, vendors, and time, offering organizations the best long-term option in terms of protecting and leveraging business value achieved through technology investments.

▶ The best-of-breed software development features designed into Java technology mean your developers work with object-oriented best practices, creating value for here-and-now business technology projects, yet emphasizing reuse over the long run. By encapsulating business processing for reuse, Java technology continuously helps business respond to time-to-market pressures.

These three key factors, however, do not come close to delineating all of Java's benefits to your organization. For example, Java technology's security model helps temper risk in virtually every business technology solution where it is applied. Another often cited benefit relates to the daunting task of retaining technical talent: Programmers often prefer to work with Java technology. In addition, Java technology encourages technologists to think in out-of-the-box ways, which may lead to competitive edges.

Suffice it to say that Java technology's role in your organization consists of offering secure, dependable, yet cutting-edge development- and platform-independent infrastructure technologies that enable your technicians to best respond to the needs of the business, near term and strategically.

JCP's Job: Protect the Business Value Proposition of Java Technology

The JCP oversees the evolution of core Java technology. JCP, a consortium of supply-side technology vendors, technology service providers, and end-user organizations, creates and manages processes to ensure that Java technology, and the resulting platforms, mature in a responsible yet market-responsive manner. Much like Java technology's dual role of offering enterprise-ready tactical technology that also supports strategic thinking and initiatives, JCP plays multiple roles. On the one hand JCP acts as the steward that ensures that Java platform technologies are both reliable and sturdy enough for the most rigorous enterprise use. At the same time, JCP acts as the stage manager and the director, enabling the best minds of the Java community to come forward and share their creative force.

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By extension, therefore, JCP works for you — the executive. When your company invests in Java technology, you subtly acquire the results of many years of technology orchestration conducted by JCP and its predecessors. When a development team turns out a Java-based solution that supports your best business practices in a timely and effective fashion, the solution rests on a foundation born, nurtured, and tuned by JCP participants. Just as your company employs Java-based technology products to respond to market conditions, JCP has responded for several years now to the market conditions communicated by the combined, global user community of JCP's membership.

Before delving further into JCP, perhaps you need to know more about JCP's charge, Java technology. The claim that JCP works for the best interests of executives requires some context of what Java technology is about and where it came from.

From Oak to JCP: A Mini-History of Java Technology

Java technology's history reads like a modern fable. The hundreds of educational books published about Java technology, plus several biographies, already chronicle the story in detail. Nonetheless, for the uninitiated, and in particular for understanding the reasons behind the rise of the JCP, here's an abbreviated version of the tale of Java technology.

Oak to Java on the Wings of the Web

Ancestral Java technology came from a Sun research labs project known as Oak. The design goal for Oak was simple, although ambitious. The embedded software market always required that software get burned into semiconductor chips. Once the software was burned, you could no longer change the software. Oak hoped to create a device- or semiconductor-independent intermediate software layer — thereby eliminating the specialty software development required for each device or chip. In theory, you could use the same environment for developing and executing software for a set-top box (like your TV cable box), a telecommunications device like a phone handset, or even an embedded automotive chip. "Write once, run anywhere" was baked into the genes of Java technology.

Oak, however, encountered substantial engineering hurdles, and Sun contemplated scratching the project. During 1995, however, a new phenomenon, known as the World Wide Web, with its revolutionary user interface, the browser, landed loudly into global consciousness. One of the

problems with the Web, however, was its static user interface compared to the graphical user interfaces already available on personal computers and workstations. The web browser was easy to use, but not very useful. Sun scientists and product managers reasoned that Oak, through Java, could solve that weakness in the Web. By making the "run anywhere" portion of Java technology, today known as the Java Runtime Environment, work in concert with the browser and local operating system, any Java-based program downloaded over the Web could run anywhere, regardless of computer hardware or operating system.

The idea of a rich, platform-independent environment available ubiquitously due to the Internet was too enticing for technology vendors to ignore. In December 1995, less than six months after Sun's original unveiling of Java technology, virtually every major computer industry company announced support and in many cases signed licensing and/or partnership agreements with Sun to help fuel Java technology's expansion and maturation.

From Embedded to Client to Server to Embedded

In early 1996, in order to manage the exploding interest in Java technology as well as to oversee the development of core Java technology, Sun formed the JavaSoft business unit. For the next several years JavaSoft worked with licensees to build out Java technology's promising, but relatively immature, foundation.

During JavaSoft's stewardship of Java technology, Sun considered turning over Java to a nonprofit, open steering committee. Several roadblocks ensued, however, including some natural competitive side effects between Sun and some of the Java technology licensees. Another barrier was Sun's own reticence to pile such a huge undertaking, with far-reaching and quickly expanding business implications, onto a politically and process-correct, yet necessarily slow-moving, standards group. At the same time, the JavaSoft model, practical during Java technology's childhood, was clearly not going to give the Java community what it needed for a rapidly approaching adulthood.

Even though Java technology started out as a way to help save the web browser from its user interface limitations, it quickly morphed into an enterprise software monster. Developers, and JavaSoft, reasoned that if you could "write once, run anywhere" for different computing clients, why couldn't you do the same for servers? Ironically, many of the technical idiosyncrasies associated with user interfaces that tempered Java technology's use in client environments

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were not issues in server environments. It turned out that Java technology made perfect sense for the emerging set of server-based enterprise solutions of the late 1990s, and hence Java technology's use for server-based solutions eclipsed even the most optimistic of predictions.

At the same time. Java technology's original purpose, as a platform independent intermediary for handheld, specialty, and embedded devices, began to reach maturity. With Sun and its partners in the telecommunications and microelectronics industries renewing a focus on using Java technology for its original "Oak" purpose, great technical strides were made to the point where Java technology now is in a renaissance for use in handheld and mobile devices.

Three Platforms + Enterprise Penetration = JCP

Realizing that Java technology had begun to separate in focus in three directions, including client business applications, server business applications, and device/embedded applications, JavaSoft began to split Java technology's foundation into three platforms. At the same time, the overall sense of the Java community was changing: Even though JavaSoft understood the business importance and underpinnings of Java technology, JavaSoft was culturally focused on developing technological aspects. Java technology and the platforms, however, had become a business and market tour de force, not just a technology.

Sun, with its Java technology licensees and partners, endeavored to find a more effective stewardship model — one that would transport Java technology to the next phase. The idea was to expose Java technology to more influence from domain experts, both business and technical; to involve service providers and end-using organizations that ultimately implement Java-based business solutions. The result of that effort to create a market-sensitive standards group is the Java Community Process.

The result is today's JCP, sometimes referred to as JCP 2.0, not only to align with the current commercial version of the Java technology, but also to communicate the idea that JCP has already gone through its own transformation. JCP currently consists of two executive committees, one committee dedicated to propelling two of the three Java platforms (J2SE™ — Java 2 Standard Edition for desktop computing, and J2EE™ — Java 2 Enterprise Edition for server-based enterprise solutions) and one committee focused on J2ME™ (Java 2 Microelectronics Edition) for handheld device and embedded computing. Each committee consists of industry leaders in the development, implementation, and use of the applicable technologies.

A JCP Program Snapshot

How does the process work? The entire process, the committee memberships, and the details of the JCP, can be found at www.jcp.org, but a thumbnail version of the process follows:

JCP members can submit ideas for enhancing a particular Java platform. These ideas are known as "JSRs" or Java Specification Requests. Each JSR goes through a standard review, approval, and possible implementation cycle by JCP members. The steps include an open public review of the proposed JSR, followed by a vote by the appropriate executive committee. If the JSR receives the go-ahead, a specification lead is appointed and an expert group is formed. The "specification lead" and the "expert group" refine the JSR to the point where it is ready for implementation. At that point, the specification lead works with the applicable engineering team to develop a reference implementation. The engineers put the implementation through its paces in terms of tests and compatibility with the rest of the platform. A similar cycle is used to maintain existing portions of the Java platforms.

The JCP's technique for advancing Java technology works similarly to the other most influential standards bodies in the software and larger computer industry, such as the W3C and the OMG. W3C, the World Wide Web Consortium, oversees many of the Internet's and Web's core technologies, such as HTML and XML, and the emerging Web Services standards. OMG, the Object Management Group, manages the CORBA (Common Object Request Broker Architecture) standard used as the distributed objects. OMG also oversees the Universal Modeling Language, UML, standards used by systems analysts and other computer scientists, and the new platform-neutral Model Driven Architecture, or MDA. Overlap naturally occurs between the technologies monitored by these groups, as well as others; cooperation between standards committees is as essential to the proliferation of standards-based technologies as working with domain expert vendors, service providers, and end-user companies.

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Each standards committee has a unique set of objectives for how it approaches its job. Those objectives typically are derived from the unique value proposition of the associated technology. What, therefore, are JCP's goals for Java technology?

JCP's Model for Open Software Development

Here is how Hurwitz Group summarizes JCP's overall objectives for Java technology. In general, we view the goals in two categories: (1) Design goals, which give the overall marching orders for how Java technology should advance, and (2) process goals, which set the tone for how Java community members can support one another and realize business benefits from the advancement of Java technology and platforms. The individual objectives within each category of goals follow:

Design Goals

▶ **Cross-platform.** Java technology should run, with minimal to zero alteration, on any platform. The underlying business goal is to ensure that businesses protect technology investments, and to empower businesses with choice by eliminating or reducing the effects of vendor lock-in.

▶ **Viable for business.** Developers should focus their efforts on business solutions, not on manipulating core technologies.

▶ **Simplify the most complex tasks.** Certain types of business solution development tasks typically take inordinate amounts of expensive technical expertise. Java technology will focus its platform enhancements to significantly simplify how those tasks get done.

▶ **Time-to-market optimization.** Java technology should empower businesses to adapt as rapidly as possible to changing market conditions. The associated development technologies of Java technology, therefore, should certainly aim for best-of-breed status.

Process Goals

▶ **Open, inclusive, disciplined.** Interested domain experts should not only have access, but should even be encouraged to actively participate in the ongoing development of Java technology. At the same time, since Java technology's use is primarily for business, the process must also contain structural integrity and checks and balances to ensure design and reference implementation viability.

▶ **International.** Java technology spans the earth. JCP needs, then, to involve experts from all corners of the earth, regardless of language, time, and cultural differences. The resulting Java technology, therefore, should be readily digestible across languages, countries, and cultures.

▶ **Actionable.** The Java platforms must evolve at market speed. Although all ideas for Java technology should receive due consideration, only those that carry a strong chance of becoming actionable in the marketplace deserve action.

JCP Participation: Looking for Vertical Industry Leaders

When the brakes were taken off of the Java technology bandwagon in late 1995, virtually all of the companies that jumped onboard were technology vendors — naturally. At that early stage, technology vendors were better positioned to discern Java technology's value, whereas it made sense for end-user companies to adopt a wait-and-see attitude. The current platform's executive committees consist of the who's who in computing, but given Java technology's depth of enterprise penetration, it now makes sense to load up the JCP executive committee with major, end-user companies. Hurwitz Group encourages vertical industry leaders to step forward and participate more actively in JCP, even at the executive committee level. Given JCP's "viable for business" primary objective, it makes sense to get some of the actual business users into the mix.

Even if your organization doesn't take the step toward executive committee participation, your company can become a JCP member. Dozens of major companies other than technology vendors already participate as JCP members (go to www.jcp.org/participation/members/index.jsp for a list). Members can participate in public reviews, but can also submit JSRs and nominate themselves to expert groups which translates into direct involvement with writing final specifications. By having your company participate directly in JCP, you get to directly influence Java technology and also help guarantee that Java technology will not lose its business perspective. In addition, JCP participation may help your company find new relationships and partners, discover technologies that help your competitive position, and stay on the inside track of one of the most important core technologies for business.

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The Hurwitz Take on JCP: A Quiet Success, A Giant Success

Given all of JCP's goals, history, and resources, how is JCP doing on your, the executive's, behalf? First of all, Hurwitz Group believes that JCP (most ironically, given the levels of hype Java technology has received over the past half-decade) has done a yeoman's job with very little public recognition — perhaps by its own choosing. Since JCP's job involves making the companies that build and use Java-based products successful, JCP might think it unseemly to blow its own horn. Therefore, Hurwitz Group will do it on JCP's behalf.

JCP offers the ultimate proof of concept that coopetition between technology vendors can work. Many of JCP's key participants include technology vendors locked in bitter competition in the marketplace. Yet, you would be hard-pressed to come up with more exemplary samples of combatants agreeing to put aside their arsenals and join together for the common good of business. JCP has managed, against great odds, to strike the right balance, tempering time-to-market with architectural soundness, technological creativity with real-world business demands.

The winner here is you — business executives. Many of you have already survived the rise and fall of dot.coms, and many of you survived by developing your own technology defense systems — web sites. In many cases, Java technology was the enabling technology of those web sites, including the remaining, hopeful dot.coms. Even more compelling, however, is how Java technology translates into profits. The slow but inexorable revolution in business-to-business largely requires sophisticated products built and/or customized by your company — in Java technology. When you smile at tightened production cycles, at well-managed inventories, at improved customer service, at more responsive sales teams, at outmaneuvering your competition, do not be surprised to find that Java technology is one of the taproots of your success.

Right now it might seem that the softer economic conditions give businesses a bit of a chance to breathe. With the blush worn off the dot.com revolution, and the business cycle revving at slower, more conservative speeds, maybe executives should take the opportunity to wonder about the next revolution. You know it will come, in some form; that is the nature of this technology-fueled era of business. Will wireless and mobile technologies change the face of your industry? Will the next generation of embedded devices reroute your supply chain? Will pervasive networking shrink the global nature of business even more? In some way, shape, or form, these, and other technology-led revolutions, await the business executive. Some of you might scoff, some of you might doubt, but the winners will embrace techno-business change — at the right time with the right pressure. We can pretty much guarantee you of one thing: Java will act as a primary force in shaping these business model changes, and JCP will work in the background, as your agent, shaping Java technology.

About Hurwitz Group

Hurwitz Group, an analyst, research, and consulting firm, is a recognized leader in identifying and articulating the business value of technology. Known for its real-world experience, consultative style, and pragmatic approach, Hurwitz Group provides strategic guidance to its clients by delivering analysis, market research, custom content, and consulting services. Clients include Global 2000, software, services, systems, and investment companies.