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The Java Community Process (JCP SM): Building the Future of Wireless

— Sun Microsystems, Inc.

▶ Hurwitz Report

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EXECUTIVE SUMMARY

The Java Community Process (JCP SM) is the means by which Java technology continues to mature and address the growing challenges of computing. Whether for business or consumer activities, the JCP provides a unified architecture, a set of technologies, and democratic processes to enable developers to build compelling solutions. The JCP's openness and inclusiveness keep it healthy and progressive, and it attracts some of the best minds from global companies. These company members work together to build successful computing architectures for enterprise systems, desktop systems, and wireless devices.

Particularly because wireless remains a highly unexplored opportunity, those interested in building wireless solutions should look closely at the work the JCP is doing with Java 2 Micro Edition TM (J2ME TM) — a collection of wireless architecture technologies. Through J2ME, the JCP is providing a solid foundation for compelling wireless applications and services, and because the core is Java technology, adopters can be sure that this foundation will work on any platform and be easily adapted to new market conditions. Wireless business and consumer services are rapidly growing and impacting a global community. J2ME TM is the means for the global community to embrace wireless Java solutions.

The JCP and Wireless: Success by Committee

The success of the Java Community Process rests on several core values that not only ensure continual progress, but also ensure that all voices have a say in the future of Java. These values maintain the health of the JCP and establish foundations for enterprises to build powerful business solutions tailored to meet individual needs, yet open and interoperable across any platform. Because the JCP is open, inclusive, and evolving, enterprises can be sure that investing in Java technology is a wise investment. These are the core values that keep the JCP healthy and effective. The JCP includes over 500 company members from across the globe, with 2,000 participants representing wide experience across industries. Started in 1998, it is a mature organization with established guidelines and processes for keeping Java technology ready for new challenges. Democracy is the rule in the JCP. Led by two, elected, executive committees, the JCP members can submit Java Specification Requests (JSRs) to evolve Java and keep it in line with today's computing challenges. Through the JCP, members create standards and have those standards adopted in efficient and competitive rates of time. Through the vision of industry leaders, openness, and established processes, Java will continue to be cutting edge.

The JCP oversees Java technology and three platforms: Java 2 Enterprise Edition TM (J2EE TM), Java 2 Standard Edition TM (J2SE TM), and J2ME. The JCP preserves Java's cross-platform capability while continuing to evolve the technology and the three platforms to meet the ongoing challenges of building solutions. But the JCP is not just about setting standards, it also provides reference implementations of the three platforms. This gives developers the means to ensure that individual solutions meet the standards of the JCP. Businesses that use Java technology and adopt the platforms can be sure that their companies will have an open computing platform that won't restrict them from change and growth.

Perhaps no where is growth coming faster than in the wireless and mobile trends that are impacting the globe. Just as the Internet shattered the glass ceiling on delivering information to all kinds of new places, wireless has an even greater potential to put information and services into the hands of users across the globe. In countries everywhere, manufacturers are creating countless mobile devices that give people the reach to communicate, gather, and act on information. Coupled with the proliferation of personal mobile devices is the developing infrastructure that connects the globe into a seamless, wireless community. This community gives individual consumers a host of options at their fingertips, as well as supports a key part of work life everywhere — the mobile business. We are consumers, and to business people often on the go, having access and power to conduct business as usual while traveling is an essential part of our daily lives. To meet the challenges of these trends, the JCP stands behind

the J2ME platform — a collection technology focused on empowering mobile consumers and workers. J2ME is the open means for businesses to build end-to-end wireless solutions.

Business solutions for wireless include such things as: improved capabilities for field force workers; productivity applications for traveling workers; travel services; and overall improved coordination between mobile workers and established enterprise processes. Consumer solutions include: location and travel services; mobile commerce capabilities; entertainment; and gaming services. The possibilities for both business and consumers are limitless. But the essential key remains the ability for Java technology to power any of these efforts. The JCP provides the platforms and technologies to power a wireless world.

The Momentum of J2ME

J2ME is a collection of technology specifications designed to enable the development of applications for wireless devices. J2ME is uniquely designed to meet the requirements of a wireless world that has distinctive requirements in terms of device size, availability, and connectivity. Within the JCP is the Executive Committee for J2ME. This committee is made up of 16 members who meet once a month in two-hour conference calls, and four times a year for face-to-face, full day meetings. These meetings foster the health of the JSRs pertaining to the maturation of J2ME. The Executive Committee is the guiding force to the intellectual contributions of world's wireless leaders. Participants in the evolution of J2ME include companies such as Nokia, Motorola, Research in Motion, Ltd. (RIM), PalmSource, Inc., and Sun Microsystems — all global leaders with real world experience in the proliferation of wireless devices, usage, and services.

The JCP members working on the maturation of Java technology for the wireless world span the globe and have strong representation from Japan and Europe where wireless services are evolving more quickly. In Japan alone there are more than 5,000 J2ME applications available to businesses and consumers. This number is growing rapidly as the Japanese market is exploding with needs for new wireless services. J2ME is a reality today with over 14 million Java-enabled phones on the world wide market. This number will increase dramatically over the next several years. Nokia, just one of many manufacturers, will deliver 50 million Java-enabled phones this year, and double that in 2003. The world's leading operators are also supporting J2ME. The support ranges from NTT DoCoMo in Japan to BT Cellnet in the U.K. to Telus in Canada and Nextel in the U.S. Wireless is a global phenomenon and J2ME is right in step with it.

So what's to come from the JCP in regards to J2ME? The following are highlights from three of the twenty JSRs currently focused on the wireless space. To reiterate, these JSRs are being led by global leaders in wireless development; they are intended to preserve the device independence of Java and provide a referenceable foundation for successful deployment of Java applications for the wireless world.

▶ **JSR 75: PDA Profile for the J2ME Platform.** This JSR is proposed to provide user interface and data storage APIs for small, resource-limited, handheld devices. It is based on the Connected, Limited Device Configuration (CDLC) — a part of the J2ME platform. The key takeaway with this JSR is that it extends the current CDLC to enable application development for handheld devices that are used as personal digital assistants (PDA). These devices are characterized by no less than 512 KB and no more than 16 MB of total memory, limited power, or typically battery operated and user interfaces with a total resolution of at least 20,000 pixels, a pointing device, and character input. This JSR is intended to fill the gap of existing APIs that cover specifications for smaller devices and for larger devices. In other words, J2ME is being extended to cover any type of devices — a manifestation of the core mission of the JCP.

▶ **JSR 82: Java API for Bluetooth.** Bluetooth is an emerging standard for wireless integration of small devices. This JSR will provide a standard set of Java APIs to allow Java-enabled devices to integrate into a Bluetooth environment. It will support key Bluetooth protocols and will be extensible to other Bluetooth protocols that emerge. There are currently no standard Java APIs for the Bluetooth protocols, so this JSR is essential to extending the value of Java enabled devices in a Bluetooth environment. Here the JCP recognizes an important, emerging standard and is moving to keep Java technology in synch with the latest trends.

▶ **JSR 135: Mobile Media API.** This JSR specifies a multimedia API for J2ME, which will allow easy and simple access and control over basic audio and multimedia resources. The JSR also addresses the scalability and support of more advanced features. In other words, this JSR provides an interface to sound and multimedia capabilities of devices running J2ME. This will enable flexible multimedia functionality in J2ME applications. Some devices may only produce monophonic sounds while others may produce sampled, synthetic audio. JSR 135 will provide the groundwork to support a range of capabilities by enabling the use of basic sound, limiting hard-coded functionality that is obsolete, providing the means to access more advanced sound features, synchronizing media, and keeping a low footprint on the device. The JCP is working to develop standardized support for a range of audio and multimedia capabilities for J2ME devices. Application flexibility in terms of multimedia capabilities is a key benefit for developers.

These highlights demonstrate the JCP's ability to rely on industry leaders to recognize the extensions and enhancements needed to keep J2ME a leading set of standards that Java application developers can use to meet growing wireless needs.

Building the Open Future

The wireless world is relatively untapped and still quite uncharted. It has millions of endpoints — users needing everything from directions to medical attention to access into enterprise data resources to applications for business and entertainment. For certain the personalities and desires of each user will stimulate new applications and services that carriers and enterprises will be expected to provide. How can a business meet such a dynamic opportunity? Building solutions based on open standards created by leading minds is a rock-solid step in the right direction. As a global wireless community, we are at the beginning of what we might do. Rapidly adopting nations such as Japan are leading the exploration of wireless services. This trailblazing opens the domain for all to follow. How will we find our way? The JCP provides a roadmap.

Through its continuing development of J2ME, the JCP is keeping pace with emerging wireless needs. J2ME is the platform and set of technologies that enables creative wireless applications. But J2ME is not a closed door set of technologies. The JCP fosters its growth and keeps it targeted on solving the real world needs of business poised or already taking advantage of the growing wireless opportunity. With the JCP, we get the best minds, a set of best practices, and a commitment to shared principles that deliver the foundations for wireless solutions.

The Hurwitz Take

Hurwitz Group believes that the JCP's work is of critical importance to the longevity and open, inclusiveness of the Java world. Through its reliance on industry leaders, its well-formed processes, and its recognition that Java technology must remain platform independent, yet powerful, the JCP is ensuring that enterprises building their computing futures on Java will have the resources they need to build compelling solutions.

With its global reach and intellectual capital, the JCP is right on top of the latest trends in wireless computing. Whether for business solutions or consumer solutions, J2ME is the testament that Java technology is ready for the growing wireless opportunity. New JSRs keep the J2ME set of technologies growing and useful. Through the JCP, if there is a will to create inventive new wireless solutions, there is a definitive way.

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.