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PUSHING PLATFORMS: CORPORATE VENTURE FUNDS

In August of 1996, the respected Silicon Valley-based venture capital firm Kleiner Perkins Caufield & Byers (KPCB) and Sun Microsystems announced a \$100 million venture fund to be targeted at start-ups that employed Sun's then-new Java technology. Funds for the venture would come from KPCB, Sun, industry heavyweights Netscape, IBM, Novell, Oracle, and others. The creation of the fund was heralded as both a powerful endorsement of the technology by a successful and savvy Silicon Valley venture firm, and a shot in the arm in the development of Java-based applications.

At the same time, a subtle story was unfolding: Sun, in an attempt to get third-party software developers to use Java as a platform on which to build their products, directed its investment to the market, rather than to internal development. This was a bold move: the market is inherently riskier with its unpredictable volatility; Sun would have far less control over how the money was spent and the direction the companies would take; and the payoff could come far in the future or accrue to a different player entirely. The decision to proceed with the investment could have come as a product of the belief that the market is fundamentally better at allocating resources than internal management, an effort to steer the programming community towards Java, or simply a desire to take advantage of a favorable investment atmosphere. Regardless of the motivation, the platform-oriented venture fund was an experiment that blurred the line between investment activity and product development.

Technology companies have started a trend—creating their own platform-specific venture funds. The creation of these funds is an experiment in both investment activity and product development. By accepting the corporate venture fund as an important element of their strategy, some of today's most progressive technology companies have discovered a new way to connect with the market—by letting customer demand control how resources are allocated and how money is spent, they can ultimately develop a more successful product.

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Since then, many major technology companies have begun their own platform-specific venture funds. Novell, Oracle, and Sun are all pushing for acceptance of their applications as platforms, and have large funds to back start-up companies that employ their respective technologies. Intel, Microsoft, and Lucent also have literally billions of dollars marked for investment. The major players have clearly accepted the venture fund as an important element of their strategy.

Almost four years later, the Java Fund has proven to be extremely successful financially. In all, the Java Fund provided funding to 18 companies. Of those, two have been bought (one by Java Fund backer IBM), and eight have gone public, with a combined market capitalization of more than \$18 billion. Four more have plans to go public in 2000. Even if the other companies fail—although many are quite healthy—the Java Fund has already created a vast amount of wealth.

Financial returns, however, are not the only metric of success in this story. Did the Java Fund succeed in driving the adoption of Java? After four years, the story is still murky. Did Sun get its money's worth? By looking at the history of the Java Fund and Sun's development of Java, one can draw lessons about when and how to employ this strategy of using venture funds as a tool to push the acceptance of a platform, and create a network.

Opportunity

By 1995, Microsoft Windows had completely solidified its hold on the market for desktop operating systems used on personal computers both at home and in businesses. Control of the platform brought enormous rewards as Microsoft sold not only the operating system but also Office suite and development tools to other companies building applications for Windows. Most customers and software developers were locked into a Windows-only environment, tied by lack of availability of key applications on other platforms such as Apple's MacOS, IBM's OS/2, and variants of Unix. Windows appeared to be indomitable, and Microsoft seemed poised to extend its dominance on the desktop to the server operating systems necessary for business and Internet applications.

An unexpected and surprising challenge to Windows arose when Sun introduced the Java programming language in May 1995. Originally envisioned by Sun as a programming platform for embedded devices and set-top boxes, Java quickly gained stunning popularity as a language for embedding programs in Web pages. The attributes that made Java so attractive as a Web programming language—cross-platform operation, simplicity for developers, and network-centric design—stood in stark contrast to the unwieldy construction and lack of interoperability of Windows applications.

Intoxicated by the incredible velocity of early acceptance, as well as the potential for a revolutionary



realignment in power away from their hated rival Microsoft, by late 1996 Java boosters (both within and outside of Sun) evolved the Java story from a platform for small Web programs to a full desktop operating environment. With software shipped on demand to clients from servers like the ones built by Sun, Java could be a replacement for Microsoft Windows. Many of the Java Fund companies—at least their rhetoric—followed this line. If Java is the platform of the future, they reasoned, application and middleware vendors that build on that platform will be the Lotuses and Intuits of the future.

Motive

There are a number of reasons a company may choose to invest in a venture fund. Most obviously, like any investor a company is interested in making money. Venture funds have proven to be well-performing investment vehicles in the current economy, and the lure of another Red Hat, which provided enormous returns to investors Intel and Oracle, can draw a lot of money. However, that motivation begs the question of why a dollar spent in a venture fund is better than one spent on investing back into the company.

A venture fund makes money by doing one thing: creating new companies. These new companies can help the originator of the fund in many ways. The new companies can become customers or distribution channels of the investor's products—for example, a software company that starts buying many Sun servers, or ships Oracle databases along with their own product. As both early adopters and innovative

users of new technology, they will often identify issues and problems, and provide timely market feedback to platform developers. Most significant, however, is the role that start-ups can play in pushing the acceptance of a new technology platform. Mike Clary, a vice president of business development at Sun, says the real goal of platform-oriented venture funds is what he calls the "strategic return" on investment. "Especially with platforms, it can be hard to get the ball rolling," he explains. If the timing is right, key investments offer an ability to influence the market.

A new platform, or more generally any new technology, can provide a host of opportunities for new, innovative products and services. More dramatically, it can often enable not just new products but entirely new categories of products; new strategies or even business models can arise in the wake of a powerful innovation. Faced with such high stakes and high demand for innovation, it makes sense for companies to reach out for allies and partners.

But new platforms, especially those that challenge entrenched systems, face serious challenges to successful adoption by the marketplace. Because new platforms have few users, they offer very little immediate value to developers. Similarly, with few developers committed to the platform, customers will fear being stranded with a failed technology. Companies face the difficult task of convincing the market that they will eventually prevail, and the platform is most likely doomed if it fails to gain a critical mass of supporters.

New platforms that challenge entrenched systems face serious obstacles but tremendous opportunities as well. What platform start-ups can do is create a community of companies, suppliers, channels, customers, professionals, and educators that all have a stake in its success. By creating such an ecosystem, companies are encouraging healthy competition as well as creating a pool of professionals that bring a diverse set of expertise to the development of the platform. In the end, the platform will look more attractive to potential developers and the process will be smoother.

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These two forces meet head-on: platforms facing barriers to adoption can be assisted by widening the circle of those with a stake in its success, but attracting those stakeholders can be difficult until the platform has already proven its viability in the market. Breaking a technology out of this vicious cycle requires a mix of marketing, internal development, the construction of alliances, and a good deal of luck—not to mention solid technology. Start-ups can play a key role here, as they often exhibit skill at innovation beyond that of large established companies, and comparatively modest investments can proffer greater leverage with smaller-size firms.

Start-ups that build on top of a platform accomplish three things. First, the very existence of hip start-ups can gather important credibility and mindshare for the parent company or its technology. Second, they create a pool of professionals who are trained to develop products for the platform, and create a market for services and support for that platform. Finally, their innovations can add value to the platform by creating new services, features, or content that enrich all of the players in the platform. All these factors will make the platform more attractive to potential developers, and starting and nurturing this process is crucial for success.

A successful platform creates a community of companies, suppliers, channels, customers, professionals, and educators that all hold a stake in its success. Like an ecosystem, this community doesn't preclude competition; Dell and Compaq are both participants in

the "Wintel" community and are intense competitors, yet they hold a common interest in supporting the Windows and Intel brands. What Sun sought to do, and the Java Fund played a key role in assisting, was to create a Java ecosystem large enough and healthy enough to thrive and return profits to its participants, even in the face of competition—and eventually efforts at co-optation—from Microsoft.

Investors can also be platform-agnostic but interested in the demand created by new services. For example, Java Fund investor Cisco may care little about Java's intrinsic value as a platform, but to the extent that Java can drive increased traffic on the Internet, it has value to Cisco. Similarly, voice recognition and three-dimensional animation programs have little immediate value to Intel, except that their calculation-intensive algorithms increase demand for Intel processors and reinforce a model of computing that places processors at the center of the experience.

Means

Companies investing in start-ups can provide a host of intangible benefits to those ventures, sometimes more important than cash. Kevin McDonald, vice president of business development at Java Fund venture Portera, points to access to Sun's customers and channels as being a key piece of the start-up's success. Of course, as in any venture fund, investors can provide experienced management and strategic advice. But more than that, technology companies can provide hands-on engineering and development suggestions, early access to laboratories

and research, and even share technology and strategic roadmaps. All of these tools may give the start-up an enormous head start in competing in the marketplace. KPCB is known for using a *keiretsu* strategy, encouraging their many ventures to cooperate and share business opportunities.

Ted Schlein, manager of KPCB's Java Fund, also offers this observation for companies considering venture funds: "There are only three reasons start-ups take money: technology help, sales, and marketing. They want a direct tie to the operating division of the company." Corporate ventures that are separated from their operating divisions are not as successful as those that are tied in more directly, he warns.

More important, perhaps, is the simple mark of approval that comes with funding. A few million dollars from Sun is a highly visible vote of confidence in a start-up from a powerful and successful technology company. Especially in a volatile technology market that stresses buzz, name-recognition, and perceptions, having the backing of one of the major players can be decisive for success.

Post-mortem

Five years after the initial introduction of Java, the programming language and environment has in fact made some remarkable strides. Surveys of developers and job postings have found it to be the most popular development language, ahead of C++, C, and Visual Basic. Smaller consulting companies that specialize in Java support for enterprise customers are growing at

phenomenal rates. It is now among the most commonly taught programming languages in U.S. post-secondary education. And more than half of the Fortune 1000 say they are using Java for critical or important business applications.

The effort to displace Microsoft Windows as the dominant desktop platform has nevertheless largely failed to make real progress. While Java has racked up some notable wins in vertical markets, it has suffered only ignoble defeats as a platform for general-purpose desktop applications. Both Corel and Lotus halted development on their office productivity suites as Java gained a reputation as being slow and not living up to the cross-platform promise.

While Java is used in most of the Java Fund companies, none of them are ideological crusaders against Microsoft or carriers of the Java flag. Chris Marino, founder of Java Fund-backed Resonate, says his company was already using Java for some purposes before KPCB approached them in 1997. "Java was the hottest thing around," he recalls. Together with KPCB's high level of respect in the Valley, this made it an easy choice to accept the funding. Now, however, Resonate hasn't increased Java usage and restricts its use of Java in its products to certain functions, such as client interfaces. The Web-traffic routing software that is the heart of Resonate's products is written in C and C++. "Java has found its place in the technology landscape. It's good for some things and not appropriate for others," Marino explains.

While Java's original vision may have been as software on the desktop connecting to mainframes, its greatest success came as a platform for server software. This occurred for several reasons: Microsoft did not control enough of the market to prevent the emergence of competing platforms; Java's network-aware model made it a good choice for writing software; and the market for such services was at its height.

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To succeed in the business software market new entrants most likely must accept Microsoft at some juncture, and most of the Java Fund companies have done it when necessary. Corio, an application service provider funded by the Java Fund, received a \$10 million investment from Microsoft in January 2000, underscoring the fact that by using Microsoft server software, and offering Microsoft applications, it is not just a new customer of Microsoft, but it also offers a new channel for Microsoft products.

Java's greatest success came in a surprising place: as a platform for server software. While the original vision saw Java software on the desktop connecting to mainframes or other servers running legacy software, the hot products today are Java server programs using HTML to talk to Web browsers. This shift is the result of the confluence of three factors. First, Microsoft was comparatively weak in the server market. While Windows NT was successful, it did not control enough of the market to prevent the emergence of competing platforms. Second, the network-aware model of Java makes it a particularly good choice for writing server software. Finally, the market for such services was just emerging in the late 1990s, and Java happened to be in the right place at the right time, pushed by a company that keenly envisioned the network as the center of the computing experience.

The Java Fund ventures exemplified, if not pioneered, new models of software services and architectures. As the market conception of Java shifted, the ventures of the Java Fund realigned their strategy. It's not

unusual, of course, for young start-ups (especially tech start-ups) to materially change their business plan every year or so, but it's worthy to note that most of the Java Fund companies eventually turned away from client-side Java, and many did not adopt server-side Java either. While it's accurate to describe the companies in the venture as Internet plays, Java has largely disappeared from their public self-characterization. Many of the ventures repositioned themselves as vendors of newer technologies with more mindshare and buzz, like XML, directory services, application servers, and business-to-business e-commerce.

The Java Fund played a key role in ensuring the survival of the Java technology. The establishment of the fund drew attention to, and provided dearly needed validation of Java, while the technology was still struggling for acceptance, making Fortune 1000 companies more willing to consider Java. Ventures in the fund pushed a network-centric model of computing, directed at the enterprise, that ultimately paid off in a host of innovative technologies. Most significantly, the KPCB keiretsu model created a wide spread and vibrant Java ecosystem.

Even Microsoft is a participant in this Java ecosystem in many ways. Visual J++, its Java development environment, has been a best-seller, even as Microsoft attempted to tie Java to Windows. Customers of Portera's Java-driven services for mobile professionals can share documents from Microsoft Office. And as more businesses turn to the Internet, Microsoft is

ready with offerings like Windows 2000 and Internet Information Server, both aimed squarely at supporting the same Web-based services enabled by the Java Fund ventures.

The Future of Platforms Funds

The idea of platform-oriented venture funds has caught on in Silicon Valley. Sun believes in it strongly enough that it announced in October of 1999 that it was ponying up \$200 million for a new venture fund, aimed at companies building on Sun's technologies. Oracle and Novell both have venture funds for their own platforms as well. Novell started its own venture fund in late 1997, with \$50 million, and has funded 19 companies, including Java Fund member Oblix. Oracle started its fund in January of 1999, initially with \$100 million, and reportedly increased the contribution to \$500 million. It has funded at least 11 companies so far, including additional funding for Java Fund company Portera. In an unusually aggressive move, Oracle took a 10 percent stake in WebEx, an online videoconferencing company, only after WebEx switched databases from Microsoft's to Oracle's. Intel has more than a billion dollars in its investment fund, although that includes money used for acquisitions as well.

Java Fund manager Schlein cautions that venture funds focused on a single platform could suffer from being too narrow, and only make sense for large changes in the technology landscape, asking "How often do you have technology-specific shifts where it makes sense?" Platform venture funds are

appropriate only for significantly different technologies that need to be adopted rapidly in the marketplace to survive.

Sun's Clary is bullish on platform-oriented venture funds. "The idea is outstanding," he says, explaining that the attraction for Sun is in its ability to extend the reach of the organization. "It offers more influence than you can possibly have if you stay within your four walls." Echoing Clayton Christensen's book *The Innovator's Dilemma*, which he admits "swept through Sun," Clary believes that the innovative services and products will come from new, small players rather than the existing traditional powers. This will be especially true, he says, in the new regime of smart, Web-enabled consumer devices, where Java will have its next major role as an infrastructure for enabling a new generation of services offered through the network.

In a continually shifting technology landscape, where monopoly ownership of a technical standard appears ever less likely, the network—of investments, alliances, and other relationships—will not only be the computer, as Sun has long claimed; the network will be the business. Innovative companies will turn more and more frequently to indirect tools, like venture funds, to mobilize new networks in the pursuit of leadership in the fierce winner-take-most battles characteristic of both the tech market and, increasingly, the economy at large.