AFTER THE BUBBLE BURST...

SUN MICROSYSTEMS HAS TAKEN A MAJOR HIT IN THE CURRENT TECH DOWNTURN, BUT JONATHAN SCHWARTZ SAYS HARD TIMES WHET THE APPETITE OF THIS COMPETITIVE COMPANY. **BY WILLIAM HOLDER '75**

PHOTOGRAPHY BY BILL BURKHART

As executive vice president of software for Sun Microsystems, Jonathan Schwartz '87 would like to simplify modern life without sacrificing the conveniences of technology. He'd like to use his cell phone to get a Coke at a soda machine. With the same phone he'd like to open his car, his house, and the door to his building at Sun's campus-like office park in Silicon Valley. When commuting he'd like to receive calls through his car radio. He wants his refrigerator to signal a service company when it needs to be fixed.

All this can happen, he insists. There are no insurmountable technological barriers, only failures of imagination and clashes of business culture.

Such a wish list may sound heady coming from a top executive of a company whose stock went out with the receding tide of the tech boom and has been trading below $5 a share, down from a high of $64. In the past, most of Sun's revenues came from the sale of highly profitable hardware, especially large network servers. Its products were popular with dot-coms, and the massive failures of these companies has hurt Sun. Earnings per share have been in the red throughout 2002 and 2003, raising questions among analysts about the company's future.

Yet Sun has a culture that thrives on adversity, according to Schwartz. "Our strategy is

that when others are greedy, be fearful, but when others are fearful, be greedy." The company built cash reserves of more than $6 billion during the Internet bubble and has since pared its sales and support workforce.

"We are blithely confident that business will recover," he says. "The future of business is in the network, the Web.

"I have a world-class perch," he adds. "At Sun we have enormous strategic influence. People care about what we say. I don't think anyone at Sun would be here if we didn't enjoy playing the underdog, trying to be disruptive innovators. We're used to going up against monopolies—in federal court or not."

Schwartz is young and brash, like Sun itself, and has a ponytail that hints at a countercultural streak. He was a Carnegie-Mellon math major who transferred to Wesleyan because it had no course requirements and a freewheeling atmosphere that he found stimulating. He loves intellectual give-and-take, a quality that drew him at Wesleyan to an "irreverent" economics and law course offered by Professor of Economics Richard Adelstein. "He would frequently stop by my office and start schmoozing about the course material," Adelstein said. "I was struck by the depth and sophistication of his ideas. He was very bright, very lively."

The post Schwartz held at Sun until last summer was well-suited to his intellectual bent: chief strategy officer. In that capacity he had a broad horizon for thinking about the company's future and its acquisitions. Yet he had no accountability, and Schwartz began to wish for the bottom-line responsibility that goes with heading a division. Now, as the supervisor of Sun's all-important, 4,500-person software unit, he has as much accountability as he could want.

Sun's software lies behind anything connected to a network: cell phones connected to wireless carriers, set-top boxes to cable companies, or Web pages to large servers. Sun's software powers technology from supercomputers in corporate data centers and government installations to PDAs and cell phones.

Schwartz is also responsible for Java technology—found throughout the Internet and in everything connected to it. The 100 million mobile phones from AT&T, Nextel, Sprint, Vodaphone, and Verizon are Java-enabled. Java runs the software powering CNN.com, the tags retailers use to track products, and the American Express Blue Card.

John Taschek, director of labs for *eWeek,* says that the media has tended to look on Sun largely as a hardware company because, until now, its software has not had a champion.

"Schwartz has proved himself to be an effective champion at getting Sun known for its software efforts," he says. "He's begun to market the software technology that Sun has. Sun is not a market leader in software in any aspect, but it is gaining momentum, and that's because of Schwartz. Overall he's already had a tremendous impact on Sun."

Still, Schwartz has a significant challenge in convincing the market that Sun has a clear and compelling vision for how to market not just its highly respected hardware, but also hardware and software systems.

Schwartz does know how to generate buzz. Reporters flock to him for his love of intellectual battles, says Taschek. Often referred to as one of Sun's rising young stars, he thrives in the company's debate-oriented cul-

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ture and is gifted with a quick, penetrating wit. *New York Times* technology writers John Markoff and Steve Lohr described an exchange in Orlando at which representatives of American Express, General Motors, and United Airlines—part of the Sun-inspired Liberty Alliance—chided Schwartz for casting the alliance as anti-Microsoft.

Schwartz shot back, "Would any of you be here if it weren't for Microsoft?" No one disputed him.

The Liberty Alliance is indeed a challenge thrown at Microsoft over the means of identifying individuals on the Web—an arcane-sounding topic that is crucial to the development of e-commerce. Since Sun sells the hardware and software that enable companies like Bank of America to run giant Web sites visited by millions of customers, its stake in issues like this is huge. But Schwartz's vision goes beyond the competitive battlefield to the intriguing issue of how technology is affecting society.

For that discussion he pulls out his wallet and places a slew of cards on the table. First comes his Peet's Coffee and Tea card, which he can use to order coffee beans ranging from Mocha-Java to a rare aged Sulawesi Peaberry, should he so desire. Next comes his Starbucks card, then Visa and American Express, followed by Safeway. In his pocket he has a remote opener to his Volvo, his employee access card is clipped to his belt, and his cell phone lies nearby.

Why, he wonders, does he have to carry so much stuff?

Technology, in his view, goes through cycles of aggregation and disaggregation of power. The centralized mainframe gave way to the ubiquitous desktop; then power reaggregated in the Internet and Web; now it's seeping back to handsets and set-top boxes. His wallet, packed with cards, is a manifestation of disaggregation. Sooner or later, he suggests, the desire for convenience will lead to more elegant, aggregated solutions.

"I carry too much stuff in my pocket and I'd love to carry less," he says. "Technology absolutely can enable that. Has industry focused on that? No. The only reason Volvo and Nokia aren't talking to each other is that they are quibbling over who owns the relationship with the end user."

The most fierce battles in technology are being fought over relationships. It's no longer about whose chip is marginally faster. The reason Sun led in creating the Liberty Alliance was to prevent Microsoft from occupying a strategic point in Internet commerce by collecting and storing personal information on millions of people.

When Schwartz uses his Peet's card to purchase coffee at the San Francisco-based roastery, he enters into a relationship that goes far beyond a simple purchase.

"I get through the line faster. Peet's can put money on my card that takes Visa out of the transaction, saving Peet's 3 cents on every dollar. In addition, they have my money while it's in my stored value card, which means they are making money on the float. I'm beginning to assemble affinity points on my card, and it's up to Peet's to determine whether I can use this to shop at Crate and Barrel. By the way, they know what I buy, when I buy, where I buy, and maybe as a result they can run a promotion that gives me the ability to be more effectively served."

Convenience, however, has a tradeoff: For businesses to provide personalized services, you must be willing to reveal information about yourself. Perhaps it's only your preferences in coffee, or maybe it's your taste in wardrobe, the books you read, the stocks you follow, or the type of person you want to date.

"The dominant driver of technology is convenience," Schwartz says. "Younger people don't care about security and privacy in the way that older people do. They're not worried about putting their credit card on the Internet. They will do it in a heartbeat if they can get something faster."

Schwartz, a father of two young children who copes with a busy schedule, prizes convenience. His favorite Web site is opentable.com, a site that enables users to make restaurant reservations nationwide. He is sorry that Webvan went out of business because he appreciated the ability to order groceries online. He dismisses video editing software as something he doesn't need, but he would pay $100 a year for a remote service that would alert Volvo when his car needs work and, when feasible, send someone to his parking lot to fix it.

In an opinion piece for the *Boston Globe,* Schwartz commented on the emergence of service as a priority of information technology.

"We're on the verge of a new world in which network services get to know us and our personal preferences so that they can go to work behind the scenes to handle many tasks for us, often without having to be asked. The level of service will simply depend on how much information about yourself you're willing to share.

"Caution will be needed here, but it's really no different from deciding how much to reveal about yourself to another person. It's a question of how much you trust the other party.

"So it all comes down to a balancing act—managing our relationships."

The issue of trust circles back to authenticity and to the Liberty Alliance. If you "swipe" a card to enter a building, how does the security system know that you are the person you claim to be? How does a retailer know that, when you purchase a product through a Web site, you are authentic?

Sun's technology is at the heart of such systems. At a recent conference of federal government employees, Schwartz asked how many use a common access card. All of them raised their hands. He asked them to hold the cards up to the light. Each card contains a Java chip, he said, a piece of Sun technology that few people stop to consider, but that is the means by which people are authenticated to electronic networks. At the Department of Defense, for example, Sun's authentication system is enabling officials to begin rolling out smart cards to 4.3 million employees. The cards verify network identity, cryptographically store passwords, and keep demographic and benefits information.

The Liberty Alliance is a group of companies cooperating on the development of an open, federated identity standard; in other words, a means by which networks can accurately and securely identify individuals without entrusting that task to a single company with proprietary software, namely Microsoft.

Taschek credits Schwartz with doing "all the right things" to head off Microsoft, particularly rallying the Liberty Alliance to offer a competitive alternative.

In an article for *CBS MarketWatch,* Schwartz raised health care as an example of how secure authentication can open the way to major advances. Efficiency might be best served by doctors and patients sharing information among clinics, hospitals, labs, and pharmacies; but protection of privacy is critical for the success of any such system. Software must be able to recognize with infallible accuracy that a person requesting information about a patient has the right to that information—and to no more. That's the objective of the Liberty Alliance.

Without a uniform identity standard that affords strong privacy protection, the next generation of business opportunities on the Web will be stymied, Schwartz warns. As standards are developed, consumers will have to consider how much information they are willing to divulge, and companies will have to prove to consumers that they can be trusted.

The next generation of business opportunities looms like the promised land for tech companies in the current drought. Schwartz is pushing Sun toward that hoped-for future with many projects in addition to the Liberty Alliance: a challenge to Microsoft's dominance of the desktop, an ongoing effort to dominate cell phone software, and initiatives to advance management of massive amounts of data, to name a few.

"What motivates us at Sun is being part of a cause," he says. "When the cause is making the Internet open, free, and widely accessible, it's a great cause. You work because you want to be part of something larger than yourself." Ⓦ

Schwartz believes that convenience will drive technology.

A lot rides on authentication. For example, if a customer purchases a product with a credit card in a shopping mall, the potential risk of fraud, after the first $50, is borne entirely by the credit card companies. They are confident that they can authenticate purchasers within an acceptable degree of risk. If, however, a customer buys on the Web, the potential for fraud is borne by the retailer because credit card companies do not yet feel comfortable with the level of authentication on the Web. In the tradeoff between convenience and security, the retail industry has opted for convenience.