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Sun Microsystems, 4150 Network Circle, USCA22-106, Santa Clara, CA 95054 U.S.A.

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Teaching Old Data New Tricks



Your data stockpile represents critical collective intelligence for driving business value if harnessed correctly and made widely available. Sun Vice President of Identity Management Sara Gates shares with *Boardroom Minutes* readers Sun’s unique approach to tying the information lifecycle to the identity lifecycle with the goal of enabling business leaders to usher their companies into the next wave of Internet computing.

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Sara Gates shares with *Boardroom Minutes* readers Sun’s unique approach to tying the information lifecycle to the identity lifecycle with the goal of enabling business leaders to usher their companies into the next wave of Internet computing.

Q: What are the business drivers bringing data management and identity management together?

A: Companies today are struggling to manage rapidly growing amounts of data — our catch-phrase is “data sprawl.” Sprawling data means increased storage costs. It’s increasingly challenging and costly to store data and meet regulatory requirements around data protection and retention. Storage capacity growth rates are ranging from 40 percent to 300 percent per year, and storage is expensive. Storage hardware utilization rates are also very low — about 40 percent to 60 percent. At the same time, there is a need to maximize the business value of data.

On the security front, companies are struggling with how to get security under control, to enhance compliance. It doesn’t really matter to a CIO whether it’s data security, building security, network security, or application security. It just needs to be secure. As we discussed in our [last interview](#) on identity management, Sun is putting security and control in place, not to lock things down, but so that we can hit the next wave of computing, the Web 2.0 read/write Internet¹.

So it’s a natural extension to tie identity-driven security to identity-driven data management. Costs go down, security is improved, and compliance is easier to get a handle on.

The other problem is that it’s too difficult and expensive to harness the data sprawl, turn it into collective intelligence, and then make that intelligence broadly and securely available. If you don’t have an organizing principle — a way to easily and securely get to your data — then it’s not valuable.

Q: Why is harnessing the data sprawl so difficult?

A: The difficulty in harnessing data sprawl is the lack of a common anchor that brings meaning to the sprawl. Identity is the anchor and the meaning that starts to bring intelligence to the sprawl. One key area of data management is data classification, where the business value of data is associated with the data. Sun is bringing a new dimension to data management by tying identity to data. Who are you? What data should you have access to? This intelligence lets companies make data available for consumption based on a person's, application's or a Web service's identity and associated rights.

Sprawl without intelligence is just cost, but sprawl with intelligence is value. One of the ways to bring meaning to the sprawl is with identity. If we can make data identity-aware, as it's created, with information about who or what can access it, then we make it more easily accessible to the right people, and therefore much more valuable.

Q: How do tighter controls make information more widely available?

A: Cars have brakes not so they can stop, but so they can go fast. Data identity is the brake on the car. It provides the right level of security so data can be safely opened up to help the business run more smoothly. Companies need their employees, partners, customers, applications and Web services to have access to the right data. The age of anonymous computing is behind us and we're entering the age of trusted computing. Trust is based in part on identity. So the case we're making is that you have to put the control in place by deciding which identities have access to which information. Sure, it feels like you are securing it, tightening it down. But in reality you are making it safe to allow more open access to the right people. In contrast, data couldn't be less usable, and therefore less valuable, than it is today.

Q: To what extent can or should businesses use stored data for competitive advantage?

A: All should, but very few can. If a company has easy access to revenue data, cost data, attrition data, engineering cycle data, product data, marketing data — and they can access it securely and make it easily available to the right people, they can make better decisions. That's competitive advantage. Data sprawl without intelligence is the problem. Identity needs to be integrated into data, devices, applications, services, and processes — with fine-grained control that gives you security and availability simultaneously.

Q: So what is Sun doing, both short-term and long-term?

A: Short term (defined by what we are doing to help customers now), we are tying the identity lifecycle to the information lifecycle, to reduce costs and automate compliance demands.

The first thing we are doing is identity-based data consolidation. We said earlier that storage utilization rates are really low, but at the same time storage costs are on the rise. That's a problem. At the first stage of the identity lifecycle, when an employee joins the company for example, companies can automatically drive storage allocation based on role or identity. That starts to get things under control. As the employee changes jobs, gets promoted, or changes geographic locations, you can use that event to automatically drive the storage changes that need to occur. And then when people leave the company, you can eliminate much of their personal data and move the rest to the lowest-cost storage array.

One thing we found in the identity management market is that most large companies have 20,000+ dormant accounts — with each dormant account tied to stale data stored on primary storage. So the first thing we are doing is driving storage utilization based on the identity of a person or application and we're doing that via our [Sun Java System Identity Manager product](#) combined with several of our [information life cycle management products](#).

Data is only as valuable as it is available. It can only be as available as it is secure, and identity management is the agent to secure it.

The second thing that we are doing is strengthening compliance. Customers and companies now know that in order to meet Sarbanes-Oxley type demands, they need identity management for controlling who has access to business critical systems, and they need storage because they have to store compliant data in a certain way for prescribed periods of time.

Identity management today sets up accounts and roles, and manages who can access the different systems. There is a central point of control. It requires multiple approval workflows, and full auditing of everything that happens. We are now taking that capability and applying it over the multiple, secure archiving systems where all of the compliant data is stored. It's a natural extension of identity management to include the systems where compliant data is stored. It gives you more control and visibility, as well as built-in reporting by showing who has access to your archives. Now companies will be able to archive data based on identity.

In addition, an identity-based policy controls access to the archives, allowing only those people to access

Noteworthy Statistics

- Storage capacity is growing from 40%-300% per year
- Data storage now consumes nearly 40 cents of every dollar spent on IT hardware in large companies
- Storage hardware utilization is currently at only 40%-60%
- An estimated 80% of data could safely be stored on lower-cost storage
- 90% of data is seldom or never accessed after 90 days
- Mainstream businesses have higher security requirements for sharing enterprise data

archives that have a legitimate reason for doing so. We do this today across systems like SAP and Oracle and Microsoft and mainframes by looking for business policy violations based on identity and then fixing them. We are applying this same concept over the systems where stored data is residing. So if someone has access to two different archive systems and that is a business policy conflict, we find that proactively and address it. This helps strengthen compliance and security.

Q: Are Sun's competitors doing this?

A: No. This is unique to Sun. We've got a leadership position in both the identity management and data management markets and we're bringing these two disciplines together to solve real customer problems today. In terms of timing, this is the year to bring identity management and data management together. Drive down your storage costs and strengthen your compliance reporting by integrating data and identity today. Only Sun can offer this right now.

Q: What is the future for identity-aware data?

A: I think the future is about the intelligent data network where data becomes the new functionality and companies are no longer held hostage to their applications. Applications are not only composable, they are disposable. But data will be widely available and completely secure. Data will be the functionality — the new "Intel Inside" for the next wave of computing.

Look at companies who have made data widely available, like Google. If Google launched an online grocery store, which product suppliers today could participate? Only those entities able to share their product, price, or distribution data. Today companies are held hostage by their applications which control the data.

About Sara Gates

As the vice president of Identity Management at Sun, Sara is responsible for the business and product strategy, product definition, and marketing for Sun's identity management portfolio. She previously held roles at Waveset Technologies, Microsoft, and Deloitte Consulting.

Additional Resources

- [The Importance of Data](#)

¹The next generation of the Web, in which the Web becomes a read-write platform; hard-wired applications are replaced by lightweight, consumable services; data is ubiquitous and re-mixable; and users control their own data, among other things. See <http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html?page=1>

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The Economics of Sharing



When you hear the word “sharing,” what comes to mind? Altruism? Charity? Philanthropy? In the years to

» Scott McNealy tells industry analysts why Sun is positioned for growth in 2006

come, I predict when business leaders think about “sharing,” they will have a significantly different take than what they do today. For the enlightened and entrepreneurial, the definition of “sharing” is already broadening in new and surprising ways. Value. Opportunity. Growth.

Business models throughout the 20th century were about protectionism. The empires of the era were built on the premise that knowledge, ideas, and processes, “the crown jewels,” were always something to be locked in deep dark corners of the enterprise. A whole category of lawyers developed whose sole mission was to construct layer upon layer of protection, insulation, and propriety around those gems.

From time to time, forward thinkers posed the idea that less protection and insulation would be more beneficial — that building communities and sharing intellectual resources could accelerate innovation and growth. That communities could create whole new marketplaces that would create new economic opportunities.

This concept has been slow to take off given the traditional opportunity costs associated with sharing your ideas. How do you connect interested groups, and how will they interact? How do you safely distribute and receive knowledge? How do you derive value from these communities if you’re not attaching a price tag to the price of entry? And for those beholden to the Street, when and how much value will sharing create for shareholders? For most, it has simply been easier and more intuitive to go it alone and keep the crown jewels locked up.

While that model may have worked in the Industrial Age and flourished in the Information Age, it will be the kiss of death in the Participation Age.

The Participation Age Is Happening

For years...actually decades...you’ve heard me tout “The Network is the Computer.” That barriers to the global network will drop like flies. That far-flung marketplaces will be compressed into a single, seamless body.

That the network will stitch everything and everyone together. And more recently, that we're moving into the Participation Age. Look around you...it's happening.

Several million new users are joining the online world each week. Online business grows exponentially year after year. Just look at the consumer spending part of the economy — ComScore reports that U.S. non-travel spending online during this 2005 holiday season reached \$19.6 billion, up 25 percent from the previous year, with total online spending for 2005 hitting \$143.2 billion. That's an increase of 22 percent over 2004. Looking ahead, Forrester Research is predicting that annual North American online consumer sales, including auctions and travel, will grow at a 14 percent clip to hit \$329 billion in 2010. This is a market that didn't exist 20 years ago and now enables hundreds of billions in transactions. That's the power of the network. That's the Participation Age.

The dawn of the Participation Age has triggered the need to rethink business models. The global network has rendered the practice of business protectionism and the art of hoarding knowledge and innovation as outdated. Moreover, the Participation Age is enabling companies to build communities, harness the power of groups to spur innovation, launch new marketplaces, and drive value with those.

As those of us in the technology industry are finding, the currency of the Participation Age is trust. And trust is built through sharing and authenticity. Analysts such as Frank Gens at IDC contend that the “go it alone” model will fade and that companies should adjust their business practices to mirror the sharing model. As professor Yochai Benkler at Yale University wrote in his recent paper “[Sharing Nicely](#),” this structure works because sharing and cooperation benefits all — including the person who shares in the first place.

Consider the way Google and eBay work. As everyone knows, these companies give away — or share — services, yet both are growing and profitable. The reason? They've built communities that trust their services and always come back for more.

Being Competitive in the Participation Age

What can sharing get you? Think beyond simple revenue. Think loyalty, think brand extension, think shared innovations. We're seeing the sharing model take hold in various areas in technology. Open source software is on the rise. Developer communities focused on Java technology, NetBeans, Linux, and other technologies have revolutionized the industry. User collaboration and jointly developed innovations are driving stronger product development, more attractive products, greater demand, rising loyalty... and yes, increased sales and profitability.

Being competitive in the Participation Age requires that companies evolve their cultures and rethink their business models. Easier said than done, but keep three guiding principles in mind:

- **Share:** Blend internal assets with those outside the four walls. That means sharing things you value — like intellectual property, best practices, employee time and more. Even your thoughts — think blogs, podcasts and wikis.
- **Build trust and foster communities:** Adopt a transparent and shared approach to business. New business opportunities will arise that you, the trusted player, will be in the best position to leverage.
- **Engage and collaborate:** Seize opportunities to listen to and interact with the communities you create. Solicit input and recommendations. Respond to requests. Close the gap among your critical audiences, influencers, and decision-makers across your organization and you will be rewarded for your attention.

Shifting your business to leverage the sharing strategy isn't easy and won't happen overnight. Cultural evolution on the fly isn't sustainable, nor is it authentic. That said, the communities you seek to develop will recognize your efforts and help you if you're straightforward with them. Instinctively, they will trust your intentions and respond, guiding your organization through the process. That trust and engagement will spark collaboration, innovation and, in the end, value.

As the economic advantage of sharing becomes clear, I challenge you to look at your company's future a bit differently — share, participate, and profit by building a community!

Scott McNealy
CEO and Chairman
Sun Microsystems, Inc.
chairman@sun.com

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Control vs. Creativity

The debate over digital content rights



Papadopoulos



Lessig

Striking the right balance of control over the use of copyrighted content is at the heart of a major debate in the industry today. How do we exert enough control to incent creators to go on innovating, without exerting so much control that others can't leverage that innovation to expand upon it?

Sun CTO Greg Papadopoulos met recently with Stanford Law professor Larry Lessig, one of today's leading thinkers around intellectual property rights in cyberspace, to discuss this issue. Below are highlights from that discussion.

Greg: What is the relationship between intellectual property, the control of it, and innovation?

Larry: Intellectual property is critical to building the right incentives in many industries for creating new innovations. This was the great insight of our founding fathers who recognized the need to protect patents and copyrights in certain fields, to create incentives that otherwise wouldn't be there. What's counter-intuitive about intellectual property is that there can be too much of a good thing. If you exercise too much control, or if a law grants creators or innovators too much control, new innovation can be stifled. So the problem for policymakers, and companies dealing in this context, is striking the right balance between the control that's necessary to produce the profits that will support new innovation, and the access or freedom of others to build on top of that innovation and make it worth more.

Greg: Where do you think we are in the balance? What direction are we headed?

Larry: Right now we're in an obsessively extreme IP environment, especially in the context of copyright. The Internet has created fear within the content industry that they're going to lose everything if they aren't allowed to exercise perfect control over content. So they're building technology and legal infrastructures to give them more control over innovation than they've ever had before. The same thing is happening with patents for business methods and software, presenting a

similar problem.

Greg: This is counter-intuitive because the content industry talks about the mayhem of digital being able to make perfect copies, but it can also allow perfect control.

Larry: It allows perfect control if the digital rights management technologies are layered into the infrastructure of the Internet. My concern is that this perfect control will stifle an extraordinary amount of innovation. Here's a simple example — think about how photography flourished. Originally, there was a design of a camera by Daguerre, which was the Daguerreotype — cumbersome, expensive — with a tiny market. Then, Eastman invents the Kodak in 1888 — simple, cheap technology for taking pictures — and the market takes off. At that time, the law was trying to figure out whether to allow people to take pictures without clearing permissions first or whether permission was required before capturing an image of a person or building. Quickly, the law decided you don't need permission — you could capture images and share them without worrying about legal rules. That encouraged an extraordinary consumer market around photography, and that freedom was, in part, what made it possible.

Greg: And that freedom built a commercial market for photography.

Larry: Right. The total commercial market was huge, because both the consumer and professional markets could work together. Now, if they'd gone the other way and said you needed to clear permissions, you can imagine that system being regulated by the law and the market would've been much smaller. This is the same thing facing digital technologies. Fifty-seven percent of teenagers, according to a recent Pugh Trust study, have produced content that they've posted on the Internet. This is a generation of not just consumers, but creators. If we lock down all content, using really heavy digital rights management (DRM), the opportunity for people to be creators using this content will be destroyed. The market will be a fraction of what it could be if only we struck a better balance.

Greg: I'd like to zero in on that. Giving people freedom to do derivative works ultimately grows a market, but it also gives an opportunity for our legal system to judge whether or not this is an appropriate use of the copyrighted work, yes?

Larry: Yes. The point is always to avoid the extremes. It's both the extreme of perfect control that's bad and the extreme of insufficient control that's bad, because you need to strike this balance in order to create incentives, both for copyright owners and those who innovate outside of these copyrights.

Greg: What is the principle behind copyright and the concept of fair use?

Larry: Before the digital age, there were three uses of copyrighted works. First there was free use. Reading a book is not fair use of the book, it's free use because it doesn't trigger copyright — no copy is produced when you read a book. Then there was regulated use. Publishing a book is regulated by copyright law, as it should be, to create the incentives necessary for people to produce great new work. The third type was fair use which covered uses that otherwise would have been regulated by the law but which the law says ought to remain free for important innovation or social value. For example, you can quote my book in a review of my book. You're technically copying my words, but there's nothing I can do to stop you. Even if you're trying to destroy me, I'm not allowed to stop you. And that's because fair use says that those uses ought to remain free of the regulation of the law.

Greg: **But if there were perfect control over the copyrighted material, I couldn't even write a critique.**

Larry: That's right. Because when that three-part division moves into digital space, there are no free uses anymore. There's no way to use copyrighted, creative work in a digital network without producing a copy. So that means, by default, every single use triggers copyright law. Then fair use marches in and says, "We have the right to use this freely, even though technically it's producing a copy because of blah, blah, blah," whatever argument you want to make. Everything becomes an argument. Fair use is designed to be a balancing test between four different factors and the problem is that fair use is just the right to hire a lawyer, which for many people is no right at all.

This gets much more complicated when you imagine technologies controlling the access, because with the traditional rule, you used the work the way you wanted to, and then if it turned out that the copyright owner wanted to sue you, you defended yourself in court. But if technology is controlling your use of the work, then you can't use the work now and defend yourself later. You literally can't use the work in the way that fair use would entitle you.

Greg: **There's a raging debate now with Google and Google Print, and I guess everything that Google does, arguably, makes a copy. What's going on there?**

Larry: This is an extremely important debate. Google has Google-ized knowledge on the Internet. They do that by copying all of the content and then giving content owners the right to opt-out, either by putting a little sign on their Website that says No Bots, or by allowing people to explicitly remove themselves from the index. Google now wants to do this for books. They want to scan all books and give you an index, and allow you to opt-out if you don't want to be in that index. Basically, they want to Google-ize human knowledge in the way that they've Google-ized the Web. I'm a bit of a sappy academic about this, but I literally had tears in my eyes when I heard about this project because the opportunity to get access to this extraordinary range of content is something that Jefferson might have dreamed of 200 years ago. If you

could scan back across all books ever published and see a vision of exactly what knowledge has been, easily using this technology, it would be an extraordinary contribution.

Greg: Can you go into more detail on that?

Larry: We just had a debate at the New York Public Library about this. At this debate, moderator Chris Anderson, who's the editor of Wired, said that there have been about 32 million books ever produced in the history of man. Of those 32 million, only about 10 percent are in the public domain in the United States. The balance of this work is all protected by copyright. And of the balance of this work protected by copyright, there's about 10 percent that's in print. So, you've got 10 percent in the public domain and 10 percent in print and the core in the middle — 25.6 million books — under copyright but not in print. The important thing about being in print is that we know who to go to to ask for permission. If it's not in print, it's almost impossible to identify. So Google has tried to set up this project, which they just renamed Google Book Search which does two things. First it scans absolutely everything, puts it all into the database, and then creates differential access to that database, depending on the status of the copyrighted work.

There are three kinds of access. For public domain access, you get full access. For work that's still under copyright, you get something they call "snippets." And then for work that's in print or where you can find the publisher, you'll get as much access as the publisher allows. Here's an example — if you go into Google (the old version) and you search on Holmes, you'll see all the books about Holmes. If the book is in the public domain, you can read the whole book. If the book is in copyright and in print, then you get as much access as the publisher allows.

Greg: You would think that publishers would be very excited about this.

Larry: You would think, especially if it's in print, that it would increase the demand and people might buy the book online right then. But here's the critical part that has created all the stir — for all the work that's still in copyright, they will guarantee at least that you get something called "snippets." You've searched on the book and you have something that looks like tear-outs from the page, with just a couple of words around the particular word that you're looking at. There's no way to read the whole book. In fact, the technology monitors if you're coming back and asking for a thousand different snippets so that you can't put it together in a book. They give you a simple way to buy a used version of it. Right now, they're not offering any advertisements and so the basic question is, "should we consider this to be a fair use of these copyrighted works?"

Greg: There have been some visceral reactions from publishers — what do you think it takes to get them to the enlightened self-interest to make it more free? Let people index it and create more demand?

Larry: We've all got to come to an enlightened self-interest about it because what has been surprising is the number of people that have lined up on the side of the authors and publishers. The authors say the problem with Google Print is that Google will basically make money and the authors won't get anything, and so therefore, it's not fair use. And the publishers say the problem is that they haven't asked for permission, and therefore, it's not fair use.

Greg: But they do have an opt-out.

Larry: They [Google] have an opt-out, but the publishers say you have to ask permission first. If fair use means you can't make money or you have to ask permission first, then there is no fair use, because fair use is the right to use the work and make money on top of it, because that encourages new industries to do new things. If Google has to ask permission, then think again about the 25 million books that are in copyright but out of print. The copyright system for old works is the most inefficient property system ever created — there's no list of copyright owners, there's no place to go. So, if you've got to ask permission first, this index cannot be built.

It's clearly important to protect property rights, but if we give authors or publishers perfect control over how all these rights get used, the new innovators like Google will not invent the next great way to access these technologies. Think about every key innovation in the history of the Internet. From Vint Cerf and Bob Kahn inventing the protocols originally (Vint Cerf was basically a kid at the time), to the Worldwide Web invented in Switzerland by a researcher, to ICQ, the first peer-to-peer chat client invented by an Israeli kid who sold it to Microsoft for \$400 million, to Hotmail invented by an Indian immigrant, to Napster invented by a couple of kids in a BU University dorm room. Every single major innovation here is by either kids or non-Americans. The Internet invited innovators to figure out the next great innovation. That's the genius of its design — not that it takes away people's right to make money off their innovation — of course they should. But by restricting perfect control, you invite a wide range of innovation that otherwise wouldn't happen — you invite something like Google Print. And if we forget the value of limiting that control, then we will stifle innovation by turning it over to the industries from the last century — industries that have a narrow vision of what the future could be.

About Larry Lessig

Lawrence Lessig is a professor of Law at Stanford Law School and founder of the school's Center for Internet and Society. He has won numerous awards, including the "Free Software Foundation's Freedom Award," and was named one of Scientific American's Top 50 Visionaries, for arguing "against interpretations of copyright that could stifle innovation and discourse online."

Professor Lessig is the author of *Free Culture* (2004), *The Future of Ideas* (2001) and *Code and Other Laws of Cyberspace* (1999).

He chairs the Creative Commons project, and serves on the board of the Free Software Foundation, the Electronic Frontier Foundation, the Public Library of Science, and Public Knowledge. He earned a BA in economics and a BS in management from the University of Pennsylvania, an MA in philosophy from Cambridge, and a JD from Yale.

About Greg Papadopoulos

As executive vice president and chief technology officer at Sun, Greg Papadopoulos guides the company's roughly \$2 billion annual research and development portfolio with an eye toward simplification and innovation. With more than 20 years experience in the technology industry, Papadopoulos is responsible for managing Sun's technology direction, architecture, and standards.

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Your Briefcase

» **Moving Beyond Compliance to Business Value**

This white paper explores the shift in the perception of compliance from a burden to an opportunity and the influence of identity management in exploiting those business value opportunities.

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