



synnovation

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FULL SPEED AHEAD!

In the race for first place, know where you're going, how you're getting there, and what technologies, processes, and tools are equipped for the journey.

EDS Getting There First

By Charlie Feld

XEROX Catch the Next Wave

By John M. Kelly

EMC Beyond the Need for Speed

By Mark Daniel

SAP Built to Adapt

By Chakib Bouhdary

ORACLE Speed and the Human Element

By Robert Shimp

EDS Becoming a Synchronized Whole

By Ram Prabhakar and Ben Langlinais

INTEL Ready, Set, Go...to Market

By Martin Curley

CISCO Working at the Speed of Collaboration

By Carlos Dominguez

SUN Executive Interview

With Greg Papadopoulos



Conversations

Talking with Greg Papadopoulos, chief technology officer and executive vice president of Research and Development at Sun Microsystems, Inc.

Even as the increasing velocity of business continues to accelerate change in IT, the fundamental issue remains the same—the bottom line. How should enterprises spend precious capital in the race to achieve speed, scale, and flexibility?

Sun Microsystems Chief Technology Officer **Greg Papadopoulos** champions a compelling strategy to balance IT needs and maintain a competitive advantage. Known as Redshift, his approach categorizes IT requirements based on whether they are cost centers or an engine for revenue growth.

Can Redshift elevate your enterprise?

Papadopoulos explains how applying this model can help manage consolidation efforts, cost containment, and a very different class of applications that use IT as a weapon to stimulate growth.

Q: In today's fast-paced business climate, what does speed mean to IT?

A: The dominant factor surrounding speed is customer interaction at increasingly short intervals of time. That means understanding a customer's needs, reacting to and fulfilling them whether you're building a product or refreshing a Web page. Driving continuous relationships with customers requires speed.

Q: How did you develop the Redshift model, and how does it apply to speed and business?

A: A couple of years ago, I was entering into two distinctly different conversations with the same customers. The conversations would start with, "We've got this really big problem. Our servers, storage, and computing assets are consuming a lot of power. They're not well utilized, so they're inefficient for us. And, as we install faster and faster systems, they become less and less utilized. How can we consolidate and take advantage of faster systems?" That's the typical consolidation conversation.

At the same time, the customer would say, "We've got this problem of running out of data center space. And we need to add more servers, storage, and networking, so the cost of space and power is getting really difficult."

Those are two completely contradictory conversations. The insight for me was discovering the customers were talking about two different application sets and two different parts of their businesses.

The parts where people find that even when computers are getting faster at this fabulous rate, they still aren't fast enough—those applications deal with aspects of the business where IT is seen as a weapon. That includes applications such as product design, risk analysis, or serving customers faster through better Web experiences. That's Redshift.

When customers find that the speed of improvement and computing technology is faster than they need it to be, that's generally on the corporate side of IT—those areas we think of as the core mechanics of running a business itself.

So we're talking about two different roles of IT. Applications that run the core enterprise need to become increasingly cost efficient and consolidated, while other applications—Redshift applications—need to expand the enterprise's competitive opportunities.

Derived from the cosmological term, Redshift is the basic observation that the universe is expanding. Similarly, the market for and role of IT are expanding in Redshift applications where information technology is a competitive weapon.

Q: How does Redshift impact organizations?

A: Redshift is a way of classifying different applications or demands on IT. The dividing line is Moore's Law, which is the underlying constant of change in computing. For purposes here, think about it as the increase in economic efficiency of computing. According to Moore's Law, every 18





to 24 months, the cost of computing, storing, or communicating something reduces by half. (You can also look at it as doubling the amount of computing you get for a dollar in the same time frame.)

To which applications and to whom is that important? This is where the Redshift sorting function comes in. Supply may be doubling every two years, but for a certain application, the demand may not. For example, demand on your payroll processing system is not doubling that quickly because the number of people in your company may only be increasing a few percent in the same time period. With increased efficiency or supply in computing, you could cut the cost of delivering payroll.

Moore's Law is *over-serving* payroll. In other words, the speed of growth is a whole lot faster than that of payroll. Contrary to Redshift, we call this a Blueshift application—it will contract as a percentage of your IT spending over time.

Here's another angle. If you're a pharmaceutical company developing new drugs, and you could double the amount of computing or storage for the same price in two years, you might want twice as much. Applying IT as a weapon, you could accelerate research and drug delivery or explore analytics on customers' buying behaviors.

In those cases, you would have a set of applications

that are *underserved* by Moore's Law. Doubling every two years, the speed of Moore's Law is breathtaking, but, in this scenario, you want to double it every six months. Faster computing took a couple of months out of your drug delivery process, adding a huge market opportunity. Why not enable those Redshift applications to go even faster and see how much more time you can take out of your product development cycle?

Q: How can enterprise executives apply the Redshift concept into practice?

A: Everybody has a portfolio of Redshift and Blueshift applications, so you can use Redshift as a decision function or a tool at an executive level. When someone comes to you with an application and a list of needs, ask a simple question, "Are the demands on your application growing slower or faster than Moore's Law?" If Moore's Law is faster than needed, then that application is part of your consolidation effort. Its footprint, relatively speaking, will become smaller and smaller over time.

If an employee asks for as much computing

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as he can get and that increased computing translates into increasing returns on business ROI, this effort is part of your Redshift suite. From a strictly infrastructure point of view, decide how to efficiently add more and more resources to the project, investing in it over time.

Q: How does Redshift improve business results?

A: Redshift is a way of helping one decide where to direct new money, and how to focus resources around efficiency and keeping up with modern development. Consider applications where IT is a cost and where it's a weapon. Generally speaking, Redshift applications fall into the IT-as-a-weapon category. It makes sense to super-efficiently invest in modernizing Redshift applications, because those are the ones that are going to bring increasing returns.

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On the other side, Moore's Law takes care of the Blueshift application sets for you. You shouldn't invest much in making those applications more efficient. Instead, find ways of insulating them from change. Be conservative, and allow the natural economic progressions and efficiencies of system delivery over time manage Blueshift applications for you.

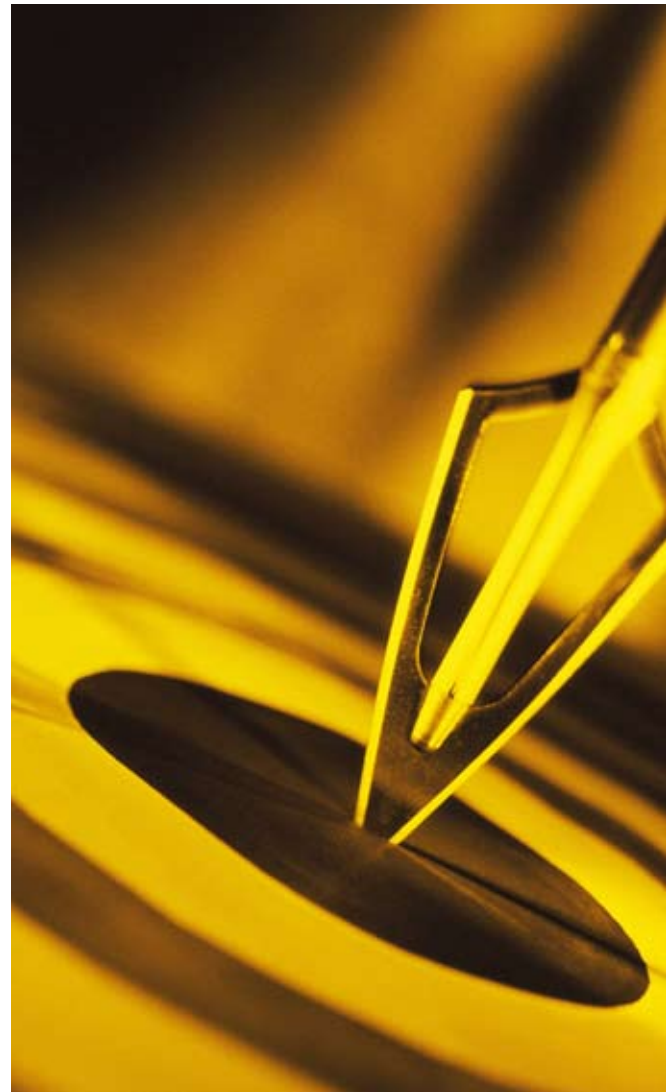
Q: Do Redshift options require large investments of time, people, and funds?

A: The more computing you put into Redshift needs, the more business return you get.

We use the term "brutal efficiency" to talk about it. That means making sure your capital investments go toward the bottom line, returning more and more efficient computing and helping the business case proportionally.

Generally speaking, only 10 or 20 percent of IT budgets are about infrastructure capital. There are extreme examples, like Google, where roughly 80 percent is capital and 20 percent is managing people, because their capital base gets so large.

Redshift applications tend to be in more greenfield, faster moving areas. A lot of that development is



happening in open source software and hardware systems. Those are the efficiencies to look for.

Q: Where are you putting brutal efficiency into practice within your own organization?

A: Data centers are akin to building a really large power plant. You have to think about how to do that with extreme efficiency, ecological sensitivity, and energy savings. You have to engineer at scale, and take all these factors into consideration.

Quite frankly, customers used to make buying



decisions about computing based on how they were locked into technology. With the recognition of Redshift and Blueshift needs, it's now about efficiency. What are the economics and the ecology of what's going on? At Sun, we focus a lot of our product and system development on that. The norm for us is worrying about things such as the ecological efficiency of systems.

As an example, housed right into a shipping container, our Project Blackbox is a virtualized data center with complete cooling, power distribution, computing, networking, and

storage. That turns out to be a very, very energy-efficient and space-efficient way of computing.

Q: How can improved IT infrastructure translate into a competitive advantage? Do you believe that the advantage outweighs the costs?

A: In my mind, probably the most important role of a CIO is to understand the ROI of a change in IT and what the net present value of that is. Redshift is a really useful tool in that regard. Redshift applications that provide material business advantage will pose increasing demands on your infrastructure. Get the principles right, so future investments and capital are more efficient. And bring people in with the skill sets to help navigate and make that investment.

It's also important to look at cost containment of the Blueshift side of the application set. Even though Blueshift applications aren't going to demand increasing capital resources, they can be just as critical to your business. You've got to close the books and pay payroll, right? But that's where you must be very careful about investing too much in unnecessary reinvention and re-creation.

Q: What will be the far-reaching effects of the Redshift concept on business?

A: It really gets into IT as a weapon. There are now much more sharply understood capital levers that generate investment in the Redshift aspects of information technology which provide direct return back into the business. To me, that's the big transformation.

There are a lot of cascading consequences about the importance and efficiency of scale. In many ways, some areas can be quite capital intensive. Enterprises that understand how to manage the Redshift style of projects can have a competitive advantage.

If you're behind your competitor by two years in consolidating a piece of your infrastructure, it's about cost. If you're behind two years in taking the next cycle time out of product development, or in understanding who and where your customers are and what they need and want, that's a competitive disadvantage.

That's really going to be the most interesting separating function. Organizations that get ahead of Redshift and invest prudently around it will maintain a competitive advantage in the marketplace. |s|