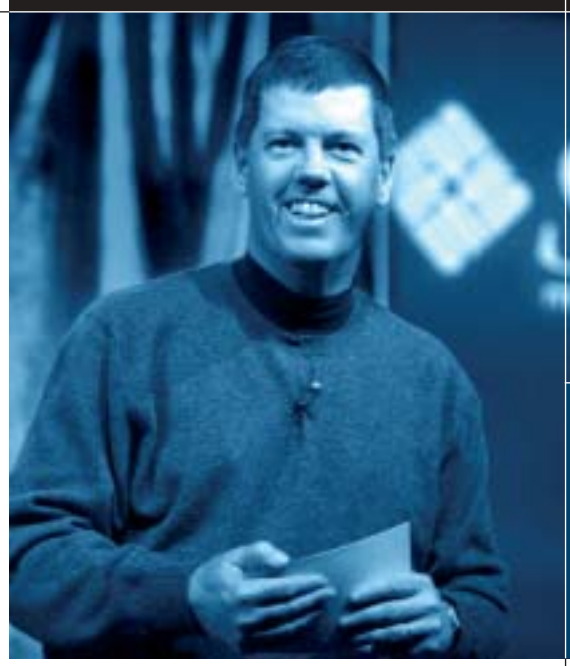

See the entire network as one computer, says cofounder and CEO of Sun Microsystems

Despite huge gains in efficiency – *BusinessWeek* reports that productivity growth doubled as the Internet proliferated – IT still has one huge drawback: it's way too complex.

A big part of that has to do with the way it's bought and sold. Car companies don't introduce a new paint job one week, new tires the next and a new fuel-injection system after that. But that's pretty much what happens in the high-tech industry. The result is a mind-boggling array of products, versions and vendors for companies to keep track of.

If that's not insane enough, the way we charge for things is all over the board: per entry for directories, per microprocessor for application servers, per mailbox for messaging, per node for clusters.

People are absolutely going nuts with the complexity of it all – and paying for it. Far more money is spent managing information systems than buying hardware and software. Chief information officers have become chief integration officers, which means they're focused on the technology instead of the business.

The tech industry needs to recognize that we can't keep throwing software at our customers and leaving it up to them to figure out whether the new version of this works with the old version of that. We have to take a cue from the car companies and deliver a complete package that starts up when you turn the key and simply runs, no matter how many components come from how many suppliers.

There needs to be a priority for a holistic approach in which new systems, software and services are all released on a regular, quarterly basis. All of it integrated and tested in real-world scenarios.

> "We can't keep throwing software at our customers and leaving it up to them to figure out whether the new version of this works with the old version of that"

Users today need ready-to-roll systems – ones that include third-party software, already installed, if that's what the customer wants. No assembly required. Deploy in one-tenth the time it used to take.

Making systems easier to buy and deploy, however, is not enough. We have to make the whole data center – as much as three acres worth of equipment in some cases – easier to manage.

Companies shouldn't have to blow the lion's share of their budgets on administration and training. Better they spend that money on compute power or storage capacity or increased bandwidth. Then they could do more of what they really want to do, from designing new products in half the time to discovering intricate patterns in complex data sets.

Don't get me wrong. The high-tech companies on NASDAQ are doing a lot of things right. Our customers are doing trillions of dollars worth of business online. Productivity is up and costs are down. In fact, despite the global downturn, the Internet continues to drive a genuine business transformation. But there's still plenty of room for improvement, plenty of room for innovation – from the way we sell software to how we build data centers.

In fact, we're already working on ways to treat the data center as a single computer. Users need to be able to treat servers, storage and the whole software stack as components of a single system. Call it the 'network computer'.

In our view, it should be no more difficult to launch a network service than it is to run a shrink-wrapped program on a standalone PC. We simply have to make sure that the network computer includes all the standard infrastructure components that developers depend on – directory, network file service, application server, messaging and so on.

All of that needs to be part of the base platform, but it doesn't necessarily have to come from one vendor. We believe in making our systems not just integrated, meaning everything works together, but also 'integratable', meaning they work with other standards-based products. We all live in a multi-vendor, multi-platform world, after all.

Here's a case in point: it used to take about two days and 122 cables to wire a stack of 32 pizza-box computers together on a rack that looks like the ones Hostess uses to deliver Twinkies and cupcakes. Today, it can be done in two hours with just 12 cables – with all 32 systems fitting on two slotted shelves. More important, it can be made to look like a single system to the guys in the data center.

For more than 40 years now, the industry has created tools for dealing with increasingly complex tasks – and we're doing the same thing today, working at ever-higher levels of abstraction, virtualization and automation.

That's what the 'network computer' is all about. It gives data center operators the ability to pool resources and allocate workloads automatically. It gives developers the ability to create applications and services for the network rather than specific hardware or software platforms. And ultimately, it gives customers the ability to focus less on technology and more on their business. **N**

Scott McNealy