Confluence of Global Trends Ups Ante for Improved IT Governance to Prevent Costly Business "Glitches"

Transcript of a sponsored BriefingDirect podcast on the growing danger from faulty software and how to overcome it.

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Dana Gardner: Hi, this is Dana Gardner, principal analyst at Interarbor Solutions, and you're listening to BriefingsDirect.

Today, we present a sponsored podcast discussion on the nature of, and some possible solutions for, a growing parade of enterprise-scale glitches. The headlines these days are full of big, embarrassing corporate and government "gotchas." These complex snafus cost a ton of money, severely damage a company's reputation, and most importantly, can hurt or even kill people.

From global auto recalls to bank failures, and the cyber crime that can uproot the private information from millions of users, the scale and damage that technology-accelerated glitches can inflict on businesses and individuals has probably never been higher. So what is at the root? Is it a technology run amok problem or a complexity spinning out of control issue, and why is it seemingly worse now?

A new book is coming out this summer that explores the relationship between glitches and technology, specifically the role of software use and development in the era of cloud computing. It turns out the role and impact of governance over people, process, and technology comes up again and again in the new book.

We have with us here today the author of the book as well as a software expert from IBM to delve into the causes and effects of glitches and how governance relates to the problem and fixes. Please join me in welcoming our guests.

We are here with Jeff Papows, president and CEO of WebLayers and the author of the book, '*Glitch: The Hidden Impact of Faulty Software*.' Welcome to the show, Jeff.

Jeff Papows: Thanks, Dana. Thanks for having us on.

Gardner: We're also here with Kerrie Holley, IBM fellow and Chief Technology Officer for IBM's SOA Center of Excellence. Welcome to the show, Kerrie.

Kerrie Holley: Thank you very much.

Gardner: Jeff, let me start with you. Now, the general trends around these complex issues are affecting business and probably affecting just about everyone's lives. How do these seem to be something that's different? Is there an inflection point? Is there something different now that 20 years ago in terms of the intersection of business with technology.

Papows: There is. I've done a lot of research in the past 10 months and what we're actually seeing is the confluence of three primary factors that are creating an information technology perfect storm of sorts. Some of these are obvious, but it's the convergence of the three that's creating problems on the scale that you are describing here.

The first is a loss of intellectual capital. For the first time in our careers -- the three of us have all been at this for a long time now -- we saw, between 2000 and 2007, the first drop in computer science graduates. That's the other side of the dot-com implosion.

Still on mainframes

While it's not always popular or glamorous to talk about, 70 percent of the world's critical infrastructure still runs on IBM mainframes. Yet, the focus of most of our new computer science graduates and early life professionals is on Java, XML, and "the open and more modern languages."

For the first time in our lifetimes and careers, the preponderance of that COBOL-based analytical community is retiring and/or -- God forbid -- aging and dying. That's created a significant problem, concurrent with a time where the merger and consolidation activity -- the other side of the recession of 2008 -- have created this massive complexity in these giant mash-ups and critical back-office systems. For example, the mergers between Bank of America and Countrywide, and on and on.

The third factor is just the sheer ubiquity of the technological complexity curve. It's the magnitude of technology that's now part of our social fabric, whether it's literally one million transistors that now exist for every human being on the planet or the six billion network devices that exist in the world today, all of which are accessing the same critical, in many cases, back-office structures.

It's reached the point, Dana, from a consumer standpoint, where 60 percent of the value of our automobiles now consists of networked electronic components, not the drive trains, engines, and the other things. Look at the recent glitches you have seen at places like Toyota.

You take those three meta-level factors and put them together and we're making the morning broadcast news cycles now on a daily basis with, as you said, more and more of these embarrassing things coming to light. They're not just inconvenient, but there are monumental economic consequences, and we're killing people.

Gardner: Kerrie Holley, we've looked at some of these issues -- society issues, organizational issues, and the technology behind them -- but technology has also been part of the solution or the ability to scale and manage and automate. I think that's what service oriented architecture (SOA) has a major impact on.

So, are we at a point where the ability and technology to keep up with the rate of growth is out of whack? What do you sense is behind some of this and why hasn't the technology been there to fix it along the way?

Holley: Jeff brought up some excellent points, which are spot on. The other thing that we see is that we've got a growth of distributed computing. The easy stuff we've actually accomplished already. If we look at a lot of what businesses are trying to accomplish today, whether it's a new business model, differentiation, or whatever they're trying to do compete, what we are finding is that the complexity of that solution is pretty significant.

It's something that we obviously can do. If we look at a lot of technologies that are out in the market place, unfortunately, in many cases they are siloed. They repair or they help with a part of the problem, but perhaps they're not holistic in dealing with the whole life cycle that is necessary to create some of this value.

Secondly -- this is a point in time statement -- we're seeing rapid improvements in the technology to solve this. With Jeff's company and other organizations, we are seeing that today. It hasn't caught up, but I think it will. In summary, Jeff brought up several points in terms of the fact that we have ubiquitous devices and a tremendous amount of computing power. We have programming available to the masses. We have eight-year-olds, grandmothers, and everyone in between, writing software.

Connecting devices

We have a tremendous need to connect mobile devices and front ends. We've got 3D Internet. We just got an explosion of technologies that we have to integrate. Along with that comes some of the challenges in terms of how we make this agile and how we make it such that it doesn't break. How do we make sure that we actually get the value propositions that we see. Clearly, SOA is a part of the solution but it's certainly not the end-all in terms of how we repair and how we get better.

Gardner: One of the things that intrigues me about SOA is the emphasis on governance. To get the best out of a distributed service's orientation, you need to think at the very beginning and throughout the process about how to manage, automate, and reuse it, the principles inside, and feedback loops into the process on an ongoing basis.

It strikes me that if that works for SOA, it probably also works for management and organizations and it works for the relationship between workers and customers. Let me take this

back to you, Jeff. Is governance also in catch-up mode? Do we have a sense of how to govern the technology, but not necessarily the process? Is that what's behind some of it?

Papows: You're right, Dana. There's a cultural maturation process here. Let's look at a couple of the broad economic planks that have affected how we got here, because I've been in the software industry for 30 years now. Remember that the average computer scientist, at least in North America, on average makes 32 percent more than the mean average in the US economy. And, software, computer services, and infrastructure has accounted for about 37 percent of the growth in the gross domestic product in the United States and Asia in the last decade.

So, the economic impact and success of our industry almost can't be overstated. Because of that, we've grown up for decades now where we just threw more-and-more bodies at the problem, as the technological curve grew.

There was always this never-ending economic rosy horizon, where you would just add more IT professionals and you would acquire and you'd merge systems, but rarely would you render portions of those workforces redundant.

In 2008, the economic malaise that we're managing our way through changed all of that. Now, the only way out of this complexity curve that we've created, to use Kerrie's terms, is turning the innovation that has been the hallmark of our industry back on ourselves.

That means automating and codifying all of the best practices and human capital that's been the in-place learning for decades in the form of active policy management and inference engines in what we typically think of as SOA and design time governance.

Really, all that means is automating those best practices and turning them inward, so that we're governing ourselves as an industry the way that we would automate or govern many things. But now it's no longer a "nice to have. I would argue that it's critical, because the complexity curve and the economics have crossed and there is no way to put this genie back in the bottle. There is no way to go backwards.

Gardner: Kerrie, any thoughts about what's perhaps now a critical role for governance, perhaps governance up and down the technology spectrum, design time, run time, but also governance in terms of how the people and processes come together?

Holley: Absolutely. One of the nice things that the attention to SOA has brought to our marketplace is the recognition that we do need to focus on governance. I don't know of a single client who's got an SOA implementation who has not, as a minimum, thought about governance. They may not be doing everything they want to do or should be doing, but governance is clearly on the attention span of everyone in terms of recognizing that it needs to be done.

So, when we look at governance and when we look at it around SOA, IT governance is something that we've had for a long time. SOA governance is a subset, you could say. It complements, but at the same time, it focuses our attention on, what some of the deltas have brought to the marketplace that require improved governance.

Services lifecycles

That governance is not only around the technology. It's not only around the life-cycle of services. It's not only around the use of addressing processes and addressing application development. Governance also focuses on the convergence that's required between business and IT.

The synergistic relationship that we seek will be promoted through the use of governance. Change management specifically brings about a pretty significant focus, meaning that there will be a focus on the part of the business and the IT organizations and teams to bring about the results that are sought.

Gardner: Jeff, in your book you identify some examples. Are there any that really stand out i that we can trace back in some root cause fashion to the software lifecycle?

Papows: There are, and it's unfortunate. The ones that make the greatest memory points and often the national headlines, characteristically are the ones that affect the consumer broadly as opposed to the corporate ones.

Obviously, Toyota is in the headlines everyday now. Actually, there was another news cycle this morning about Toyota's Lexus vehicles. The new models apparently have a glitch in the software that controls the balance system.

One of the most heartbreaking things the research in the book was a software company called Varian in Palo Alto that has software that controls the radiation devices in our hospitals for cancer treatment. I ran across a bunch of research where, because of some software glitches and policy problems in terms of the way those updates were distributed, people with fairly nominal cancers received massive overdoses in radiation.

The medical professionals running these machines like much of our culture, because something is computerized, just assume that it's infallible. Because of the problems in governance or lack of governance policy, people were being over-radiated. Instead of targeting small tumors in a very targeted way, people's entire upper torsos, and unfortunately, in one case, head and neck were targeted.

There are lots of examples like that in the book that may not be as ubiquitous as Toyota, but there are many cases of widespread health, power, energy, and security risks as a consequence of the lack of policy management or governance that Kerrie was speaking to just a few minutes ago.

Gardner: Well, these examples certainly are very poignant and clearly something to avoid. I wonder if these are perhaps the tip of the iceberg that we are really talking about. In addition to things that are problematic at a critical, is there also a productivity hit? Are large aspects of work in process not nearly as optimal as they could be or are plagued by mistakes that drag down the process?

I want to take this over to Kerrie. IBM has its Smarter Planet approach. I think they're talking about the issue that we're just not nearly as efficient as we should be. What makes the headlines are these terrible issues, but what we're really talking about is a tremendous amount of waste. Aren't we?

Things we could do better

Holley: We are. That's exactly what inefficiency is. It speaks to a lot of waste and a lot of things we could do better. A lot of what we've been talking about from a Smarter Planet standpoint is actually the exact issues that Jeff has talked about, which is that the world is getting more instrumented. There are more sensors. There is a convergence of a lot of different technology, SOA, business process management, mobile computing, and cloud computing.

Clearly, on one end of the spectrum, it's increasing the complexity. On the other end of the spectrum, it's adding tremendous value to businesses, but it mandates this attention to governance. Jeff, in your book do you offer up some advice or solutions about what companies ought to be doing in this governance arena to deal with these glitches?

Papows: We do, Kerrie. We talk about what I call the "IT Governance Manifesto," for lack of another catchy phrase. I make the argument that it's almost reached the point now where we need to lobby for legislation that requires more stringent reporting of software glitches in cases where there is human health and life at stake. Or, alternately, that we impose fines upon individuals or organizations responsible for cover-ups that put people at risk. Or, we simply require a level of IT governance at organizations that produce products that directly affect productivity and quality of life issues.

Kerrie said this really well, Dana. Remember that about 70 percent of our computer scientists in a given year are basically contending with maintaining the existing application inventories that run all of our financial transactions in core sub-systems and topologies.

So, 70 percent of our human capital is there to basically keep the stuff that's in place running. Concurrently, we have this smarter planet, where we've got billions of RFID tags in motion and 64-bit microprocessors have reached a price point where they are making the way into our dishwashers. We've got this plethora of handheld devices and applications that's exploding.

All of that is against the backdrop of this more difficult economy, where we can't just hire more people without automation. We haven't a prayer keeping our noses about water here.

So, God forbid that we ask the federal government, which moves at a dinosaur's pace relative to Internet speed, to intercede and insist on some of the stuff. But, if we don't police our own industry, if we don't get more serious about this governance, whether it's IBM or WebLayers or some other technological help, we run the risk of seeing the headlines we're seeing today become completely ubiquitous.

Gardner: Kerrie, I understand that you're also penning a book and it's focused on SOA. First, could you tell us about it, but then are there any aspects of it that address this issue of governance, maybe from a self-help perspective and not waiting for some legislation or external direction on it.

Holley: The book that's going to be out later this year is 100 questions on SOA, '100 SOA Questions: Asked and Answered.' What my co-author and I are trying to accomplish in the book, which distinguishes us from other SOA books in the marketplaces, is based on thousands of questions that we've experienced over the decade in hundreds of projects where we've had firsthand roles as consultants, architects, and developers. We provide the audience with a hands-on, prescriptive understanding of some of the more difficult questions, and not just have platitudes as answers, but really give the reader an answer they can act upon.

We've organized the content in a way that you can go by domain. If you're a business stakeholder, you can go to particular areas. That gets back to your question, because business clearly has a big role to play here. The convergence or the relationship between business and IT has a big role to play.

You can go directly into those sections. We do talk about governance. The book is not about governance, but a good percentage of the questions are on governance. What we try to do is help organizations, clients, practitioners, and executives understand what works what doesn't work.

Always a choice

One of the examples, a small example, is that we always have a choice when we do a project. We can do it in multitude of ways, but we've got a lot of evidence that when governance is not applied, when it's not automated, when it's not thought about upfront, the expense on the back end side is enormous. That expense could be the cost of not having the agility that you foresaw. The expense could be not having the cost reduction that you foresaw. The expense could be the defects that Jeff has spoken about -- the glitches.

There is a tremendous downside to not focusing on governance on the front side, not looking at it at the beginning. The book really tries to ask and answer the toughest SOA questions that we've seen in the marketplace over the last decade.

Gardner: We'll certainly look forward to that. Back to you Jeff. When we think about governance, it has a bit of a silo history itself. There's the old form of management, the red light-green light approach to IT management. We've seen design time governance, but it seems to be somewhat divorced from, even on a different plane than, runtime or operational governance. What needs to happen in order to make governance more holistic, more end to end?

Papows: It's a good question, Dana. It's like everything else in our industry. We're sometimes our own worst enemy and we get hung up on language, and God forbid, we create yet another acronym headache.

There's an old expression, "Everybody wants governance, but nobody wants to be governed." We run the risk, and I think we've tripped over it several times, where we get to the point where developers don't want to be slowed down. There is this big brother connotation at times to governance. We've got to explore a different cultural approach to it.

Governance, whether it's design time or run time, is really about automating and codifying best practices, and it's not done generically as was once taught. It can be, in my experience, very specific. The things we see Ford Motor Company doing are very different. They're germane to their IT culture and organization and very different than what we see the Bank of America do, as an example.

To Kerrie's point about the cost of a lack of automated best practices, if we can use the new verb, it isn't always quantitative. Look at the brand damage to TD Bank when they shut customers out of their ATM network, the other side of turning the switch when they merged back-office systems. Look at the number of people whose automated payment systems and whatnot were knocked out of kilter.

The brand damage affecting major corporations is a consequence of having these inane debates about whether SOA is alive or dead, whether you need design-time governance or run-time governance, What you need is a way to automate what you are doing, so that your best practices are enforced throughout the development lifecycle.

Kerrie answered your question well when he said it really is about waste. It's not just about wasted human capital or wasted productivity or cycles. It's about wasted go-to-market opportunity. Remember, we're now living in the era of market-facing systems. For almost every major business enterprise, our digital footprint is directly accessible in the marketplace, whether it's an ATM network or a handheld device. The line between our back-office infrastructure and our consumer experience is being obliterated.

I'd argue that rather than making distinctions between design and run-time governance, companies simply, one way or another, need to automate their best practices. The business mandates of the corporations need to be reflected in an automated way that makes it manageable across the information technology life-cycle -- or you exist at your own peril.

Gardner: Kerrie, any thoughts on this concept of governance and how we make it more ubiquitous and more enforced as the pain and the problem are evident. The solution at a high level seems pretty clear. It seems to be the implementation where we stumbled.

Governance mindset

Holley: You hit it on the head, and Jeff made the point as well. A lot of people think governance is onerous, that it's a structure that forces people to do things a certain way. They look at it as rigid, inflexible, unforgiving. They think it just gets in the way.

That's a mindset that people find themselves in, and it's a reason not to do something. But, when you think about the goals that you're seeking, most goals have something to do with efficiency, lower cost, customers, and making the company more agile. When you think about this, pretty much everybody in the marketplace knows that you don't get those goals for free. There is some cultural change that's often necessary to bring those goals about, some organizational change.

There's automation. You don't start with automation. You actually start with the problem, the processes, and picking the right tool. But, automation has to be a part of that solution. One end of the spectrum, we've got to address this mindset that governance gets in the way, that it's overhead, and that it's unnecessary.

We know that organizations that are very successful, that are achieving many of their goals, when we peel the onion back, we see them focused on governance. One advice that we all know is that you shouldn't boil the ocean, that you should do incremental change. We also need to do this in governance.

We need to have these incremental successes, where we are focused on automation holistically and looking at the life cycle, not just looking at the part of the problem space.

Gardner: Jeff, it sounds like governance needs a makeover. Is there an opportunity? You are going to be discussing this book at the IBM Impact Conference, their SOA conference in May. Is this a good opportunity? You have a lot of IT executive and software executives from the variety of enterprises on hand, but what would you tell them in terms of how to make governance a bit more attractive?

Papows: You will all need to go there and say, "I am a computer science professional. We have reached a point in the complexity curve where I no longer scale."

You've got to start with an admission of fact and the reality is that the demands placed on today's IT organizations, the magnitude of the existing infrastructure that needs to continue to be cared for, the magnitude of application demands for new systems and access points from all of this new technology, simply is not going to correlate without a completely different highly automated approach.

Kerrie is right. You can't boil the ocean and you can't do it at once, but you've got to start with a an honest self-assessment that, as an industry, we can't continue to go forward at the rate and pace that we have grown, given everything we know and that we see, without finally eating our own cooking.

Looking for automation as a way out of the hole that has been created is a consequence of the industry's own success. We didn't get here because we failed to be fair to all of those developers in the audience. They're going to listen to this and say, "Why am I the bad guy?" They're not the bad guys.

The reality is, as I said, that we're responsible for the greatest percentage of growth in the gross domestic product. We're responsible for the greatest percentage workforce productivity. We've

changed the way civilization lives and works. We've dealt with a quantum leap, and the texture of human existence is a consequence of this technology.

It's time that we simply admit that we need to turn back on ourselves in order to continue to manage this or we, literally I believe, are on the precipice of that digital equivalent of a Pearl Harbor, and the economic and productivity consequences of failing are extreme.

Gardner: Well, we'll have to leave it there. We're about out of time. We've been discussing how glitches in business have highlighted a possible breakdown in the continuity of technology and that governance is an important factor in making technology continue on its productivity curve, without falling at some degree under its own weight.

I want to thank our guests. We have been joined today by Jeff Papows, president and CEO of WebLayers and the author of the new book, 'Glitch: The Hidden Impact of Faulty Software.' Thank you so much, Jeff.

Papows: Thank you Dana and thank you Kerrie.

Gardner: And, we have been joined also by Kerrie Holley. He is an IBM fellow as well as the CTO for IBM's SOA Center of Excellence. Thanks for your input and we will look forward to your book as well.

Holley: Thank you, Dana, and thank you, Jeff.

Gardner: This is Dana Gardner, Principal Analyst at Interarbor Solutions. You've been listening to a sponsored BriefingsDirect podcast. Thanks for listening and come back next time.

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