

Web 2.0, SOA and beyond

BERNSTEIN: Welcome everyone, to this ebizQ webinar. I'm Beth Gold Bernstein, director of the ebizQ training center and moderator of today's webinar.

Today's webinar is about Web 2.0, SOA and beyond. Our featured speakers are David Mitchell Smith, Vice President and Gartner Fellow, and Christopher Crummy, Business Unit Executive of Worldwide Workplace Portal and Collaboration at IBM Software Group. Now I'd like to turn the program over to David.

SMITH: Hello. My name is David Smith, and I'm here to talk with you today about Web 2.0 and how it relates to SOA and beyond.

I'd like to start by introducing what we call at Gartner the big aha slide that tries to get your attention and start getting you thinking about the kinds of things that we think are important when you want to look at a subject, such as the subject of today, Web 2.0.

What happens when a product that costs hundreds of millions of dollars and took 15 years to develop and refine and roll out has its [disk] copied by a four-person company in a year and made available to anyone on the planet free at the click of a mouse?

Well, that's what's happened. And we see a couple of

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screen shots, Microsoft Word 2007 about to ship and something called Rightly which has now been acquired by Google, which is offering a Web-based word processor that works in a browser and gives you the kind of functionality that at least begins to start to approach the kinds of things that people have typically expected to get from full-fledged rich client applications like Microsoft Word.

Now the goal today is not to dive into anything and everything to do and get to the bottom of the answer, what happens when this type of thing does happen. But really, to set the stage for a good understanding of all of the different dynamics that are going on behind the scenes that lead us to asking this kind of question.

We'll look at three key issues. First, what is Web 2.0 and how real is it? How is it affecting the vendor landscape; and, how is it affecting enterprises?

Before we get into what Web 2.0 is and isn't, it is useful to start setting the stage with some key trends. Where are we today? How did we get here?

Well, we are in the midst of what we call the second Internet revolution. Some people call this Web 2.0. But in fact when we look at what Web 2.0 really is, it's not necessarily useful to get bogged down in definitions of

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what it is and what it isn't.

It's best to think of it as a description of the second generation of the Web that's occurring roughly around now and not get into definitions what it is and isn't.

Over the past five years we have experienced what we call the trough of disillusionment around the Internet, the Internet 1.0, Web 1.0 and the big dot-com boom that happened back around 1999 and 2000 was the first revolution.

We've been in this trough, a classic Gartner trough disillusionment hype psychographic and now coming up out of it and we see the second one happening.

And in fact, during that trough where so many people were not paying attention to the Internet because it couldn't possibly couldn't have lived up to all the high expectations during the first revolution, a whole lot has happened.

What we've seen is that broadband has become ubiquitous.

Cost of starting up companies has come way down. Cost of software has come down. The cost of labor is now globalized. And generally we're in a very different environment.

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On a technology side Web Services and programmability of Web sites has become real. But some of the solutions for that like WS Star, the advanced Web Services specifications, have become much more complex than they were initially designed, formulated to be.

We now see this excitement around the second Internet revolution Web 2.0, but it's being driven not by enterprises but much more by people who are excited about the technology, people who are excited about its potential in consumer markets, venture capitalists and the like.

We've also seen that the concept of SOA has led us to the ability to start to be able to reuse business processes that have been formerly locked up in business applications. We call that SOBA, Service Oriented Business Applications.

We've seen software as a service and open source software become much more prevalent; and a concept we call consumerization: the impact of consumer technologies on IT. Focus on capabilities, on social and community dynamics and on the data itself, not just the processes.

Let's go into what Web 2.0 is and how real it is. First in terms of what it is. We, as I said, we are not going to define it or try to redefine it. Tim O'Reilly has

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defined Web 2.0 and if you can't see everything on this slide, that is in fact by design. This is not source Gartner, this is source Tim O'Reilly.

And while a lot of people find value in this slide a lot of people find it somewhat confusing that it has an awful lot on it and it's very hard to get your arms around it.

So what we've done is we've tried to focus it on what we call three aspects or anchor points of Web 2.0 that can be applied to Web 1.0 or beyond as well. But it's useful to start thinking about it as the three different perspectives. One is technology and architecture; one is community and social; one is business and process.

Now, it should come as no surprise that in the world of IT a lot of the focus is on the technology and architecture side. In the general world, more people are interested in the community and social aspect because everybody is a person first. And, of course, for business people and process people they're going to be looking at it from that perspective.

From a technology and architecture perspective, go there first, we've got some principles. And if these principles start to look reasonably like something called SOA that's no coincidence.

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The idea of decentralized network centric, extensible, in fact, the Web is in many ways the technology behind Web 2.0 and in a lot of ways the Web as an architecture is in fact the architecture that is most successful that's associated with SOA. The Web is the most successful example of SOA.

Now, there are some specific technologies that people get associated with Web 2.0. We'll talk a little bit about some of those in some detail but it's not meant to be in depth on it. We have other presentations that can do that.

AJAX, RST, Representational State Transfer, RSS, Really Simple Syndication, Web Services, Micro Formats. These are the kinds of technologies that are associated with it.

But also the concept of Web platforms. And what O'Reilly referred to as Web as a platform, which is more of the Web as an architecture actually. But the idea of Web platform and the capabilities-based systems, the idea of functionality that is exposed through the Web and can be programmatically accessed and reused.

This idea, along with the underlying technologies and what's called in the Web 2.0 world the mash up and remix model which is very similar to what in the enterprise

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people call composite applications, these kinds of aspects are driving the excitement and the reality in many ways around Web 2.0 from a technology and architecture standpoint.

Now here at Gartner we introduced back in the Web 1.0 world, concept of enterprise class and global class to describe two different ways of approaching problems and architectures for solving those problems.

Enterprise class shown on the right is the typical kind of approach that most enterprises approach. Bound, scope inside an enterprise. Typical data center approach to trying to do things. Whereas on the left-hand side we talked about something called global class.

And this was the result, initially, of us answering questions to our clients who would ask, well, what about Amazon and eBay and Yahoo! and all these new Web sites that are building data centers and dealing with transactional volumes much greater than mine, how do they do it?

Well, they do it very differently. They have very different architectural approaches, very different approaches to security, very different approaches to how they lock things down or not.

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We couldn't imagine Amazon saying, well, you can't buy books from us if you are not using the specific version of the browser and/or allowing us to lock down your desktop, which is something that you do see people trying to do in enterprises.

So we've got these two different approaches. And at the same time we saw the emergence of Web Services. And Web Services started out reasonably aligned with the idea of global class and things that were going to be working out on the public Internet to a large extent.

But what's happened is over the past five years, WS Star -- the set of specifications going beyond the simple one -- has become quite unruly, quite complicated, lot of dependencies on the kinds of things they weren't supposed to be doing.

And in fact as a result are moving towards becoming in a lot of ways the standards for enterprise class. In fact, one of the big differences between the next generation of enterprise class and the last version of enterprise class is that we have standards based on WS Star.

And in a global class world we have a movement now not just towards Web Services but towards the technologies like the ones I mentioned, like RES and plain old XML over HTTP and the like.

Let's look at the community and social aspect a bit. Oftentimes people associate this angle with things like blogs and wikis and social networks and tagging and [folksonomies] and user created content and data about users.

In fact, Tim O'Reilly talks about data inside as the next Intel inside. This is part of a bigger picture that we start to call the Web platform where you start to be able to leverage the capabilities, not just from the technology but from the result of the community and the social aspects.

We also introduced the concept of network collective intelligence, and there's some examples here of the kinds of things that you can get from the approach that people tend to associate with Web 2.0: architecture participation, as it's called.

You've got content creation and Wikipedia is very well known. There are of course downsides to that, but we do have reasonably unrestricted editorial access and a very large amount of information that is made available as a result of a network collective intelligence.

We have peer-to-peer networks. Most people tend to associate those with unlawful uses. There are also some

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pretty lawful uses like Skype and others that are able to take advantage of these kinds of technologies in a way that is providing value.

We've seen the seller-buyer product ratings model from eBay, Yahoo! e-opinions, et cetera, and this idea of folksonomy, that is the idea of building essentially taxonomies from the bottom up instead of from the top down.

We've seen prediction markets, expert syndication, shopping recommendation engines. There are really an awful lot of examples of the kinds of things that people are starting to see happen in this space.

In the business and process side, much of the focus thus far has been on the way that software and the software business is going to change. And therefore you see a lot of discussion around things like software as a service and subscription models and advertising.

There's more to it than that. There's the impact that the ideas behind here can have within enterprises as well. There are the ideas that there would be ways for organizations to look to build and benefit from ecosystems that can be built around it.

The concept of the virtual enterprise, which was popular

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in Web 1.0. The idea of outsourcing almost everything except what your core competency is, is something that we think will come back.

On the advertising side, oftentimes people will come to a conclusion that advertising is only for consumer markets.

We're not predicting that advertising is going to replace other ways of monetizing within corporations, but we would not rule out that advertising will have a role within enterprise.

And here's an example from the media industry. This can...the ideas can be applied to whatever industry you're in. On the left-hand side we see traditional channel revenue, whereby in the media industry we see lots of changes happening as a result of the technologies and the other aspects of Web 2.0.

And the traditional channel revenue which may be very much at risk as a result of what's going on can in fact be replaced by in some ways aggregations of multiple models, some of which may have just as much if not more potential. In fact, you can sum up multiple models and in fact potentially have even higher opportunities than before.

But also if you aren't able to monetize or take advantage of one of these opportunities and maybe only one or two

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of these materialize for you, you could be stuck with less of a revenue stream than you have today.

So Web 2.0 represents an opportunity as well as a threat for many of the businesses in here -- not just the software companies but certainly for them as well.

Let's look at how this is affecting the vendor landscape.

In particular, at software companies. I'll start with AJAX. If you haven't seen AJAX, you should go take a look at some of the applications and examples that I'm going to talk about here...

...because this is really one of the things that is very fundamental to Web 2.0 and it's also the kind of thing that people get excited about because it's easy to demo.

A lot of things that people talk about in the world of technology don't demo well; AJAX does.

The application called Google that I showed you up front and this one here, which is Yahoo!'s mail beta, which I think is now available to everyone, is a classic example of taking something that you tend to think of as a Web-based application and turning it into something that starts to become much more like a risk client application.

If you've used the Yahoo! mail or other Web-based e-mails

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out there and say you wanted to take some e-mail that's come in and put it into the waste basket or file it away, you know that the way to do that is typically to check the box for each of them and to hit the refresh and wait for the server to do its thing and come back.

Well, that's not the way you would do it with a rich client interface if you used, say, Outlook. What you would do is you would drag and drop those things from the right-hand side over to the left-hand side. And in fact that's what you do with AJAX-based applications.

In many ways it's the latest fashion in Web design, but that's okay, because it is something that doesn't go beyond skin deep to some extent. Although, there are applications of AJAX and uses of AJAX that do go beyond that.

And there are lots of examples. First of all, AJAX is not new. It stands for Asynchronous Java Script and XML.

And it's been around for a long time. You can go back to the 1998 time frame with Outlook Web Access from Microsoft, desktop.com. Now some good examples that have popularized it from Google, such as Google Maps, Yahoo!, et cetera, here and Microsoft and others.

And in fact what we see here is that what used to take a couple of years ago truly rocket scientists to build now

is something that mere mortals can start to be looking at building, even in enterprises, because we now see vendors who have tool kits like the ones that are listed here.

IBM Open AJAX. Microsoft Outlook. [Tipco] general interface and others. And, lots of open source tool kits that are starting to make this much more approachable and the kinds of things that enterprises could think about doing.

Now why would they do it? Well, they do it because they want to make things more interactive. They want to make things easier to use. They want to be able to make better decisions about whether they go rich client or reach client, going out to a broad audience.

And they want to be able to deal with what's going to happen, the inevitable demand that people are going to have as these kinds of things become checkmark items over the next year or two on the public Internet. People are going to demand it inside their organization as well as a result of consumerization.

I talked earlier briefly about the concept of Web platforms. Web platforms is a concept we use to describe the extension of the idea of platform beyond where we traditionally think of it in and on to the Web.

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Now, first, the idea of SOBA, Service-Oriented Business Applications, is shown on the right, and we see the consumer oriented sites on the left in this cloud. And there are some similarities between these two, they're not just thrown up here at random.

The similarity is that we have programmatic access as well as other kinds of access to functionality that has previously been closed or locked up and only accessed in certain ways.

On the right-hand side, the SOBAs, the Oracles and SAPs of the world business apps, these are now being made available as Service-Oriented Business Applications through sometimes a simple approach as wrapping and sometimes more.

On the left-hand side we see the idea of Web sites on the public Internet becoming platforms. We see these companies out here building developer programs and promoting APIs and the like.

And of course we see others in the middle here like FedEx, who has FedEx tracking services, salesforce.com leading in a lot of ways the software as a service trend.

And Microsoft not firmly in consumer or the business side but trying to straddle the two of them.

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So what we have here are a lot of similarities between these two concepts, and in fact it is the beginning in a lot of ways of what we call the Web platform.

Now, before we get into Web platforms, it's useful to step back to the idea of traditional platforms first. Platform is a term that can mean an awful lot of different things in the world of IT.

And in fact, some of the problem when using the term is that people throw the term out there without a meaningful qualifier in front of it. Now Web platform we think is a meaningful qualifier.

But one of the reasons why we think you need the meaningful qualifier is because the idea of platform as the you are here marker in architecture is very important.

If you were to get off the subway in a big city or walk into a big mall, first thing you go look for is the directory or the map with the little icon on it that says, you are here. And until you find that, you feel pretty lost.

Well, in the maze of enterprise architecture and IT in general, the same thing applies. You see all these stacks that the different vendors have there all the

architecture diagram.

And when people start throwing terms out like platform and cross-platform and the like they mean to help but without putting a meaningful qualifier on it, it's hard to figure out.

So the platform is the you are here. It's the pointer in the stack. It means this is the point of relevance.

This is the point you can compare. The stuff below the you are here of the platform is infrastructure that you typically don't care about for the purposes of the discussion unless it doesn't work. And the stuff above the platform is the business value. The applications or the solutions that you're going to buy or build, the services in the world of SOA.

So there are similarities between Web platform and traditional platform. Traditional platforms people tend to think of as something that you buy, something that you stick in the back room.

Of course, there are these different ranges like you can have chip platforms, operating systems, browser, database, middleware platforms. But the idea is traditionally people think of them as one thing whereas in the Web another name people may call this as a virtual platform, because we're talking about it being not

necessarily a stand-alone platform that you purchase but something that exists in a virtual way.

So there are similarities in that they have these sets of interfaces and infrastructure that give you access to the capabilities. There are multiple levels possible. It is the you are here. The value is determined by what is made accessible through the platform interfaces.

And very similar success factors. The real success factor or not of a platform is the ecosystem around it, the solutions, the applications, the third-parties for tools as well as professional services and Web Services or SOA kinds of services of what determines the success or not.

But there are differences. I mentioned it's not a stand-alone platform. It's not the kind of thing that you just buy and stick in the box in the back room. It's virtual. And in fact it is separated often by a network, typically the Internet. And in fact can be hosted, can be distributed, and in fact usually is. And is not just a client platform or a server platform but a distributed one.

And the access to the data and the capabilities and the business issues as a result of the community and the business angle is also key. They tend to at least start

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being consumer driven but certainly have characteristics of the global class approach that I talked about.

Look at some of the vendors. We can separate them into different kinds. We can look at consumer oriented Web sites like Google, Yahoo!, Amazon, eBay, and we can say that in a lot of ways they're leading the charge. They're leading the way.

They are not necessarily contributing and being a big part of the open source movement that is behind a lot of this. We see SAA, software services and hosted vendors like Salesforce similar in nature.

But the ones that are interesting to watch are the ones that are probably more familiar to a typical enterprise audience, ones we lump together under either enterprise vendors or SOBA vendors.

The enterprise vendors like IBM in particular is good at supporting ideas like open and free. Struggling with things that are simple and easy. But in many ways IBM is out in front on Web 2.0 in a lot of ways because they do have a collaboration approach through its Lotus division and is not afraid of Web 2.0 whereby some other vendors may be.

In terms of the SOBA vendors, SAP and Oracle as business

application vendors who are trying to be behind this kind of a trend, they are positioned to take advantage of it if things go the way we're talking about it.

And Microsoft is, of course, a company that is trying to bridge that gap between consumers and enterprises and in fact.... But as a result of the threat that I talked about at the beginning, the threat to Word and ultimately Windows by AJAX and Web-based applications, even though it may have a good story to tell in some ways, it is somewhat shell shocked in some ways of being able to deal with it because Web 2.0 represents a large opportunity and a large threat for them simultaneously.

Let's look at the impact on enterprises. Well, first and foremost, when we go back to the technology, the community and the business angles and lump the business and community together under non-technology here, we see that enterprises are most likely going to be adopting the technology first. And the technology is not going to have as much business impact as if they adopted some of the non-technology ideas here.

Now, sometimes people will say AJAX is just, it's just like a coat of AJAX paint on top of things, if you start doing mash ups and RES and RSS and these are good things to do and we encourage company to be looking at how to do this, and experimenting and the like.

But a lot of these other things are more difficult. The non-technology pieces require changes in behavior and changes perhaps to how business is done. And they're not the kinds of things that are going to happen overnight.

And in fact, many companies are sometimes a bit hesitant as a result of what happened with the e-business and Web 1.0 over hype.

When they start hearing about, redefining your business and all the like as a result of the Web they tend to tune out. And we're not advocating that they start doing the same things and making the same mistakes, but in most cases it is a useful thing to be looking out there and saying, what impact can the Web have on the business I'm in?

What start-ups are going to be coming back and starting to do things that I do, and what kind of impact is that going to have on my business?

And how can I apply the ideas behind Web 2.0 -- which is just the Web, by the way -- to my enterprise from not only an efficiency standpoint but also how we do things and how we position ourselves to be agile and take advantage of the demands of our users and the demands of the businesses that we're in.

Talked a bit about mash ups. Mash ups are Web-centric composite applications. We have some examples of them here. Most of the examples of mash ups out there on the Web today take advantage of something like a Google Maps or some other map provider.

It's visually easy to see the value in taking some amount of data like what we have here, Fandango, which takes information about movie listings and Google Maps and mashing those two together to get what is called mashmaps.com. There are lots of other examples of these kinds of things. A good one is Zillow, which does real estate listings and gives you an opportunity to see what your house is worth and these kind of things.

These have the potential to change business models. If you were in the real estate business, you would worry about something like Zillow is doing. If you're in the movie business you need to understand what's going on with something like mashmaps.

And we also believe you're going to see these things start to become much more prevalent in enterprises. And it's not just mapping applications any time you have data from multiple sources that you want to bring together in a composite way.

And in fact we're now starting to see a real blurring because of consumerization, between the concept of mash ups and the concept of composite applications. Many vendors are starting to use the term enterprise mash ups, which is the use of these kinds of approaches in enterprises.

But you do need to be careful with this. One of the examples we use is that there was a fire department that started to put the data for where the fire hydrants are and map it onto Google Maps...

...which is all well and good, but without service level agreements, you know, it's hard to think of a more mission-critical application than trying to find fire hydrants if you're a fire department. And if you don't have service level agreements and you can't find where the fire hydrants are, that could be a problem.

So when we start to move into enterprise class kinds of applications using this, we want to be thinking a little bit beyond. In the Web 2.0 world there are some things that really have not been all that well thought out yet like how does the ownership of information in the mash up world work and how does that evolve?

Software architecture is an unintended consequence of social architecture. Basically if you have a

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dysfunctional organization and build software to align with it you're likely to get dysfunctional software and vice versa.

So we need to go in with our eyes open and understand that just following one approach on to the other, which do need to line up, is something that you need to understand where the business process is, where the flows are, how things work, how the organizational dynamics work and don't expect putting new technology in that's going to fundamentally change that. In fact, this may exacerbate issues.

We're often asked, well, what comes after Web 2.0? And of course the flip answer is Web 3.0. But I think what's more useful to people is to be thinking about the pattern here as opposed to just coming up with new buzz words.

Here we are where people started to get excited about Web 2.0. But if we step back to what some people might call Web 0.5 back in the early nineties when the browser was just getting off the ground, and people were starting to get excited about the Web in general beyond the Internet.

What we had is a lot of excitement around open source, around collaboration, around decentralized approaches, lightweight approaches, user-centric approaches. And of course that didn't last very long as we moved into the

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Web 1.0 hype mode and we were all talking about first mover advantage, monetizing eyeballs, the enterprise Web, et cetera.

That of course has now subsided to some extent and we're now in the big excitement around Web 2.0. And lo and behold we're all talking about the same kinds of things like open, collaborative, decentralized, lightweight, user centered environments.

Well the next step back is towards the cycle will go back to the closed Web and then back again to the open Web whether we call these 3.0 or 4.0 or whatever doesn't really matter.

We are starting to see people as you might expect worrying about how do you make money in this world. Who is out there first? A lot of focus on enterprise class capabilities again, and domain names are hot again, and a whole lot of kinds of things that were big five, six years ago are big again.

But it does make sense to be looking at some specific things that we do think are going to be hot and important over the next couple of years.

What's next? Well, if we divide it up into these three anchor points again which is useful, in the technology

side there are some interesting things happening. A lot of excitement around off-line AJAX.

AJAX today works really only if you're connected. But what if it started to work when you weren't connected? Well, we believe there are efforts underway. We're not likely to see general purpose off-line AJAX any time soon. But we are likely to see some solutions for some applications.

For example, the word processing application I was talking about in some of these e-mail applications I showed you, why not have some mashing and allow these things to work off line?

Well, there's a lot of discussion around ubiquitous wireless access and net neutrality and other kinds of things that if these things happen the way people would like to you to believe you would have no need or much lesser need for off line AJAX if everyone were on line all the time.

We are a little skeptical of that happening any time soon. In fact, even some of the positive steps like Boeing's connection service on planes for Wi-Fi in-flight, that seems to have taken a step backward, in that they're not able to find an adequate business model for that at this point.

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The Web [top redux], sometimes people refer to this by different names like Web OS, and the idea of everything being on the desktop all served from the back. Software as a service model. So it's the next step beyond where we've been with Web 2.0. We're starting to see a lot of discussion and excitement around that model today.

In the community and social side, there are a lot of things to get excited about. A lot of it has to do with television and video. In fact, because of devices like Tivo and now Sling Box, we see almost complete disconnection between where you are and when you are and when you can watch something.

We're seeing the industries involved having to really change how they view the world and how they changed their business model. In fact, you could come to the conclusion that the idea of when something is shown and where it's shown is going to be a distant memory in the near future.

Mapping and location services are a very interesting thing we think is going to be big. In fact O'Reilly who coined Web 2.0 in a conference around it, now has a conference called Where 2.0 which starts to look at this as well.

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We think this is going to be a very big thing especially as it leverages the concept of community, because what better thing to know about where you are than who else in your community is where you are.

So this starts to get into mobile applications and next generation standards and technologies related for how to make interactive applications actually work in a useful way on mobile devices like mobile phones.

Thus far this has been a pretty frustrating experience for people who use these kinds of devices. And this may be an opportunity for things that are not traditional Web-based but much more of a rich client based way of doing things at least for the next few years.

Open source applications and now in the business and process side and I mentioned advertising and enterprises.

This is something that we think is going to have some place as more and more free or advertising supported software comes into enterprises one way or another. People will question the value and be interested in ways that they can lower their software bill.

Simple work flow. A lot of the work flow and business process management approaches are reasonably heavy weight. The Web and Web 2.0 approach tends to be a little more light weight and easy.

And in fact I think this is going to have some impact on some technologies as well. Whereas there's a lot of focus on not coding for these kinds of things and making them available to business people and process people, I think we will see that but we will also see the popularity of AJAX start to drive simple scripting like through Java script on servers to do things here.

And of course, the virtual enterprise: the idea that this idea will come back something that has been around for a long time is certainly something that we are keeping an eye on because this is something that could have impact on the technology, on the community, on the business, primarily a business and process issue.

But the idea of there actually becoming markets for business services that people can actually subscribe to and use to build businesses.

This has been in a lot of ways the dream of Web 1.0 and in fact now that we have a lot of the pieces in place to make this much more of a reality we can get that much closer to this kind of an approach.

I'm going to close with bottom line on some of the things that we think you should take away from this. One, denial of Web 2.0 and the Web is pointless. It really is

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going to change the way you work, the way you shop and bank and get entertained radically.

Again, yes, you've heard this before. It did happen before. It's going to happen again. It's going to continue to happen.

The idea of Web platforms are emerging: first, in consumer markets; later in enterprise use -- but not that much later. And in fact the idea of the leverage is not just in the platforms themselves but in the technology, the Web oriented architecture...

...the use of simple interfaces whenever possible is part of the kind of advice we've given for many years that you should keep it simple if possible and understand and isolate dependencies on things that don't meet those needs. Not that you can do everything with it but certainly you can start to build solutions with this kind of approach.

The world is going to be comprised of composite applications that you will mash up with many different things, including what we've called these Web platforms and SOBA. AJAX is going to be the dominant user interface. You should become familiar with these Web 2.0 technologies. You should not necessarily wait and do all the business stuff first.

Now, this is sometimes against the kinds of advice you'll hear from Gartner and others that say do the business first. Well, we're not saying don't do the business but we're saying there's no reason to not start adopting some of these technologies.

Don't make business decisions without looking at the business ramifications. But some of these technologies are things that you can take advantage of without going full force into changing how you do your business.

It's going to be consumer led. There are lots of things you can do to encourage better understanding of consumer technology and consumer behavior in your enterprise. They range from bringing in children into your work force and understand what they're doing. They range to encouraging groups of mavericks and people leading the charge towards new ways of doing things.

These kinds of approaches are ones that are going to have an awful lot of impact on enterprises moving forward and you need to get way out in front of that.

And there's a large social component. Management should lead the cultural change. Example might be blogging to the staff. With that, I would stop the formal presentation at this point and open up for questions.

Thank you.

BERNSTEIN: Thank you very much, David. Now I'll turn the program over to Christopher.

CRUMMY: Thank you, Beth. So my name is Christopher Crummy, and this is actually the 15th year for me at IBM. And as a business unit executive, I'm responsible for all things that are customer facing, all the software that the end user would see.

And in that particular case we have a fantastic direction and adoption rate for Web 2 technology, things like AJAX, all under a larger SOA architecture at IBM.

So over the next couple of minutes I'm going to talk briefly about our strategy and what makes this so powerful. So when you look at the Web 2 technology that David talked about, there are things that have been noted in the press on the Web and we're going to take advantage of the success of that Web 2 technology, we're going to take advantage of the success of the SOA architectures that are out there and bring those inside the firewall and make those ready for business.

So it's really important to take advantage of those types of technologies and those solutions and make sure that they're ready for business.

When you look at the type of employee that will be working for your company in the next two to five years, they know, understand and use this Web 2 type technology today. So you want to be prepared for that type or classification of collaboration. They understand things like blogs and wikis and instant messaging and those type of capabilities. So we're trying to make sure that our software and our strategy maps to that type of phenomenon.

And when you start looking at this Web 2 type technology, in a lot of ways it's a foundation for knowledge management. And for many years knowledge management was a dirty word, if you will.

But now it's come back in a lot of ways because it's about discovering relationships and content and other aspects via Web 2 technology and SOA that you didn't have before.

So let's take a look at the power of what's out there, the success of the Internet 2.0 technologies. In the lower left-hand corner a lot of you might be familiar with the company of Linked In or the site of Linked In. And that's about connections. That's about one hop, two hop, three connections between people.

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And that's important when you look for discovery of experts and discovery of relationships. In the bottom center is Flickr. And this is a powerful site for sharing photographs. And you'll notice below that you'll see certain words or what we refer to in the Web 2 technology as tags or folksonomy, if you will, that size of the word and the proximity of the words show a relationship between the popularity of those tags.

And this is kind of a grassroots bottom-up approach for defining content. So it's not an official corporate taxonomy, but a kind of grassroots level classification of content.

And that's important because it gives you an idea of what people in your company or what people outside your company, what they're looking at, what they think is important, things to that order.

In the lower right-hand corner is Delicious, and Delicious is a social bookmarking site. And this can give you an idea of what people think is important and what they're reading. It's very similar to the old notion of asking a CIO what books are on his bed nightstand table to give an idea what they think is important, what they're reading.

Yahoo! Groups is very much about an ad hoc collaboration

for temporary groups. Blogging, you know, stands short for Web log. That's a way to create content, especially for people that have opinions or people who are experts on information and therefore that leads you to discovering kind of the expert, if you will, when you have these people singled out in their form of collaboration.

Wikis, in terms of being able to build content and build sites. Google, and the whole Google Suggests functionality. So when you go to Google Suggests and you start typing in a word, it will start to suggest to you what the most popular search phrases are.

And now you're getting the power of shared information and shared knowledge. And so that gives you a greater way of finding content and finding information. And of course, we've seen a lot of information on the news and on the Internet about MySpace, but it's one of the popular functions about profiling that's out on the Internet.

So basically the bottom line is that the success of these companies and their technologies and the value they bring to the table is outside the firewall. And IBM strategy is to bring this type of functionality inside the firewall and make it ready for business. So that means applying security to it, that means applying levels of

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process to it. So it's important that you combine both of those functionality ease of function.

Now in terms of knowledge management, you know we are looking at the vast amount of data that exists both outside the firewall and inside the firewall. It can be a little daunting to find the information that you're looking for.

And in a lot of ways you don't know what you don't know.

And that's why probably the number one aspect of this technology is to drive knowledge accidents. And that is to discover content or discover relationships or discover experts that did not, was not able to be surfaced prior to that.

And using Web 2 technology allows that capability to be bubbled to the surface. And it's really, really important because you have the idea of kind of a top down corporate official taxonomy of the way people classify and store information...

...but in reality people think about content and information in many, many different ways and might classify it in a non official taxonomy or classification that helps other people discover that information.

So in terms of taking a look at how we do this internally

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at IBM, on this particular screen you will see My Portal.

And this is one of only three applications at IBM that is global. And it is role based -- and role based meaning it dynamically delivers the right apps and the right content and the right information based on a role.

And a role might be location. It might be job. Sales versus non-sales. Manager versus non-manager. Japanese employee versus American employee. And it dynamically delivers, and that's why it's a delivery platform.

So for us the primary user experience for delivery is our portal. And taking the Web 2 technology you can embed it and weave it into the fabric of the portal. And that makes it such a powerful delivery mechanism.

How do you increase the adoption rate of your applications? Well, using Web 2 technology increases the usability, increases the performance, increases the adoption rate and so it's very, very powerful combination.

So for us one of the ways that we use portal is to front end our SOA architecture. SOA is very similar to portal.

SOA is about reuse. SOA is about components. SOA is about recombining components to add greater value and time to value. And that's exactly what the portal's doing for us at IBM.

It allows us to reassemble components in ways that weren't thought of before and be able to provide value very, very quickly depending on the role that you might be in.

If we take a look at the next slide here, you'll see a use of Web 2 technology built into the number one application IBM called Blue Pages. As I start typing my name inside that portlet, you'll see the drop down name list on the right and the dynamic business card of that IBM employee showing up without having to refresh the browser.

So we're embedding AJAX and Web 2 technology in all parts of our software, portal being one of the primary tools that we do that.

And when you look at this functionality, I'm not sure if you can see below my name there, is my instant messaging awareness. And this is an example of contextual collaboration, where you weave collaboration into the fabric of your applications.

And we do instant messaging awareness inside of Siebel, and inside of the portal, and inside the directory. And in most places there are names inside of our portal, is that connection to the person. And so using Web 2

technology just drives that functionality at a greater, higher adoption rate than we have in the past.

If you look at the next screen shot, it's a little fuzzy on my screen here, but this is an example of the value of the Web 2 technology in a simple concept of search.

Searching IBM for many, many topics can be overwhelming with the amount of hits you get. But at the top left I searched IBM for Portal 6. And in the bottom lower right it discovered experts.

So it's not just the actual hits; it's discovering the capabilities and the experts associated with that content. And you see in the lower left my blog.

So it discovered that I was an expert. It discovered the fact that I have written a blog and in the upper right it has found one of my Web site that I manage, and it found that because other people have used Web 2 technology to denote that it was important.

So most people would traditionally get just a search hit.

In this particular sense you're getting context to your topic and being able to dynamically grab data. And obviously this is a great example of a knowledge accident: not knowing who the expert is. Not knowing where additional valuable information is stored is an

example of the combination of this story.

And let's move on to one more very powerful tool at IBM, and that's this concept of real time collaboration. And we have shipped our latest instant messaging tool that isn't just a tool, it is actually a platform for real time business.

And it's based on the extensible platform of Eclipse. And therefore, if you look at the screen shot, you'll notice in the bottom area I've got all of these plug-ins.

These are port lets if you will to my instant messaging tool. And these are picking up features and functions that are very, very powerful.

This is an extensible platform. So I'm able to look up blogs. I'm able to actually use Web services to pull in stock quotes. I'm able to dynamically look at my document library stored on the portal. I'm able to update my back-end sales data and look at my quota and look at my information.

So in a way you're weaving the value of business and context or what we referred to as composite applications with the combination of standards and Web 2 type technology.

The other thing to realize is that we're adding

additional rich communication like voice. So the voice over IP function here is in the same in Skype, the same codec that's in Skype and the ability to integrate with things like Cisco IP phones.

So it literally is taking it from simple text to voice over IP through the phone functionality and it's a great example of that type of extensibility through the platform. This also gives you integration with AOL and Yahoo! and Google instant messaging and actually makes it more secure than it would be if you used just the free IMs. So we're addressing some of the key points that are out there on the Internet today.

So one last comment before I pass this back to Beth is that one of the other strategies here around Web 2 technology is the concept of on ramps. And on ramps are ways to integrate points of integration where your eyeballs are located.

And for us we are saying that in order to drive Web 2 technology and to drive SOA adoption, you need to be where the eyeballs are -- and that means being integrated into Windows and being integrated into Office and integrated into Lotus Notes and into Outlook and to other tools.

So our strategy is to put on ramps into every tool you

have: your e-mail tool your portal tool, your browser tool, your Windows tool, all of these places will have connections back into your collaborative infrastructure to drive adoption rate, to increase the functionality, to lubricate the ability to collaborate and reduce the barriers to these types of things.

So that should give you a pretty good idea of what we're doing and where we're heading with this technology. And with that, I'm going to pass it back to Beth.

BERNSTEIN: Thank you very much, Christopher.

[END OF SEGMENT]