Adaptive Architecture Strategies

TRACK DESCRIPTION

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Part of a special Guest Series, this program is presented by META Group, an IT research and advisory firm and WatchIT.com business partner.

INTRODUCTION / ROI

My name is Larry DeBoever, and I'm a Senior Vice President with META Group, and General Manager of META Group's Executive Services offerings.

Today's presentation is **Adaptive Architecture Strategies**.

After watching this program, you will understand the technical and nontechnical challenges to creating an enterprise architecture.

We will focus on some of the key best practices in the enterprise architecture process.

And you will understand how to avoid some of the most common mistakes in architecture efforts.

AGENDA

Our topics include:

~ The nontechnical challenges of creating an enterprise architecture;

~ The evolution of business over the last two decades; and

~ The way business has evolved to an end-to-end optimization strategy.

~ We'll then look at some of the current pressures on the business and IT, which companies need to address moving into the next millennium.

~ From there we'll turn to your existing architecture and some of the challenges you are probably confronted with.

~ Then we'll examine the concept of adaptive architecture, a strategy that we've seen leading companies employ in order to address the challenges that they're confronted with.

~ Central to an adaptive architecture is the conceptual architecture, and we'll spend a few minutes discussing the role of the conceptual architecture and how you create one.

~ From there we'll turn to some of the best practices; and then more broadly look at …

~ How the definition of enterprise architecture is expanding to go from technical architecture to include and incorporate enterprise business architecture, enterprise information architecture - and we'll also look at some of those key relationships.

~ Finally, we'll end on the 6 most common mistakes we see in enterprise architecture efforts.

NONTECHNICAL CHALLENGES

Most enterprise architecture teams immediately want to rush in to examine: What are the core technical and engineering challenges of an enterprise-wide technical architecture - EWTA -effort?

What we've found very often is that in most large organizations, public sector or private sector, it is the nontechnical challenges, challenges not relating to engineering, that have the biggest impact on the enterprise-wide technical architecture effort.

Let's look at three of these nontechnical challenges that you must address in order to be successful implementing enterprise-wide architecture effort in your organization

The first challenge is this: senior management and line-of-business managers must understand how the enterprise-wide technical architecture enables the business. Otherwise they simply will not support the architecture effort.

This alignment of senior line managers with the enterprise architecture effort must constantly be examined to see if it is being successful - and you must constantly reinforce it.

Even if you are successful in having senior management understand how the architecture will enable the business, you still run the risk of failing if you don't address the second core nontechnical challenge.

It's this, fundamentally: the detailed decisions you make in your enterprise architecture - at the product level, at the standard level, at the configuration level - must clearly be linked to the highest level business and information requirements of the organization.

If you're not able to demonstrate those linkages in a way that could be auditable by an outside, objective third party, then you will not be able to withstand ongoing pressure.

Because ultimately it will appear as if your architecture effort made a leap between the highest level business driver and product or standard selection.

You must also create these linkages to ensure logical consistency in the decomposition, as you move through various layers of extraction.

The third nontechnical challenge is perhaps the most critical on an ongoing basis. Even if you have successfully addressed the first two nontechnical challenges, you must ultimately create an enterprise deliverable that is actionable across the IT organization.

When we say ''actionable'' we mean that every first-level IT professional - developer, database, support, network - must know fundamentally what it is that they're to do differently today - now that you've propagated an architecture - than what they did yesterday when they didn't have an architecture.

Far too many architecture efforts fail, not because the engineering wasn't well thought through, not because they didn't carefully analyze the business strategy, but because what they ultimately produced was a hundred page or a thousand page document in a three-ring binder that simply sat on the shelves of the IT staff.

Consequently, this third nontechnical challenge is essential. You must construct actionable architecture - architecture that impacts the day-to-day activity of IT staff on an ongoing basis. You must create an architecture that is not ''shelfware.''

THE EVOLUTION TOWARDS END-TO-END OPTIMIZATION

Clearly, having the buy-in of senior management for your architecture effort is an essential requirement.

What we'd like to do for the next few minutes is tell you how META Group explains the relationship between the changes that have impacted business over the last couple of decades and the need requirement for an enterprise architecture. And with that we're going to look at the evolution of the business over the last 20 years.

Optimizing at the Business Unit Level

In the '70s and '80s, management theory held that businesses should optimize their organizations at the business unit level.

The idea was very simple. If every branch manager, department manager, division manager, business unit manager made the most optimal decision they could, then the shareholder or stakeholder would benefit through the aggregation of those discrete optimizations.

Business schools taught this. Strategic consulting firms taught this theory. And if you will recall management language in the '70s and '80s, we talked about "empowerment."

And the notion of empowerment was to give the line-of-business managers full authority, full responsibility, and accountability for achieving their objectives.

Consequently, we gave them more control over the budget. We often gave them Human Resource responsibility. And, of course, we often gave them responsibility for making day-to-day IT decisions.

We saw a lot of decentralization emphasized in large, complex organizations as decision making, authority, responsibility was pushed into the lines of business, into the day-to-day business managers - because we were fully empowering those managers.

During the same time frame, we saw evolution in computer technology, the emergence of departmental computing, of client/server computing, the explosion of the PC. And these technologies, of course, lent themselves to having line organizations take responsibility for their implementation.

The business model of the conglomerate is probably the strongest version of this idea of optimizing at the business unit level.

Well, we're all aware of that. The interesting thing is when you look at how IT responded to the idea of optimizing at the business unit level.

Silo Applications Didn't Succeed

What we did, simply, was to reflect the notion of optimizing the business unit manager.

In IT, for the last 10 or 15 years, we've talked about silo applications. And, of course, many of us fully realize that silo applications are an impediment to many of the changes we need to make today. But what we want senior management to know is that silo applications - and, in fact, silo infrastructure - really were a reflection of business theory. We optimized around each business process, and when we had to interface between discrete processes, we probably implemented a batch interface. Said slightly differently, IT design strategies in the '70s and '80s reflected business and management theory.

What happened?

Well, it turns out that business unit optimization, the empowerment of the line manager in the '70s and '80s, actually failed to achieve its goal.

When business strategists turned to review the profitability of companies that fully empowered the line managers, what they realized was that those organizations did not have the highest earnings. In fact, quite the opposite; organizations that went to the extreme of empowering the line manager tended to have the lowest performance relative to companies in their industry segment.

Value Is Best in Businesses Optimized End-to-End

So where are we today?

Today management theory and business theory hold that shareholder value is best optimized when the business is optimized end-to-end. This is a fundamental shift in business theory that's not well understood.

It's not well understood particularly in IT.

You see this end-to-end optimization theory in the language of management today. We talk about globalization: Royal Dutch Shell looking at business processes across all country markets, making worldwide optimization more important than country market optimization.

The emergence of the phrases

~ Value chain;

~ Supply chain;

~ Service change; or

~ Customer relationship management (CRM) …

… all those concepts reflect that what's key to business today is not optimizing a discrete process, but rather looking across multiple processes to optimize end-to-end.

An Integrated View of Customers

The notion of having an integrated view of customers is so critical today in financial services organizations, in the insurance industry. Having an integrated view of all of our relationships with the customers is yet another view of end-to-end optimization.

And we see many companies, Raytheon for example, talking about wanting to have a single integrated company. We're going to have one Raytheon. We're going to have one well-integrated company.

And this notion of end-to-end optimization is really reflected diagrammatically in many of the publications that you see today. There probably isn't a vendor or a consultant who hasn't adopted Mike Porter's chevrons.

But what we have to remember is that when Porter drew the chevron, he did it to represent very clearly that we have to move from the boxes of business processes, and think, instead, across all of the business processes. Because business value, the value chain, is better aggregated across processes, rather than with each process optimized in isolation.

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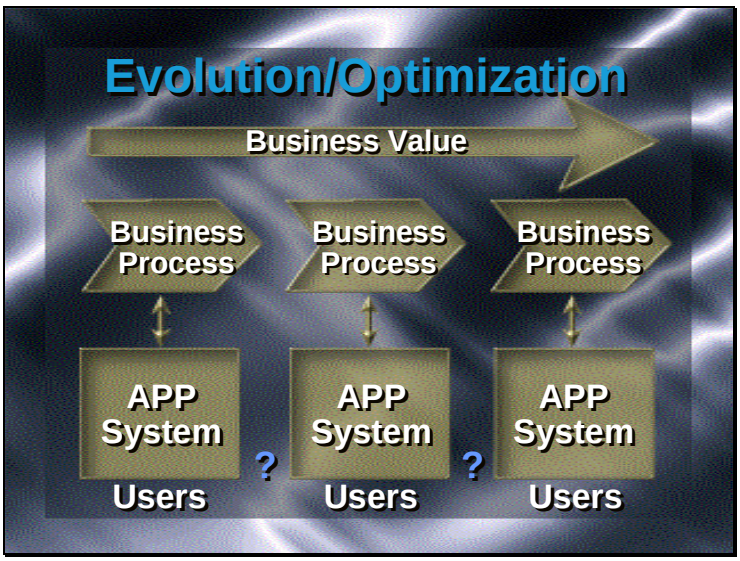

IT Still Reflects Silo Structure

Well, where is IT?

As businesses optimize end-to-end around value chains, unfortunately, most IT organizations today still optimize around the process at an application level, or around specific IT technologies: network optimization, database optimization, or both.

And what IT often doesn't do is recognize this misalignment. Because very often what we're really doing is executing the 1980s model - the '80s business model - and reflecting that in IT decision-making.

Quite frankly, we often don't know how to respond. We see this in many, many ways. And the result is that we are really beginning to inhibit the agility of the corporation to take advantage of new value chains.

We have batch interfaces. We have multiple customer databases. We have insufficient networks. And when you look at the diagram again, what you see is business, looking at the chevron, aggregating value across multiple processes - and IT still having discrete optimization at an application or IT technology level.

IT Must Optimize End-to-End To Create Value

So what do we need to do?

As a business optimizes end-to-end, IT must respond by optimizing end-to-end.

There are enormous implications for IT in every aspect: organization, role, responsibility, strategy. What is really most important when you optimize end-to-end in IT, or in the business, is you must fundamentally choose to sub-optimize some as some aspect of IT.

This then is the key driver for enterprise architecture.

And the way I describe it working in our client base is that, just as we've adopted the chevron for the business processes, just as we look across multiple business processes to aggregate shareholder value, this can only be achieved if IT is prepared to look across all of its IT assets and optimize end-to-end.

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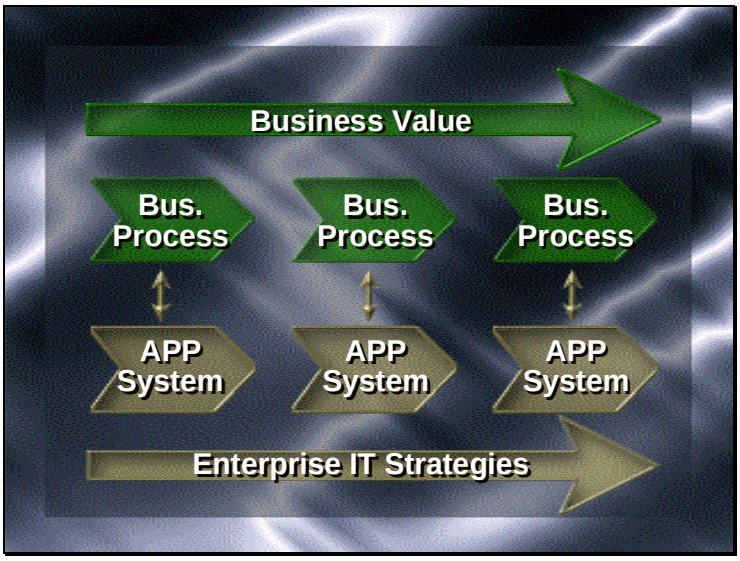

Senior corporate leadership who are focused on using technology as a competitive weapon are worried about the value of IT. They are also worried about the cost. But increasingly, value is more important than cost. And value gets aggregated when we look across all of the technologies of IT in order to enable the end-to-end optimization of the business directly.

PRESSURES ON BUSINESS AND IT

Why Is IT Failing?

As you look to construct an enterprise architecture that's going to be successful, not simply today but well into the next millennium, you also have to examine the pressures on business and IT going forward.

It's very common for me to talk to CEOs, executive committees and boards of directors, and talk to them about the role of IT, and the role of technology, in creating corporate agility. And typically executives ask me a series of questions. They might ask me:

~ Why aren't the business and IT better aligned?

~ How can we cut IT costs?

~ How can we determine the value of IT?

And very often, the question they really want to get to is:

~ Why is IT failing?

Because there's often the belief that IT is failing to deliver on some aspect of its promise. It's not delivering systems fast enough. It's not reducing cost. It's not adding enough to shareholder value. In some way, IT is often failing to meet the expectations of the executive committee.

And when senior executives ask me this question, I often tell them that they really know the answer to this question. They know why IT is failing. In fact, the answer is very simple. What they do about it is complex.

Why is IT failing? I think the answer is no more complex than this: it's because the rate of change in business, in administrative processes is accelerating. Today, where we use the phrase "cycle times" to mean the life cycle of business processes, that life cycle is getting shorter and shorter and shorter - because the rate of change in business is accelerating faster and faster and faster.

All of us know this.

You only need to look at management books today to realize that the "lingua franca" of management today is time.

~ Books talk about just-in-time inventory, just-in-time training.

~ People involved in process reengineering talk about continuous improvement.

~ Marketing people talk about windows of opportunity.

~ And many people are racing out today to acquire books or attend seminars on how to become a one-minute manager.

The Rate of Change Is Accelerating

The language of management is clearly about time, because the rate of change is accelerating.

Now, if you were to ask your executive committee or a CEO how often in 1980 they thought they would make changes to core business processes, the first answer often is: "Not very often."

But I find, in our engagements, when I really press them to give me an answer, they typically say that in 1980, on average, they probably changed core processes no more frequently than every seven years - in a few very competitive industries, perhaps, every five years.

But the average answer is about every seven years - with some organizations telling us that they thought, in 1980, that they would never need to change business processes, that they had them well-thought through and in place for at least the next 10, 20 or 30 years.

What I ask them to do is draw out the following diagram, a diagram that illustrates the challenge that is created for IT today as we look into the next millennium.

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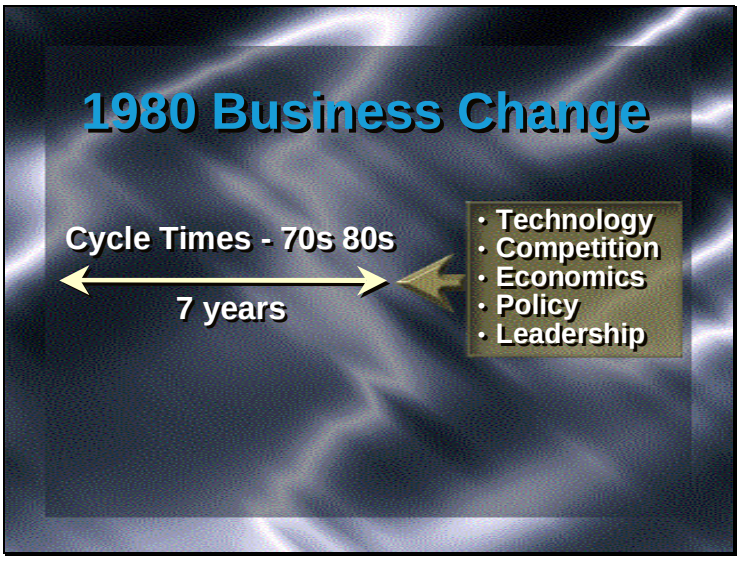

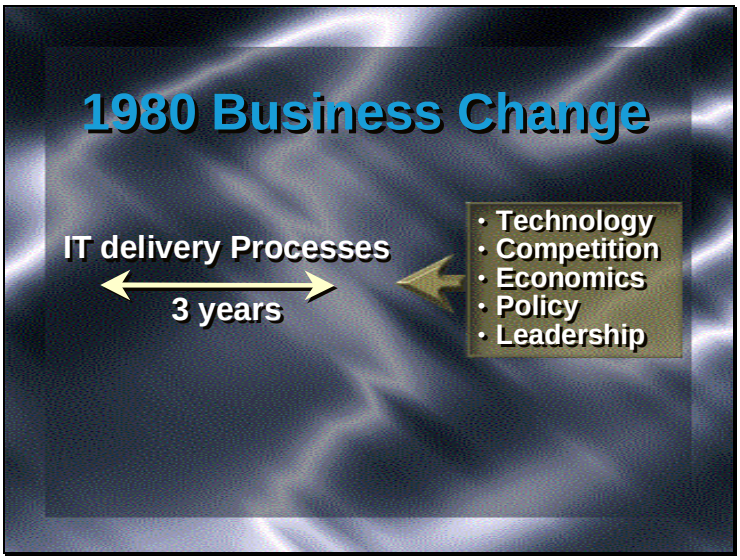

So if we draw out the impact on IT delivery, it becomes very clear that in 1980 we thought the average rate of change was every seven years.

We then pose the question: it's 1980, you're changing the business process every seven years, and you now must develop a new application to support that new process, how long would you expect IT to take in 1980 from the start of a feasibility study until they deliver a stable-state production system?"

And the typical answer will be: "Probably about three years."

Then pose this question: "Today, how often do line-of-business managers, how often does the executive committee, want to be able to make meaningful changes to core business processes?

And what you find out is the average answer, the typical answer, is: "About (every) six months." And it ranges from executives telling you that they want to be able to change processes in near real time, on a daily basis, to the longest answer typically being" "About (every) 12 months."

Derivatives of Accelerated Rates of Change

Well, what are the implications of this?

The implications are very clear: the rate of change in business processes is often faster than IT has the capacity to deliver. And it's only going to get worse as we enter the new millennium. Because cycle times are going to continue to shrink. IT delivery simply will not keep pace.

In fact, at META Group we believe that this is a primary source of the misalignment. Business is changing faster than IT can keep up to speed.

I want to be careful here with this phrase "alignment," because too often we hear about business staff and IT staff believing that if they simply align the business and IT all their problems will disappear. In fact, some people look at the architecture effort as a way simply to align the business and IT.

But you must not focus on alignment as a one-time event. What you must develop is a strategy for continuous realignment. Because the business is constantly going to be changing, IT must constantly be evolving - and that will take us to the goal of an adaptive architecture.

Decision-Making Must Accelerate

But for the moment, let's do a few derivatives of this. These derivatives are essential for senior management and they're essential for you to realize better what you're going to need to deliver going forward.

Again, we'll start with this statement: the rate of change in business is often faster than IT's capacity to deliver.

The first-order derivative is this: the corollary of shrinking cycle times is that decision making must accelerate. If you're going change the business faster and faster, you must be making decisions faster and faster.

Increase the Velocity of Information

If that's true, the next derivative is this: in order to accelerate decision making, hypercompetitive companies must increase the velocity of information. To make decisions faster, you must move information through the company faster and faster and faster - across all the business processes with end-to-end optimization, which gets us to the next order derivative.

Not only are we making better decisions about individual customers and individual suppliers or markets or competitors, we're going to make those decisions with much more information available today from our data warehouses and our data marts - and we must make them faster.

Information Density Will Explode

Therefore, as we increase information velocity, we are going to increase information density. Density will explode. Because you're going to be moving through your organization far more volumes of information, so that managers can make much faster decisions about it.

The impact of this in the architecture is obvious: extraordinary pressures on bandwidth, extraordinary pressures on processing, and the need to move to near real-time messaging-based infrastructures.

AS IS - CHALLENGES OF EXISTING ARCHITECTURE

The accelerating rate of change in the business, the need for end-to-end optimization, often cause a senior executive to pose a very simple question: "Why can't our current IT architecture, our current infrastructure, meet these requirements?

That leads us to the question of our "as-is" architecture and the challenges that we're confronted with. In many of our clients, what we've observed is that their existing IT infrastructure in the broadest sense is beginning to inhibit application delivery. And to the extent that delivery is inhibited, that inhibits supporting new business processes at the very time that business processes are under the greatest pressure to change.

Why then can't traditional IT planning solve this problem?

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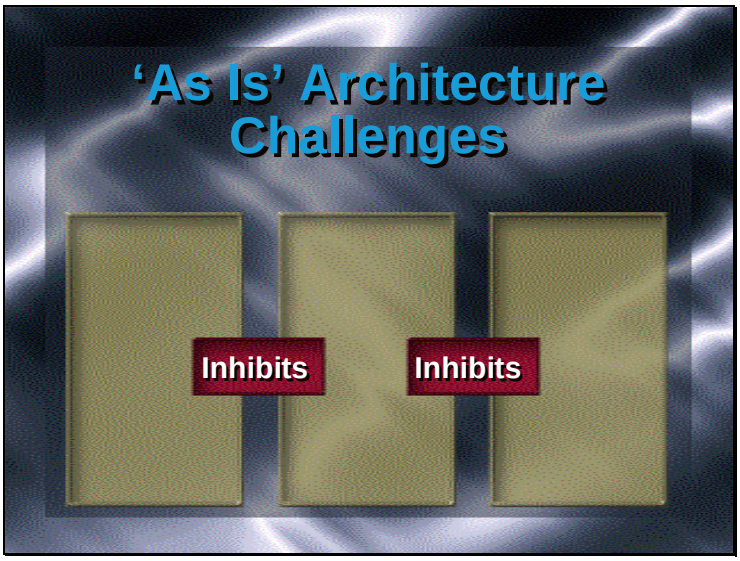

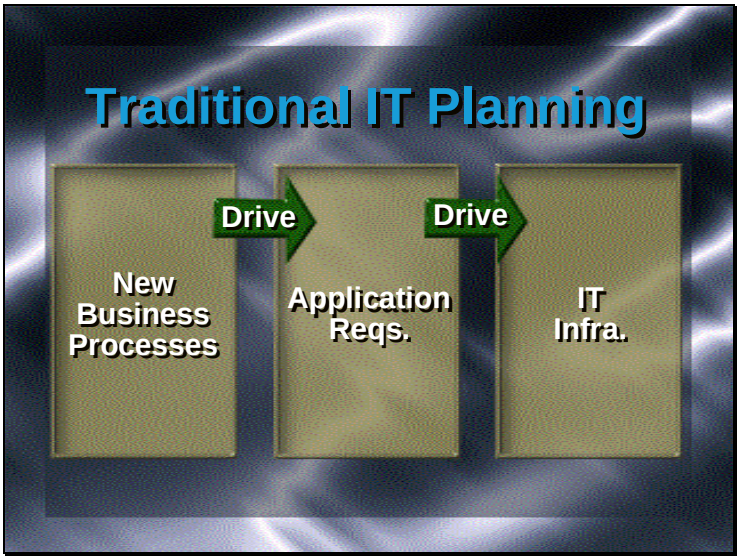

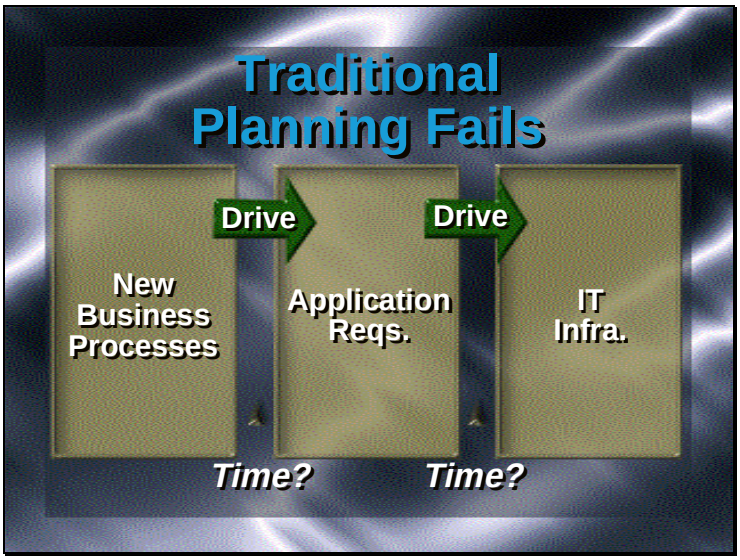

If you look at traditional IT planning, typically what we've done is: we analyze our new business processes, we look at the requirements that result from those processes. And then based on those requirements, we look at the IT infrastructure and analyze the infrastructure to determine what's necessary to support those application requirements in order to enable new processes.

Why doesn't this approach work?

Let me be clear. This approach worked well when processes were only changing every 6, 7, 8, or 9 years.

But when you look at those processes today, you realize something that's very fundamental: traditional planning fails simply because you don't have the time.

When processes are under pressure to change every 6 months, every 9 months, every 12 months - or perhaps worse, on a near real-time basis - you simply do not have time from an IT planning - from an enterprise architectural process perspective - to do broad analysis of all your processes and to do the necessary derivative analysis.

Because time is the constraining variable on delivery of IT architecture. Because time is the driving variable to the business. We have to solve this problem in order to be successful.

ADAPTIVE ARCHITECTURE

Businesses that have optimized end-to-end, and that have been enabled to do so because IT has optimized end-to-end, invariably evolve toward a concept that we describe as adaptive architecture.

This is one of the key best practices that we have identified in META Trends: through 2002, the primary design point for enterprise-wide technical architectures will be to enable rapid change in business processes and the applications that enable those processes.

These adaptive architectures will create sustainable competitive advantage for those global 2000 companies that implement them.

Adaptive architecture extends the traditional enterprise-wide technical architecture approach by anticipating:

~ Changes in the business;

~ Changes in systems;

~ The need for infrastructure to support those changes; and

~ The subsequent impact.

Create Adaptive Range in Enterprise Architecture

How do we do this? Our goal is very simple. What we want to do is create adaptive range in the enterprise architecture.

You recall this diagram that we looked at earlier - that in traditional planning, processes drive application requirements, and they, in turn, drive IT infrastructure.

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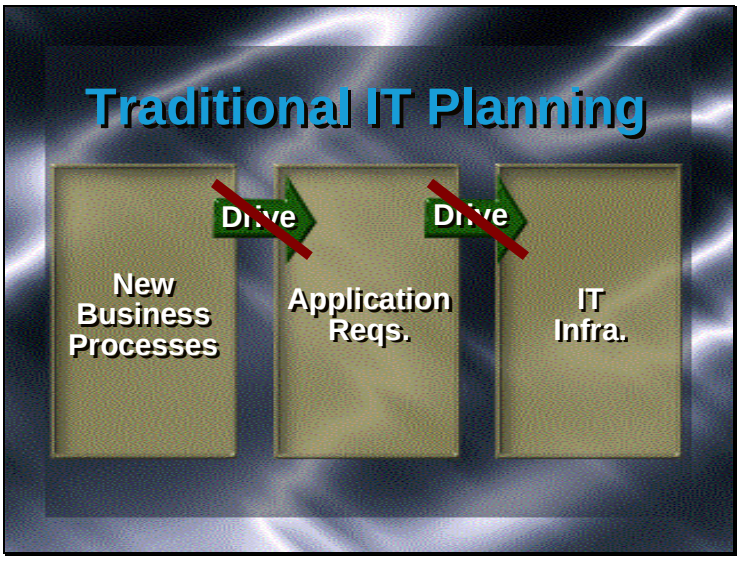

But as we pointed out before, you simply don't have the time to do this analysis. You don't have the time. Because if it takes you 6, 9, or 12 months to do the analysis, the company might well be at least one if not two next-generations beyond you in their core business processes.

If we can't do this detailed derivative analysis, what then do we do?

What successful companies have found is that they are more likely to enable change in the business:

~ If they focus on those things that will cause changes in processes;

~ If they focus on the ways in which applications will need to be changed; and

~ If they focus on how IT infrastructure will need to change in order to support potential changes in the process.

Focus on Core Drivers of the Business

Now, again, let me be very clear. I'm not talking about system implementation. Of course, in detailed system design, you have to do detailed decomposition. What we're talking about is decision making at an architectural layer across all of the IT assets of the organization.

And there we can focus on the core drivers of the business. For example, companies in which the business strategy is growth through acquisition, ought to focus on creating an

architecture that enables acquisition - because architectures designed to enable acquisition are very different than architectures designed to squeeze out efficiencies.

I recall in the early years of energy deregulation clients approached me and asked me this question: Do deregulated entities approach their architecture differently than regulated entities? And the quick answer is: "Of course they do, of course they do."

What then are those differences?

What successful enterprise architecture teams do is analyze the core drivers that will cause changes in the business processes. They begin to anticipate those changes, and begin to build out an architecture in that subsequent infrastructure to enable the company to address changes in the business more quickly.

Utilize a Systemic Approach

To do this, of course, requires a systemic approach, an enterprise-wide approach, end-to-end optimization - to both the processes and the enabling IT systems and technology infrastructure.

How does adaptive architecture accelerate IT delivery?

Traditionally, IT waits until the business requirements have been well defined, and then what IT does is to decompose from those requirements and deliver the solution - often taking three years to do so.

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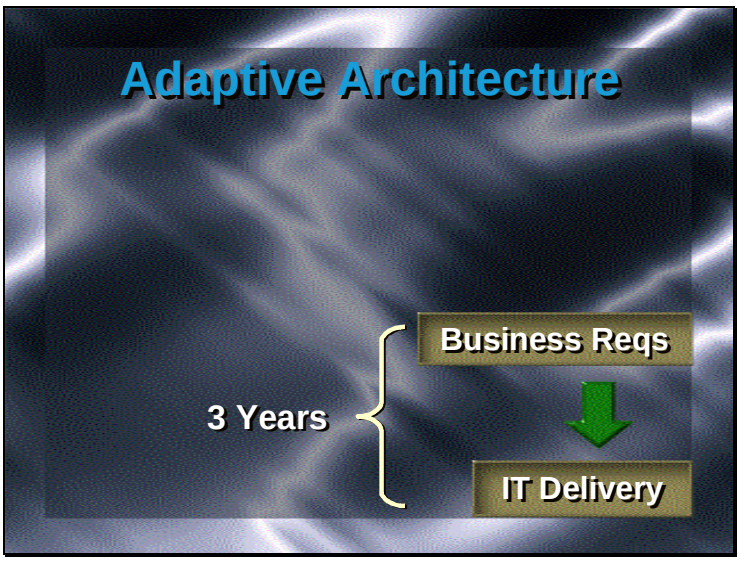

What we recommend in adaptive architecture is to begin to build in business strategies.

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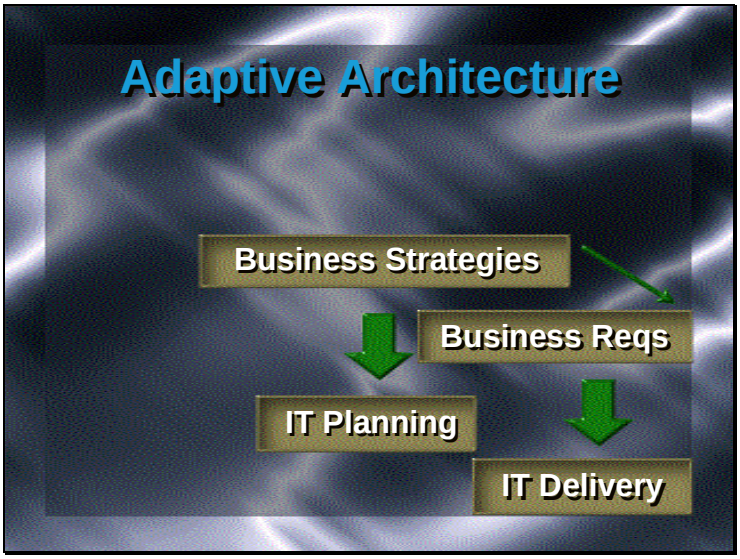

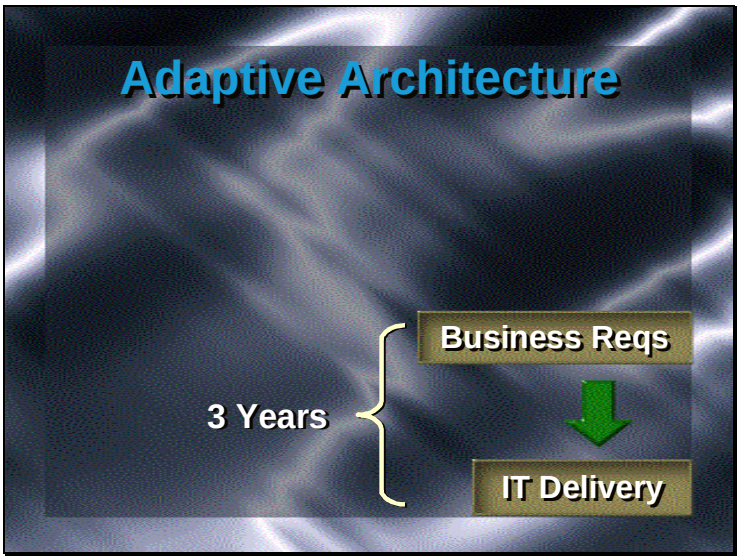

When we know the strategies, even if we don't know the detailed requirements - for example, we're going to drive to more and more transactions via e-commerce over the Internet.

If that's the strategy, even if the detailed requirement hasn't been thought through, IT can begin to plan out.

Even more successful, for faster delivery, is to begin to understand what the drivers are going to be that will cause the business to need to change.

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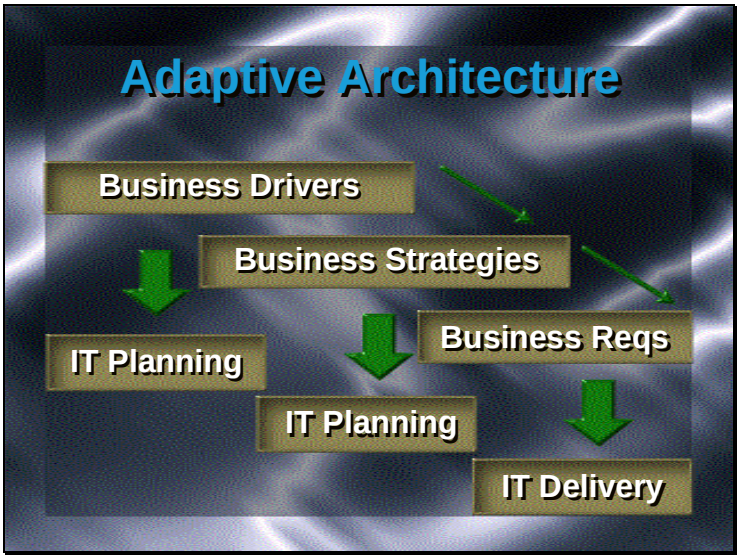
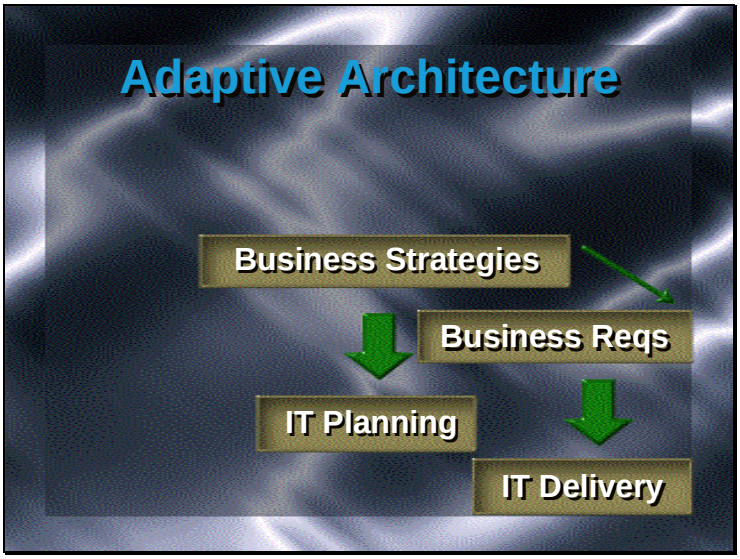
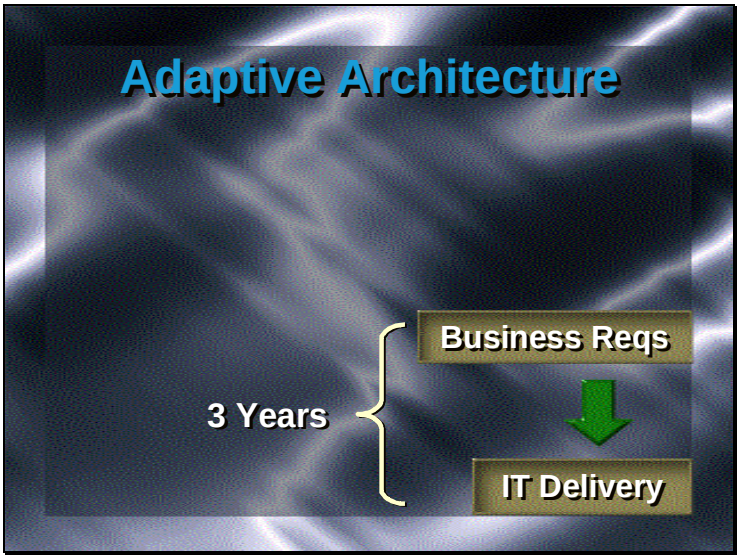






Begin to discover - as part of our enterprise architecture planning process, and more generally IT planning - how those broadest drivers can grow through:

~ Acquisition;

~ Changes in the competitive landscape;

~ Changes in the economics of our industry.

How can those begin to be accounted for in our IT planning and architecture planning efforts?

Because if we can address those early on in the process, we can begin to put the enabling infrastructure in place well ahead of time - before delivery is required.

THE ROLE OF CONCEPTUAL ARCHITECTURE

To achieve an adaptive architecture in order to enable end-to-end optimization of the business, and to address the accelerating rate of change in the business, your enterprise architecture must be principles-based. And that is the role of the conceptual architecture.

Very often when we go in to see clients, and they tell me they're well into their architecture efforts, and they describe those efforts for me, they're trying to decompose, at some level, business strategies and drivers into the specific architecture components. They try to leap from the business drivers or business requirements into the architecture components.

Don't Silo the Components

One of the first tests I give an architecture team to see if they're going to be successful is to ask them how they've organized their architecture effort. And very many of the organizations we go into will tell me that they know how to address architecture, because what they've decided is they need:

~ An application architecture;

~ A data architecture;

~ A network architecture;

~ Perhaps a messaging architecture;

~ A workflow architecture, etc.

In other words, too often enterprise architecture teams attempt to leap from the business requirements down to the specific component architecture. And by the way, that lines up with our traditional silo approach in IT, because it's the approach we're most comfortable with.

What I tell them - and what I will tell you - if you make this leap you're going to fail. You're going to fail for a very simple reason.

Let me give you a quick analogy. Now, we have a number of clients that are airlines, and a number of clients that are aerospace manufacturers.

Let's assume for the moment that you weren't trying to build a new IT system, you weren't trying to build an IT architecture, but instead, you wanted to build a new plane.

Would you take the following approach - would you fill up your conference room with 25 or 30 aerospace engineers and then do the following? "Alright, you five engineers, you go design a wing; you five engineers, you go design a fuselage; and you five engineers, you go design an engine, and then we will spot weld those pieces together and watch it fly. In fact, we'll all get in the plane and fly away with it."

Of course, you don't build planes that way. We all know that.

Don't Silo … Harmonize

What do we do?

We sit down together with the business people and agree on a series of design principles that govern the entire plane: What's the load it has to carry? What's the distance? The fuel consumption? The lift it has to achieve?

And we have holistic design principles that harmonize all the components. The people designing the wing don't design the best wing they can. They design the wing that meets and harmonizes with all of the other design requirements.

We know that analogy doesn't work well with many IT people. They understand how it works with planes, but they don't understand how you apply that in IT.

Would You Do it Differently ?

And when they raise that objection to me I give them a very simple question: "Would you build applications differently? Would you distribute data differently in your company?

If network bandwidth was free, and if network bandwidth wasn't limited, the answer is of course you would.

Well then let me ask this question: Suppose network bandwidth was free and was unlimited. Who in your company today would make the decision that you ought to design applications differently? And the answer is you probably don't know.

Well that's the role of the enterprise architecture.

Because while network bandwidth isn't free, all of you know the following: the economics of networks are moving in profoundly differently directions than the economics of application developers.

Network economics, network costs on the wide area network (WAN) side are decreasing, on average, 35% per year in North America. And we see similar reductions across international boundaries.

The cost of developers: well, those are increasing every year. In fact, Internet development costs are going up 14% compounded each year. Those economics are moving in very different directions.

Dealing with the Trade-off

So who in your organization makes that trade-off?

I will tell you this: in successful organizations those tradeoffs are based on the forward business requirements:

~ What is best for the business?

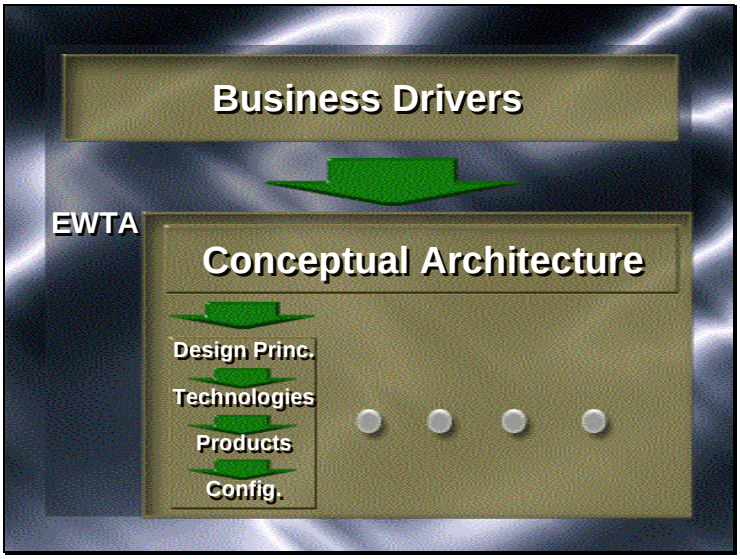
~ Where does the business need to go?

And out of the business requirements we construct the principles that will guide all of our use of IT assets - even if that means we're going to increase the cost of our network three-fold so that we can drive out some other aspect of the IT infrastructure cost, perhaps technical support costs.

How Do You Prioritize ?

Because what these issues really do - the establishing of principles - is to address the following question: How do you prioritize among the various component architectures? That is the role of the conceptual architecture, which must be a set of principles derived from enterprise-wide business requirements that ultimately enable a highly adaptive or highly agile corporation.

Slide 9



And that conceptual architectural layer, that set of principles, sits on top of all of the domain architectures that you construct - or component architectures if you prefer: application, network, data, storage, messaging, workflow - all the way across all those components.

Now, within each of the domain architectures, they also must have their own subordinate principles. And inside the domains we will make decisions about technologies and products.

But ultimately we must harmonize the use in our decision making across each of those domain architectures.

This is done by the principles at the conceptual architecture level which must be decomposed from the requirements of the business.

BEST PRACTICES

Now let's turn to the best practices that you can employ in your architectural process. And let me be very clear, in the time we have today, this list cannot be complete. But what I want to do is share with you some of the best practices in architecture process from an overview perspective:

~ At the level of the architecture team;

~ Governance;

~ Communication of your enterprise architecture;

~ The role of an enterprise program management office (EPMO);

~ Infrastructure reuse;

~ Architecture economics;

~ Reducing complexity.

And, finally, I'll touch on the value of IT.

Speed Is More Important than Breadth

If we turn to the architecture process, those organizations that are most successful realize that speed is more important than breadth. You must do your first cut of the architecture quickly, and that's the key requirement.

Remember, your business is under constant pressure to change. If it takes you longer to deliver an architecture than the normal life cycle in business evolution, then you will never provide shareholder value - and you will never enable change. In fact, more importantly, you will be the drag on the end-to-end optimization of the business.

You must deliver architectural strategy on an enterprise basis faster than the business needs to change. So speed is more important than breadth.

And breadth is more important than depth.

What we suggest is a highly iterative approach, because we've seen it work in other organizations. As soon you complete your first iteration of the architecture, return and go down another layer in abstraction, and then another layer of abstraction.

Your architectural principles in all of this must be derived from the business.

I will also tell you this: it is not important to have a complete baseline inventory of all your assets. That is not essential. In fact, it will slow you down.

I will also suggest this: do not solve all your problems at once. Do not expect your architectural first effort to be complete. It is not all or nothing.

If you address 80% of the business requirements or 60% of the business requirements, you're adding shareholder value. The key is to get in front of the business. Speed is more important than breadth.

What Should Be the Team ?

Well, partly for agility we find the most successful companies have very small permanent architecture staffs - typically no more than 2 to 5 members. In fact, we've seen some very large, well-known companies have only one full-time headcount assigned to architecture.

This small team should be managed by the chief architect, reporting to the CIO or CTO.

The architecture team should serve as staff to an architecture review board (ARB) or an architecture committee. That board should be comprised of senior IT staff and representatives from the business. The chief architect is a member of the board, but the rest of the architecture team staff does not have membership on that board.

The architecture review board should have subcommittees for each of the domain architectures. Those subcommittees are also comprised of IT and business staff. And we recommend that two members from the architecture review board chair each subcommittee. That way no single member can have undue influence and that way you always have coverage.

We also want to be very clear that on these domain architecture subcommittees - for example, networks or database or applications - the membership should not be dominated by IT staff responsible for the domain. Because we want to drive toward harmonization.

When we look at any of those domains and construct domain architectures, we always want to be able to take the broader picture: How does this strategy fit with everything

else? One of our goals in this effort is inclusion - get broad inclusion throughout IT and throughout the business.

Desirable Characteristics of Team Members

Turning from the construction of the team, let's talk about the personality characteristics of its members.

Whether we're talking about those people in the architecture team in the permanent staff, the members of the architecture review board or members of the various domain subcommittees, all of them must have the following characteristics:

~ They must play and work well with others.

~ They must know and love the business.

~ They must be prepared to put what is best for the company before the interests of the business unit they come from - or the interests of the IT technology group they represent. The business must come first.

~ These people must be good communicators, good listeners.

~ They must be open and honest.

~ No zealots can be allowed - whether it's a technology zealot - someone who believes that CORBA is the solution to all the problems; or that a particular networking strategy will solve all the problems - or somebody who only looks at how architecture affects their particular business unit.

These personality characteristics are essential. Let me say it slightly differently.

Typically, the best engineer doesn't have these characteristics. The most detailed analytical person doesn't have these best characteristics. Very often the most successful business manager doesn't have these characteristics.

Because the architecture team must look across the business in order to optimize IT end-to-end when establishing the principles.

How Do We Perform Governance ?

Well, the enterprise architecture team, the permanent staff, should not be tasked with enforcement - because then they have a conflict: they work on behalf of the legislature and at the same time they're trying to do enforcement.

What we strongly recommend is that IT efforts should employ public design reviews. And in the public design review process much of the harmonization will occur as other areas of IT and the business can look at a particular effort.

IT efforts need to describe their compliance with the enterprise-wide technical architecture to the enterprise program management office (EPMO) as part of all management of all IT projects. If they need a variance or want a variance from the existing enterprise architecture, they make that application to the enterprise program management office.

And the EPMO tries to navigate the variance. They determine how serious the variance is. Is it in the purview of the EPMO? Is it a major variance or a minor variance?

Where there is an issue, the architecture review board does the adjudication.

Yes, the enterprise architecture team will often be involved. But they'll be involved because the EPMO has requested their opinion, or the ARB has requested their opinion. Clearly, for the enterprise architecture team to be successful, it cannot be both the legislature and the judiciary system.

Communications in the Enterprise Architecture

Communication in the enterprise architecture is essential in order to create actionable architecture. And the communication must be ongoing.

We at META Group have got a number of notes, and done a lot of research, on this issue of communication. And the consistent best practice is an intranet web site available to all the IT staff - and often to your IT partners - which may be integrators or vendors.

On that web site, you provide all the information about the architecture:

~ How it's derived from the business;

~ You talk about standards;

~ You provide use cases;

~ You talk about configuration standards to the extent that you have them.

What you do through that web site, your internal web site, is you enable the IT staff to find any information that they want to about the architecture.

What you really want to do is remove the excuse from any IT professional who might want to say: "I couldn't find it. I didn't know where to look. I didn't know that was the standard. I didn't know what the process was."

The Enterprise Program Management Office - EPMO

For a number of reasons beyond architecture, organizations in which IT clearly enables the business typically have a program management office that covers all IT offices.

We also recommend that all of their program tracking mechanisms be placed on an intranet web site. And, again, this office is key to architecture enforcement in the handling of variance requests.

Infrastructure Reuse

Infrastructure reuse is very often of great interest to business people - because for the first time in IT history, business processes are changing more quickly than the useful life of most IT assets.

Consequently, for the first time in the history of IT, when we have infrastructure, when we make infrastructure decisions, we must select and configure that infrastructure with reuse in mind.

What reuse?

We don't know, because the business is constantly changing - and the business is changing faster than the useful life of that server, or of that router, or of some other IT aspect.

By the way, this creates natural pressure toward market standards, because unique proprietary IT assets probably have relatively limited reuse.

Economics

This gets us to economics - because reuse is tied up in making better economic decisions for the company.

Most IT staff really are not aware of the rapidly changing aspects of IT economics. There are tradeoffs available today that simply are not understood. And what we must constantly focus on with regard to the business is that projects that were uneconomical two years ago may well be economical today - imaging, for example.

The corollary of that is: projects that are uneconomical today may well be economical in two years.

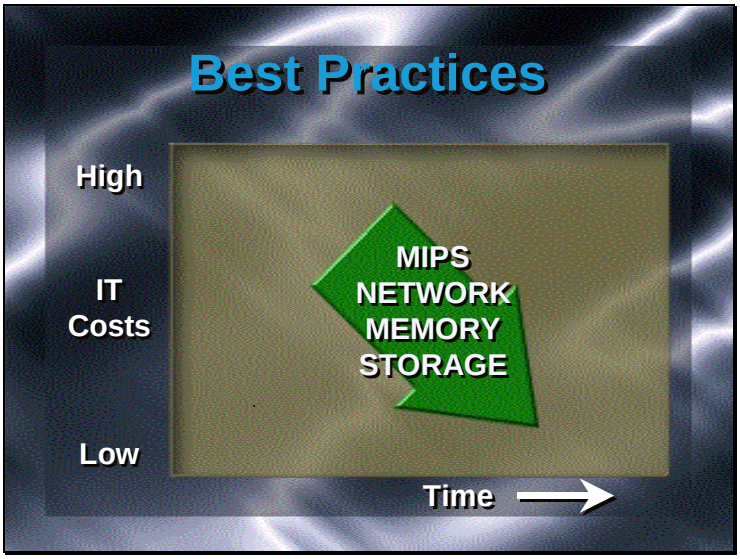
We all need to understand IT economics and the rate of change. When I say "all," I include the line-of-business in this, and senior management, as well as IT staff.

We must also know how those economics are changing, how we can leverage them for infrastructure reuse, and how we can leverage them to create a more agile IT organization with end-to-end optimization.

Economics: IT Costs

If I were to do a quick draft of IT costs, we all know IT costs have been going down dramatically, and perhaps none faster than network costs.

Slide 10



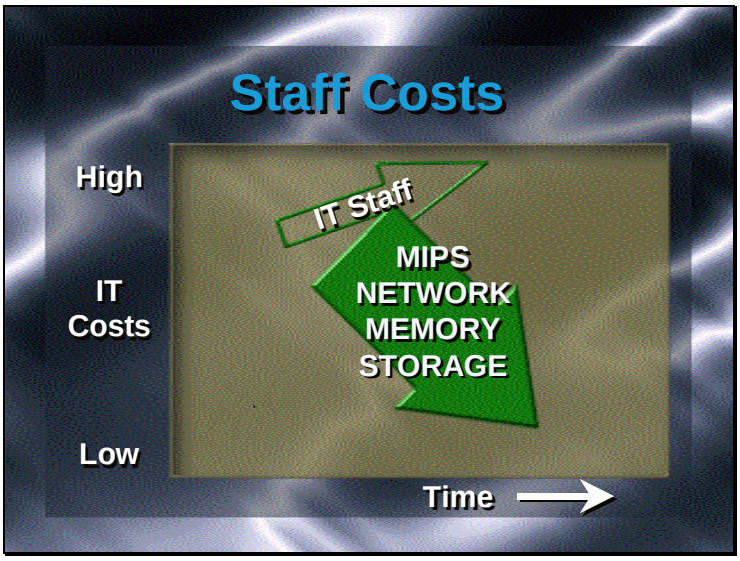
Local area networks (LANs), for example, have been improving ten X from a price performance standpoint every three years. Why don't we notice this?

It's very simple: every time there is this improvement, we just move more bits across our network. But from a price performance per bit perspective, we're getting extraordinary improvements in local area networks as we go from one megabit to 10 megabit to 100 megabit - and now gigabit Ethernet technologies.

But all the trend lines are down.

Now, imagine you have in front of you your board of directors. Ask them this question: "Do you know of any IT costs that are going up? That, in fact, we have negative economics in IT?" And your board will respond very quickly. Of course they do, and it is IT staff. IT staff's economics are diverging radically from other IT costs.

Slide 11



Software is the odd exception here. Independent of what area of software you're looking at, those economics may be improving or eroding.

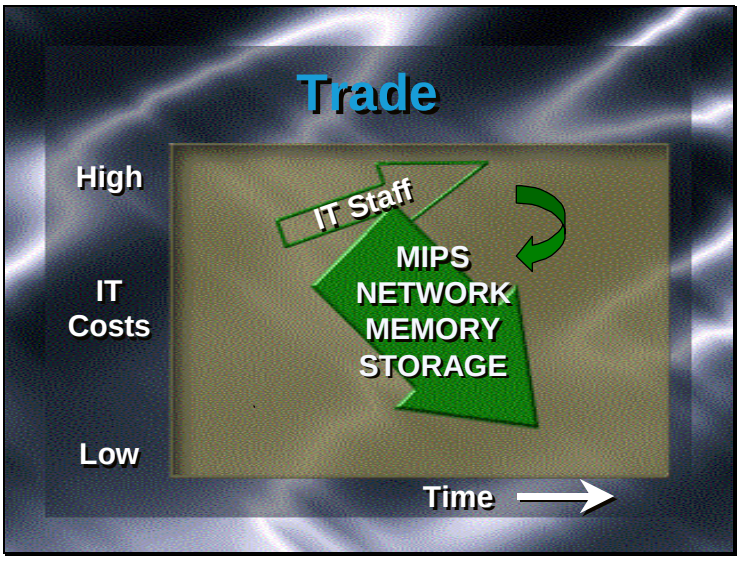
But IT staff, we all recognize, is moving away - it's diverging from the economics of our hard assets in the IT shop.

What do you want to do?

You need to understand these economics so you can leverage them.

In our client base, what we discover is that as a best practice many are beginning to trade IT staff against hardware and software. They begin to make a trade here.

Slide 12



We refer to this approach as "sledgehammer engineering" - trade capital for staff, move to standard configurations, run standard configurations as multiple instances of a single image.

Are these the most efficient configurations?

No, they're not; not from a hardware standpoint. But hardware has gotten far cheaper. Now we are better off moving to less efficient standard configurations, rather than bearing the higher technical costs of having highly tuned, unique configurations.

Where do you want to err?

You want to err on the side of over-capacity when you're installing the infrastructure. Clearly, use the wisdom of Solomon. But you will find this will create the lowest total cost of ownership in a period of rapid change.

I will also tell you this: that over-configuration - sledgehammer engineering - can also create the greatest flexibility moving forward - and enormous opportunities for reuse, because you have excess capacity and standard configurations.

Reduce Integration Complexity

The next best practice is: you must reduce integration complexity.

In order to enable rapid change, we have to make our environments simpler. That doesn't mean move everything back to the mainframe. What it means is:

~ Reduce the number of vendors.

~ Reduce the number of products.

~ Reduce the number of configurations and permutations.

Broadly speaking, in the main we see our clients moving toward market standards in employing sledgehammer engineering.

Again, reduce integration complexity - because complexity inhibits change.

And that's how we create corporate agility.

The Value of IT

Finally, that brings me to the value of IT. IT must address the broader issue of how it contributes to shareholder or stakeholder value.

The enterprise architecture is a linchpin in value creation. Long term, the value of information and the value of technology are diverging, with very key implications in your organization.

You must understand the value equation, and the role of enterprise architecture in creating and contributing to shareholder and stakeholder value.

ENTERPRISE ARCHITECTURE REDEFINED

We have focused on the creation of an enterprise-wide technical architecture in order to become highly adaptive - to enable rapid change in the business. Over the last two or three years we've seen the leading edge companies begin to expand their definition of enterprise architecture.

Why are they expanding that definition?

It's because of all of these pressures to enable rapid change in the business. And it turns out that most of the early enterprise-wide technical architecture efforts failed. They simply took too long. They were not well implemented, and often they simply were not connected to the business - they were not business driven.

Enterprise Business Architecture - EBA

As a consequence of this, we've seen enterprise architecture expand to incorporate an enterprise business architecture (EBA). This is the expression of the enterprise's:

~ Key business objectives;

~ Its strategies;

~ Its functions;

~ Processes;

~ Subprocesses; and

~ Key business events.

Very often, the enterprise business architecture is implemented in an off-the-shelf software modeling tool. There are a couple of these tools available on the market today. And we use the EBA to capture the value chains of the organization, and more broadly the value landscapes of the company - both the internal value chains and the value chains of our business partners.

When these are performed with rigor and discipline, they will allow senior management to engage in "What-if?" analysis of the business.

IT Architecture Team: Steward, Not Owner

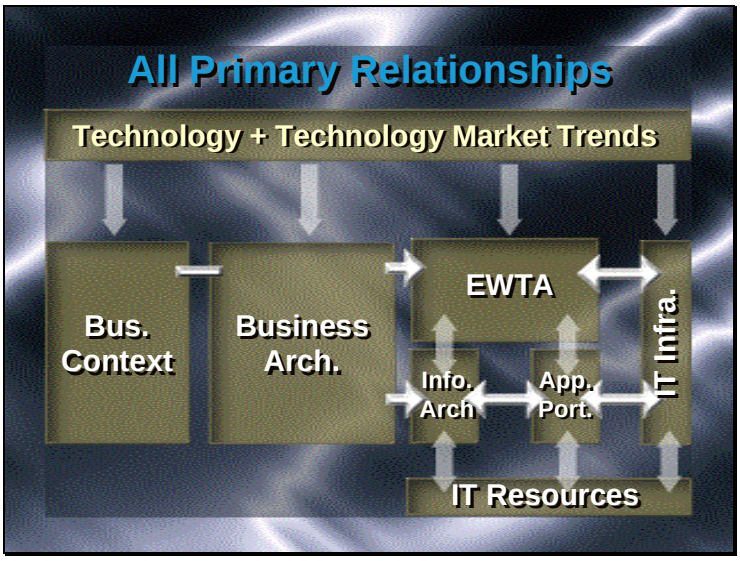
Let me be clear. The IT architecture team is the steward of the enterprise business architecture, but we are not the owners. The owners are the executives of your organization.

An enterprise information architecture describes the key information artifacts that flow across the enterprise's value chains and, therefore, manifest themselves as information value chains. They're driven by the business architecture tied to key events.

Let me be clear. We're not talking about database structures. We're not talking about data. We're talking about the information that flows across our internal value chains, and the value chains that we have with our partners. And again, we can use off-the-shelf modeling tools to capture the information architecture.

The enterprise business architecture, the enterprise information architecture, then become integrated in our primary relationships, as we show in this diagram, the enterprise-wide technical architecture.

Slide 13



And of course, business context, your business architecture, your technology architecture and your infrastructure are all impacted by changes in technology, and technology market trends.

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Therefore, this also becomes a role of the enterprise architecture team - or at least the enterprise architecture team should be well-connected to the chief technology officer of the organization.

SIX COMMON MISTAKES

There are six mistakes that are very common in most architecture efforts.

1. First, architecture teams often confuse product standards with an architecture. An architecture is a set of principles. It's not the components of the architecture. It's not the products themselves. It's the design principles.

2. Common mistake number two is not deriving the architecture from business requirements. This is a hard stop. If we cannot connect with the drivers of the business, we simply will not be aligned with the business strategy.

3. Common mistake number three is not having a common vision of both the business strategy and the role of IT in enabling that strategy.

4. Common mistake number four is not taking a systemic approach to enterprise architecture and ensuring logical consistency across the breadth of the organization - end-to-end optimization.

5. Common mistake number five is treating architecture as a one-time event. You must remember that the business is under constant pressure to change. The technology is constantly changing. Therefore, your architecture effort must be organic, constantly ongoing and highly iterative.

6. Finally, common mistake number six is choosing to perform infinite engineering over just enough architecture. People selected for the architecture team are bright. They can probably rationalize anything they want to. And the most common mistake is to take one narrow aspect of the architecture and decide to devote enormous hours, and sometimes years, to analyzing it - for example, COM to CORBA interfaces. Infinite engineering is possible. You simply cannot allow yourself to engage in it.

Speed is more important than breadth. Breadth is more important than depth.

Those are the six most common mistakes, but there are others.

FOR FURTHER INFORMATION

I want to thank you for watching this session on Adaptive Architecture Strategies.

For further information, please visit our web site: www.metagroup.com.

Look for other META Group presentations at WatchIT.com.

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