An *IT Briefing* produced by SearchMobileComputing.com

Managing the Mobile User -- Best Practices for Technology and People

TechTarget
The IT Media ROI Experts

Sponsored By: orange Business Services

Managing the Mobile User -- Best Practices for Technology and People

By Craig Mathias

BIO

Craig Mathais is a Principal with FarPoint Group, a wireless and mobile advisory firm based in Ashland, Mass. Craig is an internationally recognized expert on wireless communication and mobile computing technology, and has published numerous technical and overview articles on a variety of topics.

This *IT Briefing* is based on an Orange Business Services/TechTarget Webcast, "Managing the Mobile User -- Best Practices for Technology and People."

This TechTarget *IT Briefing* covers the following topics:

About TechTarget IT Briefings

TechTarget IT Briefings provide the pertinent information that senior-level IT executives and managers need to make educated purchasing decisions. Originating from our industry-leading Vendor Connection and Expert Webcasts, TechTarget-produced *IT Briefings* turn Webcasts into easy-to-follow technical briefs similar to white papers.

For inquiries and additional information, contact:
Dennis Shiao
Director of Product Management, Webcasts
dshiao@techtarget.com

Mobility has become increasingly important and popular across industries, enterprises, and governments around the world. Indeed, mobility is the future of IT. But regardless of your industry or location, there are key issues felt by anyone trying to manage mobility. To begin with, companies struggle to define a mobile IT strategy. They tend to start with the technology and work backwards from there, trying to solve business problems. They also have a hard time identifying the right set of tools for managing mobile IT. There are many options available, but finding the right one is imperative. Then there is the issue of human resource management. How do you ensure that mobile workers are contributing to a team? And, last but not least, companies struggle with managing cost and ROI.

The purpose of this I*T Briefing* is to help you overcome these common hurdles to implement a mobile strategy that will put your company where it needs to be, and that is following all the issues that relate to IT going forward.

The Era of Infocentricity

I got my start in the early 70s on an IBM mainframe. Back then we were in what I like to call a 'compu-centric' era. We were looking at a very primitive computing environment with custom applications, but the bottom line is that the computer mattered. You could have big families of computers, like the IBM 360, but your program might only run on one or two models within that line because you had to tie it directly to the hardware. The PC changed all that and we ended up with more of a standard platform; not because the operating system was standardized, but because the applications were standardized.

Today, most organizations run Microsoft Office or a similar suite of applications. Since the early 90s, we've thought about office suite and office functionality as defining what IT is all about. That's okay, as long as you have a PC, but now we are moving into an era where not everybody has a PC or at least not a PC that they carry with them all the time. I call this the 'info-centric' era because we focus our IT plans and strategies around *information* rather than the computer.

In this info-centric era, information matters. We can start to think about Web services, and remote access using Linux and thin clients. We can think about real anytime, anywhere access. The theme is one of continuous connectivity. If we can get access to the Internet, to the Web specifically, or other wireless channels, and we have mechanisms within the IT infrastructure to get us into the corporate data center, we have accomplished the goal that I mentioned at the beginning: We have mobilized IT.

Objectives for Contemporary Mobility

If we are going to mobilize IT, we need a set of objectives that we can organize around. I would argue that today the objective for contemporary mobility and wireless network is to minimize -- not to eliminate -- the behavioral or performance differences that exist between wireline and wireless capabilities. It used to be that wireline was much faster, it cost a lot less, and was what everybody used. Wireless to a great degree has caught up with wireline. Good data throughput on a continuous basis is often achievable, depending on where you are. We are able to access applications and data, some of them running locally on the handset, which is functionally duplicating what a PC provides, and some of them running remotely in a Web services model. Bottom line though, wireless can really do anything that wire can do, and you don't have to look for a place to plug in.

So now we are completely location-independent as long as we have coverage, and coverage continues to improve on a global basis. We can start to think about the virtual office. Why come to the office just to use IT resources, when they are available to you in a handset? And here again we are talking about any application. Applications are increasingly network-centric. We simply extend that broadband network over wireless to where these employees happen to be. We provide them with an appropriate computing platform on that mobile device, and now we can basically do anything that we want. I think the whole concept of Web services and cloud computing is going to dominate our thinking going forward as these networks become more available and indeed as we proceed towards ubiquity in terms of mobile broadband.

If we have all this, we can extend our mobile user base beyond the traditional vertical market, field services, and sales, and other applications where specific devices and applications have been written in the past. We can really start thinking about mobilizing everyone. That's the theme that I want to leave you with today; that we are talking not about specialized applications or specialized situations but services available to anybody.

The Competitive Advantage of Mobile IT

Now, why would you want to do this? The only competitive advantage remaining today for any business, irrespective of what industry you're in, irrespective of where you reside on this planet, is the ability to obtain and act on information ahead of your competition. No matter what business you're in, whether it's manufacturing, whether you're in sales, whether you're a service provider, whether you sell software or a widget, it doesn't make any difference. Your ability to get information into the hands of people who need that information, and enable them to act on and interact with that information before the competition can is what's going to make a difference in terms of

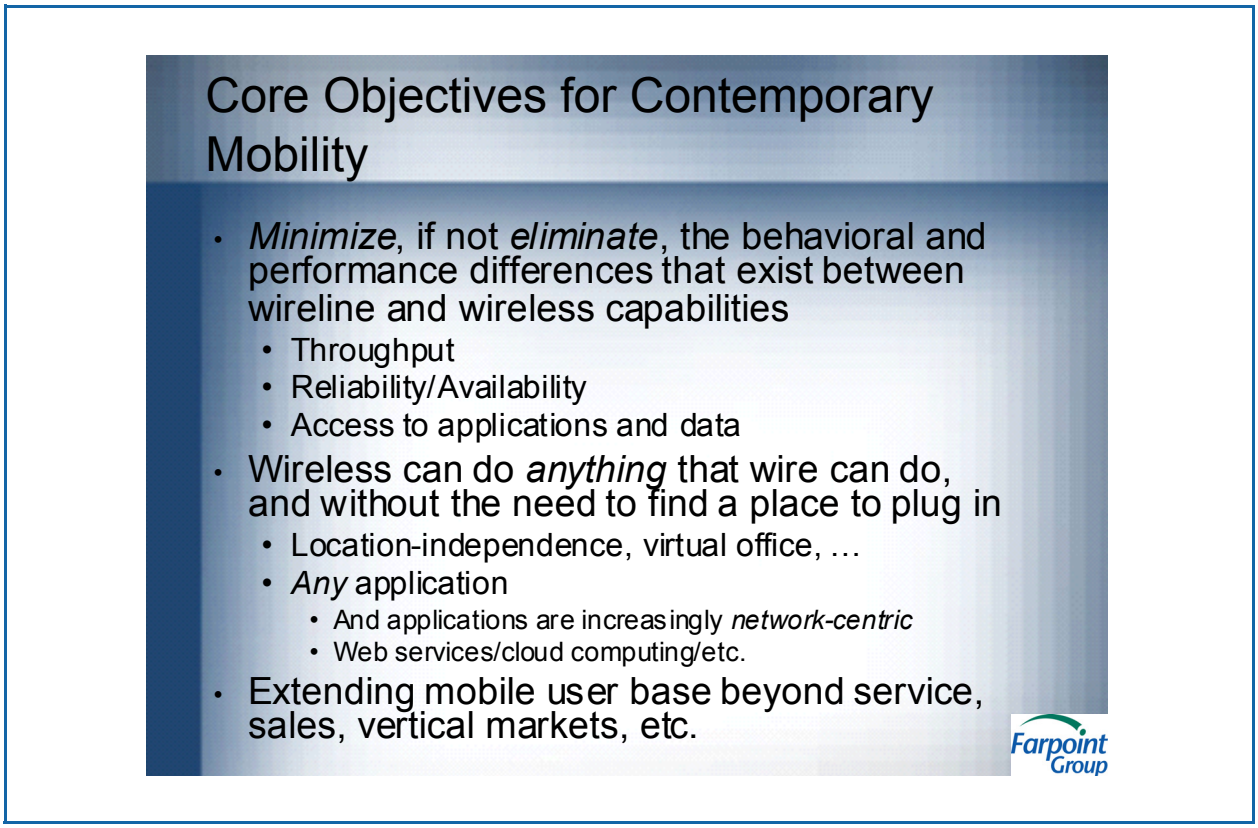

Figure 1

Figure 2

business success. Some people call this Internet time. In my way of thinking, it's just a natural evolution of business as it becomes more and more dependent upon IT and information resources. So that should be a good motivator for you to start thinking about mobilizing people. If they are out and about, working with customers directly involved in business activities, they need access to your network, they need access to IT resources, and they need to do it faster than the competition can. That's going to be the differentiator.

The Future of IT

The future of IT is in mobility. If you want to reach somebody, for example, you don't call their office phone. You call their cell phone because no one is ever at their office phone anymore. You've probably discovered at this point that access to the Internet is becoming just as important as access to telephony. So now we are talking about a cell phone not just as a voice handset, but a tool that enables access to e-mail, the Web, remote access to your network, and remote control of PCs that are located in the office. All of this functionality is on a handset, mobilizing enterprise IT services and capability.

What we have discovered is that wireless is rapidly becoming a default or even primary vehicle for access today. A lot of people have dropped their landlines and only use cell phones, and an increasing number of those are using those devices for Web access, and other forms of IT access and services on a regular basis.

This has been made possible by tremendous advances in basic wireless technologies, from the devices themselves to carrier broadband services, which have gotten so much faster, so much more available, and so much more cost effective. We are now seeing support for essentially all applications. I can't think of anything that you can't do in this highly mobile environment. Carrier 3G services have great coverage and throughput. I am saying great -- not outstanding -- because it is still a work in progress. There are a lot of carriers spending a vast amount of money on building out their network and enhancing those services, and they will continue to do so.

We are rapidly going to be progressing into the 4G era. So you are again going to see another tremendous leg up in terms of the type of capability that's available. If you are an IT operations person, network planner, or operations planner of any form, you can start to think about these wireless networks as truly being mission critical. Now, as with everything else in business and IT today, the key is management. We need to focus on a management strategy for mobile IT resources that maximizes productivity for ease of use, transferring access to resources, and all of the other things that keep the helpdesk line from ringing off the hook. You certainly want to reduce cost, not so much the cost to acquire a new handset or even monthly charges for services, but to hold down the cost of using those services. We're looking at lowering operational expenses by managing the integrity of IT and forcing usage policy and security. A good management

infrastructure can address that with very little trouble.

Defining a Mobile IT Strategy

Defining a mobile IT strategy is similar to the reasoning that a reporter might use. You're going to ask yourself: Who? How? Where? When? What?

To begin, ask yourself who actually needs to be mobilized. Are we talking about a lot of people in the organization? Are we talking about certain sales and service people, which has traditionally been the case? How mobile do I really need to be? That will increase over time. Even if you start with a small population within the organization, eventually anybody who interacts with customers or who is involved in operations will want to be mobilized.

The next question, of course, is where. Some people, like myself, are constantly traveling internationally. We need coverage basically everywhere. That will involve one strategy. Some people are just locally mobile, say in a building or campus environment. That will involve another kind of strategy. But in general you want all these people to have access to resources wherever they happen to be.

The next question is when. Not everybody needs to be mobile all of the time, and generally the way you make a decision here is by what I call the time value of information. If you are dealing with information that can sit for a few hours and users don't have to act on it, maybe they sync up just once a day, that defines one mobile communication strategy. If, on the other hand, your users are in finance or investments and they need moment-by-moment updates on complex information, perhaps they need analytics and need to be able to respond, then that's a different kind of access that will be required.

Finally, there is the question of what. What information and applications need to be mobilized? How should we implement that mobility? Should we have applications running on a particular mobile device, somewhere in the cloud, or somewhere on the enterprise network and access them via Web services? Should the data be stored locally or remotely? How do we do caching?

These are the kinds of things that you want to keep in the back of your mind when defining a mobile IT strategy. Some of them are definitely technical concerns but they will all help you frame an overall mobile strategy.

Management Systems are Key

IT management systems are the key to a successful mobile IT strategy. One phenomenon that I think you will absolutely agree with is that networks only grow over time. No one ever says a year after doing a major network upgrade, "Gee, we bought too much and we really shouldn't have done this or done that." The bottom line is that no matter what you do, you are going to see an uptake in demand for network services.

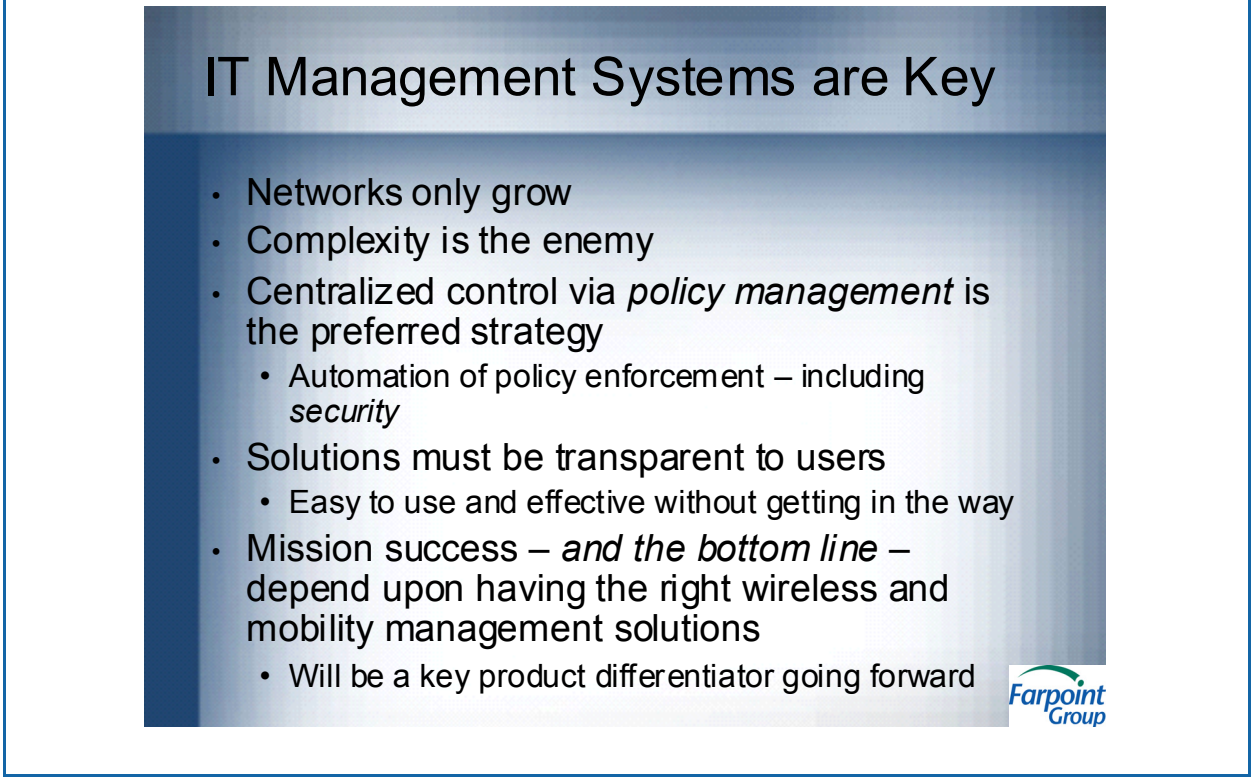

Figure 3

You're going to need to scale quite dramatically over time. So when you start to put together a management strategy, don't think about just the problems you're trying to solve today. Think about the problems you will have throughout the lifecycle of your installation. However, having said that, complexity really is the enemy. I have seen many enterprises where the operational systems are so complex the operation professionals have a hard time dealing with them. You want to always simplify.

The next element you must have in an IT management system is centralized control of policy management. This is very important, because we want an object-oriented approach to declining the services that are available to a particular user. We want to be able to say that a given user should use this kind of a service at this time of day, with this degree of priority. We want to prevent people from using services that are too expensive when a cheaper alternative is available, and we want to automate policy enforcement. This includes security management. You want to make sure that users are only setting up secure connections and that they are not violating security policies.

Management solutions must be transparent to users. No one is going to sit down and crack a 200-page manual. So solutions have to be easy to use and effective without getting in the way, and this often involves a fair amount of research before you settle on a solution, but it needs to be the overriding principle. Bottom line to mission success

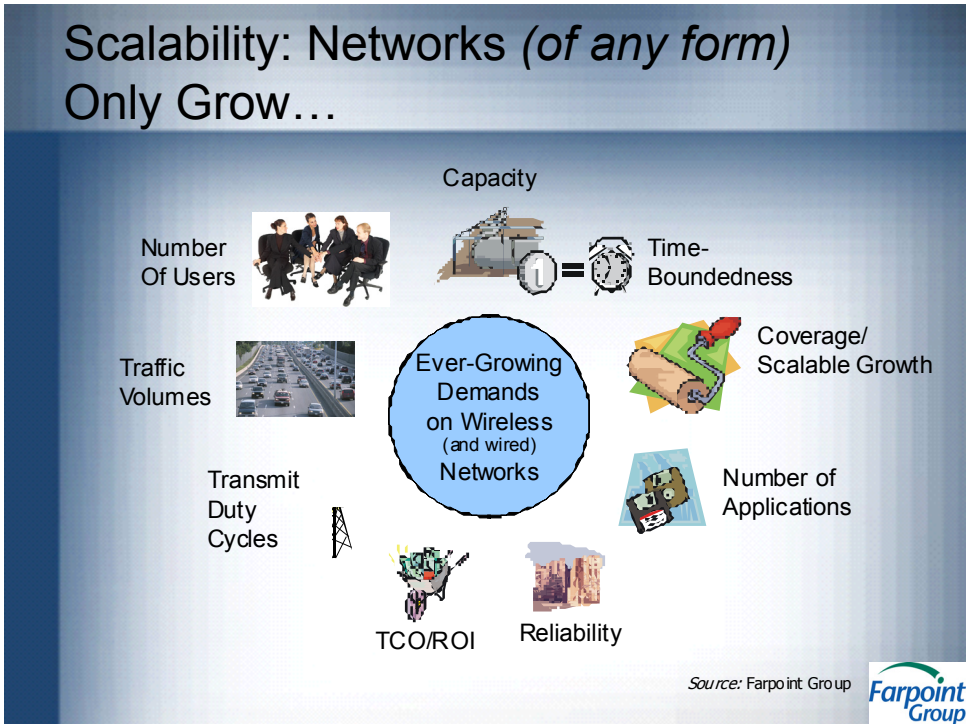

Figure 4

and the real bottom line depend upon having the right wireless and mobility management solutions.

Many people are not familiar with what goes into actually operating a large network solution and when we start to add mobility into the mix, we add the potential for additional complexity. So, we are finding now that a number of firms out there, both the equipment providers and third-party management software providers, are looking into building ever more capable and easy-to-use management solutions. I think that the management capabilities of network products will become the differentiator going forward. That's something you definitely want to look at as you are selecting your particular network solution.

Scalability: Networks Only Grow

Networks only grow over time, and they do so in several dimensions as illustrated in Figure 4. For example, the overall capacity of your solution will have to grow over time as more mobile users come online. As the number of users increases, the traffic volumes will increase, and the transmit duty cycles -- how often you are sending data over the air -- will also increase. Requirements for time-boundedness becomes a key element in setting up a solution as we begin to do mobile Voice over IP and real-time streaming video. Making sure that you are managing for coverage and scalable growth and that you or

your carrier are looking at where coverage will be required in the future so that you are not left high and dry as you begin to expand into new geographic areas is also important. The number of applications will increase, and the demands for reliability will increase. No wired or wireless position is ever perfect, but they need to be close to perfect if we are going to be productive with them.

Mobile Devices: Key Options

Now let's talk about mobile devices. Over the past few years we have seen laptop computers become standard issue. Hardly anyone uses a desktop computer anymore. I call this mobilizing the desktop. You're taking the same capability you used to have a stationary computer for and sending it on the road with everyone.

Well, there is a lot of cost associated with doing that. Laptops require an operating system and software licenses, and they're expensive to operate. The biggest problem though from a mobility perspective is it's just too big. Most laptop computers weigh on the order of five pounds or more, and then you need all the associated stuff, like cables and power supplies. A popular strategy has been to augment the desktop. The Apple iPhone is obviously a popular example, but there are many devices that can fill that role. The basic idea is there are a lot of daily tasks that don't require a big screen; for example, limited Web browsing, e-mail, and other personal productivity tasks can easily be done on one of these mobile devices. A popular mechanism for dealing with information on them is to synchronize them with a computer. So, we are still pretty much tied to computer.

Where we are going I think is the redefinition of, or the virtualization of the desktop. Consider, for example, the Asus Eee PC. Many models run Linux, they have a FireFox browser, a very simple operating environment, and it's easy to use. I generally travel with one of these now, and I can get everything done that I need to get done. I can run an office suite on it, I have good remote access capabilities through the browser, and just about anything that I need to do I have at a very low price. The maintenance cost we found on these is incredibly low. If you begin to move more and more applications onto the network, but you don't have to keep updating the mobile computing environment, mobile IT is no more complex to implement than a stationary IT strategy where applications are running on servers.

The Single-Device Imperative – and Paradox

Now, if we look at these devices in more detail, we discover something very important. We call it the single-device imperative, and it's followed by something that's called the single-device paradox. Wireless network services are converging. They are based on IP, are more than a megabit per second today, with three-to-five megabytes per second available in the wide area down the road. So, we are definitely seeing conversion there, but we are seeing just the opposite in

handsets. We are not seeing a single handset become the most popular. Not everybody is buying an iPhone. Not everybody uses Windows Mobile. There are so many different brands and models. And again, these are geographic specific. There are literally more than a 1,000 handset models available around the world at any given moment in time, and each one has its own particular set of features, user interface capabilities, software capabilities, and operating environments.

Meanwhile, we want it all, and we want it all in one device. Nobody wants to carry more than one handset if they don't have to. That's why we call it a single-device imperative. There is definitely a demand for a single device that can literally do it all. But what I've found over the course of several decades is that it's impossible to do. There are just simply too many conflicting goals. No single handset design is going to win. Continuing innovation, after all, is essential to the industry. They want you to buy a new handset every six months or year, based on what your contract will allow. But you can expect there to be a lot of different form factors and operating environments available. For those of you who are following the evolution of Linux, I think that's going to be the winner on mobile devices. More importantly, given advances in browsers, mobile operating environments, remote access and such, I think thin clients are really going to become the standard for most people within a few years. So we are talking about Web and cloud-based execution as opposed to local execution. And again with mobile device management, we can extend operational integrity all the way to the edge of the network. So, we should be able to come up with a strategy that will work quite well, no matter which device we choose.

That being said, my advice is to limit the number of devices that you ultimately deploy. I have talked to many IT staffs, who say, "Well, the CEO brought his shiny new iPhone in and told me I have to put it on the network." The correct answer to requests like that should normally be no. You want to make sure that you can support these devices, and that you understand all of the security and operational risks that go along with having any new devices on your network. Limiting the number of devices to just a few will make this easier. If you have a large deployment, support just two or three different models of handsets across the thousands or tens-of-thousands of users. It will make life a lot easier for you down the road.

To illustrate this single-device paradox in a little more detail, consider all the conflicting elements available. Styling, for example, is a major factor in the purchase of cell phones. You might not think so from an enterprise perspective, but it is. Users take into account size. They want devices to be as small as possible to make them easier to carry, with as big of a screen as possible. You certainly don't want it to weigh very much, but as we put more and more functionality into it, making it lighter increases the price. Putting more functionality into it also tends to lessen

Figure 5

battery life. We see incremental refinements to improving battery life, but that will always be a key limiting factor. We want these devices to be stylish, but we also want them to be rugged. Too many phones fail when they are simply dropped for the first time. We don't want them to cost too much, but we want all this functionality and capabilities like cameras and video recording. You run into a problem where you have, from a mathematical sense anyway, more variables than you do equation. There is simply no way to solve this with a single device, and that's why we are continuing to see diversity.

You do have a lot to choose from in this space, and that's the good news. There is absolutely a product out there for everyone. Finding it, evaluating it, integrating it, supporting the management elements, that's going to be the key issue.

Managing Mobile Teams

Now, I want to shift gears a little bit and talk about managing people. This is a very complex topic for an a lot of managers out there today. Mobility changes our whole relationship with work. Work is something you do; it's not necessarily a place that you go. This has been easy to accept and easy to understand for people that are fundamentally in the field all the time -- sales people, service people, etc. But when we start to talk about virtualizing a workforce, it all gets it very complex in terms of how to manage the people aspect. Managing mobile workers

though is very much aligned with contemporary management thought. We no longer think about workers and bosses; we think about worker empowerment. We think about managers as the people who provide the resources and who handle the problems and carry the water for their workers; not those who simply bark orders and say do it or you're fired. There is no reason to have that very close physical coupling of workers and managers anymore if we understand that we have got this more empowered worker and decentralized operations perspective.

One problem we have seen is the tendency for some managers to refer to their staff as "my people." This phrase is usually a red flag. These are people that have an issue with control. They need the resources in front of them all the time. Unfortunately, that doesn't work well in a mobile environment. You have to be willing to let go and accept that not everybody is going to come into the office every day.

Similarly, there is a burden that's placed on the mobile worker. A high degree of self-discipline is required in order to be successful in that environment. Some people working from home, for example, have a tendency to wander outside to check the weather three times a day and maybe see what's in the refrigerator more often than necessary. Users need to discipline themselves to deliver what they have committed to deliver even though they are not in a traditional work environment.

I like to use the term "management by commitment" to describe a work environment that is supported by mobile IT. Management by commitment occurs when goals and checkpoints are established between management and employees to ensure tasks are completed and everyone stays in sync. This has worked well for me throughout my career, and mobility is no longer an issue. It is very easy to make sure that things are getting done.

Management by commitment leads to resource-based rather than location-based relationships. In other words, people look at one another within the organization as resources, even though they are not directly in front of one another every day. I suggest using Web based conferencing tools, such as video conferencing, to provide "face time." These technologies have become much less expensive, and they work quite well. There are possibilities for abuse in any of these technologies, but in general we can create a very close relationship among people who are distributed over great distances. We want to enable enough time together both electronically and in person so that they get to know one another, become friends, and build trust. Communication is key. In addition, people in the field need to believe, understand, and depend upon support and other help services that are provided to them by people who are in a traditional office environment.

If you do all of this, you will find that mobility is a real asset. Like I said, getting people in front of customers, in front of suppliers, out

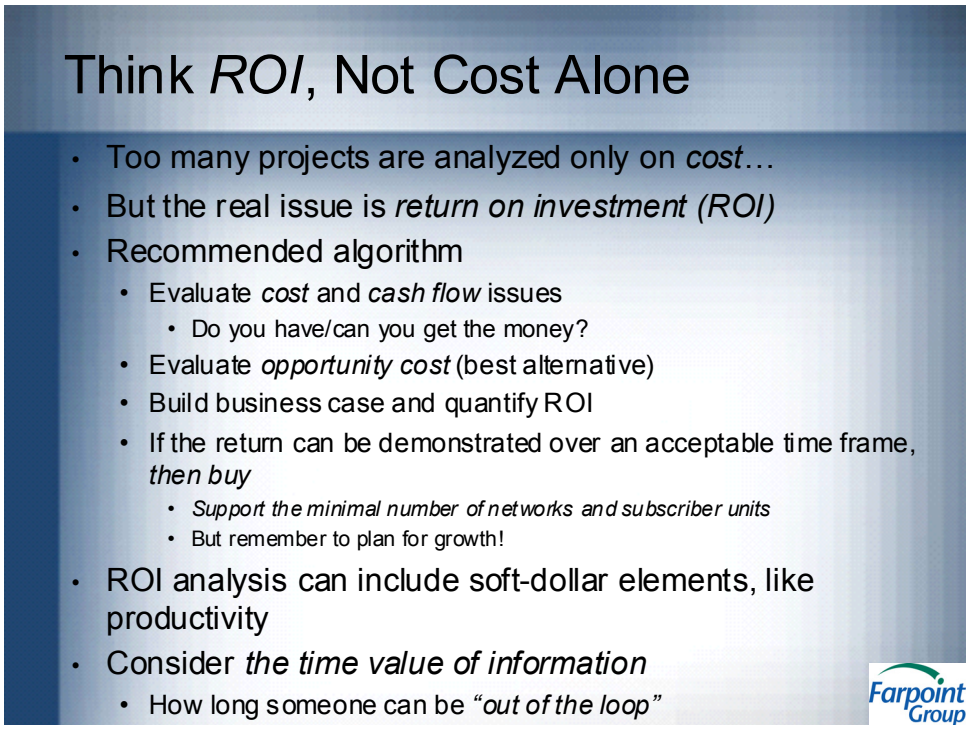

Figure 6

where the action is, is absolutely critical to success, and keeping them connected and informed and in communication with the resources that they need is going to be IT's mission from this point forward.

Think ROI, Not Cost Alone

I have seen many wireless projects get derailed before they even get started because the CFO looks at the amount of money that is going to be involved and says we can't afford it. Too many projects are analyzed simply on the basis of cost alone. The real issue, however, is not what you spend; it's what you get back, as with any other investment. If you are going to spend a dollar and get nothing back for it, I can certainly understand not spending the dollar. However, if you are going to spend a dollar and get $10 back, you are not really spending it; you are investing it. That's why we need to look at return on investment.

Generally when I work on projects like this I sit down with all of the involved parties -- IT, key users, and the financial people -- and we look at cost and cash relation. Now what is a realistic cost? What's it going to be over time? Remember, you need a plan for growth. How much is it actually costing on a cash-flow basis? Do you have or can you get the money, and how much will it cost to do that?

The next thing to do is to arrive at opportunity costs, which is loosely defined as the next best alternative. Now normally that's

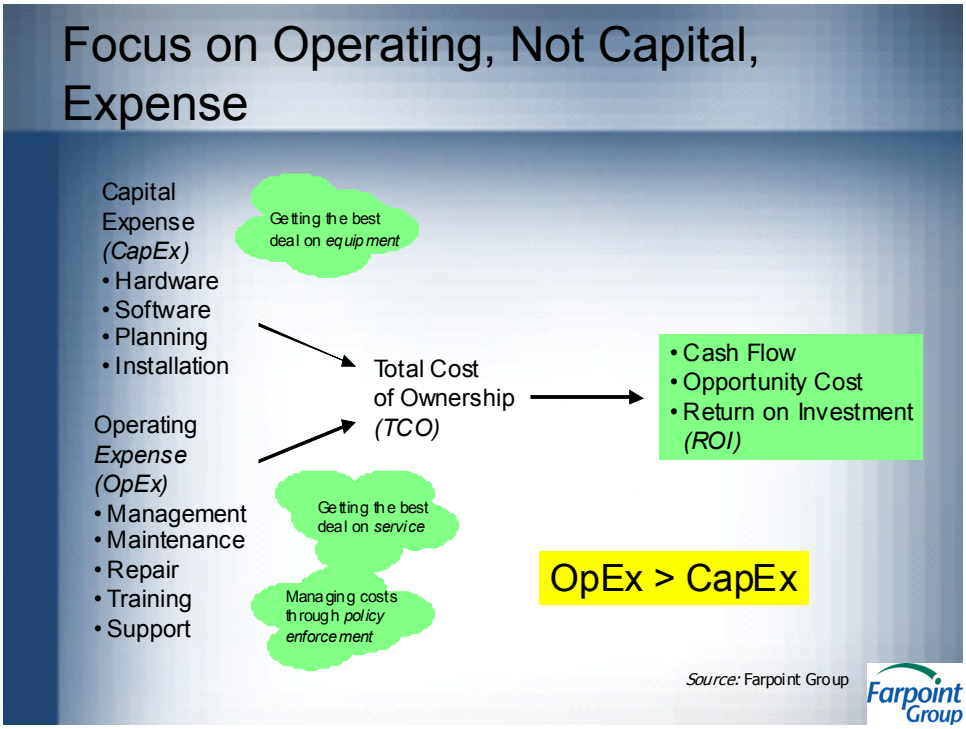

Figure 7

doing nothing. You won't mobilize your workers. You won't implement a mobile strategy. As a result, you will be operating at a disadvantage with respect to the competition, so the opportunity cost can be very high if you don't do this. We do an evaluation and analysis based on that. We are equipped now to build a business case as to why this is a good direction to go, and we can begin to quantify a return on investment. If return on investment can be demonstrated over an acceptable timeframe, then it is a good time to buy.

When calculating costs, keep in mind that you want to support the minimal number of networks in terms of carrier networks and subscriber units, so that your support costs don't go through the roof. And, again, remember to plan for growth. Now keep in mind also that return on investment analysis can include soft-dollar elements like productivity. It's often very difficult to evaluate productivity, but that is a key a factor in all of this. And again the time value of information comes into play here. You don't want to give a user who only needs to sync up once a day top of the line tools.

Focus on Operating, not Capital, Expense

The bottom line is we want to focus on operating costs and not capital costs. Capital expense is where people generally spend most of their time thinking about an IT

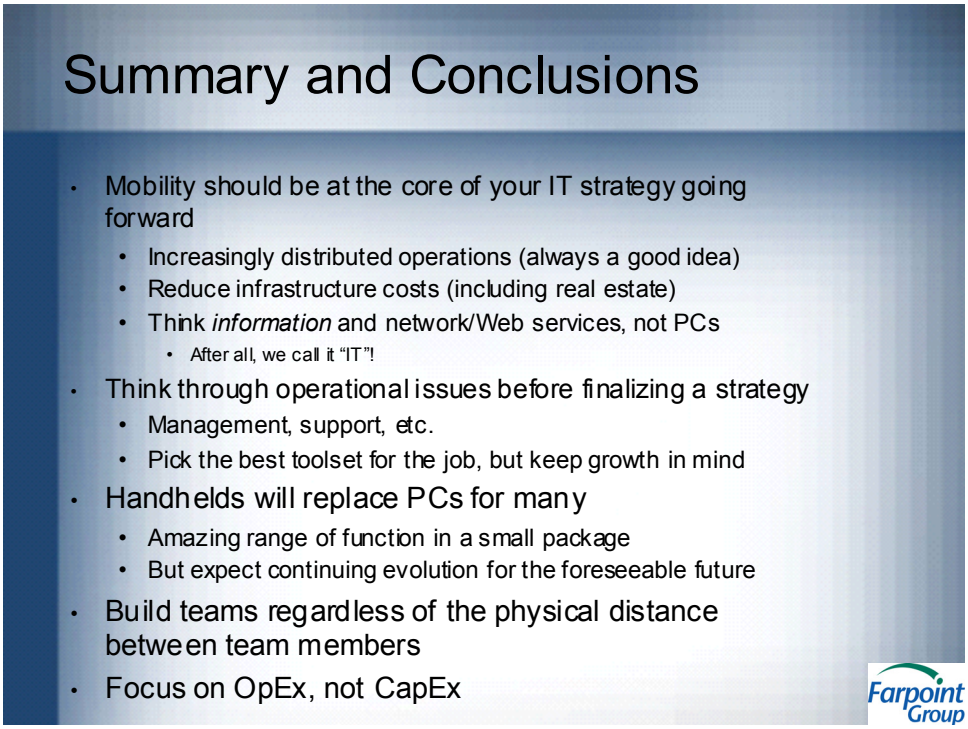

Figure 8

solution. But that's a relatively small piece of the cost. What really gets to you is the operating expense. The ongoing management of the network, mobile device management, maintenance, repair, training, support helpdesk, etc., require much more thought than the capital expense side of the picture. It is almost trivial these days to come up with the cost to get started. However, the cost to keep rolling needs to be thought through very carefully because over time the operating expense is going to be far greater than the capital expense.

On the other hand, do consider where you can reduce other costs, particularly infrastructure costs such as real estate by mobilizing people to a greater degree. If somebody is always out in the field, they don't need to have an office. And you don't need to support them from an IT perspective when they are in the office. Think about information, and network and Web services, not just PCs. After all, we call it IT and you need to put information first.

Conclusion

In conclusion, I'd like to state that mobility should be at the core of your IT strategy going forward. If you solve your mobile IT problem, you have solved your overall enterprise IT problem. Operations are going to become increasingly distributed, and your IT infrastructure needs to be increasingly distributed exactly the same way.

Handhelds are going to replace PCs for many. I am not telling you that you will avoid buying somebody a PC. I think PCs are going to be around for quite some time. But increasingly more and more IT functions are going to be moved on to ever more powerful handsets, and notebooks themselves will be replaced by network computers of some sort.

There is an amazing range of functions in small packages today, whether we're talking about mobile Internet-based devices, Linux-based computers, or handsets. And these are going to continue to evolve at a fairly rapid pace for the foreseeable future. There are some tremendous advances yet to be seen.

About TechTarget

We deliver the information IT pros need to be successful.

TechTarget publishes targeted media that address your need for information and resources. Our network of technology-specific Web sites gives enterprise IT professionals access to experts and peers, original content, and links to relevant information from across the Internet. Our events give you access to vendor-neutral, expert commentary and advice on the issues and challenges you face daily. Our magazines give you in-depth analysis and guidance on the critical IT decisions you face. Practical technical advice and expert insights are distributed via specialized e-Newsletters, video TechTalks, podcasts, blogs, and wikis. Our Webcasts allow IT pros to ask questions of technical experts.

What makes TechTarget unique?

TechTarget is squarely focused on the enterprise IT space. Our team of editors and network of industry experts provide the richest, most relevant content to IT professionals. We leverage the immediacy of the Web, the networking and face-to-face opportunities of events, the expert interaction of Webcasts, the laser-targeting of e-Newsletters, and the richness and depth of our print media to create compelling and actionable information for enterprise IT professionals.

Orange