INDUSTRY WHITEPAPER

Managing the Cloud:

An Even Greater Need for IT Cost Transparency

comsci

www.comsci.com

EXECUTIVE SUMMARY

While there is considerable controversy about what technologies and approaches constitute "Cloud Computing," the overall idea is that customers can buy and use computing on demand. The computing power resides on the Internet – the Internet is often represented as a cloud in architecture diagrams – and people access this computing power as they need it via the Internet.

Cloud Computing offers IT organizations significant opportunities for greater flexibility and immediate cost savings, so it is no surprise that it is already a $17.4 billion industry[1]. According to Lontra, the fully loaded cost of virtualized, Cloud-based application hosting services can be up to 80% below that of dedicated physical server hosting. And case study after case study has told of companies saving hundreds of thousands of dollars, if not millions, by moving applications "to the Cloud." Cloud-based services can also be easily initiated, scaled, and terminated if a company's business needs change, providing a level of flexibility that is impossible with dedicated hosting.

Four Critical Requirements for Success

Cloud Computing also presents significant challenges in managing costs long-term. Lontra's work with clients in implementing IT Services Costing and discussing Cloud Computing has led it to identify four critical requirements for using Cloud Computing effectively. Without these, your company is setting itself up for trouble. These requirements focus on:

Financial Transparency – Cloud Computing is a new way of paying for the use of technology, so it only makes sense that the first and perhaps most important requirement is to manage the costs of Cloud Computing. Issues such as accuracy in billing, reconciling costs across multiple providers, allocating costs back to business users, and understanding the total cost of ownership for both internal and external IT resources are essential to success with Cloud Computing. If you do not understand your true total costs, you will never know if you have truly been successful in reducing your costs.

Compliance – Cloud Computing can be a legal trap for the unwary. For example, in the EU, certain types of data are required by law to be kept in Europe; there are stiff penalties for those who transmit data across borders improperly. With Cloud Computing, you may not really know where your data resides or where it is sent, which puts you at risk for non-compliance. Cloud providers are responding to this need with services that are bound to a particular geography, but you are likely to pay more for these services and it certainly complicates the deployment and management of Cloud services.

About Lontra

Lontra specializes in IT Financial Management education and consulting services that help IT and shared services organizations "run themselves like a business." Lontra consultants are ITIL, service catalog, service portfolio and service costing experts. Since 2003, Lontra has helped some of the world's largest IT and shared services organizations to develop their service portfolios, define services, determine true unit costs, plan for future demand, optimize the IT budget, and improve service delivery.

1. IDC, in IDC Exchange, October 5, 2009, "IDC's New IT Cloud Services Forecast: 2009-2013"

Demand Management – The ugly truth behind Cloud Computing is that it requires an even greater vigilance in the management and allocation of IT costs. If all your costs are demand-based, then it is imperative to manage demand. Cloud Computing removes the physical constraints of storage space, compute power, email mailboxes, etc. Each of these items can be scaled without limit. However, the cost of Cloud Computing grows as these resources are consumed, which means that your potential exposure to unexpected costs is also without limits.

Governance Policy – Along with demand management, a good governance policy can help control costs. The Cloud may allow users to have unlimited storage in their email accounts, but is that necessarily a wise thing to do? Through governance, you set limits on what can be done and then enforce those limitations.

IT Cost Transparency Drives Effective Use of the Cloud

ComSci and Lontra have created this white paper to highlight how IT Cost Transparency and Technology Financial Management (TFM) can play an essential role in addressing these four critical requirements for the effective use of Cloud Computing. You may have pushed your entire IT infrastructure into "the Cloud," but your business customers are still using IT services and you still need to provide full cost transparency for the consumption of Cloud Computing services. IT Cost Transparency and TFM are also important elements in addressing the cost complexities arising from compliance issues or the economics and budgeting of demand management.

What is Cloud Computing?

Cloud Computing is a high-level concept that involves a number of technologies, including server virtualization, multi-tenant application hosting, and a variety of Internet and systems management services. While there is considerable controversy about what technologies and approaches constitute "Cloud Computing," the overall idea is that customers can buy and use computing on demand, without ownership of fixed assets. The computing power resides on the Internet and people access this computing power as they need it via the Internet.

There are three general types of Cloud Computing services:

» Infrastructure as a Service, where basic technology infrastructure such as network attached storage (NAS), computing power, or even bare-bones servers are provided as Internet-based services.

» Platform as a Service, one step above pure infrastructure, where customers are presented with everything they need to install, run, and manage an application: the operating system, the management services, and the infrastructure and technology platforms. To an end user, these services appear as an "app-ready" server that just needs the application installed and configured.

» Software as a Service, also known by the acronym SaaS, is a complete application that is bought and used entirely as an Internet-based service. The best known of the SaaS offerings is salesforce.com, one of the leading CRM solutions and one that is only available on a SaaS basis.

Cloud Computing is Growing

IDC reports that organizations spent $17.4 billion on Cloud Computing services in 2009 and predicts that spending to grow to $44.2 billion by 2013. More importantly, IDC predicts that Cloud Computing will represent 27% of all net new IT spending in 2013, and will account for 10% of overall IT spending. Cloud Computing is here to stay, is likely to play an ever more significant role in IT, and needs to be managed.

Source IDC

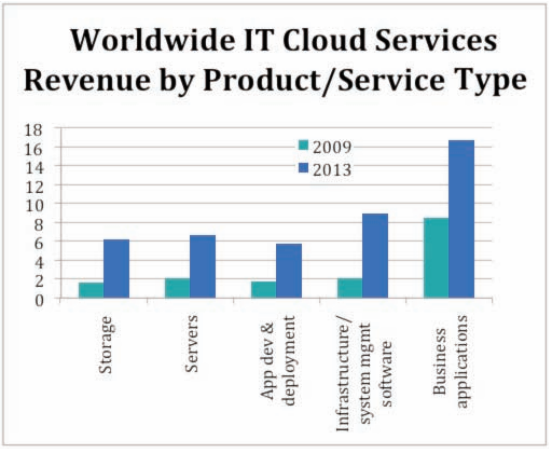
COMPELLING ECONOMICS OF CLOUD COMPUTING

While improved organizational flexibility is tremendously important in these challenging times, Cloud Computing is generally seen as a way to save money. According to Lontra, a recent comparison of commercial Platform-as-a-Service providers found that virtual servers are on average 20 to 25% lower in price than dedicated servers, with the price difference typically falling somewhere between 10% and 40%.

Case study after case study shows that Cloud Computing, in its many forms, is providing many organizations with significant hard-dollar savings.

» Retailer 2nd Wind slashed its annual IT budget by more than 60% by switching several of its applications to SaaS-based services as well as through other related changes.[2]

» Toy company Radio Flyer moved its business to the Cloud to address the company's highly seasonal demand (when children and parents are in the market for little red wagons). By doing this, it was able to pay for its computing needs on an on-demand basis.[3]



Source: IDC, in IDC Exchange, October 5, 2009, "IDC's New IT Cloud Services Forecast: 2009-2013"

» Auction business PropertyRoom.com saved a half-million dollars in infrastructure costs by moving to a $10,000-a-month contract for Cloud-based services rather than investing in internal systems. The company has used the money saved through Cloud Computing on other investments, such as building an additional warehouse closer to its customers, which will significantly reduce transportation expenses.[4]

More importantly, moving applications to the Cloud transforms the cost of using technology from an up-front capital expenditure to an ongoing expense. The two are treated very differently in an organization's financial reporting, and freeing up capital by avoiding an investment in basic IT infrastructure allows it to be used in other areas of the business.

With Cloud Computing, IT now also becomes a variable expense, something that can grow or shrink depending on the demands of the business. In the Radio Flyer example, when demand for little red wagons spikes at Christmas time, the company can simply buy more computing capacity. When demand drops off after the holidays, it simply buys less computing capacity. No large servers sitting around idle during slack time, or worse, underpowered servers struggling in vain to keep up with a ten-fold increase in business during the holiday rush.

2. Inc. Magazine, March 1, 2009, "One Company's Budget: Getting Back Into Shape"
3. Rackspace US, Inc., April 27, 2009, "Radio Flyer Puts Little Red Wagon In The Rackspace Cloud"
4. SearchCIO.com, "The real cost of cloud computing services"

Scenario 1

In a move to reduce expenses, a professional services firm moved its email application off dedicated in-house servers and into the Cloud. Email was not seen as a core competency for either the firm or its technology group, and moving to the Cloud promised to remove a lot of the administrative headaches in maintaining servers, filtering the incoming mail for viruses, and managing the storage.

After the cutover, the IT staff was pleased at how much time had been freed up – time that could now be used on more strategic projects. It was quickly apparent, however, that moving email into the Cloud was not saving the firm as much money as expected. Even worse, the bill from the Cloud provider was getting larger every month.

A cost-transparency initiative revealed that while administrative staffing costs were reduced nearly 60% by the move to the Cloud, many other costs either increased or stayed roughly the same. In particular:

» The per-mailbox cost of the servers, with associated software and storage, had been replaced by a Cloud-based mailbox cost, which came to around 80% more per mailbox

» Message archiving – the requirement to retain email for archiving, continuity, and regulatory reporting – represented 32% of the firm's total cost of managing email, a largely hidden cost that was relatively unaffected by the move to the Cloud

» The firm had poor change control processes, so old and unneeded mail-boxes were not being deleted and the total number of mailboxes – and the firm's bill from the Cloud vendor – grew larger with each passing month

The firm deleted the unneeded mailboxes and put better change control processes in place to avoid such problems in the future. More importantly, the implementation of an IT Cost Transparency solution provided consumption billing so Line of Business managers can now manage demand. When it undertook an initiative to move to a SaaS CRM solution six months later, the company knew exactly how the move would save it money and give it greater flexibility.

THE IMPORTANCE OF DEMAND MANAGEMENT AND GOVERNANCE IN THE CLOUD

Variable costs are a double-edged sword. Fixed cost assets (the traditional approach to IT) cost the same no matter whether you use them a lot or a little. With a variable cost structure, when you use them less, you save money. When you use them more, you pay more.

Cloud Computing is HIGHLY VARIABLE, so strong demand management is essential. It may save you tremendous amounts of money, but it also makes your costs less predictable. This is why IT Cost Transparency is essential for a Cloud Computing environment; it helps you track, control, and even predict your IT expenses.

As an analogy, consider how wireless phones are used in an organization. If someone leaves the company or even moves to a different department, you need to know about the change so that you can manage the inventory of wireless phones. The providers will continue to charge you for the phones of former employees unless you tell them to turn the phones off. Change control is essential for cost-effective management of wireless.

So, if you move your email off of an internal system to a Cloud Computing provider, change control is similarly critical. With an internal system, an obsolete email box incurs little more cost than the storage space it uses, but when email is handled by an external provider it becomes a variable cost. You are still paying for the obsolete email boxes, until they are turned off.

The same is true for all Cloud-based services. Usage and provisioning need to be tracked very closely, so that a service can be discontinued when an end user no longer needs it, or even if an entire storage system or application is no longer needed. When you are paying per user, every user is an increase in costs, and you continue to pay, even if the service is not being used. This makes it imperative that the consumer or user of these IT Services understand what they are paying for as they are the ones that best know whether the service is being used or not.

Utilizing ComSci's TFM solution can help manage these variable costs, provide cost transparency, and help manage demand.

"Nearly Free" Is Not Free

The savings in using Cloud Computing are often so great that the temptation is to stop worrying about the cost – the perception becomes that everybody thinks it is free or very inexpensive so let us use more. This simply brings IT

usage back into the cycle of abuse. IT Cost Transparency can help keep this "cost creep" under control.

As an example, consider Cloud-based storage, which can easily cut storage costs in half over in-house storage. The cost savings hold only if people continue using storage in the same manner. Often, lower storage costs drive an increase in storage usage, so that the total cost of storage grows back to where it was. As an example, suppose 1TB of internal storage is $1 million and you are able to move it to the Cloud for $500K. If storage usage grows to 2TB in the Cloud, then the your total cost of storage quickly returns to $1 million.

Not managing the actual consumption can quickly cause trouble. No matter how cheap a resource seems, you still need to manage demand, whether on the Cloud or off. Lontra research has shown that IT organizations that manage their demand are considerably more successful than those that only manage costs from the supply side. IT Cost Transparency, in the form of invoices showing that growing use of a "nearly free" resource is causing an increase in costs, can help the business manage the demand and the costs.

transparency

•

visibility

•

control

GETTING THE COMPLETE PICTURE

Another reason good IT Cost Transparency is essential for managing Cloud Computing is the need to get a complete picture of IT expenses. Are you being accurately billed for what you actually used? Is there a way to pull the expenses for all the different Cloud providers into a single internal bill? Can you get a sense of your total cost of ownership (TCO) for any one application? Is Cloud Computing really saving you money, or would it be more cost-effective to manage the technology internally? Without IT Cost Transparency in place, it is difficult to answer any of these questions.

Ensuring accuracy in billing is the first step. With Cloud Computing, this is imperative to bring visibility to costs. Cloud Computing might be more cost-effective for delivering IT services, but you definitely lose control because you are relying on a 3rd party vendor. Are they accurately billing you for what you are consuming? You need visibility to ensure that you are being properly charged. Think of it this way: the Cloud vendors have no real interest in simplifying your ability to manage billing and change control. If you are paying a monthly fee for every mailbox, then every time you "forget" to delete a mail-box that is no longer needed is that much more money to the Cloud vendor.

Once you have validated the charges for each vendor, you can move on to the next step: correlating costs across vendors.

Organizations using Cloud Computing tend to use more than one service provider, perhaps using multiple SaaS applications, some Cloud-based storage,

and some virtualized servers. There are potentially more diverse data sources with Cloud Computing as compared to an internally based infrastructure, and with cost information coming from different sources it is hard to get the true picture. All that diverse data must be pulled together into a common format so that business users can be presented with a uniform bill. This involves correlation and normalization across multiple vendors, transforming costs to ensure an apples-to-apples comparison.

By aggregating and integrating that data, you gain the ability to audit the Cloud.

The aggregated costs can also help you determine the TCO for a particular application or server. This involves capturing not only the external costs, normalized and aggregated, but also any internal costs. With aggregated data from multiple sources, you can then determine the total unit cost for the technology service.

Solid understanding of the TCO will enable you to benchmark outside (out-sourced) costs against in-house costs. Is it actually cheaper to outsource the storage? The Cloud storage providers will tell you that it is, but most companies do not have a solid understanding of their on-premise costs. It will be hard for a company to prove that the Cloud saves them money because they do not have a handle on these costs in the first place. And just because it makes economic sense to move things to a Cloud this year does not mean that will continue to be the case in the future. IT Cost Transparency can help you continuously compare internal and external options to ensure that you are operating cost-effectively.

Working with an IT Cost Transparency solution provider can also help you benchmark your Cloud computing costs against that of similar companies. Are you paying too much for your Cloud?

Scenario 2

A publishing company was considering moving some of its server-based applications to the Cloud, but it was not sure which Cloud vendor was the best choice, or even if it made more sense to keep the applications in-house on a new, virtualized server.

Realizing that the decision was a complex one that required a thorough understanding of its total costs, the publishing company began working with ComSci to research its technology costs. ComSci was able to aggregate cost and usage information from a wide variety of internal and external sources, covering not only the cost of the hardware and software but also all the maintenance, support, infrastructure, and even financing costs involved in the company's use of technology. ComSci and Lontra worked with the company to develop a service catalog, where the core technology infrastructure was

bundled in with the support and staffing costs to offer a complete "product", with usage-based prices established for each service.

Armed with this information, the publishing company was able to benchmark its current costs against each of the vendors it was considering. It became clear that one vendor's services, while appearing inexpensive at first glance, would quickly climb because the company's usage pattern would require expensive add-on services. Interestingly, in-house virtualization was also the lowest-cost option in a number of areas.

The publishing firm was able to select the Cloud provider that would save it the most money and provide it the services that best fit its business needs. It also consolidated a number of servers into a larger, virtualized server, which it ran in-house.

ComSci worked with the publisher to develop "showback" invoices for the business groups, helping them understand how their usage of technology affected the company's profitability. Next year, the business groups will be billed "by the drink" for their use of technology, whether that technology is delivered through the Cloud or from an in-house "Private Cloud". This consumption billing will help the company manage demand for technology services, and having a complete service-based understanding of its technology costs enables the company to ensure that it is always placing its applications in the most cost-effective location.

THE DEATH OF ASSET-BASED COSTING

In addition to External Clouds, many organizations are experimenting with Private Clouds. Most organizations are likely to be "hybrids," with some services remaining internal, some moved externally, and others moved into Private Clouds.

The traditional way of managing internal IT costs is to take the entire cost of buying and using an asset – a server, for example – and charge it all to a particular cost center, regardless of the actual usage of that asset.

Companies quickly discover that moving to Private Clouds "breaks" their current asset-based method of allocating IT costs. The more virtualization you do in your internal servers and other internally managed technologies, the more untenable asset-based costing becomes. Suddenly the "server" that is being managed is no longer a real, touch-it-with-your-hands server but instead becomes a there-when-you-need-it, gone-when-you-do-not slice of computing power and storage. You have to move to service-based costing, where the costs of buying and using technology are bundled into a well-defined "service," which is then billed to the business users based on consumption.

IT Cost Transparency helps you capture the total cost of ownership for a particular technology, no matter where it is located or how virtual it is, and then assign the cost back to the end user based on metered usage.

IT COST TRANSPARENCY: AN ESSENTIAL TOOL FOR THE CLOUD

Whether or not they are on the Cloud, more and more organizations are discovering that implementing IT Cost Transparency saves money. By making business managers accountable for their technology and communications expenses, organizations can drive behavioral changes in how technology and communications are used, which ultimately lowers costs.

In moving to the Cloud, IT Cost Transparency becomes even more important. As discussed earlier, issues such as accuracy in billing, reconciling costs across multiple providers, allocating costs back to business users, and understanding the total cost of ownership for both internal and external IT resources are essential to success with Cloud Computing. IT Cost Transparency makes it easier for people to address accuracy, reconciliation, cost allocation, and total cost of ownership. Because IT Cost Transparency makes employees and departments accountable for their expenses, it can also help with demand management and budgeting.

A Technology Financial Management (TFM) solution can give you the tools you need to manage the expenses in the Cloud and provide IT Cost Transparency. In this turbulent business environment, it is not enough to look at your IT costs only once a year. TFM enables you to put processes and procedures in place that enable you to manage IT costs on an ongoing basis, across the enterprise.

Scenario 3

A financial services firm has operations all over the world. Six months ago, it moved a key client-facing application into the Cloud. This reduced costs and enabled the firm to handle the seasonal swings in demand that the application experienced.

Because the firm has clients in the European Union, compliance with regulations was a huge challenge in the move to the Cloud. The regulations require that any data associated with a European client remain in Europe. This meant that any use of the application by a European client had to hit European servers connected to European databases.

While this requirement had initially kept the firm from moving to the Cloud, it had found a provider that was able to promise that European usage would be

confined to Cloud-based resources in Europe. The only problem: the billing rate for the European usage was different than the billing rate applied to the rest of the world. This made the bill from the Cloud provider enormously complex and difficult to understand.

Key Decisions and Potential Pitfalls

Private or Public Cloud?

Some applications are more appropriate for a Public Cloud, where the information is not proprietary and uptime is a primary concern. Others, such as an organization's financial system, require the tighter access control and greater security of a Private Cloud.

The costs of the two approaches are dramatically different, with Private Clouds costing up to five times more than a comparable Public Cloud implementation. In choosing the right approach, you should balance your need for privacy and security against your sensitivity to cost. This is where IT Cost Transparency can help give you the data you need to make an informed choice.

What Are Your Pricing and Costing Strategies?

Since saving money is one of the biggest drivers behind the move to Cloud Computing, it is no surprise that sound financial management is a critical element in the effective use of the Cloud. Who, in particular, is responsible for the costs? Are the costs pooled to a shared services group, spread like peanut butter across the entire enterprise, or charged back to the individual departments on a metered basis? In particular:

» Asset-based pricing is no longer feasible. You need to move to service-based pricing, because there are no assets in the Cloud.

» You need to be able to compare virtual costs to physical costs. Not every move to the Cloud will really save you money. And just because it makes economic sense this year does not mean that it will next year.

» You need to be able to benchmark your costs. Are you using the most cost-effective provider, the most cost-effective approach?

» You need to forecast demand, so you can manage your inventory and control your variable costs. This is especially true for Private Clouds.

» You must integrate your virtual/Cloud-based services into the IT accounting/chargeback infrastructure, so you can get a complete picture across all services.

How Will You Encourage Adoption?

Sometimes it is not enough to rely on the "build it and they will come" strategy. You need to take active steps to encourage the use of Cloud-based services. This can take the form of:

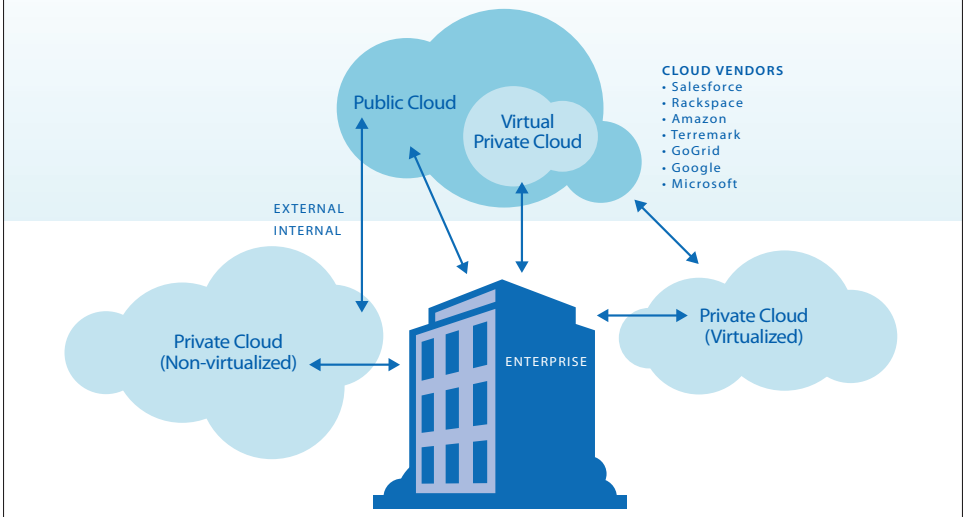
» Preferential pricing, where use of a Cloud-based service is charged back at a lower rate as an incentive to use it. You could also set the price artificially high, if you are trying to discourage people from using (or over-using) a service.

» Governance, where you simply require people to use the service through a corporate mandate. Presumably, you are able to police and enforce the mandate.

» Migration, where you move an application into the Cloud, or simply implement new projects in the Cloud and keep the older applications where they currently reside.

ComSci was able to sort through the complexity of the bill coming from the Cloud provider and help the firm allocate all costs to the proper business units. ComSci was also able to match up the usage from the firm's internal systems against the usage reported by the Cloud provider to ensure the accuracy of the bill for the Cloud services.

Enforcing IT Cost Transparency Across the Cloud



Tracking costs through the Cloud is like chasing vapor – clouds look solid, but it is impossible to grab them with your hands. Bills are coming from multiple vendors, dealing with multiple departments using multiple applications across multiple services. Plus, most organizations will be hybrid environments, where some resources are in the Cloud and some are kept internal, perhaps even in a "Private Cloud" or moved to a "Virtual Private Cloud" that is based on the Public Cloud. IT Cost Transparency is a way to compare costs no matter what the location or what service is involved. Cloud Computing is a new way of paying for the use of technology, so the most important requirement for a successful implementation is to manage the costs of Cloud Computing. If you do not understand your true costs – in the Cloud or not – you will never know if you have truly been successful in reducing your costs.

SUMMARY AND CONCLUSION

Cloud Computing presents organizations with an opportunity for significant cost savings, if it is done right. It also represents an opportunity for runaway costs and skyrocketing usage, if it is not managed properly. There are four critical requirements to using Cloud Computing effectively, focusing on:

Financial Transparency – if you do not understand your true costs, you will never know if you have truly been successful in reducing your costs. IT Cost Transparency and Technology Financial Management (TFM) can help you understand your current costs, make informed decisions on implementing Cloud services, and ensure the accuracy, reconciliation, and allocation of the expenses.

Compliance – the virtual nature of Cloud resources could make you out of compliance with laws that require tight controls on the movement of data across international borders. This can be solved with new services that are tied to particular regions, but this brings its own cost management challenges. IT Cost Transparency and Technology Financial Management (TFM) can help manage this complexity.

Demand Management – if all your costs are demand-based, then it is imperative to manage demand. Resources suddenly have no upward limit, so your potential exposure to unexpected costs is also without limits. With IT Cost Transparency and Technology Financial Management (TFM) you can bill back all costs to the business customers, helping them understand how the expenses affect the profitability of the overall business.

Governance Policy – through governance, you can set limits on what can be done in the Cloud and then enforce those limitations. IT Cost Transparency and Technology Financial Management (TFM) can be an important adjunct to a well-implemented governance policy.

IT Cost Transparency and Technology Financial Management (TFM) can play an essential role in addressing each of these four critical requirements in the effective use of Cloud Computing. You may have pushed your entire IT infrastructure into "the Cloud", but your business customers are still using your IT services and you still need to provide full cost transparency for consumption of Cloud Computing services.

Boris Pevzner, President, Lontra

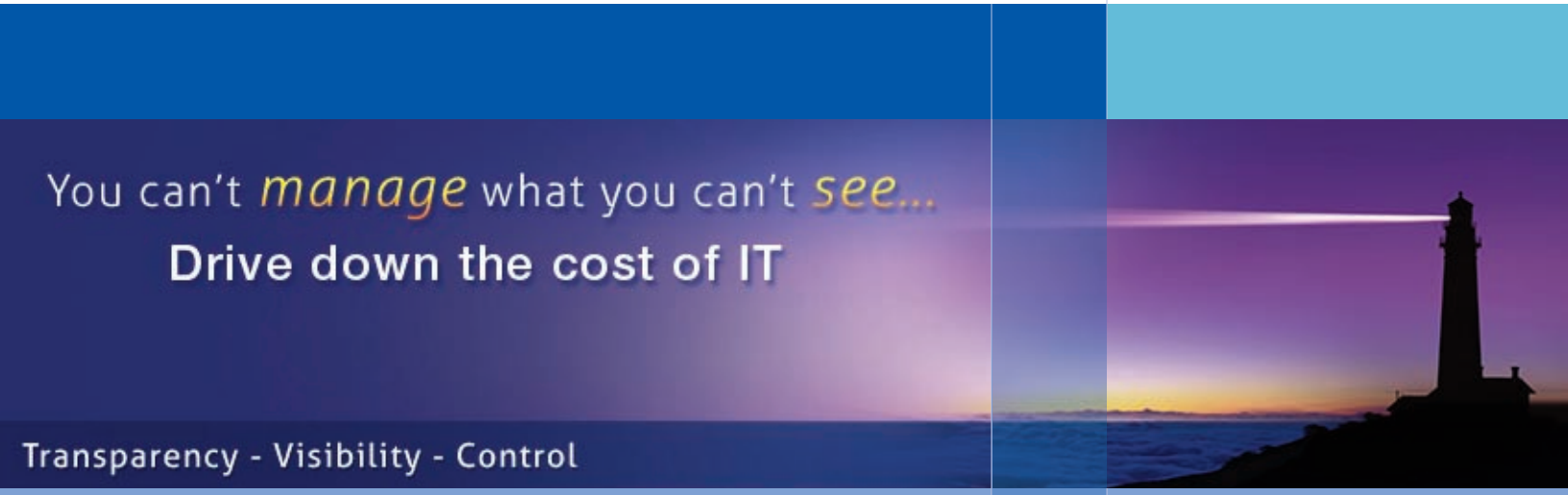
Boris Pevzner has advised CIOs and senior IT executives of leading Fortune 500 companies on re-aligning IT operations around a service-oriented IT delivery model. His professional background includes Bell Labs, AT&T, MIT, and MathSoft. Boris is currently the President at Lontra, the IT financial management solutions company he co-founded in 2000. He is a frequent speaker at technology conferences on IT transformation, ITIL, and service-oriented IT delivery. Boris' book, *Running IT Like a Customer-Centric Business*, will be published later in 2010.

Louis M. Takacs, Vice President, Product Development, ComSci

Louis Takacs has over 16 years of software architecture and management experience in the Technology Financial Management and IT Cost Transparency industries. Lou played a pivotal role in re-architecting ComSci's software as a Cloud-based, enterprise-ready SaaS (Software as a Service) solution. Prior to joining ComSci, Lou served as Vice President of Development at one of the largest Telecom Expense Management companies.

About ComSci

ComSci delivers Technology Financial Management solutions that empower organizations to implement more effective IT financial governance. Through decades of experience and a suite of web-based tools, ComSci helps IT organizations enhance technology transparency and visibility, which in turn enables business units to understand and optimize demand and utilization of technology resources. ComSci is headquartered in Iselin, New Jersey, and was founded in 1971. ComSci clients include companies such as The Bank of New York Mellon, NYU Langone Medical Center, 1-800-FLOWERS.COM, Memorial Sloan-Kettering Cancer Center, SAP, and UBS Investment Bank. Visit www.comsci.com for further information.



comsci

Phone: (732) 632.8000 | **www.comsci.com**