Demystifying the Cloud for the Non-Technical Executive
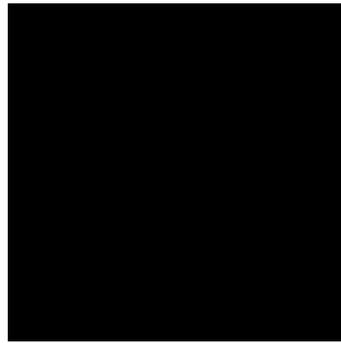
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2015 Intelligent Bank Management Series

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Demystifying the Cloud for the Non-Technical Executive

Many in your organization have likely discussed what has generically been called Cloud Computing and its future in the financial services industry. We would expect that your CIO and CRO (Chief Risk Officer) may have widely divergent opinions on the matter. Like many technical buzzwords, we find that *Cloud Computing* is a term misunderstood by many who do not have a technology background. We hope to provide this Executive Summary for the non-technical as to what Cloud Computing is within Financial Services and our predictions on its impact for the future.

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In the Beginning

Computing has evolved from its inception, generally becoming smaller and less expensive to deploy, but becoming widely distributive with the skills associated with doing business. What took two rooms to house in the sixties now fits on a chip in your watch. If you run an application in your department, you may have responsibility for data backup and keeping software versions up to date. For those engaged in the businesses of banking, and not the underpinnings making it work, technology can be both your best and worst friend, often simultaneously.

Let's first review the evolution of banking computer technology:

Mainframe computers with connected dumb terminals is where we'll start. These systems were maintained in clean rooms by administrators wearing white lab coats with specialized expertise. Software was loaded into the mainframe, where it interacted with users through the direct connection with the desktop terminal. You may even remember the old "green screens."

Personal computers entered the fray in the early 1980s as independent computing devices. Most were large and clunky, with little to no internal storage. Floppy disks were the way most data and programs were stored and accessed. Remember the Osborne portable PC?

Personal Computers adopted the Windows operating system with a mouse pointing device in the mid- 1990s and became easily accessible to users with little or no computing experience. PCs could be linked together into a network facilitated by PCs that shared software to others in the network, hence the naming of these specialized PCs as Servers. Implementing these networks did not require the expertise required to maintain a mainframe.

From this point, the utility and capability of personal computers connected to software servers maintained by the institution went through multiple evolutions of increased speeds, smaller and more capable processing components.   Products like Microsoft Word, Excel and Outlook/Exchange became the de facto standard deployed across the organization as a means of employee and customer e-mail communication, business writing and analysis. PC based networks, delivering software from servers to users' PCs became a universal business standard. It is important to note that as businesses relied more and more on these networks, infrastructure requirements demanded increased financial commitment in terms of hardware, backups and personnel to make sure these mission critical networks were always available.

With the explosion of the World Wide Web a term was coined, Software as a Service, or SaaS, for software that was delivered over the Internet from servers not owned by the financial institution. This was a major first step in allowing businesses to actually reduce infrastructure costs. Software delivered as a service could be delivered directly to the end user PC through a web browser with no additional infrastructure.

Another side effect of the World Wide Web was the availability of a no cost network that allowed networks to be geographically separated over long distances. The term WAN (Wide Area Network) became ubiquitous. Businesses could have servers hundreds of miles away from the actual business site and could provide software to users over a secured internet connection.

This WAN model facilitated datacenter colocation as a mechanism for an organization to still own their computing resources, but be able to place them into a rented facility that optionally could provide all of the required security, resiliency and connectivity to the Internet an organization would require. These remote sites could be owned and operated directly by the business or often these collocated facilities were owned and operated by third party providers who could provide physical security and optionally technical expertise to satisfy the never ending need to keep operating systems and communications solutions up to date. This was all based on the premise that colocation offered the advantages of a physically dedicated computing facility without bearing the cost alone. It was a way to improve the technology platform that an organization utilized for computing while at the same time was a second step in reducing infrastructure cost.

The Here and Now

Cloud Computing is the next evolution of technology ownership, or in this case the lack thereof. Cloud Computing is allowing providers such as Microsoft or Amazon to provide the fundamental computational provisions your organization requires to perform specific processes across their network of worldwide technology installations. It is truly computer Infrastructure as a Service. We like to call it IaaS. It is fully redundant, in the sense that your computing needs can be fulfilled from technology components distributed across states and even nations.

Computing in the Cloud can also mean

the movement of software solutions and data that previously were resident outside the organization on say a vendor's network of servers, to servers that are now defined into the variable technology infrastructure of the Cloud. **In essence, it is a blend of Software as a Service delivered via Infrastructure as a Service (SaaS/IaaS).** The easiest example to demonstrate this reference is the Microsoft Office solutions (Outlook/Exchange/Word/Excel) provided through their packaged cloud offering on a seat by seat, monthly basis. You buy what you need without the ramifications of software licensing and maintenance, applying software patches, owning hardware and having to have a detailed disaster recovery plan for e-mail services that today are built into many high-risk business processes, such as loan disbursement requests.

Cloud computing provides the ability for seemingly infinite growth. You are buying into the concept that technology is no longer a specialized requirement, with its own dialect and acronyms that your organization must acquire and master. It is a place where files can be stored and collaboration can deliver far more value.

But with change, there are always skeptics and for good reason. Security concerns is the first cry made by those who are making decisions on organizational computing and risk. While certainly any installation of technology anywhere can have a security concern, the reality is that the security solutions and physical protections afforded by cloud solutions are probably more secure than the majority of current in-house IT systems. It is a matter of economics. Cloud solutions have the ability to have both the best and the brightest working to protect their business.

Security and not efficacy is the external examiners concern as well. We see the regulators grappling with the concepts of cloud computing. They are asking that financial organizations detail which solutions and files are resident in the cloud within their exams. The question that should be asked is not if your

organization will be utilizing cloud resident technologies and solutions, but when. Given that the giants of the computing industry are steering the direction and development of technological evolution, and are integrating software development tools into the cloud, it is only a matter of time that cloud computing becomes the standard, and possibly the only opportunity for purchase. Regulators will need to get on-board with the eventuality of cloud computing being the way of the world of the future. And so will your executive team, to remain competitive.

In the short term, there remain multiple challenges:

Some IT organizations are not ready to give up on infrastructure management. This is where an informed executive group is helpful, and the ability to tap consulting expertise may be imperative.

The business case of trading off CPU cycles and disk space for bandwidth and subscription fees is difficult. In the short-term, it may not work out on paper. As an example there may no longer be a non-cash expense benefit of depreciation or amortization. Do this test. Go back and determine how many requests over the last five years have been made for technology capacity upgrades or refreshes. What are you paying in maintenance costs and what has been the rate of growth? These are the costs that cloud computing eliminate. In many ways it may become a leap of faith, expecting the demands of growth and increasing computing power to be only deliverable via cloud computing infrastructure and pushing the cost-benefit toward or past the tipping point.

The one caution with cloud computing is that it may make infrastructure expansion too easy. Obviously this is what the cloud providers would hope. There needs to be a new thought process and governance model redeveloped for the provisioning of cloud resource assignments. Again, this is where consulting expertise may be helpful.

Cloud computing may not completely eliminate the need for in-house technology expertise, depending on the implemented mix of software and infrastructure as services. For example a custom application may be moved to utilize cloud infrastructure but since it is a customized application and data, the cloud provider will provide the resources to run it, but will have no expertise in installing or maintaining it.

Over The Horizon

As we conclude this introduction to Cloud Computing, we leave you with our predictions on where Cloud Computing is leading the financial services industry:

- There will be significant savings in the areas of infrastructure hardware and maintenance costs. There will be fewer servers, less space needed for internal server rooms and farms and fewer employees to manage those servers. In-house data centers will be repurposed, just as items processing departments with MICR encoders and sorters have evaporated from the technology landscape.

- We predict that in the future desktop hardware will become dumb (read that as cheaper), with only a browser to access cloud based

services, and ergo less desktop maintenance costs.

- Core processors will need to get onboard with Cloud Computing. If not, and your core processing software requires you to have a full PC capability, then you'll have to have a full PC regardless of what else you access in the Cloud. Your costs will be higher than your competitors computing in the cloud long term.

- There will be no real savings in the areas of development or bandwidth. You will still need your T1's and existing network connectivity to connect to the cloud and someone will still have to write custom code, deal with security configuration and access levels etc.

This is where a business partner like CMPG can assist you in defining strategic business plans around the delivery of cloud-based technologies and solutions.

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