The Next-Generation Cloud Computing for 'Clouding Our Computing', On-Line and On- IT Interconnected Environment
What Cloud Computing Imply? What is the Future of Cloud Computing look like…

What is The Future Of Cloud Computing?

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Majority of the discussions in IT at the moment has centered on the "next big wave" in Information Technology using **Software-as-a-Service (SaaS)**. You may already be hearing more about **SaaS** than the **Cloud Computing** it really powers. SaaS is the Software Deployment Model currently used in Cloud Computing.

Some of the major things going on, questions being asked, and key considerations for Business IT, IT Departments and Businesses; many of which we await to learn the outcome(s) or find answers in the area include:

Is the proposed "flat fee per-user per month" and the "pay-as-you-go", elastic and non-elastic computing pricing models by your SaaS vendor *really what it says it is,* "Fixed" and "Affordably Variable", as stated in the marketing materials, contract and agreement for your required *initial configuration, setup, migration, support,* and all the *important KEY functionalities, and <u>training</u>* your business will need, now, down the line, in the near future and in the future for same, less or larger number of users?

Is **Clouding Computing** really about to replace the Desktop Client / Server On-Premises Systems? **Who** and **What** is **"THE",** and a **"TRUE" Cloud Computing Platform? How can a "Cloud" or "a Cloud Vendor" be** *TRUSTed* with <u>intellectual properties</u>, <u>trade secrets</u>**, business data, employee information, customer/client personal and private information? What kind of information protection rights and business information intelligence** *use rights* **do you and your business have?** Will the SaaS Solution meet your business compliance requirements?

Will "the" or a Cloud Service being offered integrate well, and work seamlessly with your existing On-Premise Systems, Remote Locations, and other Cloud Infrastructure(s) with the highest level of *Security Built-In? What is the SLA (Service-Level Agreement)*?

Could it be that SaaS-Powered Cloud Computing, "Clouding Our Computing" is just another lofty dream of the future of the technology(ies), or will it be the one to help create the new radical and ground-breaking business models? How and Why is Software-as-a-Service (SaaS) different from Platform-as-a-Service (PaaS), *the Platform itself, and other Technology Services and Solution Models?*

Many of us will recall when Active Server Pages (ASP) became very popular in 1996 to 2000 prior the ASP**.NET** version. The Active Server Pages technology with the Application Service Provider Model (ASP) (..which was a failure mostly) was really the first incarnation of Software-as-a-Service (SaaS) before the Dot-Com Bubble Busted in that era in a brutal Vicious Cycle, and the preceding False Virtuous Spiral.

Within this article, I will briefly explore the world of "Clouding Our Computing", discuss some of the major things happening, the ones that will eventually materialize, and address majority of the questions above. We will now proceed by covering the following topics:

- **An Explanation of Cloud Computing**
- **A Brief History of Cloud Computing**
- **Architecture and Characteristics of Cloud Computing**
- **The Next-Generation Cloud Computing**

An Explanation of Cloud Computing-

Cloud Computing is the use of an online or the external internet side software and data stored on the servers, managed by others to *offer the use of common applications*; satisfying such computing needs to individuals and businesses, which they can access by the use of a web browser.

In the Cloud Computing *paradigm*, Applications that are traditionally installed and run locally on Desktop Operating Systems such as Windows are placed, extended and/or shifted instead, to the internet where they are made accessible. Cloud Computing is very much a Technology-Enabled Service that resides on the Internet as well, so, a user may not control, nor have any knowledge of the Infrastructure supporting it.

Examples of Cloud Computing Applications Include: *Peer-to-Peer Applications, Web Application, Software-as-a-Service (SaaS), Technology-as-a-Service (TaaS), Storage-as-a-Service (SaaS), and Software plus services.*

Examples of Types of Technology-Enabled Services using one or more of the above mentioned Cloud Computing Applications Include: *Bittorrent, Kazaa, SETI@home, Skype, VoIPStunt, MySpace, Facebook, Google Apps, Paypal, Salesforce.com, Amazon (Amazon Web Services), and Microsoft Online Service.*

Let's use one common simple example to expound the whole **TaaS, SaaS... Techno-Bable**. In FaceBook for example, when a user first signs up, the only applications the user gets or are able to use are the basic ones pre-built into every account, or that comes with every users' account. A user may choose to authorize, install, allow or remove any of the additional applications made available anytime. **Basically, what is happening is that these additional enhancements are installed and removed only within a users' account profile on the server(s) out there in the Cloud than on the local computer they are using to connect.**

The lower cost of hardware has continued to come down really low making a case which has been obvious for decades that there could be huge cost savings in IT Operational costs, such as ...site visits, desktop software, hardware and support using **Client Virtualization**, which moves the entire desktop to the cloud. However, it will still require some sort of hardware to connect to the remote virtual client and a much larger data center to support thousands and millions of them. This scenario is very feasible, though it will very much increase short-term costs, along with other complexities such as video requirements, latency, bandwidth, integration and connectivity issues to the systems and databases, and more so if there will still be regular local or remote desktops and/or mobile systems used in the environment. An environment has to do a very **deep Futuristic Next-Generation** Business Technology short-term and long-term Business IT Cost and Benefit Analysis to determine what will be the best for the Business. **The New Technology Approach and Solutions Set, Designed and Developed at Globrocks to solve this problem and *even much more* is the Unified IT Architecture Infrastructure**. **Learn More About The Globrocks Unified IT Architecture Infrastructure**.

While "Cloud Computing Systems and Services" and most of its' related variants are still indeed pure SaaS, and Software plus Services, (...or call it whatever that comes to mind- they are all Software Powered though). Others could fall into any of the other categories such as Technology-as-a-Service (TaaS) excepting *Managed Services which has been strictly Technology Systems Services and Support performed and managed remotely.* Many are already in transition trying to become **more than just one type of service provider**, become **all or a Platform**. Most recently, we are beginning to see **Everything-as-a-Service (EaaS),** meaning everything "Technology or Technology related as a Service)- embracing *Client Virtualization*, *Infrastructure-as-a-Service (IaaS), Integration-as-a-Service (IaasS), Data-as-a-Service (DaaS), Platform-as-a-service (PaaS), Grid Computing, Utility Computing and even the emerging Hardware-as-a-Service (HaaS).* The powerful **desktop** client and server On-Premise applications are able utilize the services provided by these Remote On-Line Versions using a web browser.

Sometimes, *the meaning or an interpretation of Cloud Computing* could be directly dependent on how the media or a reporter explains or writes about it, nonetheless, *one thing to know and to keep in mind is that they all* **need to run on a Platform;** some are currently in some sort of transitional, or a mixed breed state on the Platform they use. *I will clarify using some examples we are familiar with to expatiate on how and why the Platform is so important.*

A Brief History Of Cloud Computing-

Let's take a look at the history of Cloud Computing. As mentioned earlier, Cloud Computing is an Internet based application delivery. **In 1946** a comic science-fiction writer, named Murry Leinster created a story called, **"A Logic Named Joe"**, which diagrammatically laid out the Internet, as well as pointed out most its expected strengths and weaknesses.

In 1960, the original John McCarthy did work on the underlying concept when he envisioned that **"computation may someday be organized as a public utility".** At that time, the "cloud" was already being used commercially to refer to the large ATM networks. Earlier **in the 1950s**, more than THREE decades **before** the internet age, IBM became dominant in the emerging computer industry. **Ten years later,** the reality of developing an internet actually began. Many proprietary protocols were developed for computer networking, they went through several stages, then series of research and development. The X.25 protocol was however, predominant, and was primarily used at the time.

Digital Equipment Corporation (DEC) came out with a precise combination of Networking Hardware and Software solution called DECnet in **1974**/75, they called this design DIGITAL Network Architecture (DNA). **DNA was meant to represent or define Networking Architecture standard at that time.** DECnet also consisted of some or many of the DNA Suite of Networking Protocols. Just about the same year, in 1975, Microsoft Corporation was formed; Apple was already in the early computer business as the strongest desktop hardware and software visionary of the "next big" thing, while Microsoft firmly focused specifically in just Software, established as the only *Software Engineering Company* of the time, making it the very first **Software Engineering** Company. IBM stratified mainly as a hardware vendor. DEC then arrived in the market with its Ultrix brand, a UNIX flavor, and Apple Macintosh computers, in addition, **Personal Computers (PCs)** running DOS and Windows used the DEC Pathworks brand. These systems worked as DECnet end-nodes or terminals on Networks of the early times.

That same year in 1974, **IBM had developed a proprietary networking architecture called Systems Network Architecture (SNA), and put its' resources in full gear with a strong bet on the centralization of internet servers to serve the Global Internet and Wold Wide Web.** It was very similar to the Thin Client / Server-Type Architecture we are more familiar with. Following this new path toward the future for the World Wide Web Internet using Systems Network Architecture (SNA), IBM later improved it to the one they called Advanced Peer-to-Peer Networking (APPN) protocol, which was originally designed to be the Digital Equipment Corporation's "DECnet killer". **The IBM SNA/APPN**

protocol turned out unacceptably complex and extremely expensive especially during system Migrations. *The system was designed around the idea that the internet itself and generally, computing, will be operated and served by large Centralized or "Cloud" system of IBM Mainframe Servers, and offered same way as regular utilities like water and electricity on some type of subscription basis to consumers.*

As IBM's frustration continued with the emerging internet and computing system, having reached the end of the road with it's proprietary SNA and APPN for Global "Clouding of Our Computing", Microsoft emerged in full software power and might, just in time, amidst the imminent world transformation and technical frustrations and confusion with a **new and different paradigm-**the release of Windows NT Servers and Windows Desktop PCs, which solved the challenges at hand, subsequently changing everything in that **ERA**. **The Microsoft Partner ecosystem of Solution Providers apparently stepped in very quickly into that Vertical, providing Custom Solutions, adapting the products to specific company needs for the internet, extranet and intranet, networking, applications and IT Architecture Infrastructural needs, thereby bending and flipping things sideways, making that entire Vertical purely Horizontal.** Shortly afterwards, the *IBM SNA/APPN became completely superseded by TCP/IP (Internet)- The new era had become fully realized.*

The first real TCP/IP-based wide-area network became operational by January 1, 1983. This new network was opened to the commercial interests in **1988**. This was followed by the early web browsers ViolaWWW, and later, **Mosaic in 1992**. *Mosaic begat the early Microsoft Internet Explorer and Netscape directly or indirectly depending on how you really look at it, this was prior Microsoft Internet Browser war with Netscape which started in the mid-90's.* **Today, the [World Wide Web](), the internet itself and all the information on them are served by millions of personally owned, independently owned, commercial, and company managed systems and servers all over the world.** Google by 1998 had indexed 60 million pages on the World Wide Web; stepping in much heavily later with its search technology that gathered information on millions and billions of these systems across the globe, organized them, making it much easer to find information in the internet.

In the 21st century, another new wave of cloud computing solutions and new business models started to emerge mainly as Software-as-a-Service (SaaS). Some were more successful than others, many failed utterly due to either an unprofitable business model and/or other business factors after the Dot-Com Bubble Busted in 2000. Things improved at just a few companies like EBay and Amazon after they implemented better cloud computing right after the Dot-Com Bubble using newer Cloud Architecture.

Recently, back again in 2007, Google, and IBM has pursued this area on a much larger scale. IBM has most recently, in **November 24th 2008** announced a new **[Cloud Computing Consulting and Implementation Services]()** area. The traditional on-premises enterprise software companies such as Oracle, SAP and Microsoft has suddenly found themselves in new war over the method and delivery of business applications to enterprise businesses, with recent SaaS-Powered Cloud Computing Software Business Model; the new SaaS Business Software Vendors like Google and Salesforces.com. This situation has graduated very quickly to a much bigger war over the entire Cloud on all the fronts. **In August 2008**, some organizations began testing and switching some applications from company-owned hardware and software assets to the Cloud, resulting in a certain level of growth in IT products and services in some areas and inversely in other areas. Many start-ups has also done significant work in this area throwing hard punches at Microsoft and others.

While all these are still going on at the present time, some old and newer key players and investors in the area believe deeply that Cloud Computing or "Clouding Our Computing" is the way to go toward the future, and the issue is just a matter of when, others has said that it's a "complete gibberish", while some others completely dismissed it as "a marketing hype campaign." Regardless of the benefits, **the privacy of users, and *business customer/client information, trade secrets, intellectual properties,* data integrity, and security in Cloud Computing has become of increasing concern. The rights of businesses, and users is also a very big issue on their sensitive information stored out there in the cloud.**

With regards to the Cloud Computing, there are still a few issues; things to look at critically, and logically from a strong Business IT and Business Technology future perspective side of things in terms of feasibility, growth and scalability as to how these really work, technically, how they fit into the enterprises, mid-sized, small businesses, and the really small businesses; which direction they are going in Business IT, Engineering and Information Technologies **within** and outside the areas of **Unified IT Architecture Infrastructure**, and **Unified Communications**.

Architecture and Characteristics of Cloud Computing-

One of the biggest drawbacks in adopting new technologies has been inoperability with existing older systems, protocols and databases, thus, the costly migration, upgrade issues and headaches. XML has gone a long way to solve many issues with pulling and extracting external data and information from different types of databases or sources.

In most cases where a business is being left behind, system migration and upgrade has turned out so expensive that it becomes extremely difficult to do, or there is just no way to continue to justify the cost of the project even with the availability of **fully tax-deductible financing**. **Today, we have solution sets available to efficiently Integrate, Connect and InterConnect disparate systems in Heterogonous IT with Telecommunication Systems, into Business processes and Systems Databases.**

The Cloud architecture uses a Service Oriented-Type Architecture of hardware and software systems in the delivery of cloud computing, extending that to the client eliminates the need to install or run applications on the local computer. The local computer utilize web browsers and/or software applications to access the cloud applications made available to them.

Cloud Infrastructure may be considered an "Infrastructure-as-a-Service" (IaaS), that is the delivery of computer infrastructure such as virtualization environment and operating environment as a service. Now, this is one of the many situations where the real Business IT, Business Technology Technical connection shows up too as well, in this type of Unified IT Architecture Infrastructure blue print, a core aspect of the solid foundation building blocks, where the Next-Generation Systems Architecture, Infrastructure and the Domain expertise will come in to play the role that make AnyThing and EveryThing possible, AnyHow they are needed.

The Next-Generation Cloud Computing-

Currently, it seems as though almost every Technology-Enabled Solution, Services and Application will become available alternatively, residing in the Next-Generation "Cloud of the Future".

There are, and will be much more radical combinations of newer business models created in this area, this ERA. Many of the older or existing traditional Managed Services, Hosting and Hosted Solution providers will partner strategically and incorporate into this new direction as *"Cloud Hosting Solution Providers", Hosting* *"Public" Cloud***, providing the Cloud Computing environment.** *While some will be very profitable and successful, others that are less profitable may form a merger, go out of business or get acquired.*

One of the other biggest challenges being the most profitable business model, with not only the right combination of good solution extensions and services, but also that of the radical operational and business model of the organization itself as the extreme stiff competition reaches its ultimate peak.

Microsoft has bought several or most of the biggest more efficient state-of-the-art data centers out there. They've silently built huge cloud system of systems. *End-Users will very likely be offered several services for <u>free, in the form of software, certain applications or online public services</u>, and such. Microsoft has also been handing out unlimited number of domains very freely on Windows Live, so, if any of these free offerings happens to be an area a company makes money and they are not the ones being paid by Microsoft, it becomes obvious what will happen.* End-Users will also get much more flexibility AnyHow they wish to use these services. **This is where one of the biggest differences will be unfolded.**

While Solutions may be built using combinations of Ruby, JAVA, PHP, AJAX and Microsoft .NET etc Development Platforms together. They will however be limited when it comes to **scalability,** and with effective security in place- Technically, it's already extremely difficult to manage, and to do the software Front-End provisioning and back-End Scaling well for a Public Cloud Infrastructure using any Platform. Microsoft is really the one that has a **TRUE Single Directory and PLATFORM** of Server System, Client-side and the Development Tools using .Net and Visual Studio. The Microsoft Core Products and Services include- Office Suite, upcoming Office Web Applications, Groove Servers, the Microsoft Online Services, Active Directory, Office SharePoint Server, Office Communication Servers w/Communicator, BizTalk Server, Exchange, SQL 2008, and Dynamics Application that run on top of them, and the *newer ERPLive.com and CRMLive.com.*

The **<u>Next-Generation Unified IT Architecture Infrastructure</u>** will tie many pieces together. *They'll be easier to manage, most things we currently do manually will become automated with self-healing capabilities, automated backup, easy data restore operations, disaster recovery, scalability, on-demand application capabilities, moreover, preventive maintenance will be built-in.* Many Enterprises, Mid-Sized and Small Businesses will get many options and will enjoy having full CONTROL over their data, and all the information they wish to share or exchange. The option will be available for users or businesses to store local and mobile copies they can carry around, modify and work on online or offline, collaborate, exchange, and synchronize **only** the data and information they want to send to the Public Cloud seamlessly, using AnyDevice. The best, most efficient, reliable and the most SECURE systems has always been, and will continue to be the ones that are much more *<u>Independently Controlled</u>* and *<u>Managed</u>*; the next new generation of PRIVATE CLOUD COMPUTING within the internal Business IT environments.

The Google Apps *free* office productivity tools still has very meager incompatible features and functionality. As of this time, they are not "Futuristic Next-Generation" Unified IT Architecture Infrastructure and **<u>Unified Communications</u> *aware*** applications by default without *laborious* custom software development, programming, services and support normally associated with GNU General Public License Software, unlike Microsoft Office. Google released a newer Google Apps Business Edition in February 2007 which received more attention as large enterprises and the government began to test and to use them as possible alternative to Microsoft Office applications. This has always been the case with GNU General Public License Software, especially, when things slow down in the economy. **Microsoft's *Web Applications for Office*, that's the *Office Web Applications*, will be delivered through Office Live for Consumers, and the Office Web Applications for businesses. In addition to their availability in the Cloud Computing environment, they will be included as additional value to the next release of Microsoft Office Suite. The *Office Web Applications* for businesses will be offered on both hosted subscription basis, and through existing volume licensing agreements; the one that stand in comparison, side-by-side Google Apps. Microsoft has several other areas Google is not a player in.**

While, the Google Apps seem very impressive at moment, wait until you've *properly setup* the Microsoft Solutions Set, seen the Microsoft Web-Based Online Systems; Microsoft's Web Applications for Office, the Office Web Applications, and has properly implemented and used Vista Search, Exchange 2007, OCS 2007, Communicator 2007, with <u>Unified Communications</u>

integrated into its core Unified IT Architecture Infrastructure. One has to EXPERIENCE it- See Microsoft Unified Communications in ACTION.

NEW UPDATE! JUNE 14, 2010 - Office 2010 Live, which launched last week, is a much more functional productivity suite than any of its rivals. "Analysts say the ability to seamlessly integrate physical software with cloud-based applications gives Microsoft a leg up on competitors like Oracle (ORCL, Fortune 500) and Google, which offer a "one-or-the-other" approach". Learn More

Microsoft is expected to release Windows 7 to manufacturing by 2009 or in 2010 to provide an alternative upgrade, thereby encouraging many Enterprises who for hardware upgrade requirements, certain BUSINESS applications efficiency and compatibility issues prefer using Windows XP over Vista. Windows 7 will be ready AnyTime they are ready to enjoy the benefits of a more efficient new desktop Operating System addressing those issues- though the BEST PRACTICE had always been to deploy each current version as soon as they mature to avoid the pain and difficulties with adopting the next new Microsoft OS too early without proper testing, piloting, fixes and ISV support. Windows Vista currently meets the Stability and Relaibility expectations, Computer and Media, Applications and Human Multimedia Multitasking needs of Consumers in those areas.

At the present time, the most equip universities are not able to provide the type of engineering, scientific research and training required to accomplish the type of highly powerful and complex computing bigger corporations like Google and IBM are now famous for; Microsoft has invested much more in such research and development than ever before. Google, IBM and Microsoft will be opening these new large data centers over the Internet. This will help prevent shortage of skills needed for future growth.

THREE of the biggest questions being asked in the Cloud Computing space and race is, and has been-

1. WHO and WHAT is the *TRUE* PLATFORM?

2. Why and How can a "Cloud Vendor" and the "Cloud" be fully *TRUSTed* with *intellectual properties, trade secrets,* business data, employee information, client & customer databases of personal and private information?

3. Will the Cloud System work seamlessly with existing On-Premises Systems, Unified Communications Systems, and other Cloud Infrastructure(s) used in an environment, with the highest level of Security Built-In?

Answer: Microsoft Windows Platform It Is! Microsoft was, has been, and Is It!! Microsoft Simply Gets It!!!
On the Security aspect of the question, or concern, Microsoft understands It, they know how its done- Enough said!

Microsoft platform has been, will always be, and will ever be the **Platform Company it is, on which many applications has been running on top of, used in many ways, and will continue to use.** Amazon Web Services for example, is primarily *a GNU General Public Licensed Open Source Platform*; they offer Microsoft Windows Platform Servers, and Microsoft SQL Database Instances as it does with the Oracle Database application as well. **Businesses and Developers can use any, or combinations of any of them, do custom things in, on and around them. Is the Amazon Web Services a Platform?** In this context, and Business-Wise, the answer could be a Yes. **Technically, it's completely a No.**

Microsoft is marketing the Microsoft Software Applications Services and Platform Services under Software-as-a-Service (SaaS) and Platform-as-a-Service (PaaS) umbrella(s) as Software Plus Services and Azure Services Platform respectively. The Microsoft Azure Services Platform is more than just a Technology-Enabled Service. It's a FULL Blown TRUE Platform offering that partners will integrate to complete an Everything-as-a-Service (EaaS) Solutions set, offering most Technology-Enabled or related services. Is the Amazon Web Services a Brand, yes, it's a Branded Platform Solution, therefore, Amazon is trying to become a Platform, otherwise, it has a purely ReBranded Platform, and a Multi Platform.

Now that we've learned that SaaS, and the rest all run on a Platform, it cannot be overemphasized that in reality- The Microsoft's is the very first and TRUE Complete Platform in the Cloud, where Value Added Resellers, Developers, Specialists, Enterprises, Software Companies, Student Developers; *the Microsoft Partner Ecosystem* **will have a single solid platform to launch so many TOP-NOTCH Ground-Breaking Solid Solution sets which will be connected and synchronized through the** *Microsoft Live Mesh, and/or Unlimited Custom Solutions by Partners, as a part of, within, to and from* **On-Premise Systems, the Cloud, and Mobile, Internal and External Systems, and Devices Seamlessly.**

It's very conspicuous, the opportunities that has arrived laying in wait... The Software Engineering Architectural and Infrastructural Break-Through Innovations using SaaS-Clouding Computing and/or SaaS-Like Technologies, Unified Communications and **Digital Convergence** Business Technologies will continue to happen faster than anticipated. They've become much more robust, more affordable and available to business of all sizes, including the really small businesses and solution providers *in much smaller footprints and packages*; when integrated and controlled using a Unified IT Architecture Infrastructure with Unified Communications Built-In, will create **a most intriguing experience for businesses and customers, than has ever been witnessed in any generation before them.**

Microsoft has been preparing the Platform environment to lunch heavily into these area(s) much more aggressively than ever before, along with its *Partner Ecosystem-* **the Contractors, Consultants, Developers and the Architects who will build the very high level solutions, seamlessly Migrating and/or Connecting On-Premise Systems, Mobile Devices with, and/or, without, or to, the Online Cloud Computing Systems,** *just* **AnyHow your Business IT wants it or requires with CRM, ERP, and** Unified Communications **Systems within an unlimited** Unified IT Architecture Infrastructure, **AnyWhere and EveryWhere they are located.**

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Your Business Pain Points and Challenges,
Your Unique Business IT Needs and Business Technology Future!
Take your very First Step Toward the Future, the Next-Generation, the New-Generation!!**