



Association of Contingency Planners  
Dedicated to the Evolution of Business Continuity

## Garden State Chapter Newsletter

### What does an Apartment complex have to do with Cloud Computing?

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I have had a good number of opportunities to discuss Cloud Computing with colleagues, customers and vendors, and on several occasions we have had reasons to dive in and compare various Whatever-as-a-Service (XaaS) ideas and concepts. Occasionally, someone says "I don't get it" or "how exactly does that work?" and I have often had success when trying to explain various aspects of Cloud by comparing it to an apartment complex.

This comparison seems to intuitively click with people – living in an apartment in a large building is in many ways similar to operating a server on a large Public or Private Cloud Pod in that someone else is entirely responsible for the infrastructure and network, all you have to do is bring furniture into your apartment (and even that isn't necessary with PaaS as we will get into in a bit).

So, let's take a look at Cloud computing, what it is and how Cloud computing may influence your organization today and in the future.

The first thing most people hear when I say Cloud computing is 'yeah, I know, everybody keeps talking about it, but it's all so undefined, I'm not really sure exactly what it means – it's all so... fluffy'

That's where we will start – what is Cloud Computing?

Let's get something clear from the beginning - there's nothing magical or mystical behind Cloud computing – it's CPU, RAM, and disk combined with software and network. There is a physical infrastructure behind every Cloud and it resides in

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### 2013 ACP Garden State Executive Board

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### NEW CHAPTER ADVERTISING SECTION!

*Our chapter newsletter now includes a section for vendor advertising!*

*This month we will feature:  
New Jersey Institute of Technology*

*Over the years NJIT has been a wonderful partner and worthy of the 1<sup>st</sup> entry in our new advertising section!*

**Newsletter monthly features:  
"Emergency Management, Business Continuity, and Disaster Recovery "Tid-Bits"  
& "5 Questions"**

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## ACP Garden State Chapter Advertising Page

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***New Jersey Institute of Technology (NJIT)******154 Summit Street, Newark, NJ 07102. Here is the campus area map on [Google](#)*****“Enroll in the NJIT MS Degree in Emergency Management and Business Continuity!”**

The NJIT M.S. in Emergency Management and Business Continuity is designed to enhance critical skills and knowledge among corporate and public sector professionals working in the area of emergency management and business continuity. The major program objectives are:

- Increase the professionalism of the Emergency Management and Business Continuity field, which is evolving in importance and societal needs, by increasing its presence in academics, research, and professional communities;
- Meet the new policy of the International Association of Emergency Managers (IAEM), which require, an academic degree in addition to just the current four years of experience requirement, beginning in 2010;
- Integrate the areas of Emergency Management and Business Continuity in one academic program, demonstrating how public and private sector-focus activities may be brought to bear in building organizational and community resilience;
- Support the educational requirements suggested by NFPA (National Fire Protection Association) 1600, Standard on Disaster/Emergency Management and Business Continuity Programs (2007), thus putting the program in line with national priorities and best practices and;
- Demonstrate how research innovations may be coupled with current best practices to advance the state of the art and best prepare our students.

**Why study Emergency Management and Business Continuity at NJIT?**

The M.S. in Emergency Management and Business Continuity is managed and directed as an interdisciplinary program by NJIT's Department of Information Systems. A university-wide program committee will keep the structure, guidance and direction to courses, course development, and specialty area development on the leading edge.

***Dr. Michael Chumer******Contact: [chumer@njit.edu](mailto:chumer@njit.edu), Phone #: (973) 596-5484 – NJIT MS-EMBC***

Dr. Chumer is a Research Professor within the Department of Information Systems at New Jersey Institute of Technology (NJIT) specializing in Homeland Security and Emergency Management. He is also a faculty member in the State of New Jersey's Preparedness College, Advisory Board Director of the Business Emergency Operations Center (BEOC) Alliance, and Director of the NJIT MS Emergency Management and Business Continuity program.

Dr. Chumer, as a Homeland Security private sector advocate and subject matter expert (SME), is called upon to provide guidance on collaborative communication models that engage the private sector with the public sector during all dimensions of Homeland Security emergency management. He is a participant in the Highland's Forum a Department of Defense think tank that advises the Assistant Secretary of Defense, Networks and Information Integration. His research focuses on command and control as used in the military and its application to emergency response during multi-agency collaboration such as

experienced in Katrina and the recent Tsunami disasters.

Dr. Chumer has written about command and control and is incorporating that knowledge into command center operations that benefit the public and private sectors during Homeland Security enabled emergency management.

**What does an Apartment complex have to do with Cloud Computing?**

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Let's get something else really clear: The technology and concepts underlying Cloud computing are not new – the business processes in use today are not substantially different than 30 or 40 years ago. Any perceived changes are mainly superficial, enforced by regulatory requirements such as SOX and HIPAA. One of the main concepts making Cloud Computing possible, virtualization, (the logical abstraction of hardware through a layer of software) was first used on mainframes 40 years ago.

The basic idea and role of computing also hasn't really changed much over the last 30-40 years, but it's physical manifestation and capability has changed greatly – think mainframe to iPhone. Those are very large physical changes, but it's still one's and zero's that are manipulated.

What has enabled Cloud Computing is massively increased CPU, RAM and disk capacity as well as dramatically increased network speeds and access, together with innovations and improvements to existing technologies. Add to the mix the ever-present economic and business drivers toward lower cost and higher productivity and it results in a virtual explosion of business models, service models, and new markets, all centered around Cloud computing.

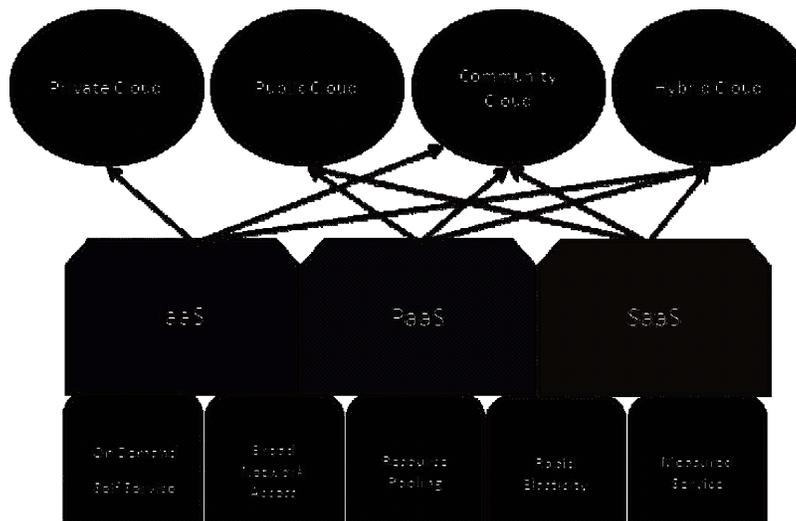
So, let's get some common definitions:

While not perfect (it leaves out some recent concepts such as Big Data and additional "as-a-Service" offerings) the best definition of Cloud Computing I have found is from the National Institute of Standards and Technology (NIST): "Cloud computing is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.

This cloud model is composed of five essential characteristics, three service models, and four deployment models."

The NIST definition is often referred to as the '5-3-4' – Five Characteristics (how does it behave or 'can it do this?'), three Service Models (what are you getting), and four Deployment Models (the ownership of physical resources).

Here's a graphical representation. *Let's discuss them in order:*



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**Essential Characteristics:**

**On-demand self-service.** Allows the customer to expand or contract their resource use without interfacing directly with the service provider's personnel. This ability may be contractually limited and always has an upper limit, although this limit may not be apparent to the customer.

**Broad network access.** Ubiquitous Internet availability is not only an integral part of the Cloud, it is the very enabler of Cloud computing. Broad network access means access by any device (thin & thick platforms from workstations and laptops to tablets and mobile phones).

**Resource pooling.** With virtual and physical resources dynamically allocated based on customer demand, the compute, disk and network resources are pooled, sometimes between data centers. This pooling removes the sense of being tied to any single specific data center, although, as mentioned earlier, at the end of the day, there are physical resources underlying all of this.

**Rapid elasticity.** Related to the concept of self-service, rapid elasticity simply means that resources can be expanded and released rapidly as demand increases or decreases, sometimes automatically. This may make resources appear to be unlimited and available in any quantity at any time. While true for the individual, this is not true for everybody simultaneously.

**Measured service.** 'Buying by the drink' – The service provider meters the consumption of resources (storage, CPU, RAM, network bandwidth, number of accounts, etc.) and bills accordingly. With proper monitoring and control, reports will provide transparency for both parties of what has been consumed and the resulting bill.

**The three Service models** are Infrastructure-as-a-Service (IaaS), Platform-as-a-Service (PaaS), and Software-as-a-Service (SaaS). NIST views them as layered or 'one building upon another' and there is some validity to that, but, as Cloud models evolve, we are seeing multiple "aaS" concepts not fitting within NIST's original definitions such as Network-aaS, Data-aaS and DR-aaS.

**IaaS** – The customer controls the provisioning of compute resources and is able to deploy and run his choice of OS and applications. He can expand or contract the use of compute resources as necessary but all underlying hardware (CPU, memory, disk, network) is owned and maintained by the host.

To better understand this, remember the comparison with the big apartment building I mentioned? That's IaaS. You rent an expandable apartment with flexible walls, but you need to supply the furniture (and get it into the apartment). If there's a fire, you (and, magically, your furniture) are moved to another apartment.

Examples: Amazon CloudFormation, Amazon EC2, Windows Azure Virtual Machines, DynDNS, Google Compute Engine, HP Cloud, iland, Joyent, Rackspace Cloud, ReadySpace Cloud Services, Terremark, NaviSite and Windstream Hosted Solutions.

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***Are you interested in hosting a Chapter meeting at your facility?***

Contact your ACP Garden State Chapter Program Director: Michael Beninato at [michael.beninato@bankofamerica.com](mailto:michael.beninato@bankofamerica.com) for a complete list of 2013 available dates.

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**PaaS** – The platform usually includes an Operating System (Windows, Linux), a programming language (PHP, Perl, C++), a database (MSSQL, MySQL, Oracle) and a web server (Apache, IIS). The most common is a LAMP stack with Linux, Apache, MySQL, and PHP.

PaaS is often used for development and to test applications.

Using the apartment comparison, PaaS is like renting an apartment, but only certain types of people are allowed to live there – 55+, DINKs, singles, etc. If you don't want to live the lifestyle (use Linux for example), you don't fit.

Examples: AWS Elastic Beanstalk, Cloud Foundry, Heroku, Force.com, EngineYard, Mendix, Google App Engine, Windows Azure Compute and OrangeScape.

**SaaS** – Most of us in this room probably already use SaaS. Personally, I use Gmail and that is a perfect example – I have no management responsibilities at all – The hardware, software, backup, etc. is all managed by Google. All I have to do (all I CAN do) is log on and read, save, delete, or create email. Together with no responsibilities goes no power to change or manage the service – it is what it is, take it or leave it, with the exception of a few user-configurable settings.

Quick story - Some of the power of SaaS was revealed to me a couple of months ago. I bought a new Android phone and I got it set up fairly easily. Now, I have had an Android Tablet for a couple of years and I have naturally installed a series of applications on it. To my surprise and astonishment, a few hours after first signing in to my Gmail account on my new phone, all the applications I had installed on my Tablet showed up on my phone. First reaction: How the heck did that happen? Second reaction: Wow, that's cool. Third reaction: Wow, they really do know a lot about me.

SaaS is usually billed per user per month.

So, how does SaaS compare – SaaS resembles a Residence Inn or a corporate apartment – fully furnished, but no changes allowed (you might be able to move the furniture around around...), and, sorry, no – you can't bring your cat/dog.

Examples: Google Apps, Salesforce.com, Microsoft Office 365, Onlive, GT Nexus, Marketo, and TradeCard.

**OK, four deployment models** – Public, Private, Community, and Hybrid

**Public Cloud:** A multi-tenant, publicly available resource, owned, operated, and managed by the data center operator or other 3rd party.

Comparing Public Cloud to the apartment complex, this is the large apartment building where you rent an apartment, but have no ownership or control over the resources. Keep in mind, this is the deployment (ownership) model, HOW it is delivered is the service model we discussed previously.

**Private Cloud:** Used by multiple members or business units of a single organization, a private Cloud may be located on or off the premises of the owner. Ownership, management and operational responsibility may be internal or external.

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You could compare this to a large apartment building with all of the tenants being your immediate family or perhaps a College dorm – owned by one organization and all the users are members of the same organization.

**Community Cloud:** The concept of Community Cloud is that a group of like-minded individuals/organizations (for example, HIPAA & HITECH regulated entities) together build a Cloud service that meets their regulatory requirements. All security and access requirements are tailored to the regulations pertinent to the members, and all members are part of the same group.

Physically, the Community Cloud can be external or internal and can be delivered as IaaS, PaaS, or SaaS.

Think of this as an apartment building where only 55+, Lutheran, Norwegian-ancestry people can be members.

**Hybrid Cloud:** Hybrid Cloud is a combination of any two or three of the previously mentioned types – Public, Private, and Community. A hybrid model can also include a physical presence where one of the Cloud types is bridged to a local physical data center resource or a data center colocation.

**So, to review** – we have five (5) characteristics:

- On-demand self-service
- Broad network access
- Resource pooling
- Rapid elasticity
- Measured service

Three (3) Service Models:

- Infrastructure (IaaS)
- Platform (PaaS)
- Software (SaaS)

And four (4) deployment models:

- Public
- Private
- Community
- Hybrid

What's next? Great question. You do know that, whenever someone says 'great question', it means they have no clue? I don't have a clue either, but I will hazard a few guesses anyway.

As I alluded to earlier, although the NIST definition is less than two years old (finalized in September of 2011), in some ways, it's already outdated in its definitions of the service models. While some of the new 'XaaS' concepts can be viewed as vendors simply slapping an 'aaS' label on a pre-existing service, there are truly new services developing.

Because of the idea used by many organizations of "buy the base, rent the spike", one newer development is Multi-Cloud management. The "buy the base, rent the spike" idea says that, for the workloads you KNOW you will have, you should own the assets, but with easily accessible burstable resources available via service providers. This can then lead to one organization having:

- (1) A Private Cloud in their own data center
- (2) A different Private Cloud in a service providers data center
- (3) A Public Cloud presence
- (4) A development Cloud with a PaaS provider
- (5) SaaS, such as SalesForce.com
- (6) Physical servers.

How does the IT department keep all this secure, yet still usable, and how do you keep track of the economies of these various Clouds and physical assets. Look for a lot of development in this area from players such as Scalr, RightScale and others.

Also look for development of standards for various types of Clouds, thereby allowing cooperation between Clouds. Today, every provider builds their own, but not to a specific standard, so your experience is different from provider to provider. With standards, some Cloud Computing will become commoditized and the prize will come down, allowing for even deeper adaptation.

OpenStack is one such development. With more than 150 vendors joining in the development of an Open Source management dashboard and portal for an IaaS deployment across large pools of CPU, memory and Storage, OpenStack is one attempt at building standards across multiple vendors. OpenStack is primarily built on Linux.

Cloud Brokers is also a new development. By inserting themselves in the middle, between the customer and the provider, the Cloud Broker functions much like an insurance broker and create and maintain relationships with multiple Cloud suppliers and help customers choose the best combination of price, service and SLA. They assist customers by aggregating multiple Clouds and deliver them to the customer with additional value-added management features, like a Cloud of Clouds.

What you really need to know about Cloud Computing is how people work in or with Cloud computing; Cloud computing brings opportunities and change, both at work and at play, and you should be prepared for the future by understanding the framework within which these opportunities will present themselves. And becoming best friend with the Superintendent of your apartment building can also be very helpful.

You never know when you need a favor!



***Article written by:***

***Morten K. Mikkelsen [morten.mikkelsen@windstream.com](mailto:morten.mikkelsen@windstream.com)***

***Our Chapter wants to thank Morten for this excellent and timely article!***

***Our Next Chapter Meeting Info:***

Next Garden State Chapter meeting is **May 7 at Princeton University, 11:30 am – 2:30 pm.** Robert Mattes will speak about Notification Systems & best practices, and Frank Leonetti, ACP Corporate Board of Directors will speak on Corporate News for 2013.

***Our Newsletter Needs Your Story!***

Whether you are a Garden State ACP member or a vendor to our ACP Garden State community, we are looking for your input. If you have experiences, lessons learned, or have been through a DR/BC situation and have a story to tell, please share it with the rest of us. Even if you are not the greatest writer in the world, don't fret; the newsletter editorial staff will gladly massage your missive into something memorable. Photos are welcome too.

Don't be shy – it's your newsletter – and it's a great way to participate in our Chapter. And best of all – you qualify for continuing education points for your certification requirements

Email all items to Bernard Jones: [bernienj@hotmail.com](mailto:bernienj@hotmail.com)

***Welcome, New and Renewing Members!***

Please join us in extending a hearty welcome to new and renewing members!

Let's extend a big "shout-out" to the following new or renewing members for their continuing commitment to our stellar network of continuity professionals here in the Garden State:

**Rehm, Roger; Beninato, Michael; Czapor, Francis**

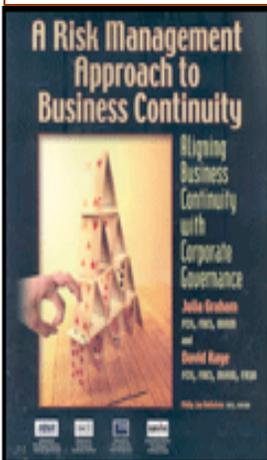
Renewals may be performed via the corporate website:

<http://www.acp-international.com/index.php/membership/join-now>

***Book of the Month***

Each month we plan to feature a book/publication within the field of Disaster Recovery, Business Continuity, or Emergency Management.

If you would like to offer suggestions for an upcoming book to feature, please contact Bernard Jones – Publications Director: [bernienj@hotmail.com](mailto:bernienj@hotmail.com)



**Title:** Risk Management Approach to Business Continuity: Aligning Business Continuity with Corporate Governance – 1st Edition

**Written by:** Julia Graham, **ISBN13:** 978-1931332361, **ISBN10:** 1931332363

**Summary:** This book is a must read for those senior managers, risk managers and continuity managers who have the vision to see both the new opportunities and the new responsibilities of business continuity management.

"This book... provides clear guidance supported with a wide range of memorable and highly relevant case studies for any risk manager or business continuity manager to successfully meet the challenges of today and the future." Steve Mellish, FBCI, Chairman, *The Business Continuity Institute*.