

Porting Your Applications and Saving Data In Cloud As Reliable Entity.

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Abstract: *The main purpose of the paper is to illustrate the importance of a reliable service in the meanings of cloud computing. The dynamics of an organization shows us that porting customs applications in cloud can makes the difference to be a successful company and to deliver what the client need just in time. Every employ should be able to access and enter data from everywhere. Remember that the office is moving along with the employ nowadays. But this concept comes with disadvantages of how safe is your data if you cannot control exactly, by your employs, those machines.*

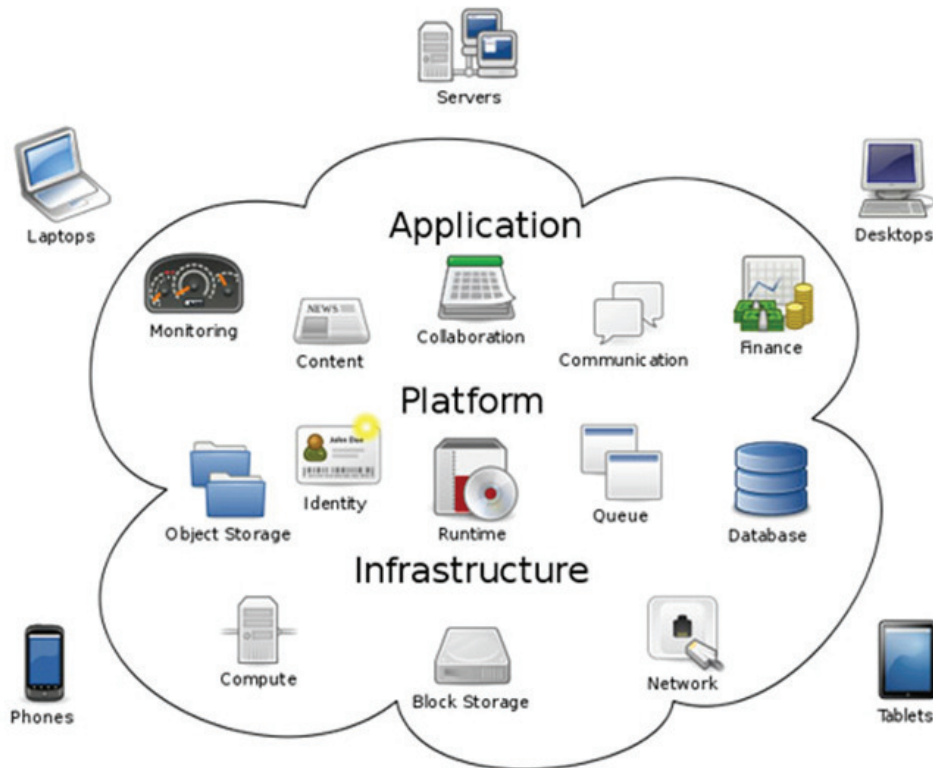
Key words: cloud computing , reliable cloud technology

Today is obvious that a business means to be able to deliver what a client needs any time anywhere.

To be online today is not anymore a utopy but certainty. The concept of being online applies also to individuals and to companies.

If you as a company cannot deliver in time what a client needs, tomorrow someone else would do. That means that an employ should be able to access company's data from everywhere and from any device. Porting everything to cloud is the solution to that.

Fig. 1 Cloud Computing

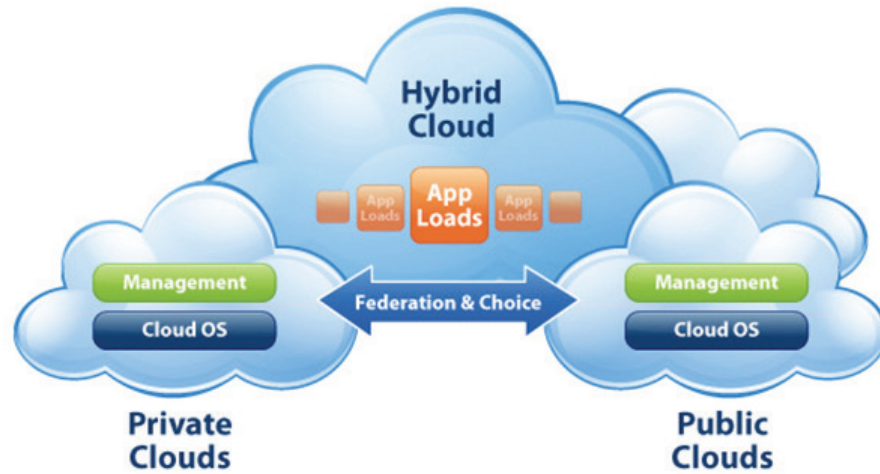


http://www.aecbytes.com/viewpoint/2011/issue_61-images/fig1.jpg

As Bogdan Ionescu said (2013) the deployment models of cloud architecture are the following:

- ▶ Private cloud - is owned by a private or rented organization. Its functionality is not exposed directly to the customer. Example: eBay.
- ▶ Public Cloud – the cloud infrastructure is accessible to the general public or a large industry group and belongs to a cloud service provider (Zissis and Lekkas, 2010).
- ▶ Examples: Amazon, Google Apps, Windows Azure.
- ▶ Community Cloud - In this case, the cloud infrastructure is shared by several organizations and supports a specific community with common concerns (Zissis and Lekkas, 2010).
- ▶ Hybrid Cloud – the cloud infrastructure is made up of two or more clouds that remain unique entities but are bound as the standard and proprietary technologies that enable data and application portability.

Fig. 2 Public Cloud, Private cloud and Hybrid cloud



<http://www.virtualizationpractice.com/wp-content/uploads/2013/04/Hybrid-Cloud-Computing-Solution1.jpg>

Today everything is moving into cloud. You move your personal data, company data just to be able to be more efficient, to be able

to access quickly your work. Everything is moving fast and you should be able to do so.

Fig. 3 Every device should be able to access same data from cloud

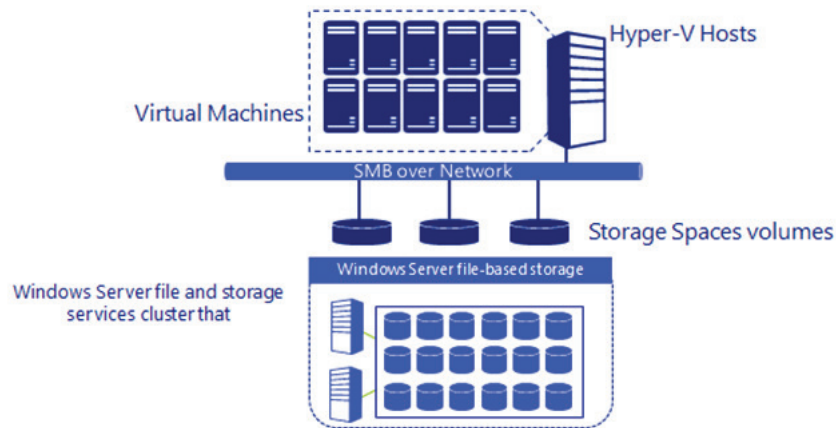


<http://vlifeimedia.com/wp-content/uploads/2012/01/vlife-reliable-cloud-hosting.png>

These days when everything is stored online on a server a real disaster recovery plan should be a must for every network

administrator or cloud server file administrator. A new vision form private cloud storage is needed.

Fig. 4 Private cloud storage



http://blogs.technet.com/cfs-file.ashx/___key/communityserver-blogs-components-weblogfiles/00-00-00-41-57/8345.A-New-Vision-for-Private-Cloud-Storage.png

From my experience I would say that the first step is to prevent and then to make a detailed backup plan and a restore one too.

Data losses can happen any time due to many reasons and we have to manage that paper plan is not always equal with real plan:

- We can have accidental data loss
- We can have intentional data loss
- We have to deal with small buget for components and not an ideal one etc.

I have to say that we have a few causes and I have discovered from my previous experience that this causes can be:

- electrical / power problems;
- failure of devices;
- bad coddig
- Database bug's etc.

a) electrical / power problems that can be avoided

I our country every issue about power supplier is a closed one because is just one supplier and we just do not have an alternative and usually when we encounter such problems the results are devastating.

Just a few years ago a mail server that I usually maintain just burn out because of

a big overvoltage. The UPS and mainboard were fried.

After a few days (after I have replaced the components and the server was working again) I have tried to find an assurance company to have all the equipment assured but from 11 companies none of them could make an offer for electrical problems generated by supplier. The conclusion was just annoying: No one takes responsibility due to power failure. All must be done by lawyers, court law suites and time just could be extended for years until something is done.

All I could do in an environment where "time is money" was to separate the problem in two stages and deal with both of them:

- 1) problems generated through power cables (220v);
- 2) problems generated through small curenets cables (UTP).

For the first problem the solution was to install a good automatic voltage regulator (Fig. 5) doubled by powerful Uninterruptible Power Supply (Fig.6). For these I have chosen APC products like:

Fig. 5. APC Smart-UPS 1000VA



Fig. 6. APC Line-R 1200VA Automatic voltage regulation



For the second problem I have to say that for UTP Ethernet stable connections at

1 Gbit/s I used also an APC product (Fig.6) :

Fig. 6. APC APC ProtectNet standalone surge protector for 10/100/1000 Base-T Ethernet lines



b) failure of devices

For this type of failures I have encountered only problems with magnetic storage devices like hard drives. The others components were stable in time (remember that we have server components where the quality and control process is very reliable).

The first thing to do is to have a server managed with mirror RAID 1 enabled (Fig. 7) , doubled by enterprise hard disk in SAS technology.

I have chosen RAID 1 as a solution because if we have problems with one hard drive we have just to change it and reconstruct the

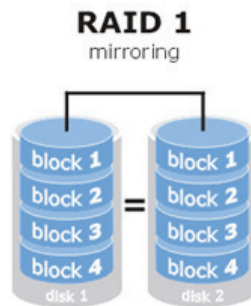
RAID matrix before everything is back as it was in no time.

I have to say that these HDD's proved to be the most reliable on the market and the warranty of 5 years is all that we need for the moment.

c) bad coding

The problems generated by any code of a certain application are hard to find and can be eliminated only in time. For this type of errors the solution is to have strict back-up of database and to update that application as quick as the resolving patch appear.

Fig. 7. RAID mirroring diagramme



d) Database bug's

Database platforms are quite often improved by new general release or by small patches. A successful database on linux world is MySQL that is quite secure and reliable.

The patches of the distribution must be installed on a daily bases to have a secure system.

Four layers of back-up

In a real time server environment based on Linux if we discuss about back-up we have to talk about a plan for every layer that is needed to be managed in order to have a full working server.

In real life I realized that the layers can be grouped as:

➤ Operating System of server with particular configuration files for every service/ server system

➤ Database files

➤ Web Application files

➤ Log files

Conclusions

Prevention is the most important thig that can be done in an server environment. If a disaster appear only the back-ups can save the work of hundreds of people.

The results are quite encouraging because the production server of the customized cloud ERPs and private cloud storage are increasing and disasters should not encounter.

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