SMPTE Meeting Presentation

Moving High to Cloud

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What is it about?

Technology is moving from the traditional tape to file and from file to cloud but, how can you manage your private cloud? What is changing in the cloud and why it is better, is it because it's easy to learn?

Technology is running, everyone in broadcast are familiar in using some 'boxes' as VTR, Converters, Video servers ,Transcoders, but the world is moving to Cloud. Cloud is a virtual space where there is no physical file or device, everything is connected to give you the best.

An example can be YouTube, when you watch a video in YouTube, you are not only looking from single location. You can view from multiple locations chosen to give you the best performance. YouTube is designed to improve performance, reliability and speed. But those functions are the same that every broadcaster has. Every broadcaster wishes to design a system that is faster, more reliable and more powerful.

What is Cloud Computing? It can be simply defined as, **"Cloud = Internet, so this means Cloud Computing = Internet-based Computing."** In a more precise definition, Cloud computing is mainly using information technology as a service, having services that are available over a network, using encapsulated services that have an API, adding to the efficiency for deploying application and billing by consumption.

There are several cloud Service Models. The solutions are ranged in category from course to fine grained, with the potential for course-grained solutions to be made up of fine-grained resources.

The most common solutions are:

- Software as a Service **(SaaS)**
- Platform as a Service **(PaaS)**
- Infrastructure as a Service **(IaaS)**
- Storage as a Service **(SaaS)**
- Database as a Service **(DaaS)**

There are also different Cloud Delivery Models which is:

1. **Public**
   - All information access is housed in the public domain.
2. **Private**
   - Uses cloud technologies to expose services across a private enterprise.
3. **Hybrid**
   - A combination of public and private services.

Issues and concerns

1. **Public**
   - How can the content be safe if it's in a public place/space?
   - Who will have the Data Ownership?
   - ***Availability*** – "My access to the cloud which is composed by several blocks that needs all the work to deliver the data."
   - ***Price*** – "Cloud has a rental fee, all the Capex expenses will be converted to Opex. The cost can be less expensive during a short rental period but, it can be increasingly expensive during a longer rental period."
2. **Private**
   - Does not have all the concerns as stated in "Public".
   - Can deliver a better bandwidth.
   - But not connected to the world.

In conclusion, that is why the best for a broadcaster is a Hybrid cloud where security, availability and bandwidth are not a problem, but also the connection with the rest of the world is as easy as it gets.

There is also an important note when you go on cloud model. Should there be a situation when you forget where the file is located, filename, or folders of physical file location, as it happens in Youtube, this is hidden to the user at the other end. You will then only have a GUI to perform your operation. In the GUI, you can do what you wish. You will be able to import, export transcode, give properties and metadata. The intelligence on the back of your GUI will execute with the best performance and according to the company directions.

When you upload to a Cloud system the file that disappears will automatically direct access and that is when your workflow starts smoothly. Cloud is better because it is safer there is no direct access to files, no illegal copy, and no management error causing it to be much more faster, the system will always choose the best path.

Other advantages include:

- Less expensive
- Allow multiple vendors
- Multiple technologies can be easily used
- It is easy to upgrade
- Hardware upgrade do not change user operation
- Easy to learn

The procedures are self-guided and no special skills are required. Cloud systems will be the best sellers in 2015-2016. Cloud systems also need a more efficient interface.

I heard a lot about drop folders. They seem to be the basic of file based system but I never heard about a Tape drop bin, which is a place for an individual to drop a videotape, and wait for it to be collected by another person. Probably you have a drop folder only because your system is still primitive and it's not able acquire most of the today technologies.

As of right now, you must use Web Services. So what is "Web Services"? Web services are a platform independent way to exchange data using XML. They are components of business logic that can be accessed over the Internet. They are a way of re-using someone else's logic without re-creating it yourself.

Why use "Web Services"?

1. **Simple**
   - Easily supported on many platforms
2. **Loosely Coupled**
   - The interface can be extended and new methods added without affecting clients as long as old methods and parameters are still provided
3. **Stateless**
   - When a request is being made, the result is returned immediately and the connection closes, no permanent connection

When "Web Services" are more appropriate

- For applications which must be interoperated over the Internet with other applications and, possibly, they did not originally supposed this.
- For applications which cannot be designed, implemented and evolved at once as one piece
- For applications with different parts run on different platforms and are owned by different persons/organizations
- For applications which need to be exposed for use over the Internet and, possibly, were not originally designated for this and where scalability, security, etc. need to be ensured

"Web Services" use SOAP Simple Object Access Protocol. http://www.w3.org/TR/soap12-part0/
This is a protocol for inter-application communication it is the standard protocol for communication with "Web Services", it is easily extensible and ideal for quickly evolving Web Service technologies and its design overcomes differences among proprietary heterogeneous peers.