

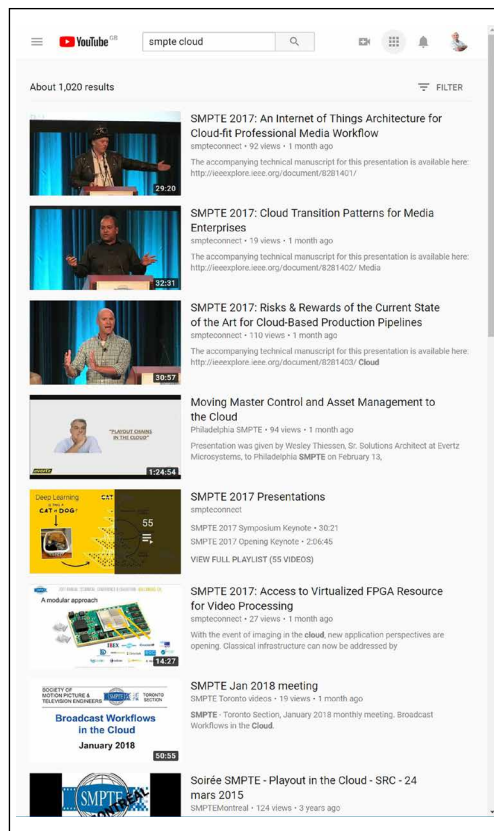


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Cloud

Whether you think the first cloud computing was a concept from the 1960s, the launch of Salesforce.com in 1999, the launch of Amazon Web services in 2002, or Sun Utility computing in 2006, it may be interesting to ask, “Why has it taken a decade for cloud to become a key component of the media and entertainment industry?” It will come as no surprise that the key factors, as always, are bandwidth and storage.

In the early days of cloud, there were worries about security and reliability. Today, it is the cloud companies that are leading the world in reliability and security. In the early days, the concept of remote and distributed file storage¹ management was a seemingly insurmountable problem, yet today the concepts of object store² and data replication as a service seem common place. In the early days with Gigabit Ethernet as the main carriage



of their operations in a cloud-type environment. Data center operators are very accommodating to media companies that need to connect specialist equipment that is hosted either in the data center or on-premise. With the rollout of professional media over IP standards (SMPTE ST 2110) gathering speed, it is clear that the equipment for future broadcast events is likely to be distributed across many physical sites from stadiums to data centers to broadcaster premises. Cloud-based operations give versatility and flexibility that is just not possible with traditional serial digital interface and media center designs.

Scripted content and archives are also reaping the benefits of cloud-based operations. With formats like the Interoperable Mastering Format (SMPTE ST 2067) and the Archive eXchange Format (SMPTE ST 2034), using ID-based techniques to link objects, they are, by design, intended to scale in the way that a mature cloud-based environment would encourage.

SMPTE’s website and YouTube channel have many stimulating and engaging presentations from SMPTE Sections and events on the topic of cloud. Take an hour or so to listen to the real experts in the field by googling “SMPTE cloud” or “SMPTE cloud YouTube.” You won’t regret it.

technology in data centers, moving ultrahigh-definition (UHD) video would have been prohibitively expensive. Today, 25- and 100-Gbit backbones with a software defined networking layer on top mean that virtual networks to move UHD can be created and torn down dynamically via software.

Given the power and flexibility that Cloud computing offers, it is no surprise that many broadcasters and facility houses are moving away from owning their own media-specific data centers and putting much

¹Traditional file storage where files are stored in hierarchical folders on volumes of predetermined sizes. A limited set of metadata is provided in the form of permissions, access control lists, filenames, links, etc., and becomes unwieldy in big file systems. The file path and its physical storage location are often tightly associated.

²A metadata-driven flat storage structure where objects are located via unique IDs. The metadata can be customized and object metadata can be used to give the appearance of a traditional file system with sophisticated sharing functions. Very scalable. The file URL and its physical storage location are very loosely coupled giving more flexibility on how the system is physically built or upgraded.

