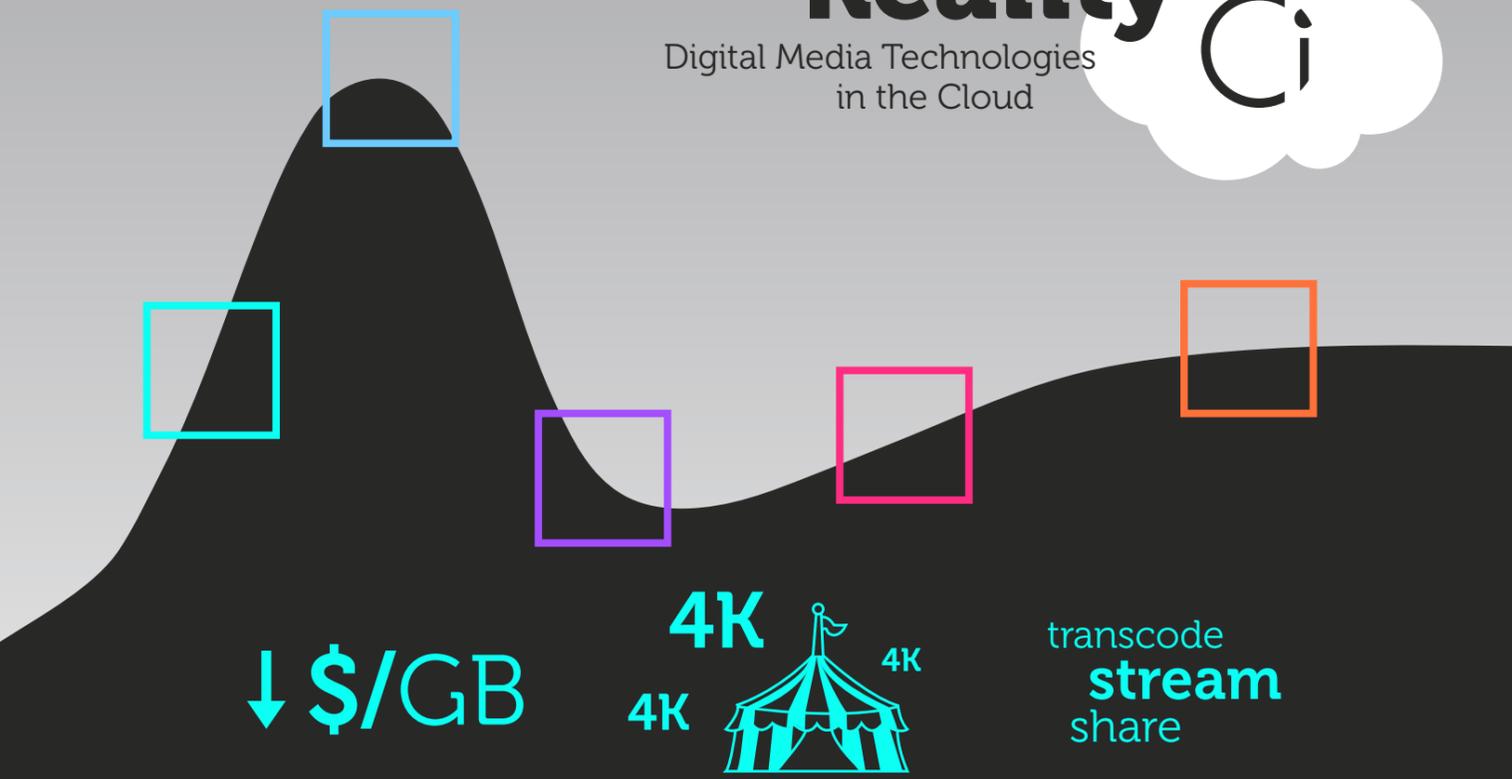


# From Hype to Reality

Digital Media Technologies in the Cloud



## Technology Trigger

Though there have been significant reductions in the cost for cloud storage, the amount of media creative professionals generate has exploded creating a disconnect between creative needs and cloud efficiencies. For example, a single tent-pole feature can generate up to several petabytes of raw media – particularly with 4K and high frame rate shoots. Add the need to transcode, stream, and share content with teams around the world and you're looking at significant storage and content processing requirements. When you add this explosion of 'big digital media' with the unpredictable requirements surrounding content processing, you get two significant drivers guiding the maturing of enterprise scale public cloud services, which aim to leverage economies of scale and effectively create cost-effective, metered and turn-key storage and processing solutions.

Other major triggers that have led to increased expectations of the cloud include 'rapid scale-out' because it is not limited by fixed infrastructure capacity and lengthy new hardware purchase/installation lead times, and 'Capex containment,' which offer media professionals and their financiers the benefit of tying opex directly to the time-boxed media project rather than having capex investments tied to amortization over several projects.

Another trigger involves hybrid clouds, which have been touted as a way for larger organizations to balance private and public infrastructure requirements. These solutions offer many benefits like extending fixed private infrastructure capacities to public clouds for overflow, though the complexities of integrating private and public data centers are nontrivial and expectations are not always met.

transcode workflows



bandwidth



## Peak of Inflated Expectation

The hype of cloud has led to many over-inflated promises. Digital asset management solutions have matured, offering new capabilities for media professionals while growing expectations. Basic transcoding workflows are now commonplace while complex workflows with human interactions have barely met intended expectations. Most cloud capable asset management solutions and complex processes have yet to yield 'easy-to-implement' user definable automated media workflows.

High bandwidth connectivity has not kept pace with the exponential growth of media transport requirements. Certain cloud providers are facilitating expensive and unreliable access points via dedicated circuits directly between the cloud data center and end user. Technology advances and the maturation of UDP-based transfer technologies have dramatically helped overcome latency and allow for greater bandwidth utilization. Proxy-based workflows provide workarounds to better enable use of media cloud services.



private infrastructure

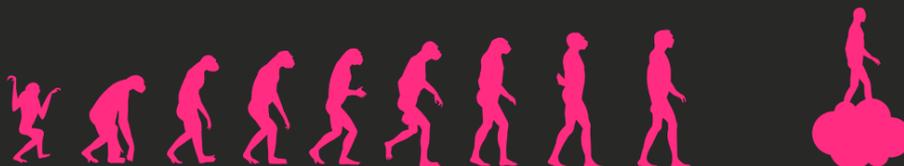


outages



## Trough of Disillusionment

Cloud providers are not immune to the realities of infrastructure outages. Private cloud infrastructures can be cost-prohibitive and redundant, and do not necessarily enhance media cloud services availability, so the burden of progress often falls on software architects to establish fault-tolerant designs. These complex media solutions often rely on various third party services, which are not always 'cloud-ready', but it is merely a matter of time until they find their way there, requiring changes in business models, requirements and licensing arrangements. Data privacy requirements, especially in Europe, are becoming increasingly more difficult to accommodate without legal provisions, and/ or physically co-locating media in a geographically specific location. Certain large cloud providers are extending their geographic footprint to circumvent these challenges, however architecting solutions that adapt to geographically dispersed infrastructures is critical.



## Slope of Enlightenment

Sophisticated content processing vendors have become more prevalent, rapidly porting their applications to cloud and shifting revenue models from 'licensed based' to 'metered hourly or transaction-based utility services.' Cloud-based parallel content processing is becoming a valued service well suited for media cloud services. Experimenting with PaaS (Platform as a Service) for digital media, large public cloud providers are beginning to offer practical utilities to media solution providers. Most of these offerings are limited in functional scope, but are rapidly evolving into robust, well-rounded solutions. One drawback that should be accounted for when adopting a specific cloud vendor's offering is that media providers become dependent on PaaS vendors' solutions.

SaaS  
IaaS



geo-redundancy  
optimized streaming  
content delivery networks



## Plateau of Productivity

Most media professionals more broadly accept SaaS for managing their digital media workflows. Now IaaS is maturing and gaining acceptance amongst many media professionals with most large studios utilizing or actively planning to integrate a form of IaaS. Geo-redundancy and optimized streaming are direct beneficiaries of IaaS and PaaS. Large consumers of digital media look to geo-redundancy storage for cost-effective media back-up and disaster recovery strategy. Integrated CDN offerings from IaaS and PaaS vendors have become more mainstream broadening CDN applicability to media professionals interested in B2B offerings.