



# Where Do We Go From **Here?**

Making Informed Decisions about Tech &  
Workflow to Carry Broadcasters Forward

**DELL**Technologies

**tvtech**



# Executive Summary

**T**oday's opportunity for TV broadcasters and other media enterprises to set a new direction for their workflows rivals, and arguably far surpasses, the scope of workflow changes ushered in decades ago when film gave way to videotape.

Once again, technology is driving workflow change. IT and IP technology have fueled a migration from single-function black boxes in equipment racks tied together via a collection of video routing switchers, patch panels and SDI cables. As more of these technologies near their end of life, broadcasters and media companies face growing pressure to set a new course in pursuit of greater efficiencies, improved productivity and cost savings.

Frequently, the public cloud is where virtualized workflows that emulate those commonly used in an SDI-based facility are cited as the best, or inevitable, alternative to on-premises single-function technology. However, there is much to consider

before moving to the public cloud.

This white paper examines:

- The frequently cited benefits of full adoption of public cloud hyperscalers and virtualized workflows;
- Six myths and misconceptions around the public cloud hyperscalers in media applications;
- Hidden drawbacks, such as ingress and egress data charges and loss of data sovereignty;
- The availability of OPEX-based technology and workflow strategies outside of the public cloud;
- The strengths of on-prem, co-lo and private clouds for media use; and
- Solutions from Dell Technologies that offer broadcasters a strong alternative to the all-in approach of traditional public cloud offerings, presenting true multicloud and private cloud capabilities.

# Introduction

**T**elevision technology and the workflows typically used throughout the entire content delivery chain, from ingest to distribution, are in the midst of a dramatic transition.

Where once a collection of standalone hardware devices, each dedicated to one or two tasks, was tied together with serial digital interface (SDI) connections and separate workflow islands emerged, commodity computers, routers, switches and other technologies have presented a smart alternative to broadcasters and others in the media and entertainment industry.

Today, signal transport solely based on one of the many uni-directional SDI standards is giving way to digital video, audio and metadata that are shared among computers and servers across LANs and WANs via IP standards and protocols such as SMPTE ST 2110; the Secure, Reliable Transport (SRT) protocol; and the Network Device Interface (NDI) protocol.

This is no mere technology refresh, however. Rather, the transition to commercial-of-the-shelf (COTS) IT and IP transport in media is having a dramatic effect on how content is made and distributed, breaking down workflow silos and in the process enabling far greater collaboration with creative colleagues, removing geographic barriers and promoting far greater efficiency.

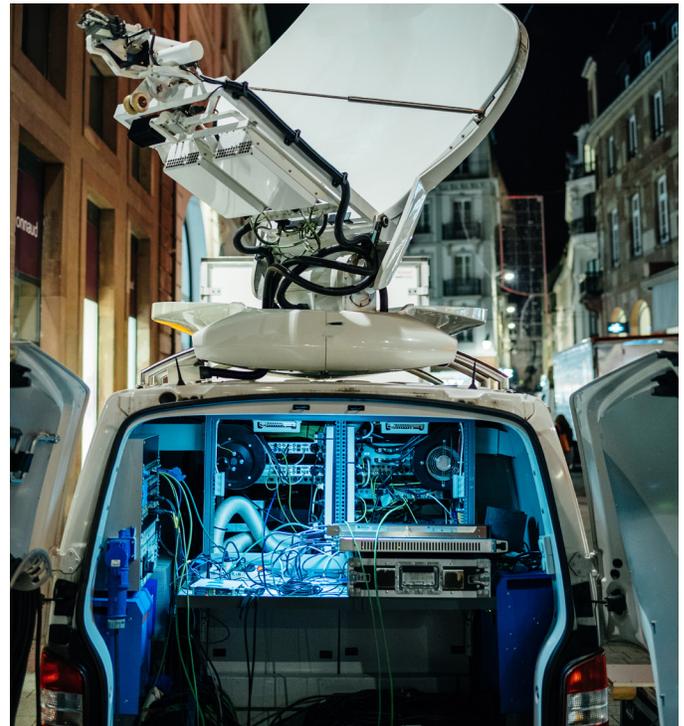
Broadcasters, like other M&E enterprises, find themselves between technology extremes. On one side, there's the tried-and-true SDI architecture with expensive, standalone video and audio routing switchers, production switchers, control-room switchers and all of the workflow island technology needed to maintain operations in a familiar way. On the other side is the virtual equivalent of most all of these devices running as software defined, virtualized infrastructure – perhaps in a public cloud hyperscaler. In between is a range of SDI and IT hybrid workflows on site and private cloud deployment in an on-prem or co-lo datacenter.

The allure of a full transition to virtualized operations in the public cloud is well-known. The public cloud enables OPEX-based operation with a pay-as-you-go business model rather than a capital spending intensive strategy based on a stand-alone SDI approach. The public cloud also offers fast and easy scalability in compute, as well as resiliency that's not practical or possible with the traditional model. There's even the opportunity to scale back the physical footprint of a TV station, network or other M&E facility, making it possible to realize savings on real estate, insurance, utilities and other associated expenses.

However, there are equally good reasons to tiptoe forward, wringing as much use and value out of in-place technology as possible while making a gradual transition to on-prem or pub-

lic cloud-based IT alternatives. At this point, there is no reason for broadcasters and their media peers to choose between an on-prem SDI or SDI-IT hybrid architecture and a dedicated public cloud hyperscaler. Broadcasters and other M&E enterprises do not have to go all-in on any one public cloud provider – or leverage the public cloud at all – to achieve their operational goals and vision for workflows.

However, it's important for broadcasters and others looking to transition to the public cloud, to understand common myths and misconceptions. Only then can media organizations consider the cloud in the context of a comprehensive strategy, make an informed decision, and realistically set expectations to avoid pitfalls and leverage the cloud in a sustainable way.



---

*“Tip-toe forward wringing as much use and value out of in-place technology as possible while making a gradual transition to on-prem or public cloud-based IT alternatives.”*

# Public Cloud Myths & Misconceptions

**B**efore making a full transition of media workflows to the public cloud, broadcasters and other media enterprises should be aware of several myths and misconceptions.

## **M&M NO. 1: ULTIMATE REMOTE WORKFLOW ENabler**

If the pandemic has had any silver lining for broadcasters and other M&E companies, it would be as an accelerator for adoption of remote media workflows, such as Remote Integration Model (REMI) production for live sports, news and other programming. The next logical step in these REMI workflows for many appears to be a move from brick-and-mortar production centers to virtualized equivalents in the public cloud.

However, it's clear that it's not the public cloud that is making the evolution in REMI possible but rather the ubiquitous availability bandwidth to transport live camera feeds and large media files from locations such as sports venues, contributions from reporters in the field and user generated content.

The same virtualized production tasks that are sometimes deployed in a single public cloud hyperscaler could just as easily be done in an on-prem datacenter with traditional production technology or in a truly multicloud environment, thereby enabling media organizations to extend the life of their existing technology and allowing tactical use of multiple public cloud providers.

## **M&M NO. 2: ONLY PATH TO OPEX**

Broadcast management may seek to use the public cloud to extract their organizations' workflows from the seemingly endless cycle of expensive capital outlays, ongoing spending for maintenance, the cost of service contracts, end-of-life depreciation and technological obsolescence only to be followed by a rerun.

The public cloud hyperscalers may appear to be the only avenue to an operational expense-based business alternative where a media company pays only for the compute and storage it needs at any given moment. Breaking free of the CAPEX approach, it is commonly thought, will save money and reduce all of the expenses associated with maintaining that investment.

However, there's another path to realizing the benefits of an OPEX strategy. Dell Technologies APEX is a good example. It offers flexible compute options that enable organizations to realize the benefits of an OPEX-centric business model while avoiding issues that arise with storing valuable media assets in the public cloud.



## **M&M NO. 3: EXCLUSIVE PATH TO AI/ML**

New media tools enabled by artificial intelligence algorithms and machine learning are transforming media workflows and making content more valuable. For instance, speech-to-text algorithms are driving automated closed captioning and enriching metadata, with long-term consequences for making other media workflows more efficient. On the business side of the media equation, AI-driven data analytics power recommendation engines for VOD-based OTT services and ad decisions and placement for linear platforms like television.

These tools, which can easily be deployed in the public cloud, fuel a desire among many broadcasters and media organizations for cloud adoption. The danger lies in painting the public cloud-AI/ML canvas with too broad of a brush.

Inevitably, one public cloud vendor will offer a function driven by a specific, desired AI/ML algorithm while another desirable algorithm driving a different function is only available from a separate public cloud vendor. This can erode potential efficiencies and lead to higher costs due to data being shuffled between multiple public cloud services that each charge their own egress and transaction fees.

A sounder approach may be to retain control over media assets by storing them in cloud-adjacent capacity and strictly control when and where data may be accessed by any of the hyperscalers for desired AI/ML media processing – retaining ownership and data sovereignty.



### **M&M NO. 4: THE ULTIMATE DISASTER RECOVERY AND BUSINESS CONTINUITY SOLUTION**

Given recent ransomware attacks on broadcast organizations and the ever-present, yet-unpredictable threat of natural disasters such as tornadoes and hurricanes to TV station operations, broadcasters are more aware than ever of the need for an effective disaster recovery (DR) and business continuity strategy. Many view the public cloud as the perfect solution.

Data stored by a public cloud vendor is off-site in secure locations — even underground — safe from most physical threats. Further, the billions of dollars tech giants are spending on cybersecurity is well beyond any sum a broadcaster could hope to match.

While completely true, that's not the entire story when it comes to the public cloud and DR and business continuity. Media data is vast, continuous and unstructured, not neat and tidy like a spreadsheet. Public cloud backup of the sheer amount of unstructured data a media organization generates daily is a Herculean task. Retrieving it from that storage in a timely way to recover and maintain operations is simply not possible.

What is doable is implementing strategies like permission-based data access and passwords on-site to protect against cyberattacks. Tools outside of the public cloud, such as those from Dell Technologies, offer another level of protection — from AI-monitored log-in and data use activity to air-gapped backup.

### **M&M NO. 5: ONLY LOGICAL MIGRATION SOLUTION**

Every month TV station groups, local stations and other M&E organizations grow nearer to the end-of-life of their racks of standalone SDI-based technology. As they reach the end of their depreciation schedules and useful life of various technologies, the pressure grows to decide what comes next.

As conveyed in the CAPEX versus OPEX discussion, many with management responsibilities for media organizations are looking for a way out of the capital-spend cycle, and public cloud hyperscalers appear to offer the perfect alternative where pay-as-you-go pricing is available.

However, public cloud hyperscalers aren't the only pathway to OPEX operations. Dell Technologies offers a range of solutions to fulfill media organizations' desire to transition to an OPEX model and accomplish the same goals without sacrificing sovereignty over their company's data or locking their business into a given public cloud vendor.

### **M&M NO. 6: THE CURE FOR HIGH-PRICED REAL ESTATE**

Being off-premises, the public cloud appears to be the perfect solution for media organizations looking to reduce their geographic footprint. Eliminating hardware, machine rooms, environmental controls and shelves upon shelves of tape, disk and film libraries by relying on compute and storage in the public cloud is an understandable aspiration.

However, there is another side to this story. Even if a TV station wants to downsize its footprint, it is unlikely that it will wish to undo its local presence entirely — even in a high-priced real estate district, such as downtown. A station is part of the community, and visibility is key. So, jettisoning its studio is likely off the table.

A station could accomplish much of what it wishes by setting up its own on-prem datacenter — just not in the high-rent part of town — or by deploying infrastructure in a co-lo facility or embracing a multicloud strategy. Connecting its high-visibility location with the compute and storage needed to support newsgathering and production in its own private cloud on the outskirts of town where real estate prices are more affordable achieves the best of both worlds. Stations adopting this strategy also maintain sovereignty over their media data.



# Public Cloud Aware

**T**ransitioning to the public cloud fully aware of its potential strengths and weaknesses gives media companies a more realistic understanding of how to maximize its benefits to their workflows and bottom lines while helping organizations avoid unexpected obstacles, such as loss of data sovereignty and vendor lock-in, that can make for a less-than-fruitful experience.

Full awareness is also important to framing the public cloud and the virtualized media tools available there in a broader context. How does a full transition to the public cloud stack up against continued use of SDI-centric workflows, hybrid SDI-IT alternatives and an on-premises data-center that bursts data to the public cloud judiciously, for instance, to access a given AI/ML-driven process?

Other questions surrounding issues such as the long-term financial consequences of data ingress and egress charges and the comfort level a media organization has with giving up

possession and a degree of control over its content should also factor into any informed decision about how to proceed with a more IT/IP-centric workflow transition.

Management at TV stations, station groups and other media organizations must also dispel the notion that giving up data sovereignty is simply part of what must be done to realize the benefits of an OPEX-based business strategy that eliminates, or at least greatly reduces, the need to purchase, maintain and eventually replace expensive capital equipment.

Only then can any media organization truly make informed, strategic decisions about the future direction of the workflows needed to ingest, manipulate, distribute and maximize the value of their content.

Fundamentally, the workflow should determine the technology choice rather than financial decisions dictating the workflow. Dell Technologies' mission is to help you make the best workflow decisions for your business.

## The Dell Technologies Approach

**DELL**Technologies

While Dell Technologies offers the servers and other technologies public cloud vendors use daily to enable their services, those same Dell Technologies solutions can power a range of on-premises IT-based alternatives that can extend to multiple cloud vendors simultaneously. Built on technologies that are already widely used and trusted across the media industry globally, the Dell Technologies APEX as-a-service portfolio gives broadcasters the freedom to flexibly consume Dell Technologies solutions. Rather than making a large upfront capital investment in Dell hardware, broadcasters and other media organizations can take advantage of various OPEX business models. APEX solutions range from fully managed services—in which Dell maintains, tweaks and optimizes the compute and storage available in an on-prem or cloud-connected co-lo datacenter to a more hands-on approach in which a media company takes on those responsibilities. In all cases, Dell Technologies APEX enables media companies to maintain full sovereignty over their own intellectual property and avoid unnecessary ingress and egress charges. More information about Dell Technologies' solutions for broadcasters and the M&E industry at large is available online at [dell.to/media](http://dell.to/media).