



VIDEO PRODUCTION

Now Requires Hybrid and Collaboration Workflows

Creating quality video content requires a team of creative professionals working together—whether it's a media and entertainment studio producing the next blockbuster movie, a sports broadcasting team producing replay clips, or corporate video departments producing marketing and other social media video content. These and other organizations continue to accelerate video creation for consumption by an audience always hungry for more.

There are several challenges for companies as they struggle with increasingly large data file sizes, rising costs associated with data movement in the cloud, and today's hybrid working scenarios for creative professionals. Digital workflows created only a few short years ago have been disrupted, requiring enterprise IT professionals to look for more flexible and scalable infrastructure solutions that can address these challenges.

"Despite the fact that computers and internet speeds are getting faster, camera formats, frame rates, and resolutions continue to out-pace technical infrastructure," says Roy Burns, vice president of media solutions at [Integrated Media Technologies, Inc.](#) (IMT). "Today's media workflows require access to large media files, and the underlying compute, storage, and networking needs to be fast enough to keep up with a team's production demands."

Reduce costs, speed performance, and improve collaboration for faster video content creation.



Challenges for media workflows

Not long ago, a video editor looking for approval or feedback from remote team members could quickly upload footage to the cloud, which could then be quickly downloaded and viewed elsewhere. However as resolutions, frame rates, and file sizes increased in recent years, those workflows became costly and time consuming.

To address these issues, companies leveraged proxy editorial workflows, which allowed team members to upload a smaller-sized version of the footage—about 2% of the total file size—for light editing, assembly, or “over the shoulder” types of cuts.

However, with computer-generated visual effects, color correction, and other advanced video editing workflows, using a proxy workflow is inefficient. Creative professionals using those tools need bit- and frame-level access to the source footage to get the desired look and feel for any particular shot. In many cases, they end up sacrificing time by going back to the upload/download cycle when working with files in the cloud, or they compromise on quality to land at a reasonably sized file that they can work on.

In addition, many creative professionals don't have the time and expertise to deal with complicated file data movement and the associated cloud costs. Cloud services charge different rates for data depending on how big the files are, as well as for data movement and storage, depending on whether the data needs to be active or if it sits in a cold storage archive tier (such as for the archiving of original source footage). Companies storing data in a more expensive storage tier than they need can end up paying more.

Another data movement option for companies has been to use package delivery services such as FedEx or UPS to deliver source footage stored on hard drives. However, with recent supply-chain and logistics issues, this option can be costly and ineffective compared to digital workflows.

The rising costs associated with cloud data movement and storage are exacerbated by today's hybrid work scenarios. While a company could maintain an active on-premises infrastructure for media production in the past, it's challenging to do this for both remote and on-site workers in a way that provides the same user experience. An editor working remotely a few days a week needs the same performance and experience working on files as that available in the office.



An editor working remotely a few days a week needs the same performance and experience working on files as that available in the office.

Hyperconverged infrastructure with intelligent data movement

To address cost issues and boost performance to allow for source footage access for media and entertainment purposes, IMT has teamed up with infrastructure leaders Dell, NVIDIA, and AMD to create a hyperconverged infrastructure (HCI) that includes intelligent data movement.

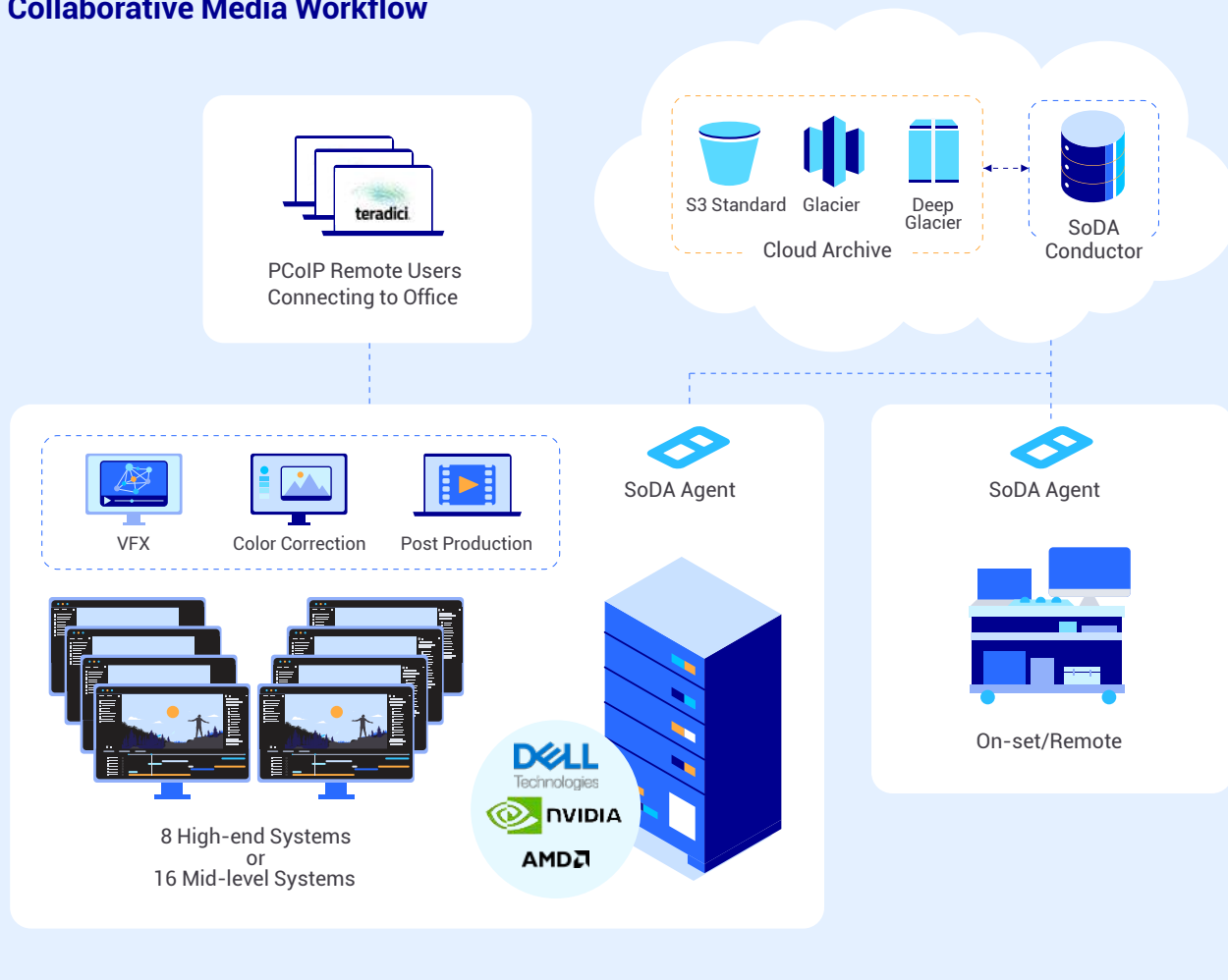
The [Cloud SoDA.io platform](#) is an enterprise software application and intelligent data management system. The SoDA software includes agent technology and multi-cloud capabilities to give customers orchestrated data movement across multiple sites and to public clouds, while also offering decision-guiding insights into costs and time. With SoDA, customers can predict the cost and speed of unstructured data movements between on-premises and multi-cloud solutions.

The platform can be easily integrated into a Dell/NVIDIA/AMD HCI system, which employs best-in-class servers, GPUs, CPUs, networking, and storage to power media and entertainment workflow scenarios.

The HCI infrastructure includes:

- ▶ Dell EMC [PowerEdge](#) XE8545
- ▶ 3rd Gen AMD [EPYC™](#) Milan CPUs
- ▶ NVIDIA® [A100](#) Tensor Core GPUs
- ▶ Dell EMC [PowerEdge](#) R7525

Collaborative Media Workflow



Through the use of transfer agents and a central conductor, SoDA employs rules-based data movement and a policy engine to provide visibility into a customer's entire storage ecosystem. The agents can deliver content from the field directly to on-premises, high-performance PowerScale storage, where it is processed by virtual machines (VMs) on the HCI.

Each VM is GPU-enabled for processing and transforming the camera originals at high speed. Once media is delivered by SoDA, remote editors and contributors can work via PC over internet protocol (PCoIP) or a hybrid approach (cloud and on-premises) to access files. The SoDA platform can also complement existing media supply-chain and archive workflows.

In a PCoIP scenario, companies can leverage their virtual desktop infrastructure on their on-premise HCI while also bursting their compute and storage to the cloud, empowering remote editing. This experience streams the edit bay's output to a thin client, letting a user edit source assets that are stored in the cloud. Moving the source media to the cloud storage—and sending the resulting exports from the edit bays—can be coordinated with SoDA as part of its rules-based data movement.

Customers can also take a hybrid media asset management (MAM) approach, which uses a combination of high-resolution assets residing on premises with proxies that are stored in the cloud, and then orchestrating the workflow to stream assets to end users. SoDA can seamlessly integrate with the MAM to ensure that the right asset is delivered to the right storage repository, while notifying the user of what they can expect in terms of cost and time implications.

The combination of an intelligent data management system that knows exactly where footage is stored and located, along with a high-performance, GPU-accelerated HCI infrastructure, allows media and entertainment professionals to quickly access files for production workflows. It also gives IT key analytics about storage costs and how the data is being utilized.

The next step: Tying into 3D and VFX workflows

An added benefit of the HCI system with intelligent data movement is how easily it ties into the NVIDIA Omniverse Enterprise platform. The groundbreaking virtual platform is built for 3D design collaboration and real-time photorealistic world simulation, giving studios the ability to maximize productivity and communications, and boost creativity while collaborating on the same 3D scenes from anywhere.

The Omniverse platform can accelerate content creation workloads at any scale, creating real-time design collaboration not just between team members in different locations, but also through the use of different industry software applications. The system is powered by real-time, multi-GPU ray tracing and path tracing through NVIDIA RTX technology that can simulate the physical world at unprecedented speeds. In addition to ray tracing, RTX utilizes artificial intelligence and advanced physics simulation to create richer visual experiences in the media workflow.

The platform offers purpose-built applications for specific industry workflows, such as [Omniverse Create](#), and [Omniverse View](#). With Connectors, live-link plug-ins to third-party design tools, creative professionals continue to use their existing tools, but gain the ability to work more collaboratively. Design tools with Omniverse Connectors include:

- ▶ Autodesk 3ds Max and Maya
- ▶ Epic Games Unreal Engine
- ▶ Many more in development



The Omniverse platform can accelerate content creation workloads at any scale, creating real-time design collaboration.

Since the Omniverse platform is based on Pixar's Universal Scene Description file framework, an open standard description of 3D assets and worlds, even if third-party tools don't have a Connector today, content creation teams can still leverage the Omniverse platform's collaborative workflows.

Controlling costs while improving media workflows

The combination of an intelligent data management system and a hyperconverged infrastructure that utilizes GPU-accelerated VM processing enables video content creation teams to get a better handle on their data movement, storage, and archiving costs. It also gives creative professionals the ability to work in a hybrid work scenario, no matter their location.

▶ To learn more about how IMT, Dell, NVIDIA, and AMD can assist your company with its media workflow and data movement challenges, click [here](#).