GLOBAL MEDIA & ENTERTAINMENT

CLOUD ECOSYSTEM

Managing Emerging Global Digital Workflows

The New Media & Entertainment
DIGITAL ECOSYSTEM

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Success in today's global media and entertainment (M&E) industry means companies must deliver compelling content combined with unique user experience, at-scale, across any platform, anytime.

The types of content moved around the world include high-value digital content for film production, broadcast, digital cinema, feature animation, live events, sports, music concerts, visual effects (VFX), over-the-top (OTT) streaming, etc.

Technology drives and defines today's M&E industry, emerging business models and the way content is produced, transported, managed and distributed.

To be globally competitive, M&E companies are embracing rapidly changing technology ecosystem environments, new digital distribution channels and emerging business models.

They are also embracing advanced analytics to accurately measure success across OTT and enterprise digital ecosystems. Many M&E companies incorporate agile business and technology development process models to take full advantage of emerging technologies, including:

- Secure networks
- Cloud computing
- Digital asset management (DAM)
- Cloud transcoding
- IP rights management
- Digital rights management (DRM)
- Content delivery networks (CDNs)
- Advertising platforms
- Wireless networks
- Big data analytics
- Video game platforms
- Mobile device platforms

KEY M&E INDUSTRY CHALLENGES

M&E companies face distinct challenges to produce, transport, manage and distribute digital content to global users on-demand. The challenges break down into the following areas.

Production — Content creation/production cuts across broad areas of the industry touching everything from acquisition, principal photography (TV/film), feature animation, rendering farms, linear/nonlinear production and postproduction global workflows. Addressing these challenges requires a holistic approach to the technology ecosystem using a number of providers and strategies.

Transport — M&E companies need to securely transport high-value digital content from remote locations around the world to local studio locations for TV/film production, live events, etc. M&E companies need network topologies that support on-demand, high-bandwidth secure networks with capacity for video transport of compressed and uncompressed live and file-based workflows. Networks need to be scalable to meet requirements in real-time.

Management — M&E company's store, protect, manage, transcode, and refine digital content for varied applications, audiences and delivery platforms. M&E companies require ways to integrate complex process functions across global cloud centric environments. This demands use of scalable infrastructure increasing operational efficiency and trimming costs and moving technology investments from capital expense (capex) to operational expense (opex) categories.

Distribution — Clients demand high-quality digital distribution and customized user experience across any platform, anytime, anywhere in the world. This includes everything from studio executives reviewing digital dailies remotely for movie production, to finished-content digital cinema distribution. Live event digital distribution examples include multi-camera OTT streaming of events like awards shows on mobile devices all the way up to high-definition delivery of live concerts using 4K digital cinema projectors. M&E companies need to consistently deliver high-value high-quality digital content in appropriate formats to provide an exceptional user-experience and maintain market share. Broadcast companies are deriving immediate benefits from OTT distribution using advanced content delivery networks (CDN) to reach millions of clients worldwide, supporting the unbundling of cable channels and the transition to channel delivery on an a-la carte basis.

THE M&E INDUSTRY LANDSCAPE

The types of technology solutions that solve critical challenges are varied, overlap and have created nearly as much confusion for the industry as they have succeeded in creating new opportunities. M&E companies need foundation technologies and solutions frameworks that incorporate many of these elements, address key industry challenges and provide enterprise-class services efficiently and cost-effectively.

THE MEDIA-FOCUSED CLOUD

As M&E companies look for scalable global solutions to support production of compelling digital content, feature film, feature animation, live events and episodic television series, media-focused cloud architecture is rapidly becoming the central core of operations enabling truly global workflow management.

The media-focused cloud concept combines two primary areas of cloud based technology:

- Infrastructure-as-a-Service (IaaS) which includes the application of servers and digital storage
- Software-as-a-Service (SaaS) which includes the use of cloud based applications

The combination of these two technology solutions produces a powerful tool for M&E companies supporting global media workflow platforms and end-to-end-content solutions; production through distribution.

The media-focused cloud architecture can employ the aggregation of the common cloud combined with digital asset management (DAM), cloud transcoding (Compute), global workflow management (distant production/post production), identity access management (IAM), digital rights management (DRM) and storage and resolution options using content management systems (CMS).

Another important component of the media-focused cloud architecture is "object storage." This allows unstructured data and media files to be stored as objects and tied directly to digital content, allowing all production elements to be transported, stored and accessed together. Object storage combined with a robust CMS provides a way to mange all digital content elements in a distributed or centralized location supporting global workflow management. Additionally, DAM in the cloud derives significant benefits from object storage since it can offer open architecture and a multitenancy framework allowing global content version control, metadata management, replication and search.

Cloud transcoding is another important area that benefits from a media-focused cloud architecture. This supports global production on an as-needed basis supporting postproduction workflows, editing and the creation of an edit decision list (EDL). The media-focused cloud could be used to create completely new versions of finished content driven by EDLs compiling new content versions in the cloud and then distributing them for review.

Cloud latency can be a factor when addressing postproduction workflows on high-end uncompressed television and feature film content. Several companies offer file based acceleration solutions like Aspera and Signiant that can be integrated with media-focused cloud solutions. However, one of the best ways to mitigate cloud latency is with fast high-bandwidth on-demand secure network topologies.

BUILDING THE MEDIA-FOCUSED CLOUD

Developing and implementing a media-focused cloud technology ecosystem strategy is multi-step process. It is difficult to create one production, application or service environment that addresses all the needs of the M&E industry from content creation to distribution. Many companies have already invested in core parts of a media focused cloud IT architecture. Unlocking the value of those investments requires making sure a company has invested in the appropriate technology infrastructure elements and adopts a cloud centric approach that fully integrates these technologies in an efficient, effective core ecosystem. The key components to a successful media-focused cloud solution include:

On-Demand, Global, Secure Network — A fundamental component of the enterprise-class media-focused cloud is an ecosystem that supports the production of mezzanine master files using uncompressed video transport. This same network can also support live events, file based transport and on-demand access to all digital content. An optimized network strategy deploys the right size network capacity, global reach, secure IP network and additional wireless edge components like global up-link satellite capabilities and 4G LTE as required by the application environment.

Cloud Storage and Infrastructure — Central to media-focused cloud architecture is secure storage at the core tied to global networks, meeting on-demand requirements. Flexible, scalable, secure cloud infrastructure is essential, built on a dynamic cloud platform to expand and contract quickly and outsource IT cost and maintenance associated with infrastructure.

Cloud Compute/Infrastructure — M&E companies have requirements to manage multiple resolution versions and copies of digital content for various applications including digital dailies, online/offline editing, regional content distribution, etc. Cloud transcoding options, IP rights management and smart storage/filing provide these types of options quickly and easily.

Security — Secure infrastructure (network and cloud) is vital to mitigate risk associated with an open-world and global environment where many individuals, inside and outside the M&E organization, interact and work on digital content. M&E companies need to protect against leaked content, piracy and proprietary information

Applications — Industry specific applications delivered as services on top of cloud-based infrastructure are becoming increasingly important as part of a complete open solution stack. As previously mentioned, these applications include DAM, DRM, CMS, IAM, cloud transcoding and many others.

In some cases, advanced applications supporting cloud rendering for animation studios, monetizing content, IP rights management and administration of digital payment platforms can also be integrated into the cloud applications portfolio, supporting the entire digital ecosystem as content moves from production to digital distribution.

Content, including principal photography, is often produced at locations around the world: from Prague to New York, and London to Auckland. To create end-to-end digital ecosystem, studios need to move large mezzanine master files securely to other cities like Los Angeles and Vancouver for postproduction and VFX processing. Supporting globally managed workflows like this requires scalable, on-demand cloud infrastructure and networking that enables fast-efficient delivery and retrieval of digital content.
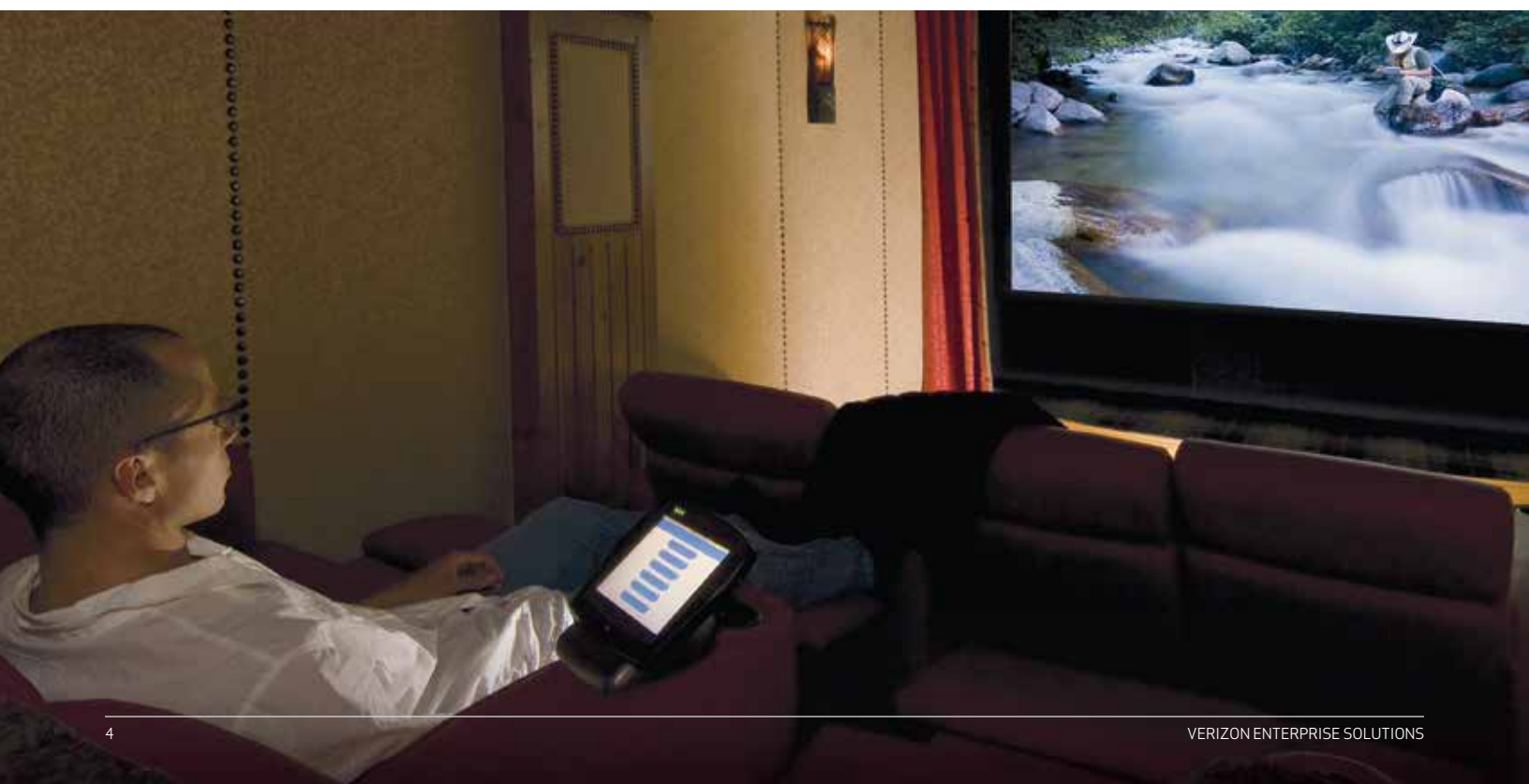
VERIZON'S SOLUTIONS FOR GLOBAL WORKFLOW MANAGEMENT

Verizon's customized grouping of technologies ideally match the needs of M&E companies looking to build a media-focused cloud end-to-end solution that effectively manages the complete production process — from content creation to distribution. With cloud at the center, Verizon brings cloud-based networks and managed security services, as well as relationships with key industry application providers to create enterprise-grade technology solutions that help M&E companies improve operations and grow revenue.

CLOUD INFRASTRUCTURE AND STORAGE

Verizon cloud offers secure compute infrastructure, object storage and storage resources with complete flexibility and control through a single cloud console. Public, private or hybrid, Verizon cloud features scalable solutions for comprehensive security, durable storage and robust performance. The global workflow management process also employs heavy access-control using IAM technology so the right-individual accesses the right content, at the right time.

In the past, M&E companies have resorted to high-risk methods of shipping digital content on hard drives around the world via global courier services to locations for finishing work, placing content at high risk of theft or piracy. The global media-focused cloud digital workflow paradigm addresses all of these important issues, helping accelerate production cycles and control costs while maintaining secure workflow environment.

VERIZON'S GLOBAL NETWORKS

Verizon offers a wide range of global high-speed high-bandwidth on-demand networks (10G-100G), CODECs, and MPLS-based private IP plus 4G LTE, so M&E companies can connect global networks with high levels of security, reliability, and performance.

Spanning six continents, Verizon's global networks now cover over 800,000 route miles including terrestrial and underseas cable. The company manages nearly 4,000 enterprise networks and offers the US's largest 4G LTE network.

SECURE CLOUD INTERCONNECT (SCI)

Verizon's Secure Cloud Interconnect (SCI) allows clients to manage multiple cloud provider platforms through one intuitive easy-to-use enterprise dashboard. SCI's pre-integrated network, wireless and IP data networking capabilities create a high-performance multi-cloud partner environment.

Currently, Verizon's SCI service connects to six major cloud providers including Microsoft® Azure™, Amazon Web Services (AWS), Google Cloud Platform, Verizon Cloud and Equinix data centers, with several more to come.

 If clients are running DAM or CMS applications on another cloud platform, they can easily be centrally managed using Verizon's SCI platform dashboard.
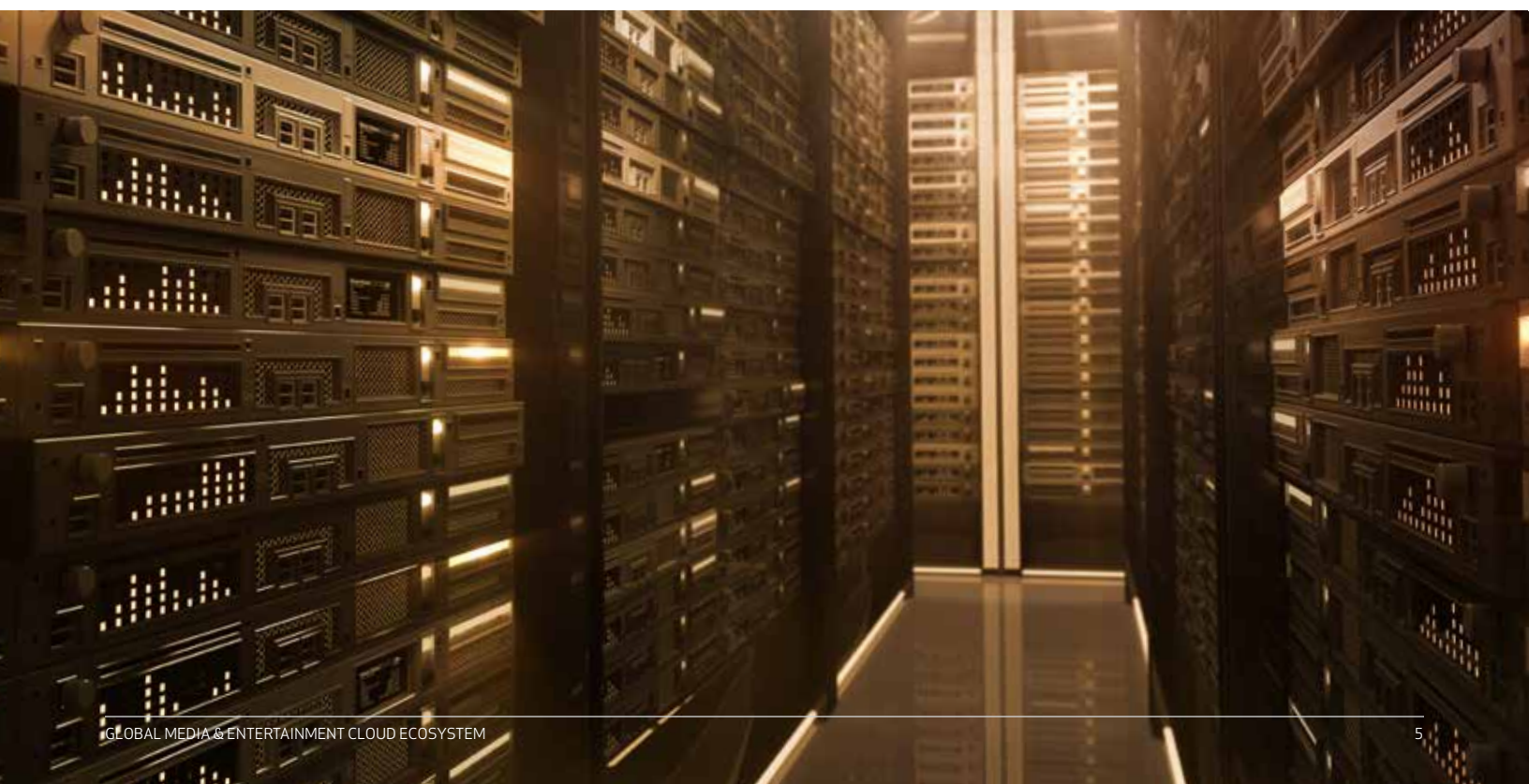
MANAGED SECURITY SERVICES

Protecting operations, digital content, data, and reputation are all fundamental when creating a broad security program. M&E companies connect with clients, suppliers, vendors, and partners from anywhere in the world on cloud-enabled, satellite and mobile systems that have unique customer requirements for securing shared digital content.

The trust required for these interactions depends on the ability to provide robust digital content, data, operations, and physical security solutions. With Verizon's security expertise, and intelligence developed from over a decade in the industry, Verizon is well positioned to deliver comprehensive security solutions around the world across over 50 data centers.

PROFESSIONAL SERVICES

Verizon maintains a comprehensive suite of professional services solutions and consulting providers offering complete end-to-end cloud, network, security and digital ecosystem integration support.

Many M&E clients find themselves using a complex mix of new technologies/applications, legacy technologies, platforms and solutions. Verizon has deep expertise in all of the areas required by today's M&E companies to create leading-edge digital ecosystem environments and enterprise-class solutions.

NEXT STEPS

Verizon is in the right position to offer a complete end-to-end solution supporting all M&E digital content ecosystems, applications, cloud and global workflow environments.

Our mix of products, services and expertise encompassing network, cloud, security, etc. can create an ideal technology ecosystem for managing production, transport, management and digital distribution around the world.

Whether a company is moving compressed video and data or petabytes of uncompressed digital content, Verizon supports the M&E technology ecosystem and helps companies improve efficiency and drive new revenue.

Learn more at verizonenterprise.com/industry/media/.

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