ANALYST BRIEF
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Demand for premium content is accelerating, creating new business models and opportunities for innovation. By modernizing their digital infrastructure, media companies can enhance their technological capabilities, increase productivity, and achieve substantial financial benefits.

Media and Entertainment Trends Transforming Digital Infrastructure

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Introduction

AT A GLANCE

WHAT'S IMPORTANT

Modernizing infrastructure for media production using advanced technologies

KEY TAKEAWAY

Consumer demand for premium content requires infrastructure modernization.

Media and Entertainment Market Trends

The media and entertainment (M&E) industry is undergoing significant changes across the production pipeline, driven by technological advancements and evolving consumer demands. The demand for content has never been greater as media companies create models — such as releasing entire seasons of shows at once — that cater to viewers who prefer to binge-watch. This model allows viewers to consume content at their own pace, and many now consume more content than ever before. This change puts substantial pressure on media companies such as motion picture studios to create and deliver premium content at a faster pace with a compressed timeline. Streaming services such as Netflix, Amazon Prime, and Hulu address this consumer demand for more direct-to-consumer content.

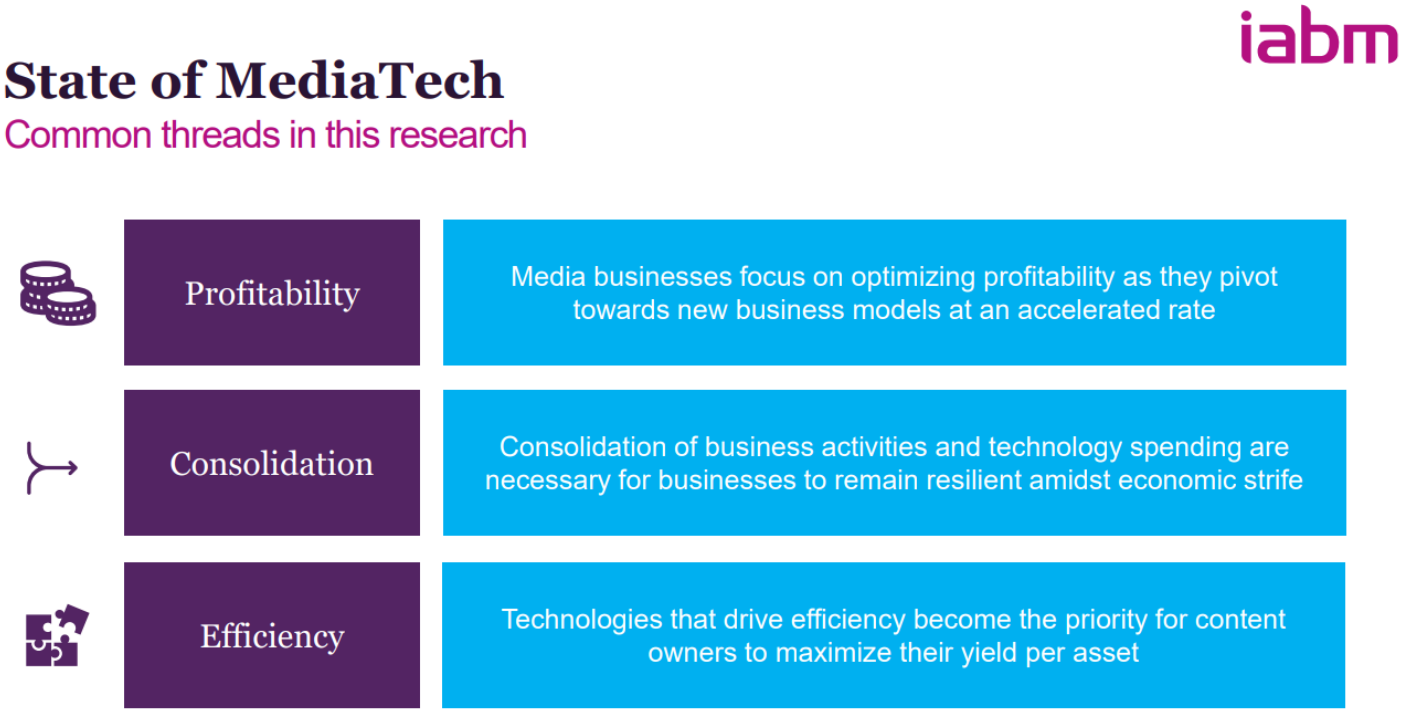
Over the past few years, as subscription fatigue set in with consumers, media companies started offering free ad-supported streaming television (FAST). This model has also increased consumption, driving the demand for more content from traditional broadcast television service providers. AI-integrated ad support — change sponsors, run ads based on product placements, and serve up new ads based on consumption trends — continues to push the boundaries of content customization.

Real-time capability is becoming a requirement for premium content delivery, driving the adoption of virtual production, live VFX editing, and rapid iteration cycles. Last-minute enhancements are now possible without added costs or delays.

These three media industry trends impact motion picture studios, television networks, and TV station groups, and they have challenged media companies to increase the pace of content creation and preproduction/postproduction by leveraging technology advancements requiring more robust infrastructure and processing power.

At the International Broadcasting Convention (IBC) held in September 2024, the International Trade Association for Broadcast and Media (IABM) technology suppliers identified three common themes in media for 2024 whereby media companies are focusing on profitability, consolidation, and efficiency and therefore identifying technology vendors that provide products and services to help them address these themes (see Figure 1).

FIGURE 1: ***The IABM's Common Themes for 2024***



Source: IABM, IBC Industry Update Presentation, September 2024

While media companies are challenged with the creation and production of more premium content at a faster rate, they must also make sure that the infrastructure is in place to deliver that content more efficiently with a viable cost structure to achieve financial profitability objectives. Let's look at some key trends and their impact on digital infrastructure as media companies invest in technologies to meet their business objectives. In detail:

- **Preproduction trends:** Preproduction trends include the growing use of 3D modeling and animation for pre-visualization, real-time rendering to iterate quickly on scene layouts, camera angles, and lighting and VFX planning for complex visual effects. This approach allows for more flexible and cost-effective production environments. AI is being used for script analysis, casting decisions, and even generating preliminary visual effects to speed up the preproduction phase and enhance decision-making. Finally, tools like cloud-based project management and videoconferencing enable teams to collaborate from different locations, reducing the need for physical presence.
- **Production trends:** Production is increasingly moving to the use of virtual stages and bringing postproduction processes into live production environments. LED volume walls create realistic sets that interact with live actors and physical props using real-time rendering and camera tracking technologies. VFX editing can be done in real time without waiting for postproduction.
- **Postproduction trends:** Postproduction is focused on faster collaboration and file transfer, improving workflows to move faster while improving content quality. Cloud-based workflows allow for more efficient collaboration and

sharing of large media files. AI and analytics tools are used to highlight workflow patterns and automate repetitive tasks such as sorting footage, color correction, and even initial editing cuts, freeing up human editors to focus on creative aspects. Meanwhile, the demand for 4K and even 8K content is pushing the limits of current digital infrastructure, requiring more robust storage solutions and faster data transfer rates.

- **Impact on digital infrastructure:** The shift to increasingly real-time production capabilities, higher-resolution formats, and workflow acceleration is driving the need for infrastructure modernization to support variable processing demand, shared infrastructure, and secure data storage. To support remote collaboration and real-time rendering, robust and high-speed internet connections are essential.

These trends are reshaping the media and entertainment landscape, making it more dynamic and interconnected than ever before.

Adoption of GPUs, DPUs, and Other Accelerators in Production

In response to these trends, faster innovation cycles are occurring in infrastructure and advancements in graphics processing units (GPUs) as well as other new accelerators are being adopted for digital production at a rapid pace. The swift adoption of accelerators in digital production is driven by several key factors. In detail:

- **Real time:** The demand for high-quality, real-time rendering and processing in virtual production requires powerful hardware for capabilities including LED volume walls, live VFX editing, and motion tracking. GPUs and accelerators significantly enhance performance while supporting advancements in digital production technology.
- **Workflow acceleration:** Adapting workflows to move faster while delivering higher-quality content utilizes tools for real-time collaboration, rapid file transfer, and data processing. Improving access to GPUs and DPUs is critical to this acceleration.
- **AI and ML:** These technologies are increasingly integrated into production processes from content creation to postproduction. GPUs are essential for handling the computational load of AI and ML tasks. Production planning, content creation, video effects and animation, motion capture automation, and audio production are just a few areas contributing to the use of GPU infrastructure for advanced AI capabilities.

Challenges to be considered include the substantial costs associated with high-performance hardware and infrastructure. This includes not only the initial purchase price but also costs for ongoing maintenance and upgrades. Furthermore, advanced GPUs and accelerators consume a lot of power and generate significant heat, necessitating robust cooling solutions. This can increase operational costs and complexity. Finally, relying on specific vendors or technologies can limit flexibility and make it difficult to switch to newer or more cost-effective solutions in the future.

Another challenge is the inflexibility of the infrastructure to support GPU sharing or reuse for different workloads.

Investing in dynamic and scalable infrastructure solutions can help future proof operations by allowing for easy upgrades and expansions. Today, most media companies address this requirement through hybrid implementations of facility and cloud-based solutions. In addition, prioritizing energy-efficient hardware and cooling solutions can mitigate rising power costs and environmental impact. Adopting open standards and interoperable technologies can also reduce the risk of vendor lock-in and increase flexibility. By addressing these challenges and leveraging the latest advancements, the media industry can continue to innovate while driving higher efficiency and productivity from preproduction to postproduction.

M&E Strategic Benefits

Modernizing digital infrastructure to support dynamic access to accelerated processing offers numerous benefits across the technology, service, and financial aspects.

Technology Benefits

In terms of technology, the integration of real-time rendering technologies expands the creative possibilities and enhances visual storytelling. Modern digital cameras and editing software significantly improve the quality of video footage and audio, as do tools that offer advanced editing capabilities, visual effects, and color grading options. Automation and algorithmic video editing streamline the editing process, reducing the time required to produce high-quality content. In hybrid environments, cloud-based collaboration enables workflow efficiency regardless of location. Video platforms facilitate seamless sharing and reviewing of footage.

Service Benefits

With respect to service in hybrid models, cloud-based workflows allow for easy scaling of postproduction capabilities where appropriate to meet varying demands. This flexibility is crucial for handling large volumes of content. Modern tools and cloud environments streamline workflows, reducing the need for manual media movement and minimizing delays in the production process. Cloud solutions offer robust security measures to protect sensitive media files and metadata, ensuring data integrity and confidentiality, and automated quality control processes ensure consistent and high-quality output, reducing the likelihood of errors and rework. Media companies that implement a hybrid approach combining both facility and cloud-based solutions can easily derive these benefits.

Financial Benefits

Automation and digital workflows reduce labor and operational costs associated with traditional media handling and manual processes while the efficient use of resources such as automated data transferring leads to cost savings. In addition, faster production cycles and higher-quality output can lead to quicker time to market for premium content, enhancing revenue-generation opportunities. Finally, proper accounting and capitalization of production costs ensures accurate financial reporting and compliance, optimizing financial management.

By modernizing digital infrastructure, media companies can significantly enhance their technological capabilities, streamline services, and achieve substantial financial benefits, all while meeting the high demand for content efficiently and effectively.

Considerations

Upgrading a media company's digital infrastructure to meet the growing demand for producing premium content quickly involves several considerations.

Media companies should invest in digital infrastructure technologies that can support real-time capabilities and dynamic processing demand while enabling the choice of the best servers, workstations, accelerators, and applications for the task without restricting the ability to reuse the infrastructure for different workflows.

For power and cooling, organizations should consider implementing infrastructure solutions that can reduce throttling from overheating and improve the utilization of GPUs to ensure cost-effective, sustainable operations.

For workflow optimization, implementing automation tools for repetitive tasks like transcoding, rendering, and file management can save time and reduce errors. Project management and collaboration software can streamline communication and coordination among team members.

With respect to data management, organizations should invest in high-capacity, high-speed storage systems that can handle large volumes of data and provide quick access. Robust backup and disaster recovery plans can protect valuable content and ensure business continuity.

For scalability and flexibility, it is important to design the infrastructure to be easily scalable to accommodate future growth and technological advancements. Adaptable workspaces that can be reconfigured based on project needs will become a key capability to support evolving technologies.

By focusing on these critical areas, a media company can create a robust and efficient infrastructure that supports the rapid production of high-quality content, meeting consumer demands effectively.

Conclusion

Media companies need to address rising consumer demand for more content while focusing on profitability, consolidation, and efficiency. To achieve these ends requires the implementation of modernized digital infrastructure and improved access to processing power in order to address the higher throughput and quality of media creation as well as preproduction and postproduction processes. Part of the challenge is to support higher-resolution content by leveraging virtual set technology supported by AI to make the workflow more efficient. Media companies should consider working with technology vendors that understand the trends impacting content production and that can help them modernize their digital infrastructure and processing power.

About the Analyst

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Alex is responsible for serving as analyst, thought leader, and content owner for the global media and entertainment industry. Mr. Holtz's core research coverage includes the five major pillars of business operations, media orchestration, production, distribution, and monetization for facility-based, hybrid, and native cloud services.

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