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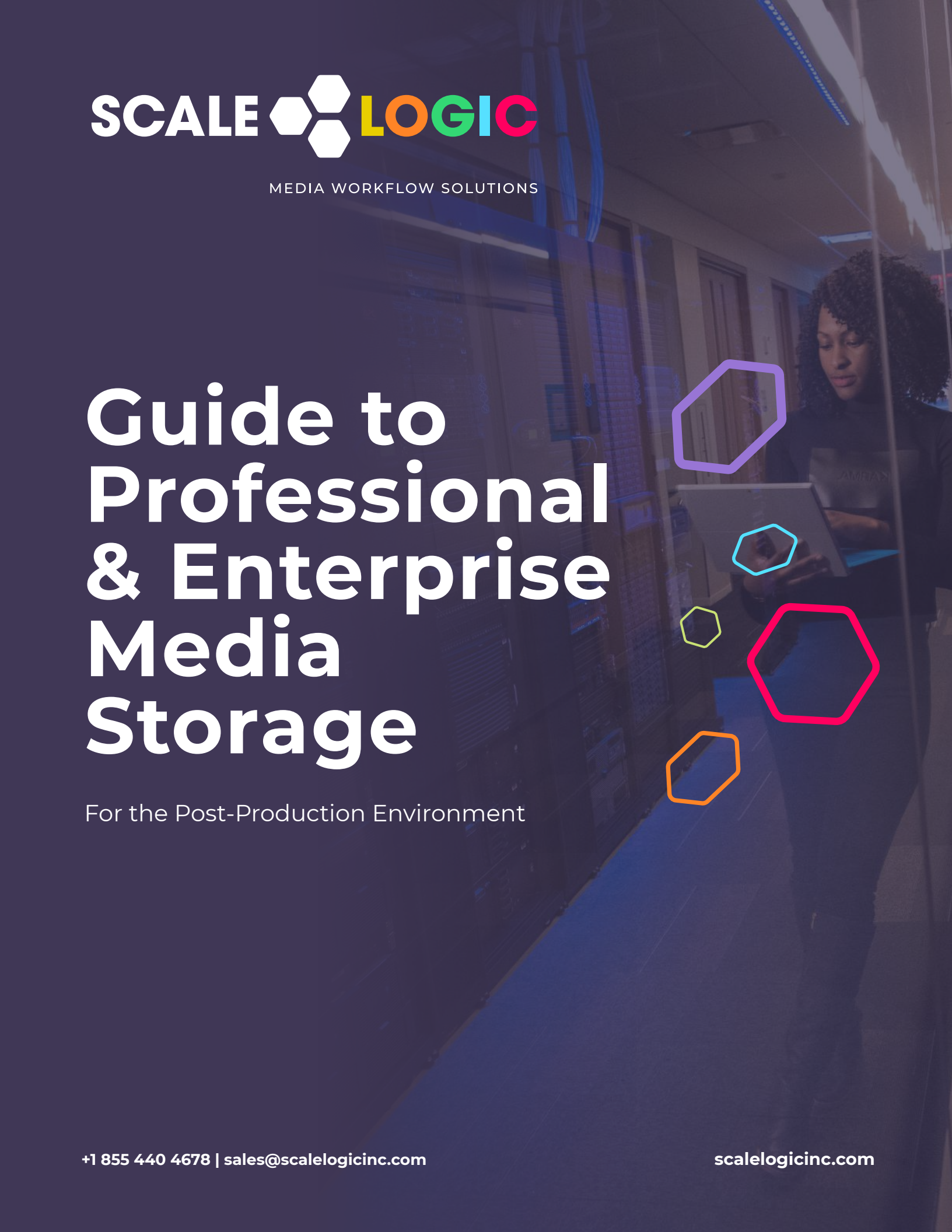
MEDIA WORKFLOW SOLUTIONS



Guide to Professional & Enterprise Media Storage

For the Post-Production Environment

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Storage is an interesting beast—often thought of as something that can be solved by simply increasing capacity, which will then make all your problems disappear. But storage is never the real problem, and throwing money and resources at it will never solve the underlying deeper issues. In fact, in most cases, workflow and the wrong level of storage is the root cause.

Simply put, end users should not be focused on storage. Rather, they should be focused on addressing the type of storage based on the required and desired workflows.

The first thing to tackle is the way the infrastructure is chosen, then built and configured—ensuring that it's deployed in a way that fosters a collaborative post-production infrastructure that goes beyond shared storage. But there is more to the solution than just the right-here-right-now. It's one thing to create an environment that fosters better workflow, but it's another to ensure that same environment will work further down the road. And though the term "future-proof" gets thrown around a lot, perhaps that is for a good reason.

All too often, users aren't able to calculate the risks associated with that fix in future scenarios. It's this exact position that gets people into precarious positions when it comes to their media infrastructure. For instance, with growing file sizes, increased video resolution, and high-quality visual effects requiring more storage, network and server performance, post-production environments need a high degree of parallel access between work groups—as well as higher storage capacities to handle higher volumes of recorded media.

These are the situations that lead to challenges including uptime and availability, planning for infrastructure growth and capacity, the adaptability for growing file resolutions, data protection and archiving issues, and of course data migration to new technologies.

So, what's the real course of action here? Start with the right type of storage—knowing what is required now, and in the future.

Exploring Professional-Level Media Storage

Professional-level storage is designed for small to medium-sized post-production environments that require reliability and basic scalability.

Media production groups need to enable workflows that deliver simultaneous access to multiple users, without the need for duplicating files or version control. Here are just a few of the features and functions that a professional-level storage solution should deliver.

➡ Enhanced Workflow

The ability to reduce storage admin tasks for editors, and enable higher stream counts and faster copy speeds.

➡ Protect Critical Data

Built-in snapshots for data protection ensure users can go "back in time" to retrieve a lost file or protect their data.

➡ Scalability

To address growing workflows, multiple storage chassis should easily connect to enable increased performance, capacity, and expansion into archive.

➡ Cloud Integration

Any professional-level storage solution should be compatible with optional software solutions to achieve archive and backup to any S3-compliant public or private cloud or LTO tape.

Exploring Enterprise-Level Media Storage

Enterprise-level media storage is designed for extreme performance for Ethernet-based and media-rich workgroups that require advanced scalability, reliability, and better TCO.

Enterprise-class production media storage is often categorized as high-availability enterprise storage—an infrastructure that enables medium-sized and large workgroups to benefit from fault tolerant uptime via a system that typically uses VIP (Virtual IP) and cluster technology to ensure the shared storage always stays mounted, accessible, and high performing.

More so, it should also enable the creation of consistent snapshots and asynchronous snapshot replication to both local and/or remote destinations, with retention plans that can be adjusted easily as business needs change.

Here are a few of the features and functions that an enterprise-level storage solution should deliver.

➡ Video and Graphics Workflows

The solution should be sized for single or multiple departments, and support video, 3D, and VFX.

➡ Faster NAS Performance

The ability to support up to 24GB/s aggregate throughput with 100GBE backbone and 2100MB/s for single client support over 25GBE.

➡ All Major Block and File-Based Protocols

It must support iSCSI, Fibre Channel (FC), and client protocols including NFS, SMB (CIFS), and FXP/FTP.

➡ Localized or Remote Mirrored Storage

It should enable the creation of snapshot-driven replication to on-prem or off-prem clusters to enable business continuity.

➡ Support for Various Cluster Environments

It should natively support standalone cluster, VMware, Hyper-V, and KVM.

Are High Performance NVMe Options Available?

As professional post-production teams continue to struggle with perpetual data growth, they must rethink how data is captured, preserved, accessed and transformed.

To address these needs, creative workgroups must consider the requirement for NVMe to enable greater flexibility and faster data access, all while decreasing production times. This technology can result in more cycles, more business, and more profit to the bottom line.

What is NVMe?

The concept of NVMe—also known by its long-form name, Non-Volatile Memory Express—can easily be described as revolutionary, seamlessly delivering access and transport protocols to storage for both flash and the newest solid state drives (SSDs).

Known for its ability to deliver the highest throughput and fastest response times for a wide variety of enterprise-grade media workflows, NVMe is making a significant impact on what post-production environments can do with data.

Understanding NVMe

In any industry, speed is of the essence—but especially in the media and entertainment industry, speed is everything. This is where NVMe shines. Being fully Non-Uniform Memory Access (NUMA) optimized, NVMe is high performing, easily scalable and highly optimizable—plus, it is designed to easily and seamlessly connect the host to the memory sub-system.

The primary benefits of NVMe with PCIe-based SSDs are improved scalability and latency, lower power consumption and lower costs in comparison to SAS-based or SATA-based SSDs, through the streamlining of the I/O stack.

NVMe systems deliver a massive improvement in storage performance over systems based on traditional hard disk drives (HDDs) and SSDs using legacy storage interfaces including SAS3 and SATA3. The new servers are also more power-efficient than the traditional systems and have hot-plug capability for improved serviceability and availability.

This accelerates existing post-production applications requiring high-performance workflows—and enables new applications and capabilities for real-time workflow processing in the data center and at the Edge.

Factors to Consider

An IT infrastructure that is able to respond immediately to simultaneous user requests or answer multi-dimensional analytical queries in real time requires a combination of one or more online transaction processing (OLTP) or online analytical processing (OLAP) applications running in what is usually a highly specialized environment. The specific use case will determine the compilation of elements to some extent, but the factors to consider will include:

- **CPU:** Choosing the right CPU is vital to ensuring optimal performance. The latest-generation CPUs, designed for real-time analytics, are able to query many terabytes of data and provide results in seconds. Features to consider include responsiveness, reliability and scalability to ensure fast, zero-downtime processing, especially for mission-critical workflows that need to be able to scale up seamlessly.

- **Memory:** The list of advantages of using in-memory databases is growing as business demand increases. In-memory processing involves placing data in the system's RAM to provide lightning-fast response times to queries from multiple, concurrent users, and to produce instantaneous results. DDR4 (Double Data Rate 4th-generation) RAM chips support transfer rates of up to 2.4 billion transfers per second: a significant memory boost at a lower voltage than their DDR3 predecessors. Still, big workloads devour RAM. This can mean large bites are taken out of your IT budget for a system that can deliver the DRAM capacities needed.

- **Media Storage:** Data center managers in post-production environments will tell you that storage I/O performance is invariably what causes bottlenecks. This is where flash-based storage comes into its own. NVMe, an interface specification for accessing non-volatile storage media via PCI Express (PCIe) bus, is able to provide up to 70% lower latency and up to six times the throughput/IOPS when compared to standard SATA drives.

Conclusion

Today's modern post-production teams need revolutionary solutions to manage the growing demands and challenges associated with data storage and file sizes. Hence, choosing the right type of storage, along with the ability to connect workflows and additional business-focused technologies, is imperative for success.

In short, the question must always be asked: can a solution meet the demands in data-heavy post-production environment, cloud storage and Edge computing ecosystems?

If you would like to find out more about storage options, associated workflows and more, a Scale Logic Media Workflow Architect would be happy to assist you.

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