Reference Architecture Solution Brief for Digital Media Workflows

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Abstract:

As organizations continue to use more digital video for communication, marketing, education, awareness and other purposes many are struggling with the process of evaluating technology. What may be a requirement for one organization may not be a requirement for another. So, what do you look for and how do you make priorities for your organization?

Introduction:

This whitepaper is a reference architecture for managing and maintaining digital assets from creation to distribution. The purpose is to expose all the elements of what a base architecture includes, review their place in the architecture and what the benefits are of each element. It won't be necessary for every organization to have every element. This is merely an outline that everyone can follow and adapt to their needs.

The Challenge:

How do you create, manage, store, process, distribute, archive and reuse content to your company's advantage? What cost effective tools will be easy to implement, easy to use and easy to maintain? If I'm limited in my financial budgets either as capital or operational, how do I know I'm getting the most out of my money? By looking at the elements of a workflow we can assess your company's current state, the future desired state and fill in the gaps to put your company on the right path for growth.

To get started with a self-assessment you will want to start with a series of basic questions.
- How much content do we already have?
- Who's creating the content and at what rate?
- Who needs access to the content and how often?
- What do we hope to achieve by distributing the content?
- After distribution, how is the content being stored or is it being stored for either repurposing, historical preservation or compliance to regulations?

The Solution:

The solution is a variety of elements integrated together to build a workflow that meets your company's goals. As a Systems Integrator, StorExcel can assist you to define the existing infrastructure, design the desired workflow and fill the gaps in between.

Reference Architecture Diagram:
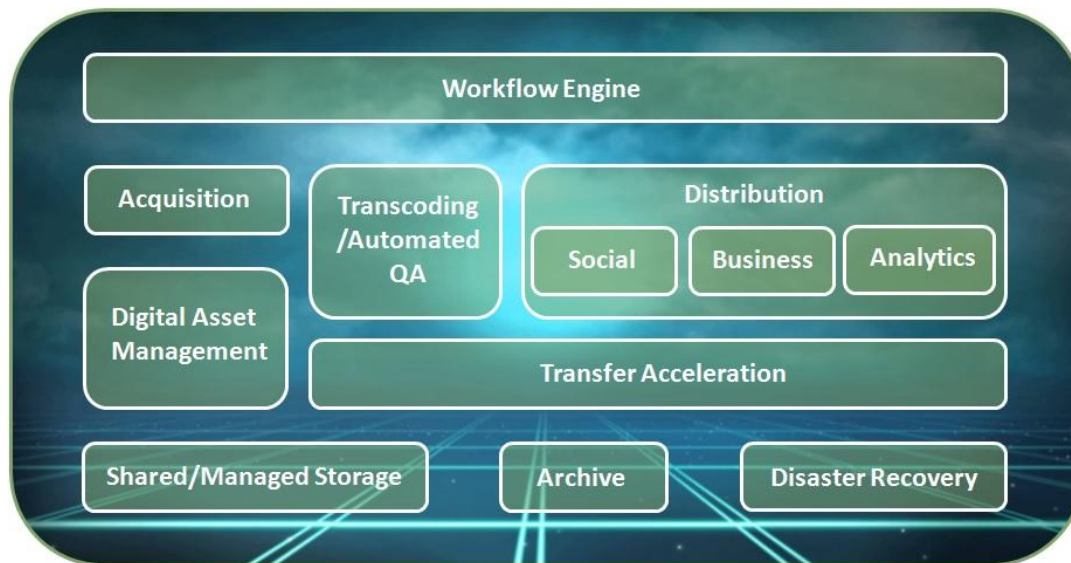
Reference Architecture Elements Outline:

1. **Workflow Engine (also known as Business Process Management)**
    Business Process Management (BPM) is most appropriate for a business that require end-to-end integration of their entire operation pipeline, and wish to automate the orchestration of their everyday activities that drive production. From broadcast distribution content owner, to project management and channel distribution, we can show you how BPM has the ability to automate all your human tasks, automat tasks which move from person to person, person to system and system to system. The BPM is intended to simplify the workflow of an organization that has many clients, internally or externally, millions of assets, and a multitude of review and approval levels along with an integrated billing system. It doesn't mean smaller organizations would not need BPM, it just means the BPM solution would be configured differently.

    Benefits of Automated Business Process Management:
    - Improved Business Agility
    - Reduced Costs and Increase Revenues
    - Higher Levels of Efficiency
    - Better Visibility
    - Compliance, Safety and Security

2. **Acquisition**
    We refer to the acquisition component block of the overall solution architecture as a combination of methods to capture media into your content production environment. These methods can be as simple as editors, artists and users creating rich media and putting it into a structured file system, registering it into a DAM and/or outside

sources delivering to a watch folder, and using automation to store it in a lights-out manner.

The answers to the initial questions in the challenge section of this paper will help identify which method(s) are best for your environment. There are a variety of in application tools that can meet basic needs, and a variety of 3rd party tools that can be integrated to meet more demanding requirements.

Benefits of Automated Acquisition:
- Automated media capture
- Control of metadata
- Automatic key word association
- Notification of ingestion

3. **Digital Asset Management**
This is usually the starting element and heart of any large content management system. A best practice for a DAM system is for it to be able to connect via API's with the enterprise content repository. We consider a DAM system to be "connected" when the DAM system is able to manage the metadata of an organization's rich media assets, in a manner that allows the digital assets to be located immediately upon a user's search, easily manipulated (versioned) per each user's requirements, and distributed / QA'd, in an efficient manner using customizable workflow automations. We consider the DAM system to be best-fit, when it is able to so, in a cost-effective manner.

Benefits:
- A central location to store and protect digital assets, one that enables consistent branding
- The ability to dynamically distribute assets to internal and external teams
- A place to quickly find and retrieve assets
- Better visibility into existing digital content, and an improved ability to leverage that content

All of which helps businesses and organizations because it:
- Improves collaboration and communication
- Enhances workflow efficiency
- Reduces time and cost of content production
- Lowers operating costs
- Provides the ability to bring new products and services to market faster

4. **Transcoding and Automated Q/A**
Changing an asset from one format to another is key to keeping pace with the external demands as an industry evolves and improves media delivery to the consumer. For example, in the Broadcast Industry, the recent transition from Standard Definition to High Definition went through a number of changes, that caused content owners to keep pace by being agile enough to deliver content as these standards evolved. This transition was addressed by specialized hardware and

software to meet the need to respond accordingly. More recently they are experiencing the transition to 2K, 4K, and higher resolutions resulting in major changes to the workflow. There are a wide variety of system options available, which vary from open source solutions to commercial products and cloud services.

As an additional component, automated verification can validate media as it either enters or exits a content owner's DAM system. This added Q/A measure has proven to be one of the most critical components in larger DAM environments, and is one way to ensure a high quality of service with your customers is maintained.

5. **Distribution**
   As detailed earlier, the need to publish/deliver rich media through content distribution channels is an evolving one, and includes the need to reach your customer touch points, via: posting content to a single company website catalog, sending content out to print, posting content to social media networks, and re-purposing your content for proper display on all web-enabled "Internet of Things," such that your content is delivered directly to customers, when they want it, and how they want it. We aim to simplify the content distribution process by offering as close to a one-click capability as possible for our customers.

   a. **Social Distribution**
   More and more we are seeing companies who work in media distribution, through normal means (via out-of-the-box software configurations), requesting a special method to publish to their social channels. This is why we created *SocialExcel ©*, our solution that allows us to add the ability to post to social channels, from any one of our DAM products. A one-to-many push delivery method.

   b. **Business Distribution**
   Most businesses continue to distribute their digital media through their original or legacy channels. Current DAM products have the capability to integrate legacy distribution from within the system's standard menu navigation panel, which allows customers to simplify their current distribution processes and provide tighter integration into the production workflow and adds tighter controls over multi-channel media distribution.

6. **Transfer Acceleration**
   File Transfer Accelerators can speed up single and multiple file transfers allowing you to control the amount of bandwidth based upon your business needs. This is an important consideration in your system design, since users can be burdened with waiting for media to move either internally or over wide area network when standard protocols are used, such as FTP or a simple file copy. It is not always easy for customers to forecast when all of their available media file-transfer bandwidth will be used up, for all of their media file distribution channels, even with today's out-of-the-box DAM applications. In these situations, it is critical that the DAM solution includes a high-speed transfer software element which helps customers improve productivity and minimize the wait for media to be moved around. The bottleneck

described includes internal media file transfer to: the workgroup, company, and to business partners.

Benefits:

- Reduce project time by a factor of four.
- Realize a tenfold increase in data-transfer rates.
- Boost editing efficiency by at least 2x.
- Enable all-HD video operations.
- Enhanced data protection.

7. **Shared/Managed Storage**
   If the DAM application is the heart and starting point of the content management system, then the shared file system is the backbone and cornerstone for having a complete digital media supply chain management solution, which allows the application to continue to do its job as the total volume of your media files continues to grow, now and into the future. Special attention should be made to moving your media files around, since file movement is the most expensive process in a media supply chain. In that regard, let's take a look at what a simple content management system workflow framework would look like, in the following diagram:
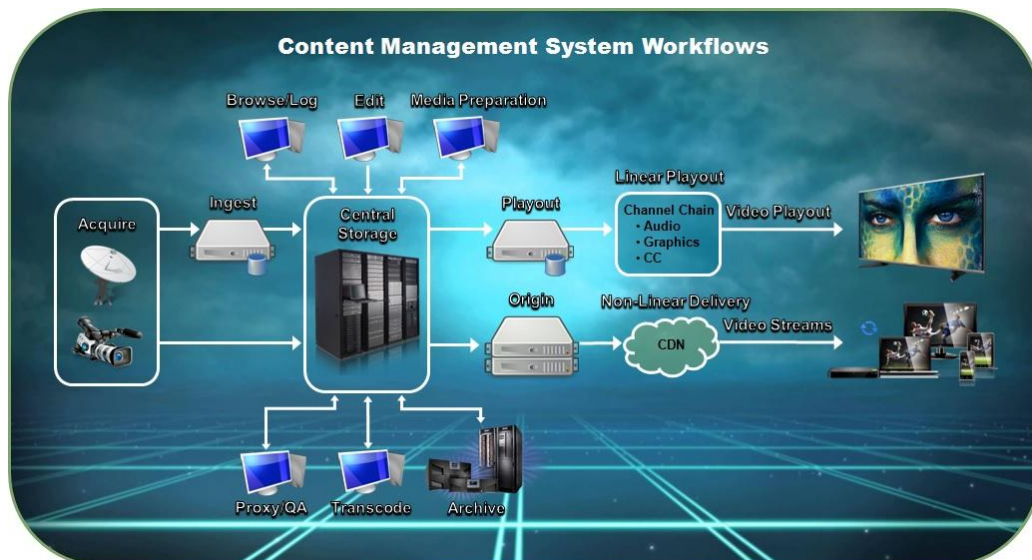
Media file transfer consumes both time and resources, which can be better utilized in other operations. Having the right digital media file storage architecture in place is critically important in: minimizing the burden of moving media, reducing storage costs, and reducing risk of media loss.

We consider a digital media file storage architecture to be "The right one," when it provides the ability to manage the life cycle of digital media files in the storage environment, automatically and transparently to the user, removing the burden of having administrative personnel make decisions as to where to move files, as projects age.

Benefits:
- Agile and flexible storage solution.
- Simplify the backup and restore process.
- Increase system reliability.
- Save up to 45% in storage management costs.
- Increased accessibility.
- Enterprise wide management.
- Efficient storage utilization.

45%
Storage Cost
REDUCTION

8. **Archive**

Having the objective of achieving "Speed-to-market," with your aging assets, sounds like a bit of a conundrum, doesn't it? By its very nature, physical media is meant to be kept long-term. Therefore, it makes sense to have a long-term approach to managing it, in order to avoid lagging behind with critical speed to market delivery of your time-sensitive content, and falling short of the quality needed to maximize the customer's connected experience across all of your customer touch points. To do this, you will need to have a good archive strategy.

For the purposes of this paper, we define archive as a second copy of your working content, available for reuse, and as the primary copy of your aging content or assets. Your primary data is highly available on tier one disk storage, reserved for all of your work in progress. Migrating older media off to lower cost storage will become an issue that you will have to deal with, as the total capacity of a primary storage system is eventually exceeded by the amount of space needed by an organization's media assets. Simply putting data on physical media and storing it on a shelf or a storage array that isn't scalable, may seem like an easy solution at first, but this short-term approach will soon become unmanageable when it comes down to your content management operations needing to work like clockwork in crunch time.

Benefits:
- Decrease TCO on your storage infrastructure.
- Easy and quick access to data in the event of a minor disruption in work.
- Historical preservation.
- Ability to ruse or repurpose for monetary opportunities.

9. **Disaster Recovery**

There are many reasons to back up your data, including adhering to industry regulations and company policies, as well as applying best practices and common sense. Within the data storage industry, two use-cases are brought up the most frequently, and they are: business continuity and disaster recovery.

Business continuity can be defined as providing the ability to continue working and deliver products and services, in spite of minor disruptive incidences. For example, if a correctly deployed system experiences a component failure, the editor can continue working while the system self-heals, without losing access to any data during the self-healing process.

Disaster Recovery typically refers to a much bigger holistic outage that causes the entire system and or facility to be completely out of commission. Natural disasters such as earthquakes, fires, floods, etc. are becoming more common occurrences affecting a company's ability to recover at all. In our experience, the companies who plan ahead for these events, are the most successful in retaining their assets and business operations. Putting the necessary Business Continuity and Disaster Recovery plans into action, in a proactive manner, is critically important for any business.

Benefits:
- Maintain employee productivity and the ability to generate revenue.
- Easy and fast restores of lost files for users.
- Preserve your reputation with customers and partners.
- Prevent the loss of business to your competition.
- More nimble response by IT to ensure compliance with industry regulations.

10. Analytics
Another trend that we are seeing is the addition of an analytic component into the ecosystem. Also known as "Big Data", an analytic engine will bring measurement into the system. A good analytic engine will allow a business to pull data from across the ecosystem, from external sources such as social sites and from other sources then report on the relationship of the data.

Benefits:
- Measurability of your business processes
- Encourages smart decision-making
- Provides clearer insights through data visualization
- Keeps you updates
- Provides business efficiency

Conclusion:
The reference architecture elements described in this document are the building blocks of a great infrastructure. They are essential for any company who wishes to respond to business decisions quickly. Starting with a sound storage system then adding the right business process and/or digital asset management application layers which best suit your business needs, helps to ensure that your company is in the best possible position for: maximizing market share, decreasing your total cost of ownership of your digital media supply chain solution, and maximizing the customer's connected experience across all customer touch points for your company's brand. Digital Asset Management and workflow processes aid in the efficiency of increasing a company's productivity, while maintaining quality and reliability in the companies' products and services. We can help you determine your system needs and guide you with the right vendor choices for your business.

Questions?

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