

## **A Preview of The New Lifecycle of Media – IP and File Based Architecture and Workflows Course**



### **About the Author**

Gary Olson is a media technology and business advisor specializing in the transition of traditional media workflows and business processes. He is a recognized industry leader with practical experience in the analysis, selection and uses of technology and is an innovator in media technologies and broadcast design. He holds a US Patent in streaming media automation and distribution. His skills include project management planning, budgeting, implementation costs, risk management strategies, and managing project portfolios. As a technology and business process analyst, he assesses end-user requirements, identifies risk and evaluates how the technology architecture aligns with future trends. Additional expertise includes broadcast, digital asset management, interactive telecommunication, distance learning, and digital media distribution.

### **Introduction**

The intent of this course is to review the entire IP and file based architecture, the changes in workflows and the broad spectrum of technologies that make up the environment. The transition to an IP infrastructure supporting file based broadcast and production came about more quickly and completely than any of the other recent changes in the broadcast and production industry. The course will show how this is a transition that is dependent on people, process and technology.

The way content is produced, handled, managed and monetized has changed. All aspects of broadcast and production have changed. New platforms have different production values and requirements to provide a rich user experience.

This new media lifecycle has brought a new vocabulary and lexicon into broadcast. There is tighter integration between departments and systems. This course reviews how metadata (data about data) is used to describe, control and manage the media (asset, essence, content). There are new rules and policies that govern the use and access of metadata; and the integration between departments.

### **Chapter Breakdown**

1. Introduction
2. Overview
3. The Anatomy of the IP and File Based Architecture
4. Media Standards and Protocols
5. The Acquisition Workflow
6. Production Workflow
7. Asset Management
8. Metadata, Taxonomy and Ontology
9. Preservation and Archive
10. Distribution
11. Glossary of Terms
12. Summary

### **Enrollment Information**

SBE Member Price: \$99  
Non-Member Price: \$149

## The Anatomy of the IP and File Based Architecture

The complete architecture includes a workflow layer shown in Figure 2 and technology. There are tools that facilitate the movement of files between systems and rules and policies that govern this flow. These processes can be automated or manual.

Figure 2



[Enlarge](#)

The acquisition of media (essence or content) is captured (recorded) onto removable media (flash, digital tape, optical and HDD) or ingested (recorded) directly to attached storage (ie. NAS, SAN and USB). In live production it is encoded into a stream for direct distribution (to be discussed in a later chapter) while also being captured.

Ingest is the process that brings the content into the main server/storage environment and makes it accessible to all production and business systems. There are many technical decisions to be made prior to the ingest process. These choices include among others; the format, codec and bitrates. To support the many delivery platforms, there are new considerations in how many versions are necessary. For internal production workflow there is high resolution for archive and retention, mezzanine for production and primary delivery; and low resolution for proxy. For distribution, each platform has a different format and set of requirements.

The ingest and capture process is where asset management begins. Metadata captures the information and decisions that are made during the ingest process and is cataloged into the asset management system. Part of the ingest process is creating low resolution copies (proxies) of the content and entering metadata. The metadata and proxies will enable the content to be accessible, searchable and manageable.

Now that it is ingested, the content is available for the production and management processes. In file based production there are different tiers of content availability; online, near-line, offline and archive. There are different storage systems that handle ingest QC, production, distribution and archive. It is essential to have a management system that oversees the media flow between these systems.

- **Online** means immediately available typically on high availability disks arrays. There can be separate servers/storage for ingest, production and distribution. There is also different storage for high resolution content and proxies. Online is for content that is active in the production process and/or being packaged for immediate distribution

- **Near-line** means it is not needed immediately however, still needs to be readily accessible, this is usually on a different disk array or on removable media that can still be attached (ie. tape robot library)
- **Off-line** is usually removable media and the content is removed from the primary storage to a library
- **Archive** is deep storage of the removable media, typically in an off-site location

In the IP and file based world the content is available in virtually real time for editing and review. It is also available for management, application of **DRM** (digital rights management), rules and policy (governance), integration to traffic systems, legal, marketing, finance, business intelligence and distribution.

As the content is in the production process and different versions are made, copies and other elements are associated with the originally ingested content; metadata is used to associate all the different elements in a management and logging process. The production/craft process will create products that are specific to the platform it will be delivered on. Each platform (smartphone, tablet, mobile, web, TV, VOD) have different requirements that are more than just format type and bit rate. In the file based environment multiple editorial processes can happen at the same time.

Once the content completes the production process it moves to both distribution and archive. A high resolution copy of the content is placed into the library while a mezzanine copy moves to the distribution (playout) system for delivery to the different distribution platforms. The playout server delivers the content to different platform servers. Metadata is used in delivery and final distribution to provide control intelligence, encryption, advertising; usage rights (DRM) and enables the retrieval of marketing data for business intelligence after delivery.

There are four major areas in file based architecture. They are:

- Acquisition, Production, Asset Management, Distribution
- Remotes, Ingest, Storage, Editing
- Ingest, Metadata, DRM, Archive
- None of the above

Ingest is the part of the lifecycle that:

- Manages the media
- Transfers notes
- Tracks location
- Encodes into the storage