



Managing  
The Business  
Of Content®

## The Content Distribution Challenge

Satellite and Terrestrial Mass Distribution



**AUTOMATING  
THE CONTENT  
SUPPLY CHAIN**

According to the National Association of Broadcasters (NAB), there are currently 1800 local television stations in the United States, of which 1400 are primarily affiliated to one of the major national network groups (such as NBC, ABC, CBS, FOX, CW and MeTV). These networks use Satellite and Terrestrial transfer methods to distribute content between affiliates, and largely distribute VOD programming using Satellite.

The challenges that enterprise level content distributors, MVPDs, and broadcast networks face in order to deliver timely content to an ever growing number of platforms continue to evolve. The variety of technologies utilized to receive, prepare, QC and distribute content to thousands of locations presents an additional hurdle to operational efficiency. As most content delivery workflows originate in broadcast, many ingest and distribution solutions rely on older established Satellite infrastructure and offline prep/QC workstations. Additionally, many organizations have implemented segregated digital Terrestrial distribution workflows using completely different solutions creating unnecessary duplicative effort and processes. These challenges are compounded for providers of daily produced programming, news or recorded broadcast programming that has to be distributed rapidly after completion.

## Problem Summary

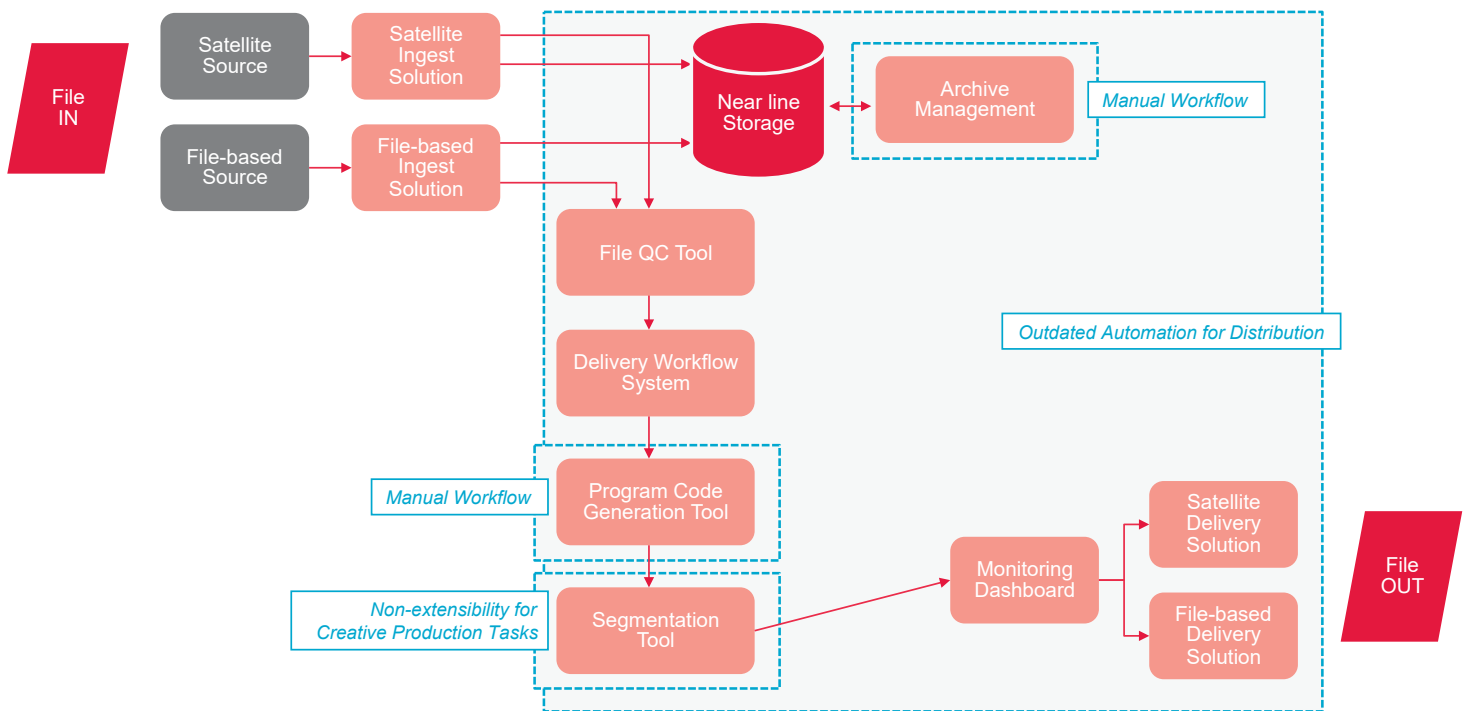
Imagine a typical Broadcast Network that receives programming from multiple distributors. The picture below depicts the typical process flow for ingested programming. Alongside this process depiction are the media deliverables that are produced at each step.

### Satellite Ingest Solution

The Satellite Ingest phase involves traditional file-based transfer workflows involving solutions like Nexio and CompuSat. Files come in 24/7 and are frequently managed by hand as they are prepared for redistribution. After landing on these devices, files are copied over from the receiving device to a central storage solution for evaluation and processing.

### File-based Ingestion Solutions

The file-based ingestion step involves various file-based transfer solutions currently used by distributors to deliver content. These products include solutions such as PitchBlue, Pathfire, Signiant, Aspera and FTP. Files usually land on these platforms and must be collected and manually relocated to near line storage for evaluation and preparation.



Satellite/Terrestrial Ingest and Distribution Process – A Recap

## Delivery Workflow Solution

Due to the volume of files moving through organizations for distribution, usually software (sometimes even Excel) is utilized to track content as it is received and trafficked through the delivery process. Users manually enter metadata and track content as it is moved through each process until the files have been distributed successfully.

## Program Naming Solution

Files arrive from distributors using any number of naming schemas that help receivers of these files to identify the underlying content. Receivers of the media usually need to rename files according to their own internal naming conventions in order to avoid naming collisions as well as conform to the various platforms for which the content will be sent.

## QC Tool

It is not uncommon that after renaming, media must be verified and reviewed to ensure the content matches included slate and naming data. Additionally, the file must be analyzed to ensure the file is without technical faults and will play out successfully on broadcast or streaming equipment.

## Segmenting

Most programming arrives as one file with multiple programming segments. Programming arriving with segment data must be verified to ensure that each segment's timecode data exactly matches the first and last frame of video or audio for that segment. Additionally, content must match the pre-specified number of segments in order to be distributed.

## Monitoring Dashboards

Some of the solutions utilized in these workflows provide dashboards and reports to allow operations personnel to monitor work as it is received, reviewed, processed and distributed. Additionally, the various file transfer products must also be monitored to ensure that any file movement solutions are kept operational at all times.

## Satellite Delivery Solution

Files can be delivered using high bandwidth Satellite transfer solutions to one or many locations simultaneously. A Satellite's unique ability to multicast a file to any number of locations simultaneously makes this method particularly attractive to organizations that possess this technology and need to move large volumes of files quickly.

## Terrestrial Delivery Solution

Files can be delivered deploying one of many Terrestrial delivery solutions deploying internet connectivity. Solutions provide file transfer acceleration, security, prioritization, caching and monitoring.

## Operational Challenges

- The number of disparate solutions in these workflows forces organizations to move content from one work platform to another as files move through the workflow. This slows down the process and dramatically increases the chances of error
- Some organizations have completely duplicative workflows and tools for Satellite and Terrestrial ingest and distribution
- There is no mechanism to orchestrate and deploy these file workflows. The workflow is driven based on operational knowledge of specific resources who manually use the various utilities like Pitchblue, Pathfire, Aspera, Signiant etc. to perform point operations. There is no operational dashboard that confirms the files have been successfully delivered to their destinations

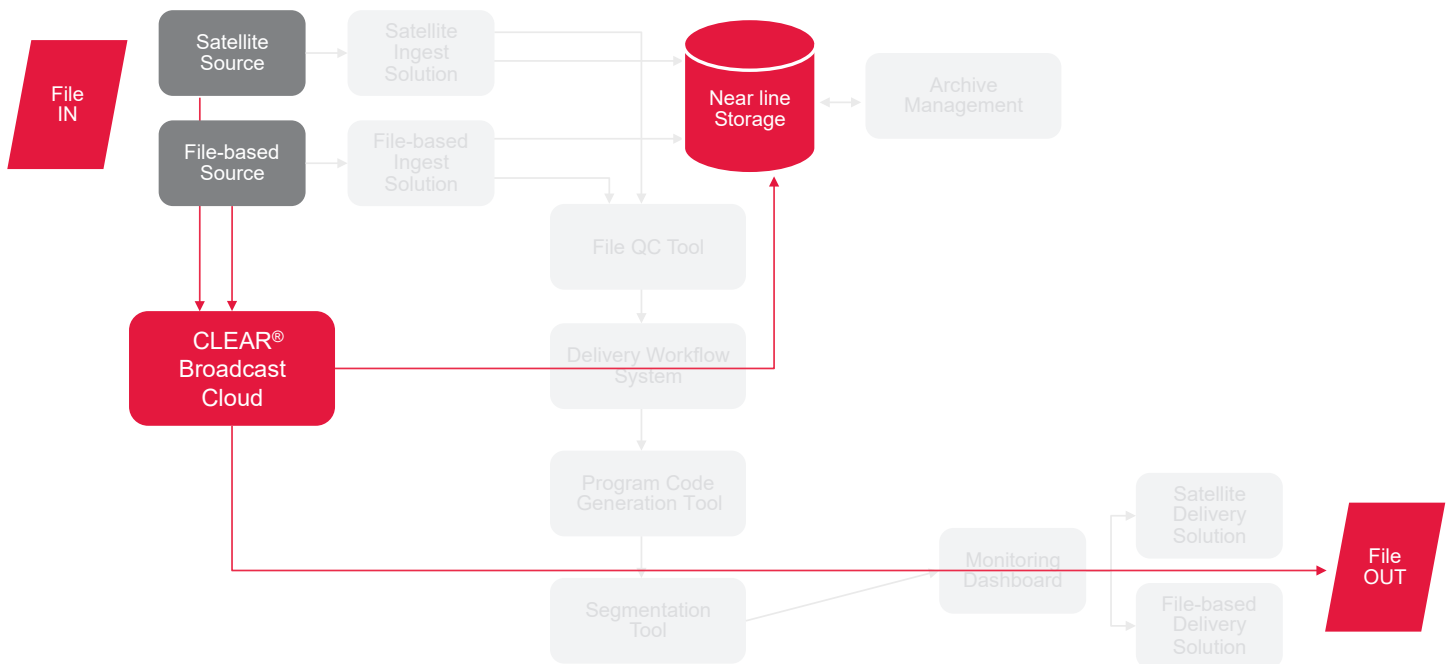
## What is Needed?

- A single solution to manage traditional Satellite and next gen Terrestrial ingest and distribution within one environment. Incorporation of technologies, wherever possible, directly within the solution
- A workflow orchestration tool that orchestrates the process of file ingest, prep, QC, and distribution eliminating the need for content to be moved from point to point as well as automating tasks where appropriate
- Real Time dashboards that update themselves based on automation, and hence aid in tracking
- Task Lists, for everyone to perform manual tasks (prep/verify, segment). Alerts to notify operational staff of failures that require direct intervention. Automatic ability to re-prioritize or redirect work to alternate solutions

## CLEAR® Ingest & Distribution

Prime Focus Technologies' CLEAR® ingest & Distribution offers ONE Cloud-based software to manage end-to-end workflows for Satellite and Terrestrial distribution. The solution addresses the above challenges by integrating and automating ingest, prep, QC and distribution workflows as well as providing real time dashboards and notification alerts to operations teams. CLEAR® Ingest & Distribution utilizes its built in Business Process Management engine to automate file processing as well as generate real time dashboards to drive underlying distributed

workflows within a single user interface. It enables users to review proxies of the content moving through the system, as well as manually transfer content to local affiliates via Signiant, Aspera or similar file transfer utilities. Additionally, CLEAR® Ingest & Distribution provides the ability to troubleshoot workflows to identify equipment faults and trigger automated failovers to alternate workflows. The solution also offers extensive interoperability and is pre-integrated with systems like PitchBlue, CatchBlue, IDC-XD, CompuSat & Nexio. The following diagram depicts the revised and streamlined content flows one can achieve through the use of CLEAR®.



CLEAR® Ingest & Distribution eliminates existing manual workflows and offers automation for Ingest, QC, Program Code Generation, Segmentation, Archiving and Delivery

The following section reviews the typical screen configurations to better define the user experience the Operations teams will receive by leveraging CLEAR® Ingest & Distribution.

## Content Ingest/Distribution Specification

### Program Information

- The data entry form below shows how operations teams define a program that is to be ingested and distributed across a broadcast network. In this case, a program name, program code, ingest and distribution method are selected. Program codes are used as part of the renaming calculation to assure that generated file names are unique
- As this program is to be ingested via a Satellite record, the Satellite details are specified as to how and when the file should be captured off the Satellite. Technical details as to the incoming file are also specified
- If Pathfire or PitchBlue are to be utilized (file-based delivery), users can easily specify where from files are to be retrieved and how their names should be changed as well
- Users then specify the destination locations (TV Stations, OTT digital outlets, digital platforms, etc.) that the file should be distributed to

### Satellite Record Information

- For files arriving via Satellite records, Operations users specify the days and times that the recording equipment must perform the program capture

## File Ingest Monitoring

### Ingest Dashboard

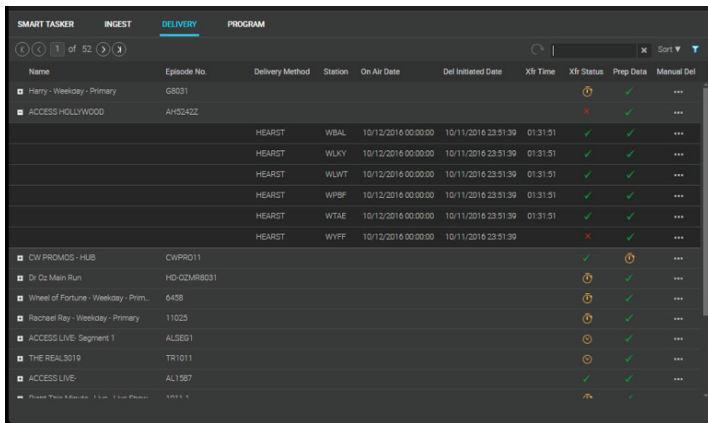
- As files arrive at an organization's Operations facilities, entries are automatically generated in the Ingest dashboard. Files are identified and readable names are looked up and applied to allow operations staff to work with names and episode numbers versus file names. Air dates, when available, are obtained from external systems to help prioritize the file preparation process (Verification, QC, Segmentation)
- Operations staff members, working off the ingest dashboard, review the content and create Segmentation data to be distributed along with the content. When CLEAR® determines that all necessary data has been created, the content proceeds automatically to distribution

Title	Episode No.	Source	Duration	Creation Time	Air Date	Prep Data Status
Leverage - Weekend - Primary	109	PITCHBLUE	0	10/12/2016 08:35:50	10/15/2016 00:00:00	
Jack Hanna Animal Adventure	JHAA2133	PATHFIRESD	0	10/12/2016 08:19:14	10/14/2016 00:00:00	
Just For Laughs Gags Main Run	HD_JFLG035	PATHFIRE_NEW	0	10/12/2016 08:13:17	10/14/2016 00:00:00	
Big Kids - Big Kids - Weekly Run	107	PITCHBLUE	0	10/12/2016 08:13:16	10/15/2016 00:00:00	
AL Presents - FEATURE - Quarterly Special	SON0005	PITCHBLUE	0	10/12/2016 07:41:23	10/12/2016 00:00:00	
Right This Minute - Live - Live Show B	1012-2	PITCHBLUE	0	10/12/2016 07:37:52	10/12/2016 00:00:00	
Real The - Weekday - Primary	3034	PITCHBLUE	0	10/12/2016 07:35:50	10/12/2016 00:00:00	
THE REAL - SATPITCH	TR1012	LEITCH	0	10/12/2016 07:33:15		
Ellen DeGeneres Show, The - Weekday - Primary	14027	PITCHBLUE	0	10/12/2016 07:23:50	10/12/2016 00:00:00	
Right This Minute - Live - Live Show A	1012-1	PITCHBLUE	0	10/12/2016 07:07:26	10/12/2016 00:00:00	
MyDestinationTV	MOTV1305	PATHFIRESD	0	10/12/2016 07:03:52	10/15/2016 00:00:00	✓
ELLEN - SAT FEED	EG14027	LEITCH	0	10/12/2016 07:03:04		
CW PROMOS - HUB	CWWED128U	LEITCH	0	10/12/2016 06:58:23		
CHEATERS WEEKEND	HD-CHEATW517	PATHFIRE_NEW	0	10/12/2016 06:50:43	10/15/2016 00:00:00	
American Athlete	AMATH2005	PATHFIRESD	0	10/12/2016 06:47:10	10/15/2016 00:00:00	✓

## File Distribution Monitoring

### Delivery Dashboard

- Once content prep is complete, CLEAR® Ingest & Distribution immediately proceeds to deliver the media and associated metadata to all specified Satellite and/or Terrestrial destinations
- Real-time updates are provided for all transfers. Transfers can be in one of several states including: in queue, in progress, completed, or partially completed with an error
- Operations users can expand any delivery marked as 'error' to determine which specific transfer(s) have failed. Users can then either troubleshoot, correct and retry the transfer. Additionally, if so desired, the operator can select an alternate delivery method to complete the distribution



Name	Episode No.	Delivery Method	Station	On Air Date	Del Initiated Date	XLS Time	XLS Status	Prep Data	Manual Del
Harry - Weekday - Primary	G5201								
ACCESS HOLLYWOOD	AH05422								
		HEARST	WBAL	10/12/2016 00:00:00	10/11/2016 23:51:39	01:31:51	✓	✓	...
		HEARST	WLKY	10/12/2016 00:00:00	10/11/2016 23:51:39	01:31:51	✓	✓	...
		HEARST	WLWT	10/12/2016 00:00:00	10/11/2016 23:51:39	01:31:51	✓	✓	...
		HEARST	WPBF	10/12/2016 00:00:00	10/11/2016 23:51:39	01:31:51	✓	✓	...
		HEARST	WTAE	10/12/2016 00:00:00	10/11/2016 23:51:39	01:31:51	✓	✓	...
		HEARST	WYFF	10/12/2016 00:00:00	10/11/2016 23:51:39	01:31:51	✗	✓	...
CW PROMOS - HLB	CWPR011								
Dr Oz Main Run	HD-02MR8031								
Wheel of Fortune - Weekday - Prim...	6436								
Ronnie Ray - Weekday - Primary	11025								
ACCESS LIVE Segment 1	ALSEG1								
THE REAL 3019	TR1011								
ACCESS LIVE	AL1967								

## Conclusion

The goal of CLEAR® Ingest & Distribution is to bring better integration, communication, transparency, and speed to day-to-day file delivery operations. Typically, there are multiple disparate file ingest and distribution technologies that must be managed in addition to manual QC and metadata creation workflows. Furthermore, the absence of centralized operational dashboards and QC tools means everyone is forced to move content around manually, further degrading distribution performance as well as demanding the dependence of round-the-clock operational support.

CLEAR® Ingest & Distribution takes away all the chaos, simplifies the process, and brings in transparency to your delivery operations. The solution allows you to centralize Satellite and Terrestrial distribution onto a single platform giving you better control over your workflows. Additionally, it eliminates the need for separated offline tools for QC, Segmentation and Metadata creation and provides an easy to use interface that can be accessed from anywhere to manage your enterprise's mass distribution workflows.

## About Prime Focus Technologies

Prime Focus Technologies (PFT) is the creator of Enterprise Resource Planning (ERP) software, CLEAR®, for the Media & Entertainment (M&E) industry. It offers streaming platforms, studios, and broadcasters transformational AI-led technology and media services powered by the Cloud that help them lower their Total Cost of Operations (TCOP) by automating their content supply chain. PFT works with major companies like Walt Disney-owned Star TV, Channel 4, ITV, Sinclair Broadcast Group, A&E Networks, Hearst Television, Warner Media, PBS, CBS Television Studios, 20th Century Fox Television Studios, Lionsgate, Showtime, HBO, NBCU, TERN International, Disney+ Hotstar, BCCI, Indian Premier League, and more.

PFT is the technology subsidiary of Prime Focus, a global leader in M&E industry services.

For more information, visit [www.primefocustechnologies.com](http://www.primefocustechnologies.com).

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