

Adopting IMF in MAM Systems

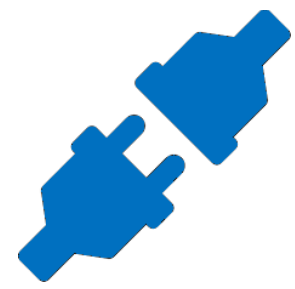
Maximizing Efficiency and Lowering Costs



Performance / Efficiency



Cost Reduction



Interoperability



Import

IMF Package Processing

Complete/Supplemental

Asset Creation

Physical or virtual

Preserve the CPL

Without media duplication



Enrich

Extend CPLs

Without media replication

Create New Versions

Establishing logical references
to the Master

Edit in Lowres

Automatic Addition

Slates, Bars, Tones, etc.



Deliver

Not Limited

By the original IMF
packages received

Ready to generate

New Packages with any
compatible combination
Video (SDR, HRD, HD), Audio
Languages, Subtitles, Artwork

The Key: Title Centric View. Scenarios

Master Version(s): HDR, SDR, HD



Localized Version(s): HDR, SDR, HD



Localized Version(s) + Leader Insertions (for a Specific Platform): HDR, SDR, HD



The Key: Title Centric View

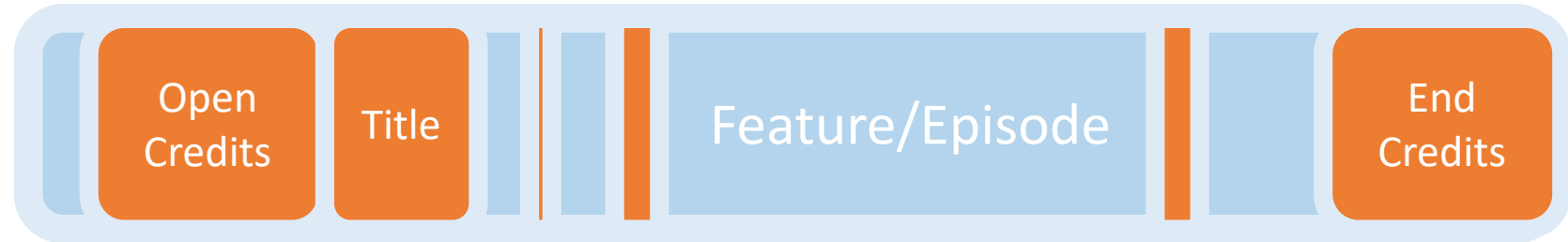


The Key: Title Centric View. Logical Assets

Master Version(s): HDR, SDR, HD



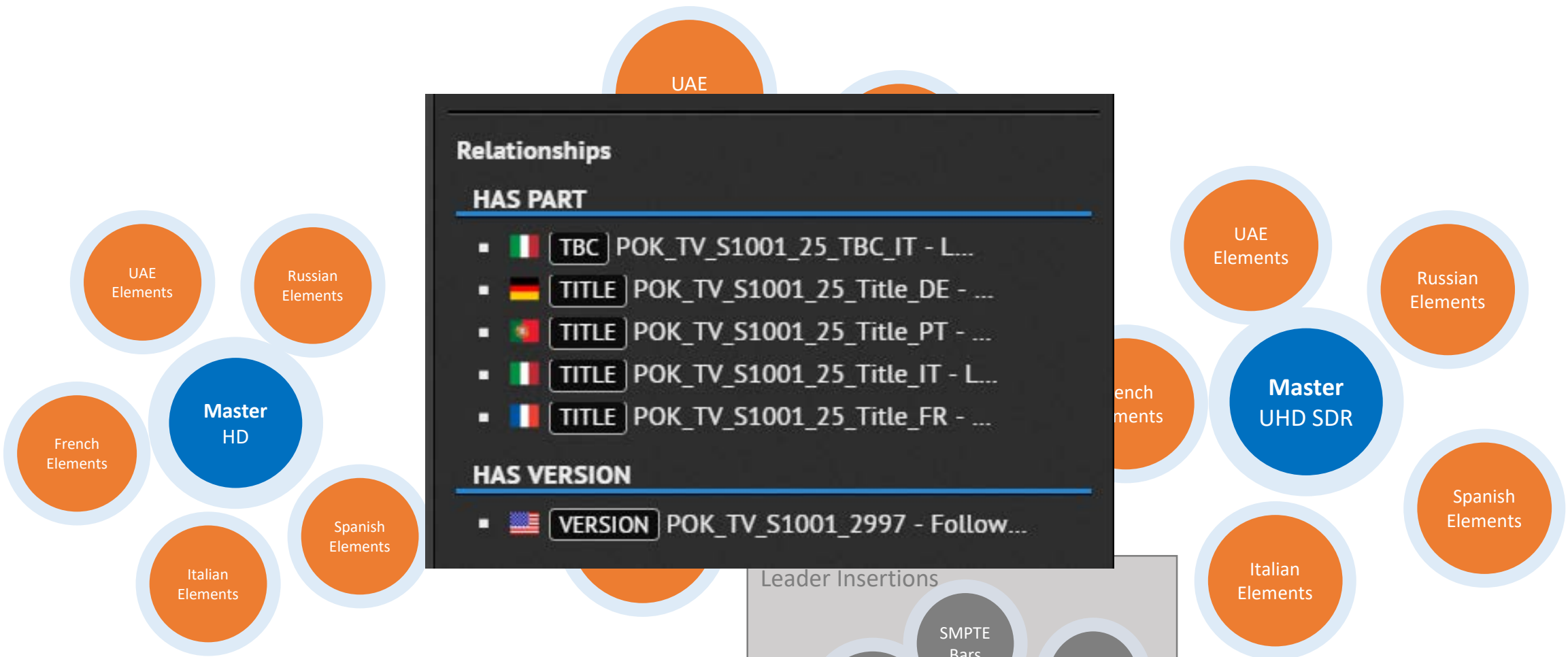
Localized Version(s): HDR, SDR, HD



Localized Version(s) + Leader Insertions (for a Specific Platform): HDR, SDR, HD



The Key: Title Centric View. Assembled on the Fly



Relationships

HAS PART

- **TBC** POK_TV_S1001_25_TBC_IT - L...
- **TITLE** POK_TV_S1001_25_Title_DE - ...
- **TITLE** POK_TV_S1001_25_Title_PT - ...
- **TITLE** POK_TV_S1001_25_Title_IT - L...
- **TITLE** POK_TV_S1001_25_Title_FR - ...

HAS VERSION

- **VERSION** POK_TV_S1001_2997 - Follow...

The Key: Title Centric View. Assembled on the Fly

Master Version(s): HDR, SDR, HD



Localized Version(s): HDR, SDR, HD



Localized Version(s) + Leader Insertions (for a Specific Platform): HDR, SDR, HD



But, How does it translate into the real world?

- **Performance / Efficiency** > Processing Time and Accessibility
 - No Media Replication
 - Proxy Generation: Transcode only requires parts
- **Cost Reduction** > Servers, Storage and Network Bandwidth
 - No Media Replication
- **Interoperability** > Eliminate Errors Due to Unsupported Formats/Flavors
 - Standard Workflows
- All of these points affect **MAMs On-Premises / In the Cloud**
 - HW Infrastructure vs Monthly fee

The Benefits in Figures: Typical Scenario

Content Type	Application	Bitrate (Mbps)	Masters per Title	Localized Versions	Average Dur. (mins)	Average Size (per Clip, GB)	Transcoding Speed
Feature	2E	712	3	2 / 5 / 10	120 min	625.39 GB	4x
Episode	2E	706	3	2 / 5 / 10	40 min	206.77 GB	4x

Bitrate (Mbps): Includes Original Language in 2.0 and 5.1 + M&E

Masters: SDR, HDR, HD

Localized Versions: 2 / 5 / 10

Text Insertions. 5%

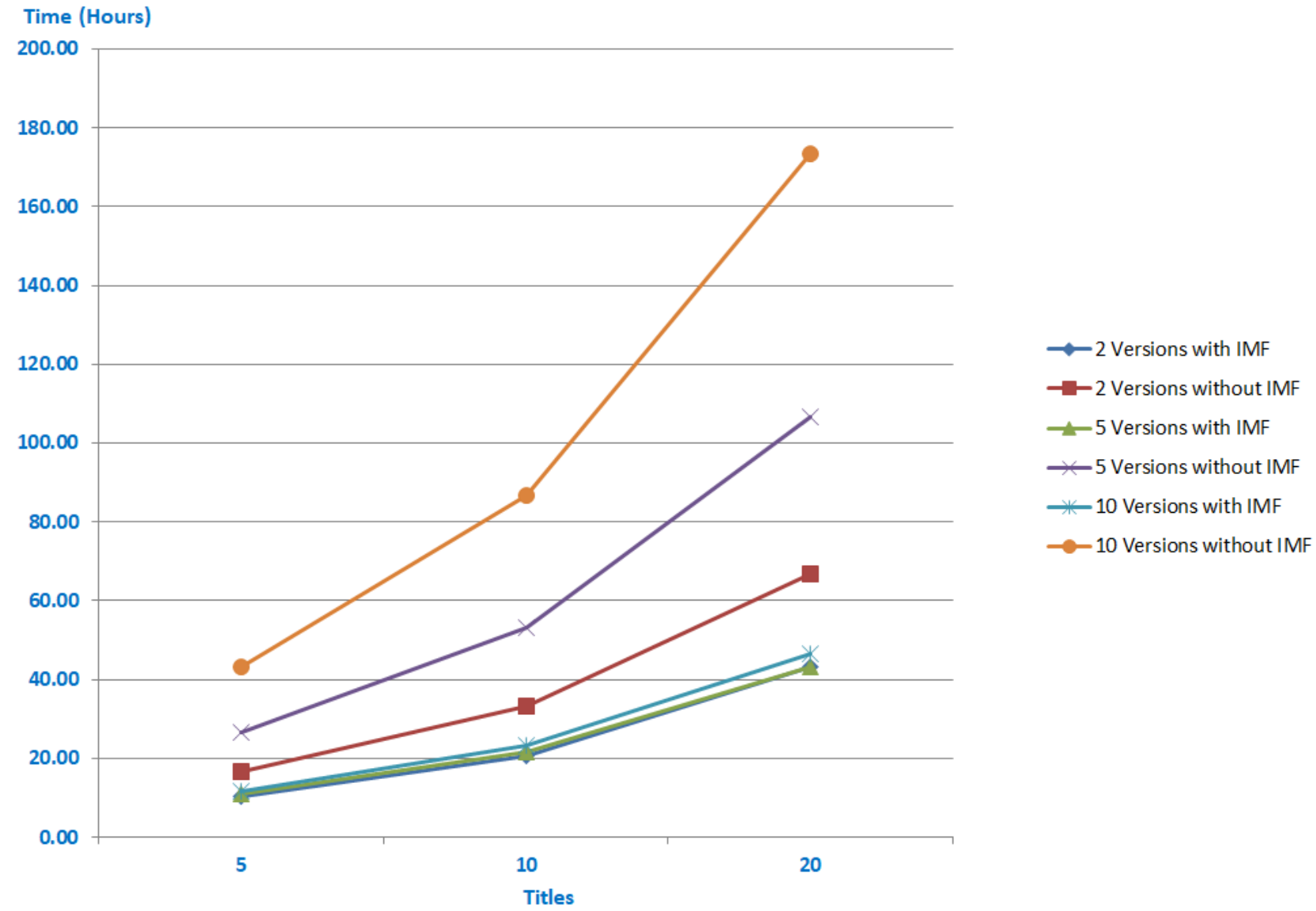
Localized Audio Tracks: 2 Tracks

The Benefits in Figures: Performance

	Localized Versions	Media to Transcode (with IMF)	Media to Transcode (without IMF)	Time (with IMF)	Time (without IMF)	Benefit
Feature	2	372 min	600 min	124 min	200 min	1.61x
	5	390 min	960 min	130 min	320 min	2.46x
	10	420 min	1560 min	140 min	520 min	3.71x
TV Show	1	122 min	160 min	40 min	53 min	1.31x
	5	130 min	320 min	43 min	106 min	2.46x
	10	140 min	520 min	46 min	186 min	3.71x

(*) Assuming a Transcoding speed of 3x for Proxy generation

The Benefits in Figures: Performance



Time to Process, Highest Benefit:
5 Titles/10 Versions: 10h vs 43h
10 Titles/10 Versions: 23h vs 86h
20 Titles/10 Versions: 46h vs 186h

Benefit of 400%

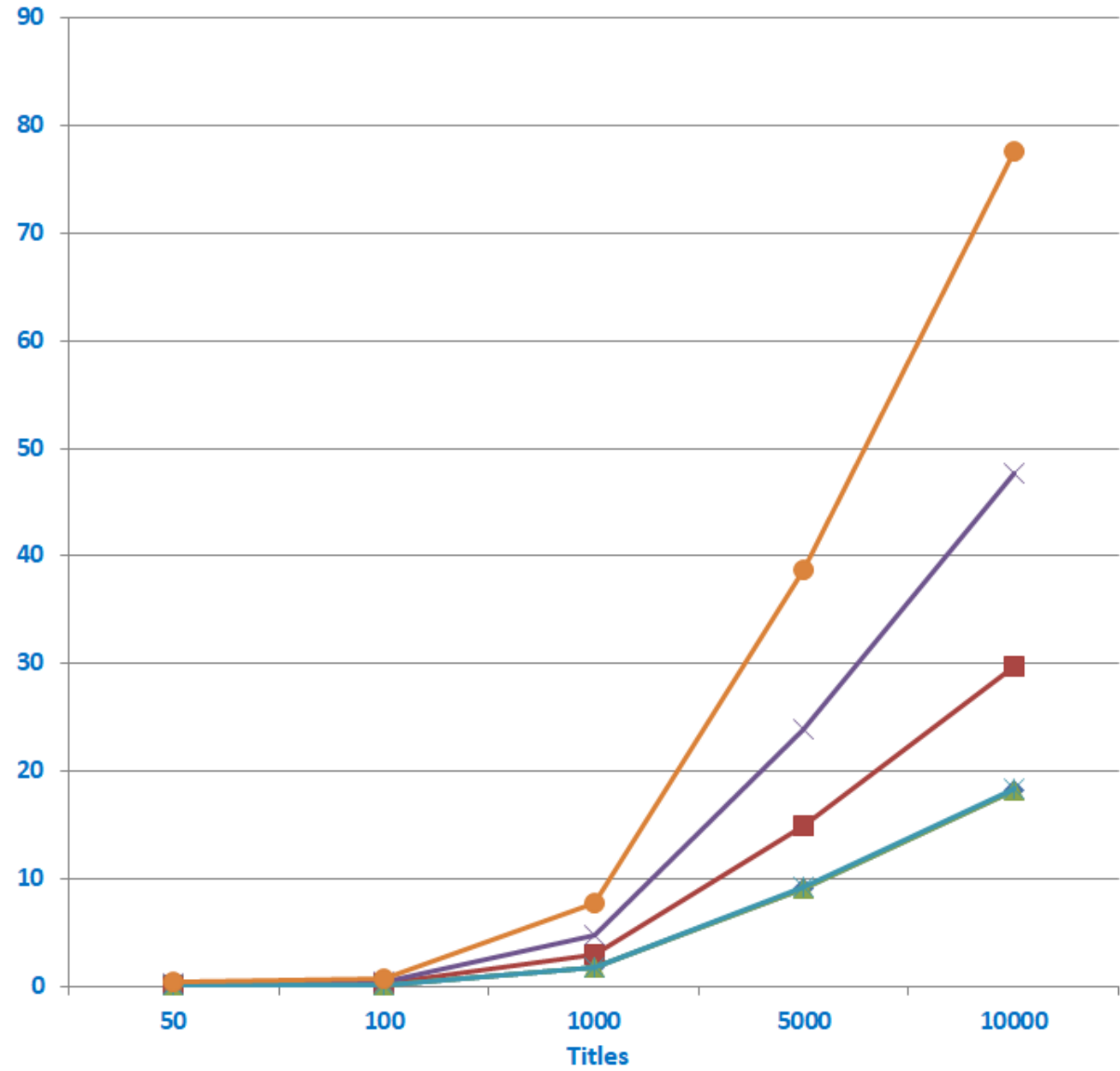
The Benefits in Figures: Storage



	Localized Versions	Average Size per Clip (GB)	Total Size with IMF (GB)	Total Size without IMF (GB)	Savings (%)	Savings per Title (GB)
Feature	2	625 GB	1912 GB	3125 GB	163	1.21 TB
	5	625 GB	1920 GB	5003 GB	260	3.08 TB
	10	625 GB	1933 GB	8130 GB	420	6.19 TB
TV Show	1	206 GB	631 GB	827 GB	130	0.19 TB
	5	206 GB	634 GB	1654 GB	260	1.01 TB
	10	206 GB	639 GB	2688 GB	420	2.04 TB

The Benefits in Figures: Storage

Archive Size (PB)



Storage, Highest Benefit:

1000 Titles/10 Versions: 1.8PB vs 7.7PB

5000 Titles/10 Versions: 9.2PB vs 38PB

10000 Titles/10 Versions: 18.4PB vs 77.5PB

Benefit of 420%

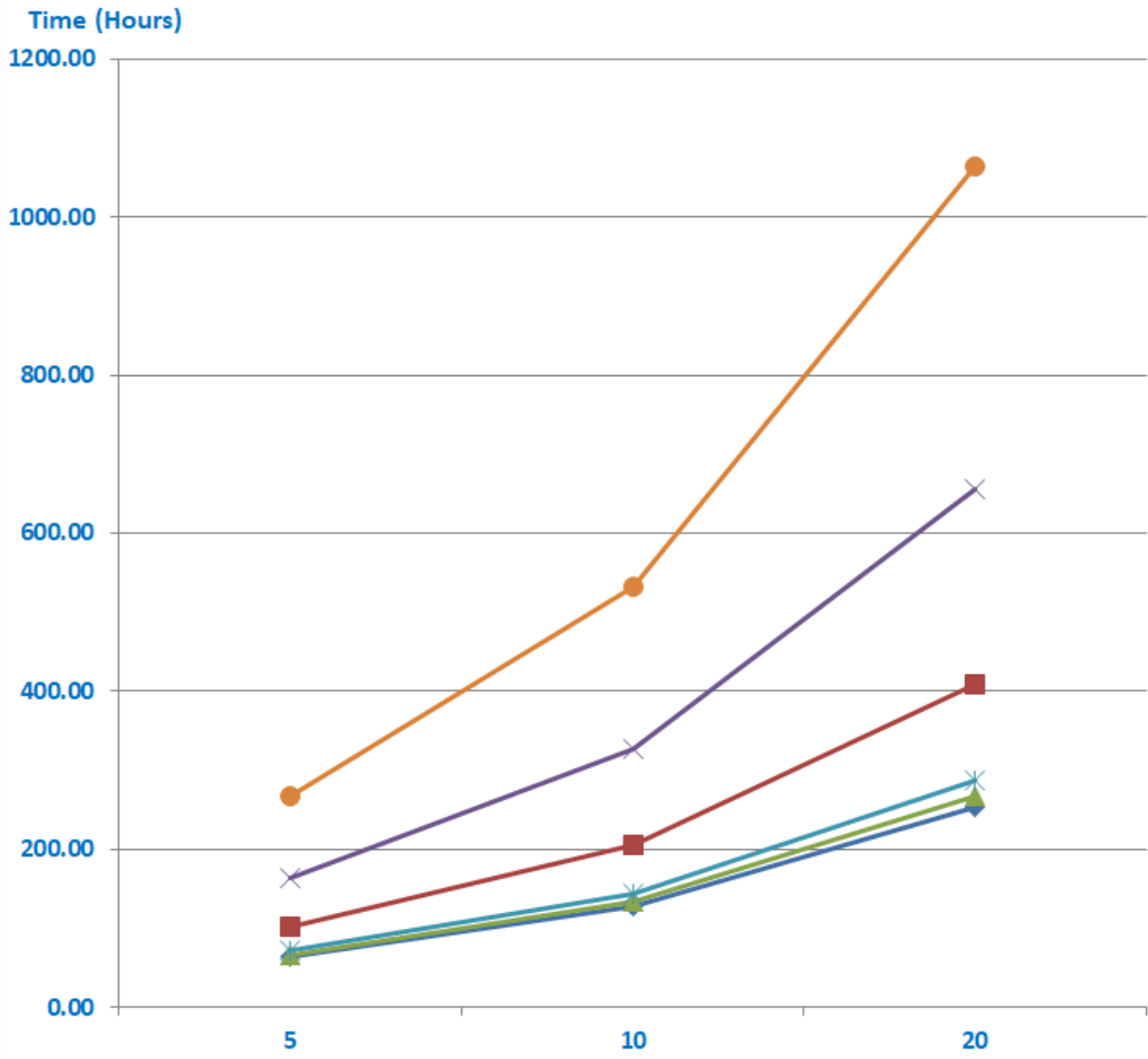
- 2 Versions with IMF
- 2 Versions without IMF
- 5 Versions with IMF
- 5 Versions without IMF
- 10 Versions with IMF
- 10 Versions without IMF

The Benefits in Figures: Delivery

	Localized Versions	Media to Transfer (with IMF)	Media to Transfer (without IMF)	Time (with IMF)	Time (without IMF)	Benefit
Feature	2	372 min	600 min	13h42m	20h29m	1.61x
	5	390 min	960 min	13h19m	33h46m	2.46x
	10	420 min	1560 min	14h20m	53h15m	3.71x
TV Show	1	122 min	160 min	4h10m	5h28m	1.31x
	5	130 min	320 min	4h26m	11h55m	2.46x
	10	140 min	520 min	5h47m	18h45m	3.71x

Average Feature Length: 120min
 Average TV Show Length: 40min
 Assuming a Bandwidth of 500Mbps

The Benefits in Figures: Delivery



Delivery, Highest Benefit:

5 Titles/10 Versions: 71h vs 266h
10 Titles/10 Versions: 133h vs 532h
20 Titles/10 Versions: 266h v 1064h

Benefit of 420%

- 2 Versions with IMF
- 2 Versions without IMF
- 5 Versions with IMF
- 5 Versions without IMF
- 10 Versions with IMF
- 10 Versions without IMF

IMF is not an Archival Format! be ready to process and deliver efficiently IMF Packages

IMF has great benefits, but MAM systems need to have structures to take advantage of them

These Benefits are Real and can be measured to make decisions on adopting IMF workflows

