

DCI Specification for Digital Cinema –
A view from Europe
15th September 2005



The DCI Specification



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- *A comprehensive roadmap for post production facilities*

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Covers:-

- *Content Mastering*
- *Content Management*
- *Content Distribution*



The DCI Specification



The DCI Specification

- *Will all content be mastered, managed and distributed from Hollywood?*

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- *Will European Facilities be needed?*

The DCI Specification

- *Will all content be mastered, managed and distributed from Hollywood?*
- *Will European Facilities be needed?*
- *Need to cater for:-*
 - *Diversity of Cultures*
 - *Language*
 - *Local requirements ‘the importance of local knowledge’*
 - *Timescales*



The DCI Specification



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- *Will European Facilities be needed?*
- Distribute through hubs in Europe & Rest of World
- DCI Compliant
- Secure Network
- Service local needs & mainstream Hollywood content
- Two way flow
- Existing film distribution patterns

The DCI Specification

- *How do we as facilities respond to the DCI spec?*
 - Skills exist today
 - Migrate skills to new Digital Cinema workflow

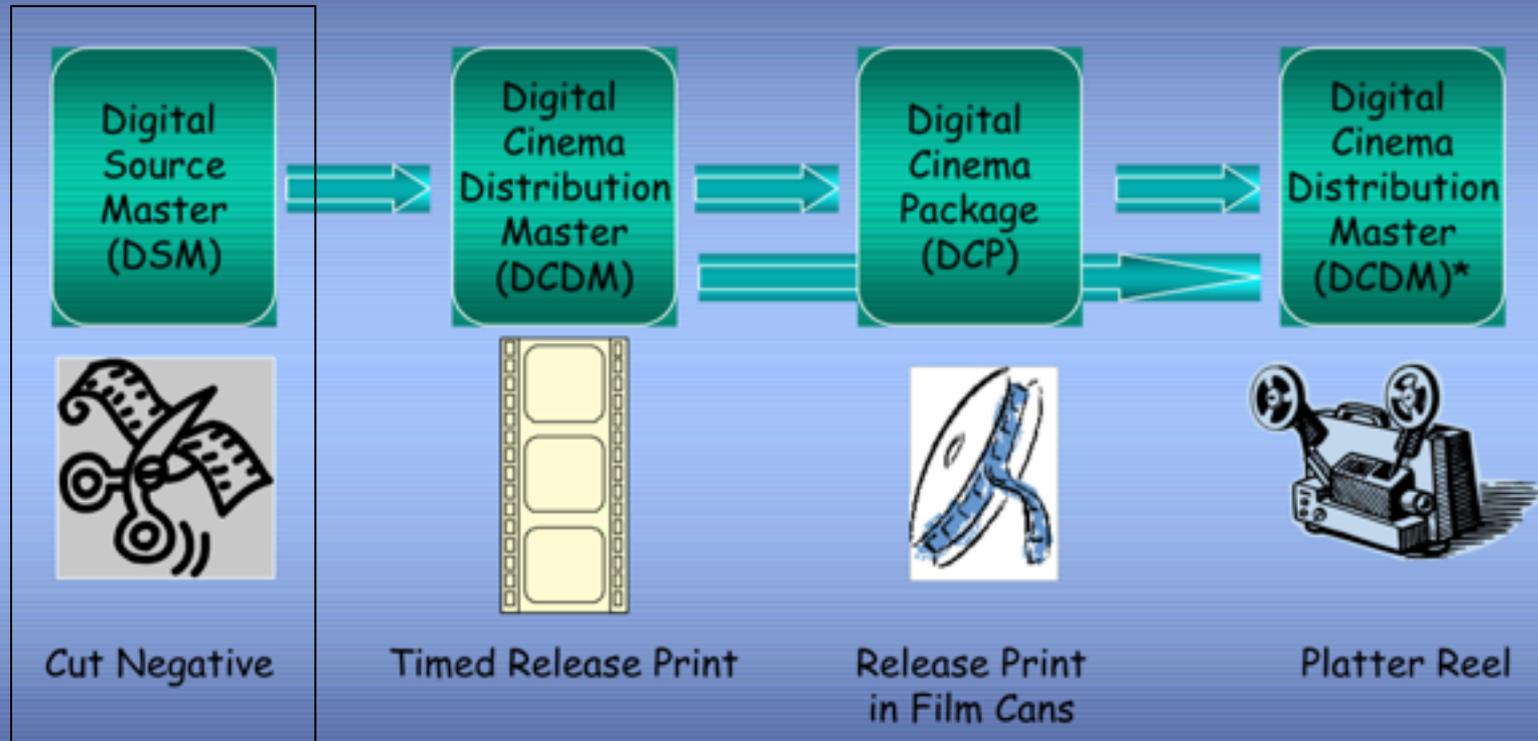
- *Step by step approach*

The DCI Specification

- *Areas covered by DCI and SMPTE:-*
 - Mastering
 - Picture
 - Audio
 - Subtitle
 - Compression
 - Encryption
 - Packaging
 - Transport
 - Theatre systems
 - Projection
 - Security

Digital Source Master

Simplified Workflow F-C-M vs D-C-M



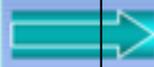
Digital Cinema Distribution Master

Simplified Workflow F-C-M vs D-C-M

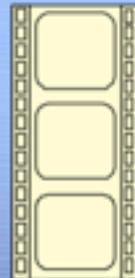
Digital Source Master (DSM)



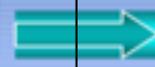
Cut Negative



Digital Cinema Distribution Master (DCDM)



Timed Release Print



Digital Cinema Package (DCP)



Release Print in Film Cans



Digital Cinema Distribution Master (DCDM)*



Platter Reel

Digital Cinema Package

Simplified Workflow F-C-M vs D-C-M

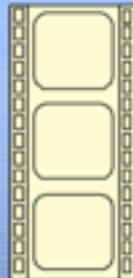
Digital Source Master (DSM)



Cut Negative



Digital Cinema Distribution Master (DCDM)



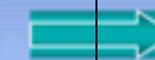
Timed Release Print



Digital Cinema Package (DCP)



Release Print in Film Cans



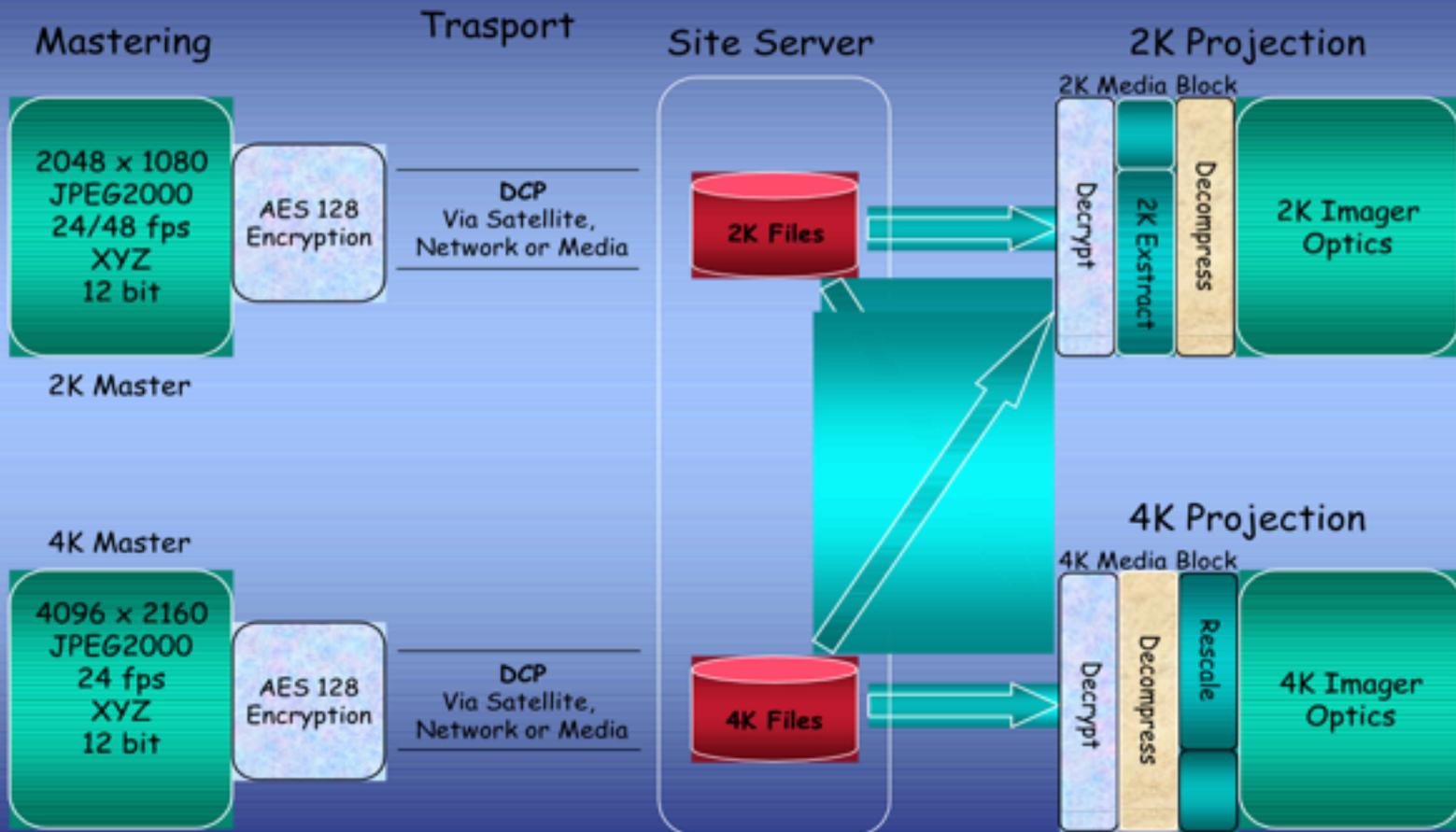
Digital Cinema Distribution Master (DCDM)*



Platter Reel

2K & 4K Delivery to Theatre

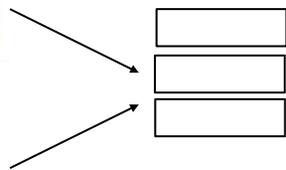
Hierarchical Image Structure



Mastering – Digital Intermediate Workflow

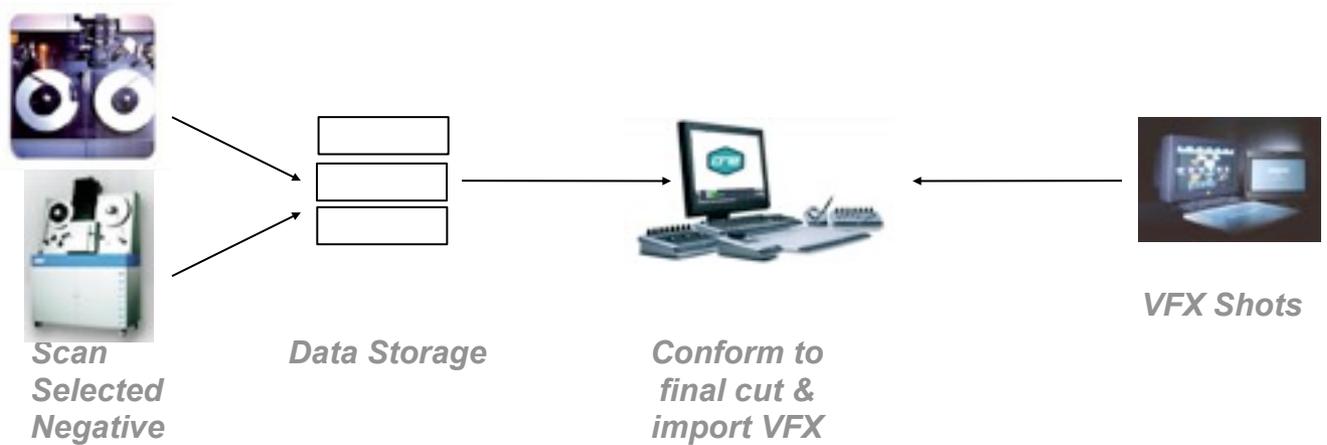


*Scan
Selected
Negative*

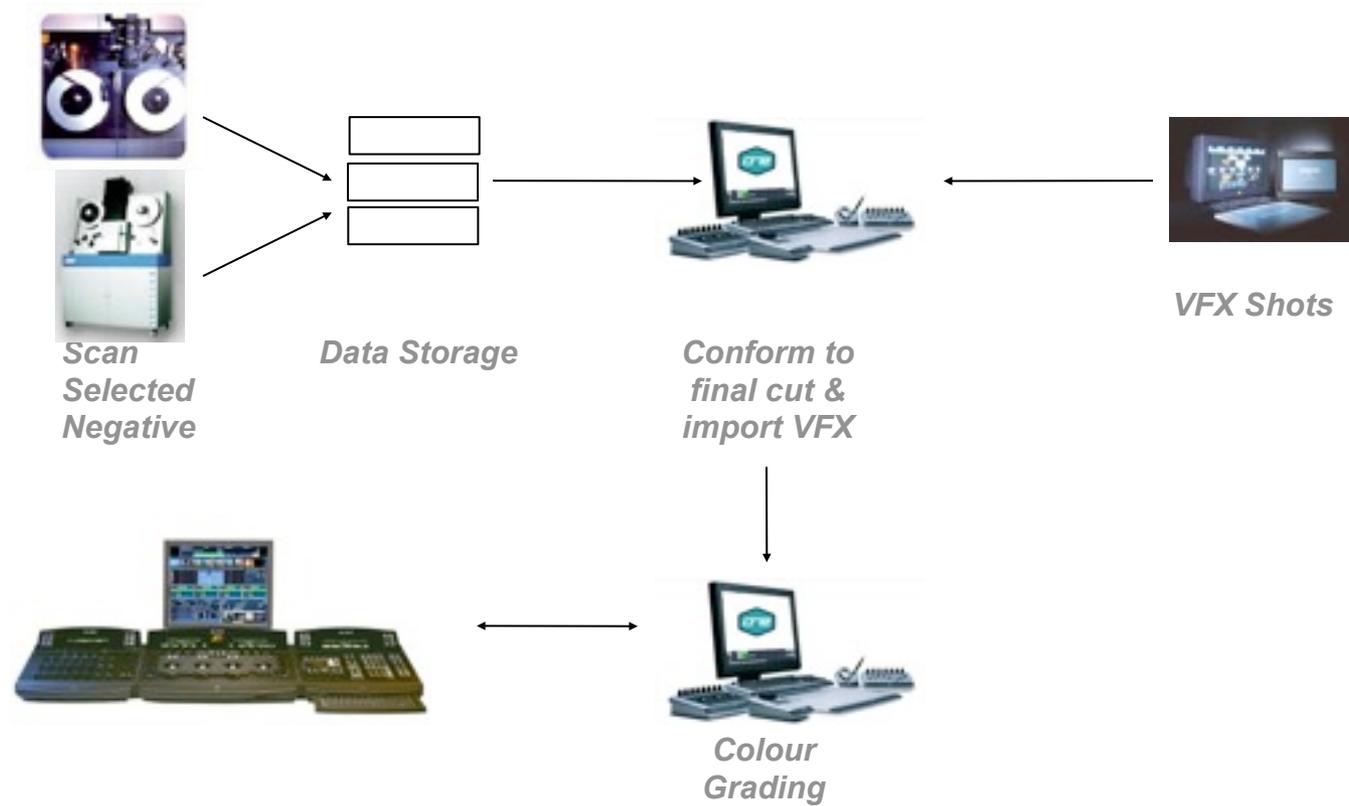


Data Storage

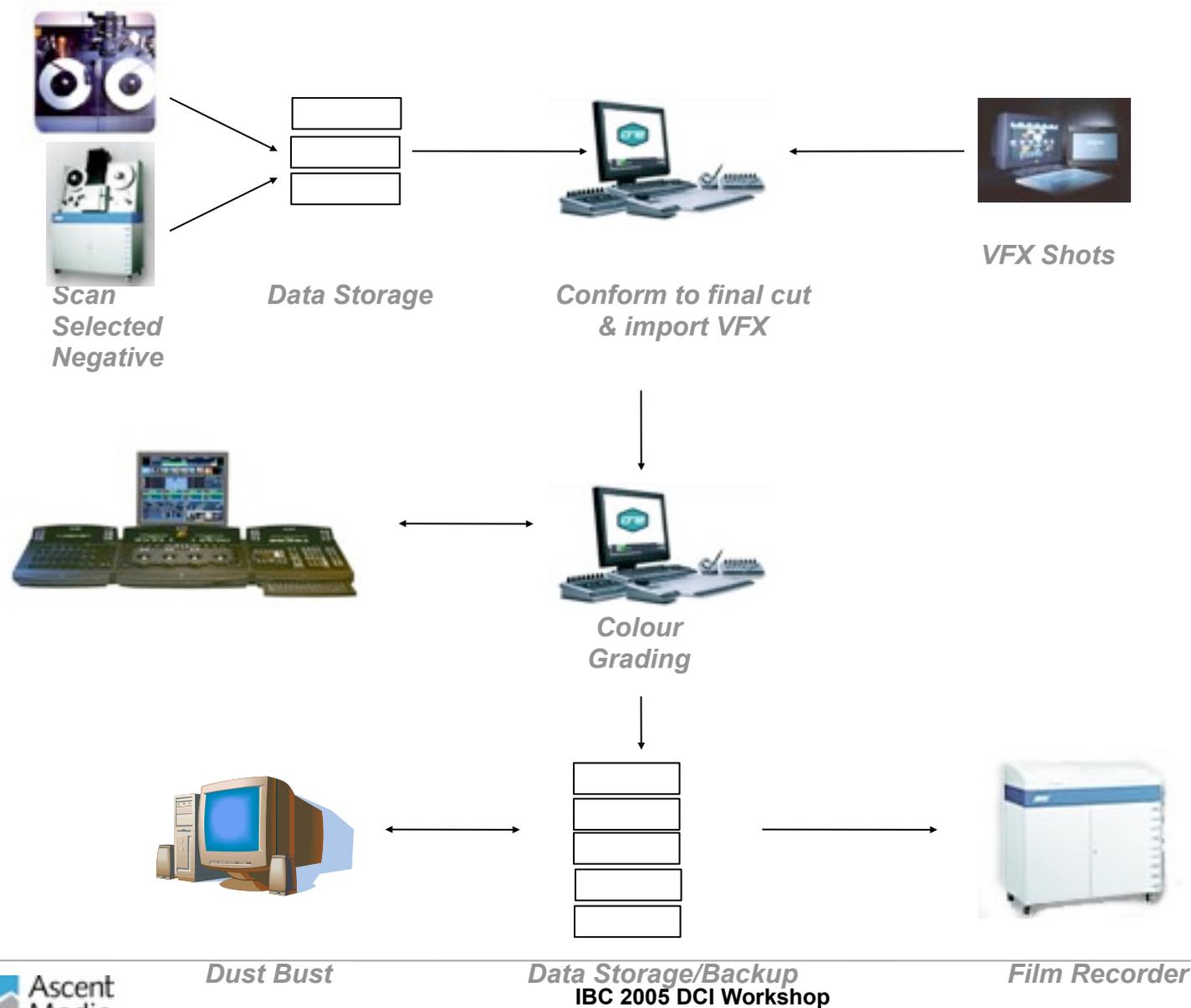
Mastering - Digital Intermediate Workflow



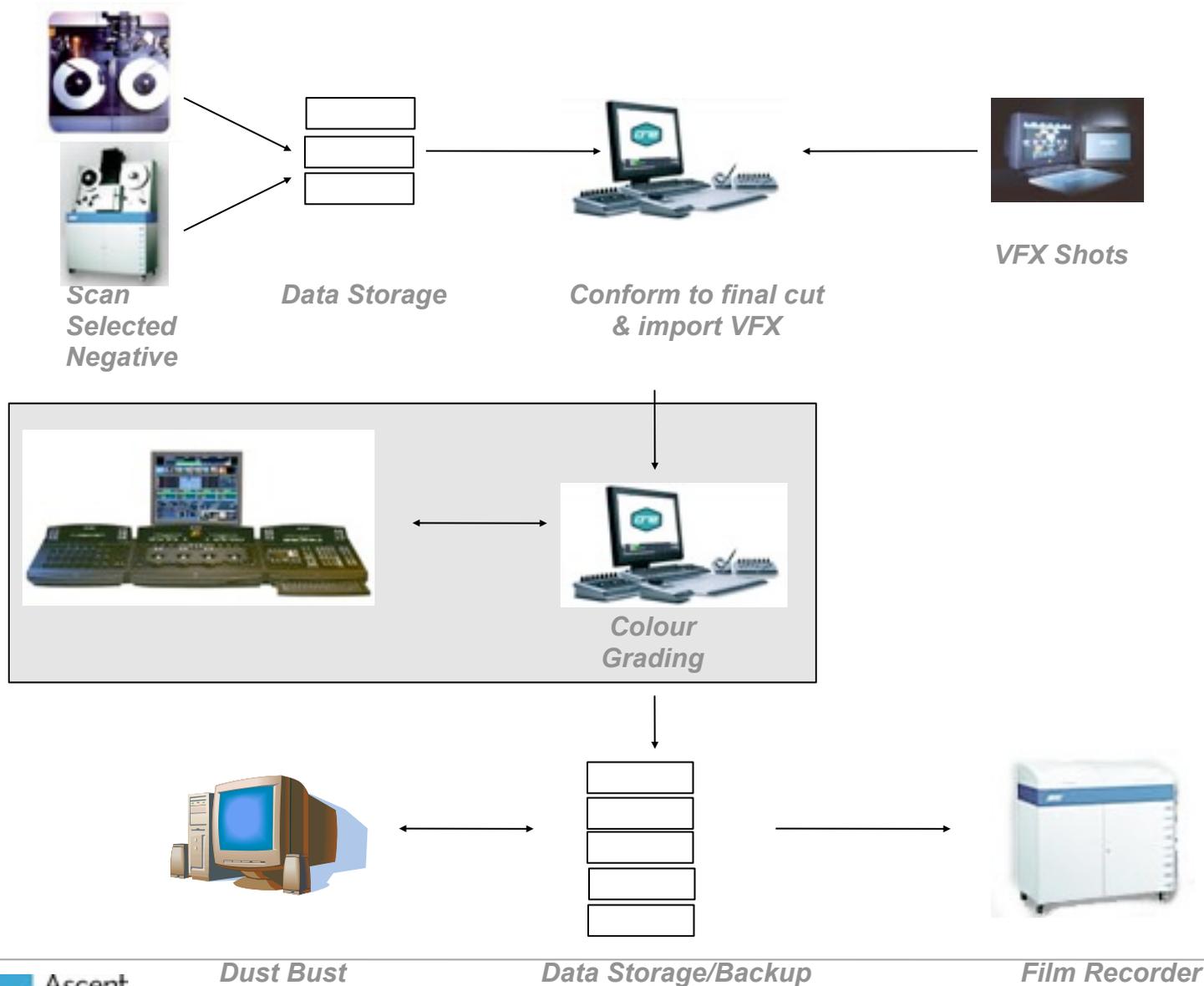
Mastering - Digital Intermediate Workflow



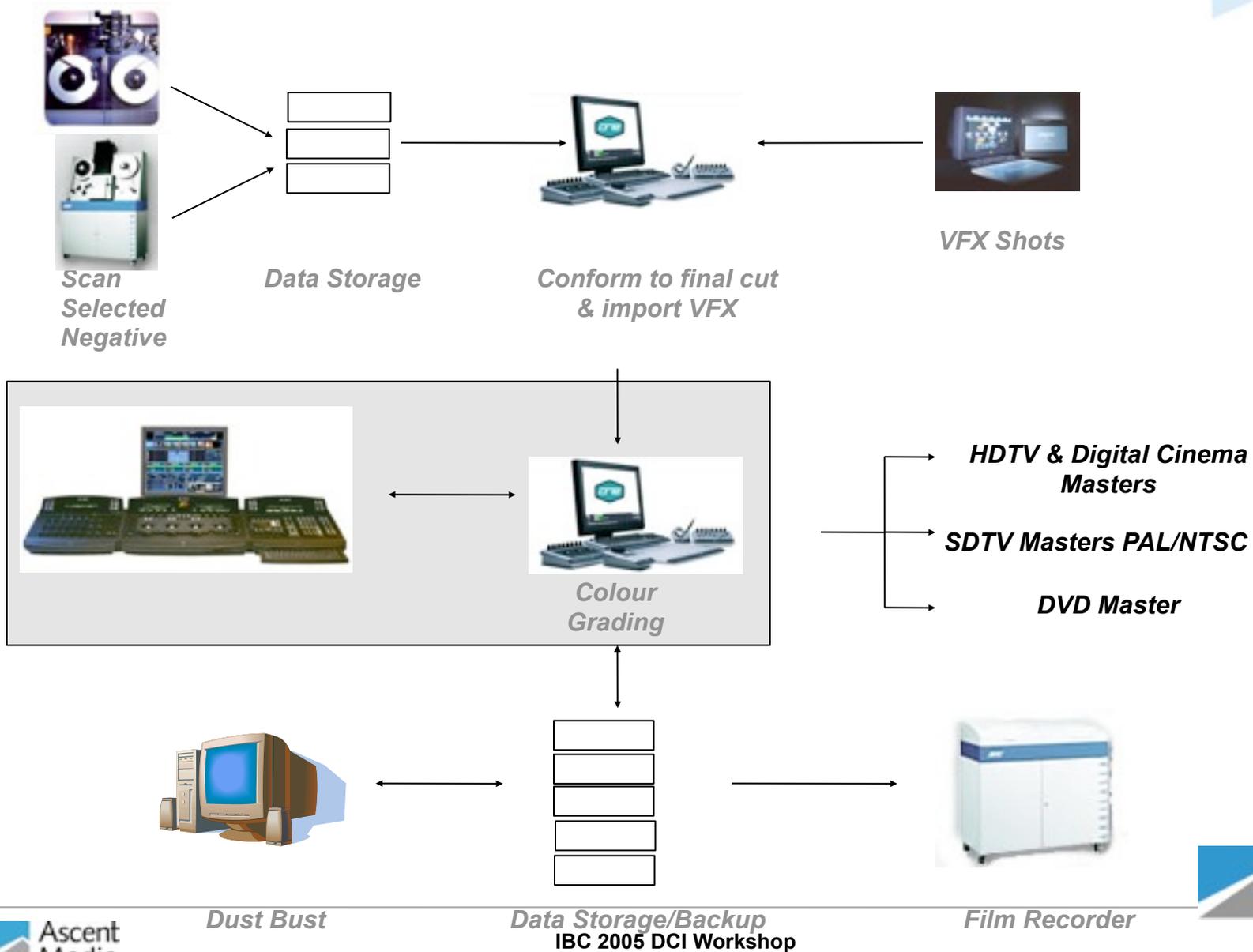
Mastering - Digital Intermediate Workflow



Mastering - Digital Intermediate Workflow



Mastering - Digital Intermediate Workflow



Mastering – Digital Intermediate Theatre



The DCI Specification

Workflow stages

- *DSM* or Digital Source Master - the 'picture negative'
- *DCDM* or Digital Cinema Distribution master – The 'master show print'
- *DCP* or Digital Cinema Package - The 'distribution release print' compressed & encrypted, JPEG 2000 2K/4K layered compression.

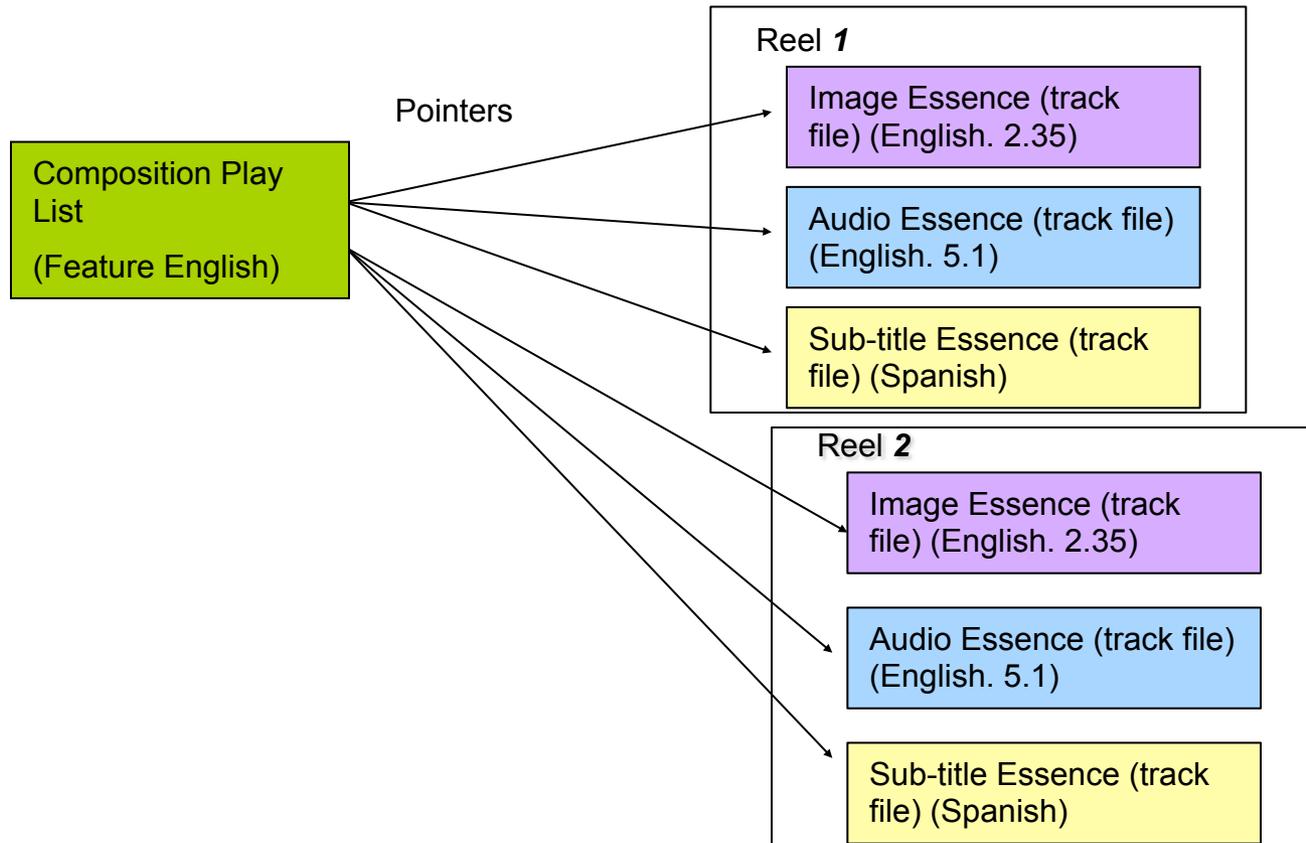
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- *Workflow stages*
- *DSM* or Digital Source Master - the 'picture negative'
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- *Composition Playlist* – The selected elements from the DCP 'essence' which make up a feature version

Composition Playlist



Composition



Example Composition Playlist

Workflow Skills Needed

- *Mastering* - Digital Intermediate creative skills within calibrated environment – standard viewing conditions across facilities. Audio dubbing & mixing skills.
- *Compression* – Encoding & DVD authoring skills
- *Encryption* - Watermarking skills, Media Management
- *Subtitling* – Subtitling skills for DVD/Cinema
- *Composition Playlist* – DVD Authoring & Subtitle management skills
- *Multiple Distribution Copies* – Network Services, Media Management
- *Trusted Environment* - All stages require full QC & total security

Ascent Media Core Solutions & Service Offerings



- **Laboratory services**
- **Digital intermediates**
- **Telecine and transfers**
- **Feature dailies and high-definition previews**
- **Electronic finishing**
- **Production offices/cutting rooms**
- **Editing**
- **Color correction**
- **Visual effects**
- **Sound services – editorial, design, Foley, ADR, scoring, mixing**
- **Trailers/promo production**

- **Transfer, film mastering, transform**
- **Duplication and format conversion**
- **Restoration and preservation**
- **Digital encoding & new media**
- **Digital asset management**
- **Vaulting and library services**
- **Standard Def/High Def services**
- **Closed-captioning/subtitling**
- **Format and standard conversion**
- **Sound services**
- **DVD authoring and Design**

- **Network origination and distribution**
- **Satellite space segment solutions**
- **Consulting, engineering, and systems integration**
- **Satellite network management and support**
- **Satellite earth station maintenance and support**
- **On-air promotion, post-production, and language support**
- **Location-based entertainment design and integration**
- **Worldwide satellite transmission**
- **Digital distribution-store & forward**



Summary

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- *New Skills needed* – Migrate skills existing today in other areas
- *Digital Asset Management* – New solutions & services for storage & distribution