浙江大学计算机学院
数字媒体与网络技术

Digital Asset Management
数字媒体资源管理

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1. Introduction

1. 导论

Outline

Outline

- Boot Camp

Outline

- Boot Camp
- Industrial Analysis

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- Industrial Analysis
- Case Study

1.1. Boot Camp

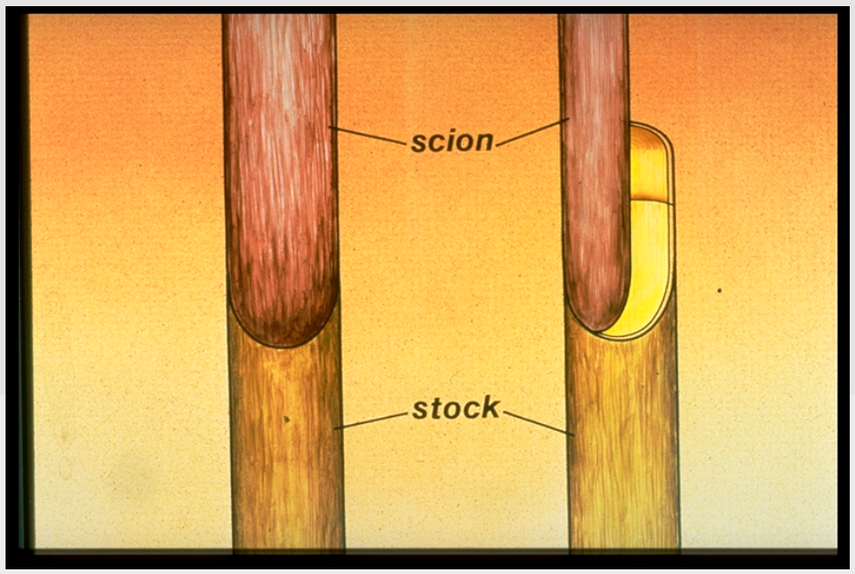
What is Digital Asset Management?

- Tool for organizing, storing and retrieving content in digital format
  - downloading, renaming, backing up, rating, grouping, archiving, optimizing, maintaining, thinning, and exporting ...

- Includes:
  - text, video, images, movies, sound, and 3D content

Examples of Digital Media

Illustrations



Photographs

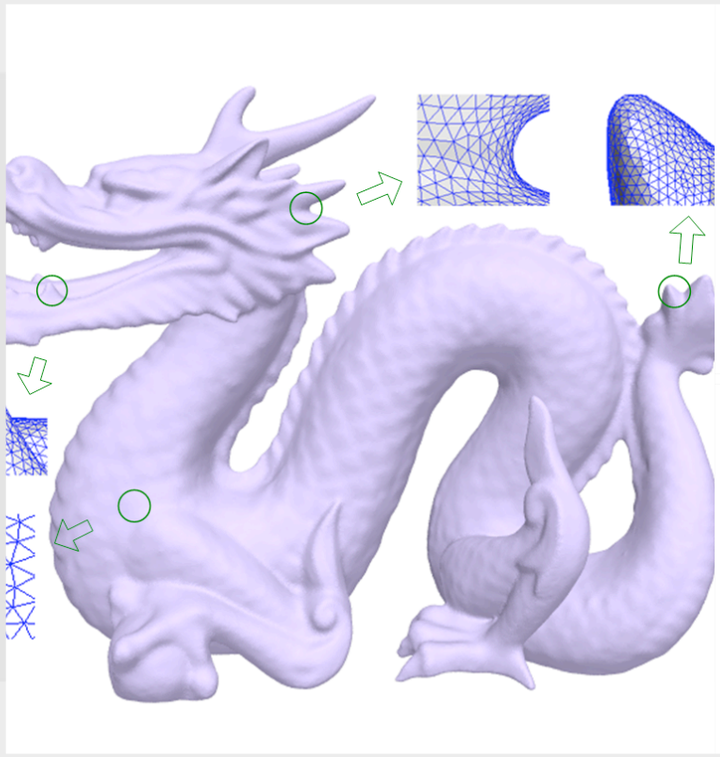
More Digital Media

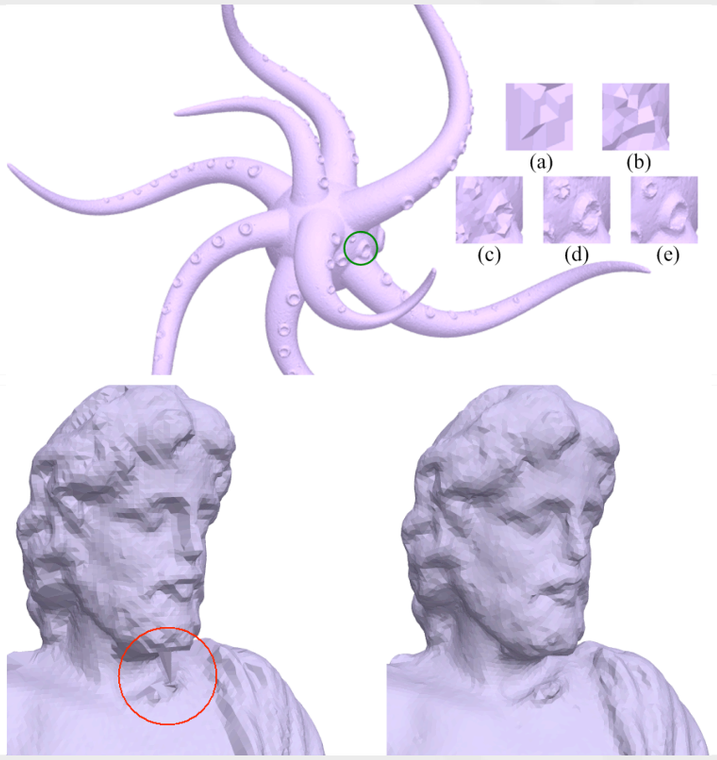
Sound

Movies

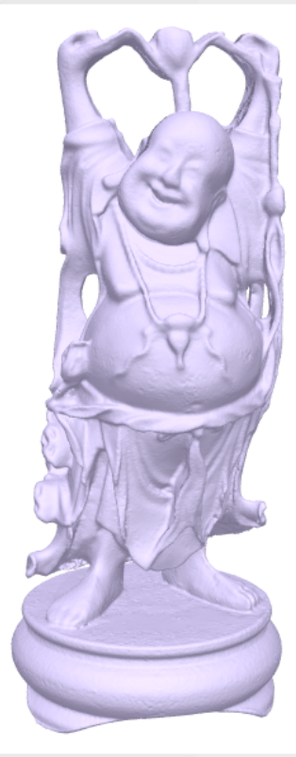
Animation

3D content




(a)
(b)
(c)
(d)
(e)


Details vs.
Noise
Topology
Constraints
Ghost data
Hole



Document

Hypermedia document

Layering

Technique by which adventitious roots are caused to form on a stem while it is still attached to the parent plant. It is then detached to become a new plant.

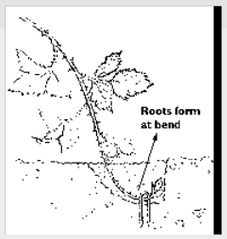
Factors affecting layering
1. Nutrition - still connected to parent plant. In some respects is similar to girdling - get accumulation of CHO etc at point of bending.

2. Stress avoidance - Is not detached from parent plant. Better water relations. Less leaf senescence and leaching on plants that take long time to root.

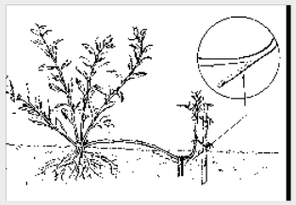
3. Light exclusion - similar to blanching in tip layering. Is etiolation in trench layering.

Main uses of layering
1. For plants that propagate this way naturally such as raspberries, blackberries.
2. Plants which are difficult to propagate other ways - such as cuttings but which are valuable enough to do this since it is a labor-intensive method. Mangos -air layering, filberts -simple layering, muscadine grapes - compound layering.
3. For producing a large sized plant in a relatively short time. For many foliage plants.
4. For production when there are minimum propagation facilities.

Types of layering



1. Tip layering - In late summer starts to happen naturally. Tip changes appearance. Elongated with small curved leaves. Bury this and shoot tip recurves upward to produce a sharp bend in stem from which roots develop.



Text

Nutrient Media

Nutrient Media

Nutrient media for plant tissue culture are designed to enable explants to grow in a totally artificial environment. In order to enable plants to grow in vitro, scientists have devised nutrient media that provide the nutrients usually available in soil. In addition to mineral elements which make up the macro- and micronutrients present in fertilizers, nutrient media also contain organic compounds such as vitamins, plant growth regulators, and a carbon source.

Mineral elements

One of the most successful media, devised by Murashige and Skoog (Murashige and Skoog, 1962) was formulated by analyzing the inorganic components in tobacco plants and then adding them to media, in amounts similar to those found in the plants. Not only did they find that the ions themselves were important, but the form in which the ions were supplied were critical as well.

Macronutrients

Macroelements consist of N, K, P, Ca, Mg, and S.

Nitrogen (N) - Nitrogen is required for general growth and is essential to plant life. Most inorganic nitrogen is converted to amino acids and then to proteins. The two most widely used forms of inorganic nitrogen used in plant nutrient media are the nitrate ion (NO3- oxidized) and the ammonium ion (NH4+ reduced) which are added as inorganic salts. Nitrate is usually added at concentrations between 25 and 40 μM and ammonium between 2 and 20 μM. In poorly buffered media, use of both forms helps maintain pH. Many plants appear to grow best if given both forms, although the reason for this is not known. In devising media, both the total amount of nitrogen as well as the relative amounts of NO3- and NH4+ are important. When the ammonium ion is used alone it may be toxic. Inorganic nitrogen generally ranges from 25-60 mM in nutrient media. Nitrogen may also be added in an organic form as amino acids, hydrolysates (such as casein hydrolysate) and organic acids.

The organic forms of nitrogen such as amino acids are often useful when added to media that do not contain ammonium. One advantage of using organic nitrogen is that it is already reduced, the form in which most nitrogen exists in the plant and thus may be taken up more readily than inorganic nitrogen. Organic forms of nitrogen cannot, however, totally replace inorganic forms. One danger of using amino acids is that here TOO MUCH can be added in which case feedback inhibition can occur. Biochemically the cells sense that there is a great deal of a specific amino acid and consequently change the metabolic pathways to stop the natural production of the amino acid. This results in the production (or backing up) or intermediate compounds which in turn may disrupt normal metabolism.

The form of nitrogen is often critical depending on the kind of culture. There is a difference in the oxidized and reduced forms. The two main forms of nitrogen used are ammonium NH_4^+ and nitrate NO_3^-. The form of nitrogen affects the pH.When both forms of N are used there is a rapid uptake of ammonium (the more readily available form since it is reduced) which results in a decrease in pH to about 4. 4. At lower pH the uptake of nitrate is preferred and thus the pH rises. Nitrate is used in addition to ammonium because the ammonium ion in excess is usually toxic. Also pH would be much more difficult to control with just ammonium.

Why Do We Need DAM?

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- Average creative person looks for a media file 83 times per week
- Fails to find it 35% of the time
- DAM reduces failure to 5%

What Can DAM Do for You ?

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- Create a visual category using thumbnails

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- All fields can be searched
- Select images for an electronic gallery - specific lecture topics
- Share over the internet

Rules of sound DAM

- Systematize
- Don’t rely on your memory
- Be comprehensive
- Build for the future
- Do it once...
- But don’t overdo it

Browsers v.s. cataloging

- DAM faster
- allows user to have virtual sets.
- knows where stuff is supposed to be.
- allows faster backup of important sorting work.
- allows you to work with offline images.

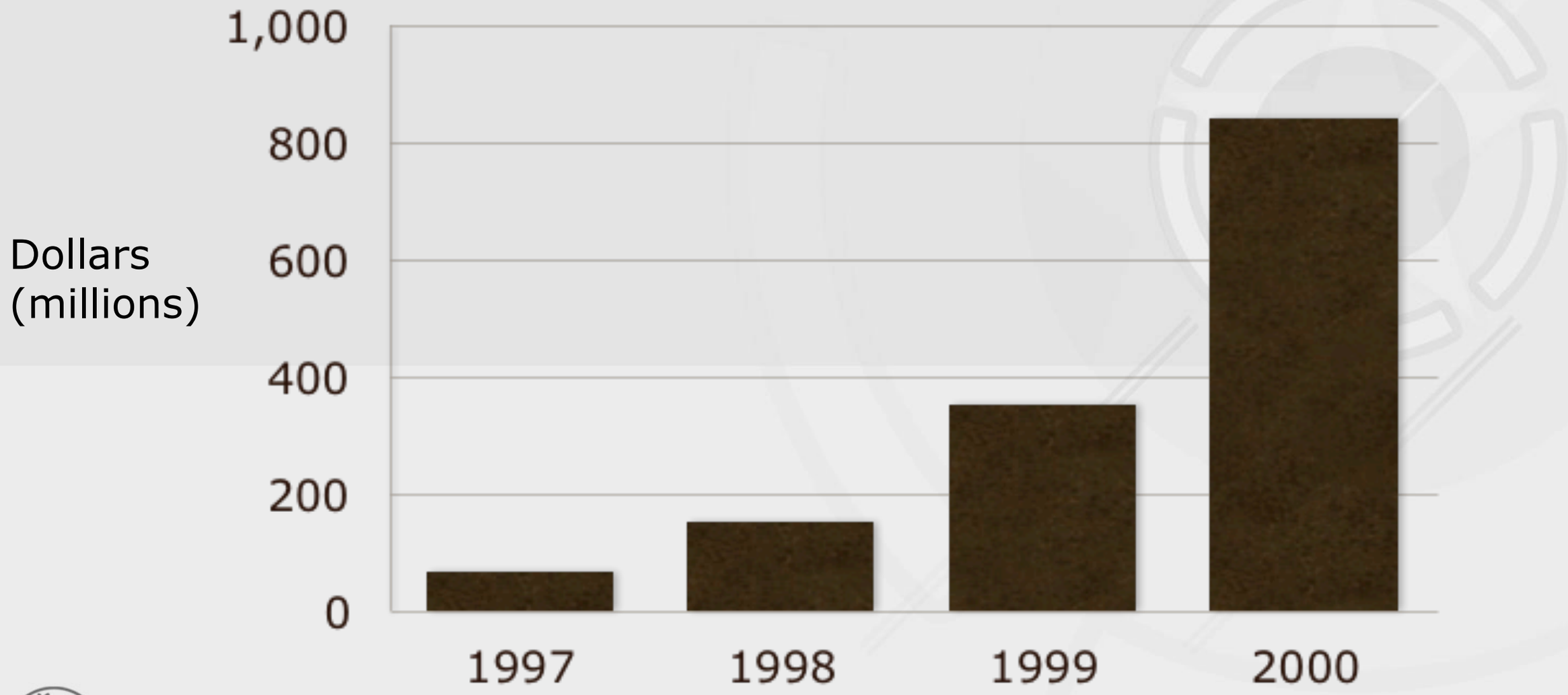
Browsers v.s. cataloging

- Browsers:
  - Bridge
  - Photomechanic
  - Fotostation 4.5
- Cataloging software
  - Canto Cumulus, Extensis Portfolio
  - iView Media Pro, iMatch
  - ACDSee

Commercial Growth of Asset Management Expenditures

Dollars
(millions)

Commercial Growth of Asset Management Expenditures



Solutions

From most extensive and expensive to least financially damaging

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- Desktop level

Solutions

From most extensive and expensive to least financially damaging

- Enterprise solutions
  - $35,000 + (can be in millions)
- Middle tier - interdepartmental
  - $3,000 - $5,000 +
- Desktop level
  - $100-500 + (depending on server requirements)

Desktop Solutions

iView MediaPro

Experience the Pro difference. iView MediaPro is essential for creative professionals who need to organize, view, annotate, print, backup and repurpose media, as well as automate their workflow.

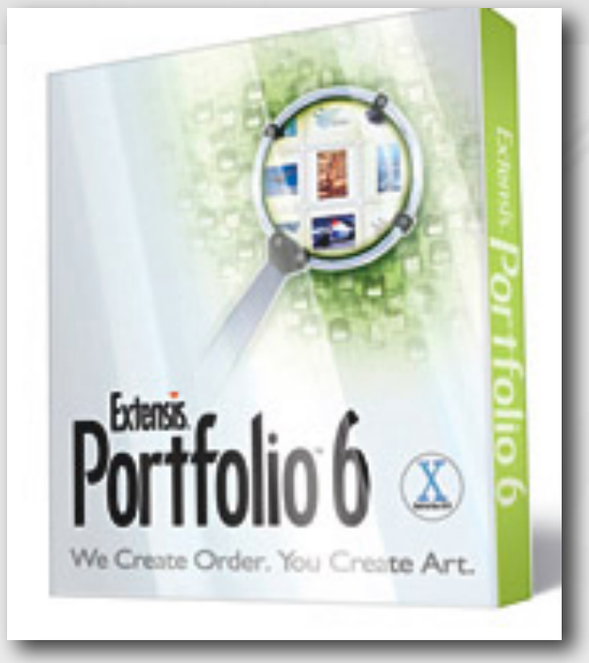
Download & Try
Ver. 1.5.7

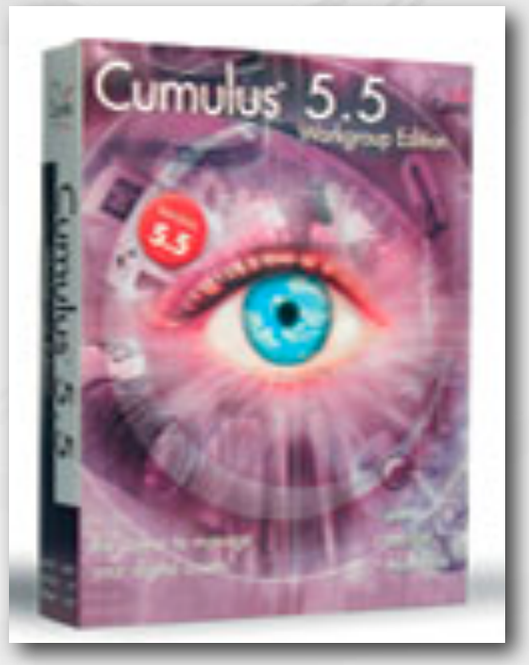
Buy Now
$90 (US)

Take a Tour
Features

Mac OS X, OS 9, 8.6

Register for release alert





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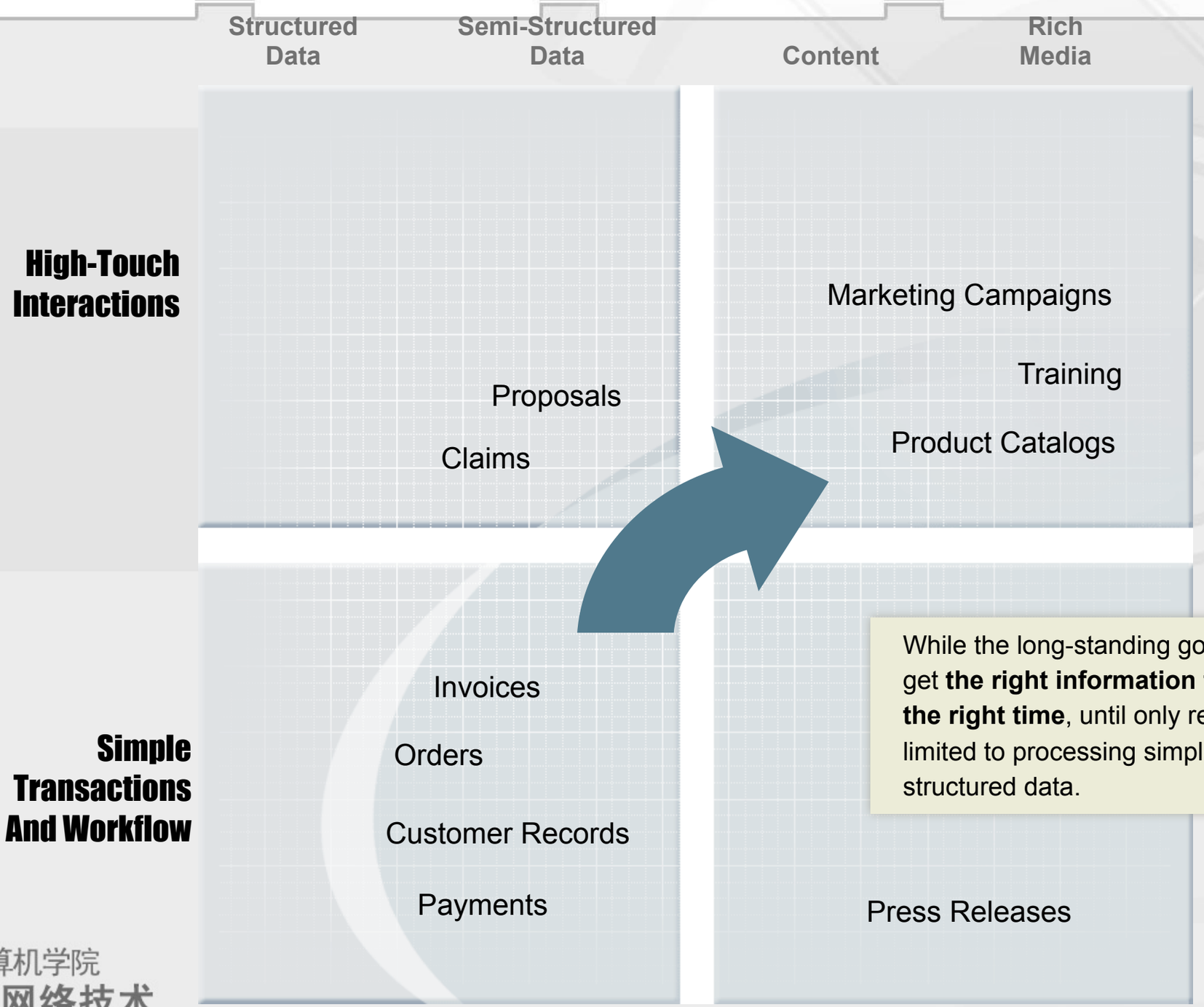
Desktop Solutions

- Avid Technology - Alienbrain
- Extensis - Portfolio
- Canto - Cumulus

Each of these programs is easy to use. Demonstration copies are available on the web at
www.alienbrain.com (Alienbrain)
www.extensis.com (Portfolio)
www.canto.com (Canto)

1.2. Industrial Analysis

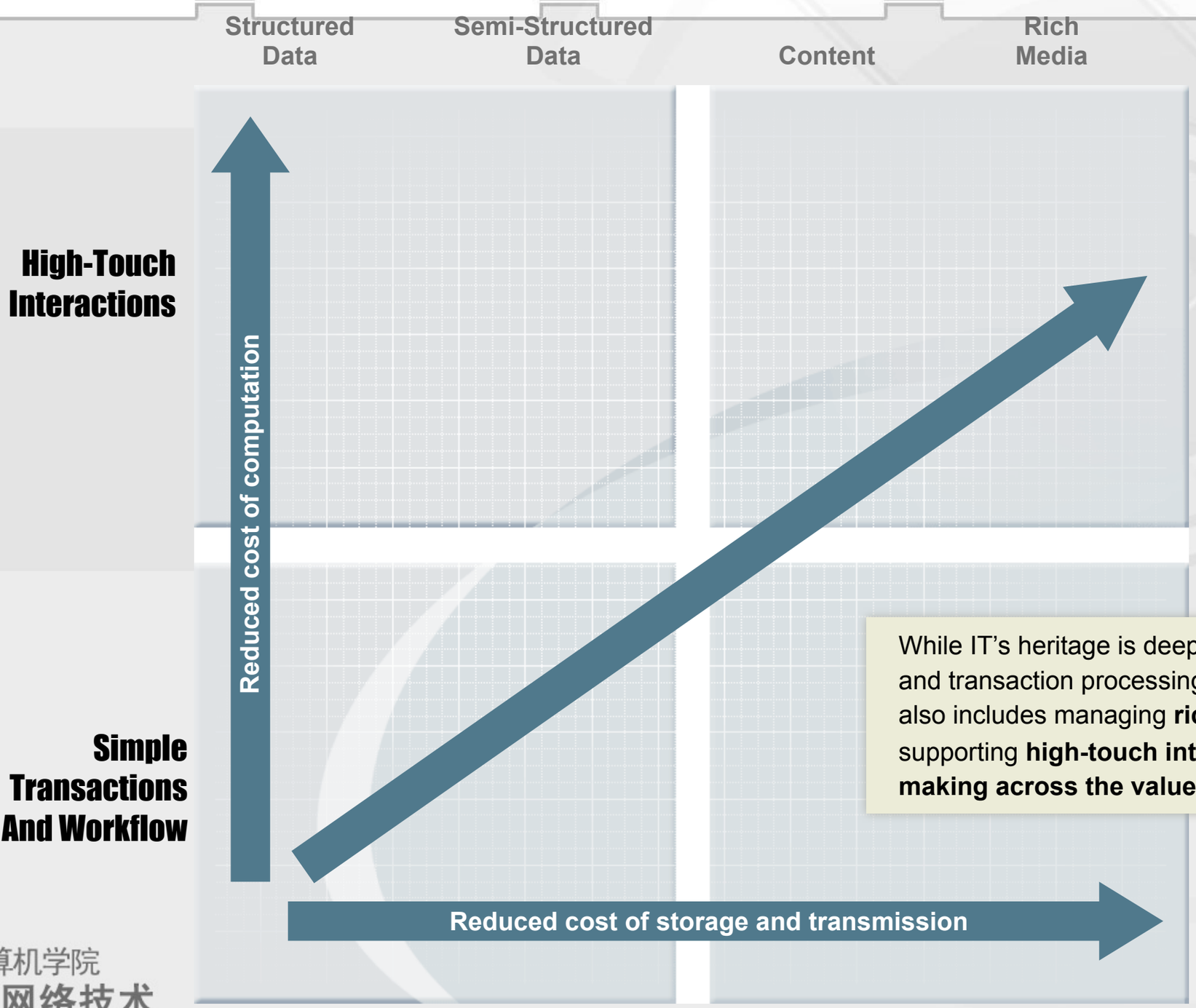
The "Big Picture"



While the long-standing goal of IT has been to get **the right information to the right people at the right time**, until only recently IT has been limited to processing simple transactions of structured data.

Source: **eFORCE**

The Technological (Cost) Drivers



While IT's heritage is deeply rooted in databases and transaction processing systems, its future also includes managing **rich media** and supporting **high-touch interactions** and **decision making across the value chain**

Source: **eFORCE**

The Business (Benefit) Drivers

- How many **digital assets** does your organization currently manage and use, including product photos, logos, graphics, illustrations, brochures, ads, presentations, PDF files, Microsoft Office documents, files, videos, etc.?
- How often do these digital assets **change**?
- Is there **business pressure** to improve IT support for expanding marketing, sales, and support channels?
- How many **different people** in **different locations** in **different organizations** need **access** to these assets for ads, web-sites, catalogs, point-of-purchase displays, eMails, sales presentations, training, and other applications?
- What **file formats** do they need?
- What **technologies and processes** are currently in place to manage these digital assets?
- What if stakeholders could get to these digital assets cost effectively through **web-based systems**?
- Are you being forced to **do more with less**?

Current State

- There has been **exponential growth** in the number of digital assets.
- Knowledge workers spend **40% of their time looking for information**. (Forrester Research)
  - **70% of content is recreated** rather than re-used. (Forrester Research)
- The worldwide digital asset management (DAM) market is **growing at 54%** CAGR, exceeding $1B in 2004. (Frost & Sullivan)
- The average **cost** to create the 20,000 to 50,000 brand assets which comprise a **global brand** is **$20 million**. (Forrester Research)
- Widespread use of rich media to enhance web-sites has spurred the growth of the Digital Asset Management (DAM) market. DAM is on its way to becoming an **integrated capability** within **enterprise content management strategies**. (GartnerGroup)
- DAM may become the **next wave** in corporate automation following CRM and ERP.

DAM: Past and Present

- Digital Asset Management initially established **Niche Markets, including**
  - **Publishing, Media and Entertainment**
  - **Broadcasting** – Media Asset Management
  - **etc**
- Digital Asset Management is now on the Verge of Going Mainstream
  - Integration into **Enterprise Content Management** and **Document Management** Strategies
  - **Cross Industry** – Financial Services, Pharmaceuticals, Consumer Packaged Goods, etc.
  - **Mainstream Vendors**

What is Digital Asset Management?

B2B Cross Value Chain Users
Licensing and Royalty Workflow
Legal Ownership and Rights
Many Languages/Territories
More and Layered Content Types
Very Large Content

Enterprise Users
Creative Workflow
Departmental “Ownership”
Few Languages/Territories
Web Content Types
File Type Conversion

Cross Departmental Users
Business Workflow
Role Ownership
Specific Document Types
Asset Storage

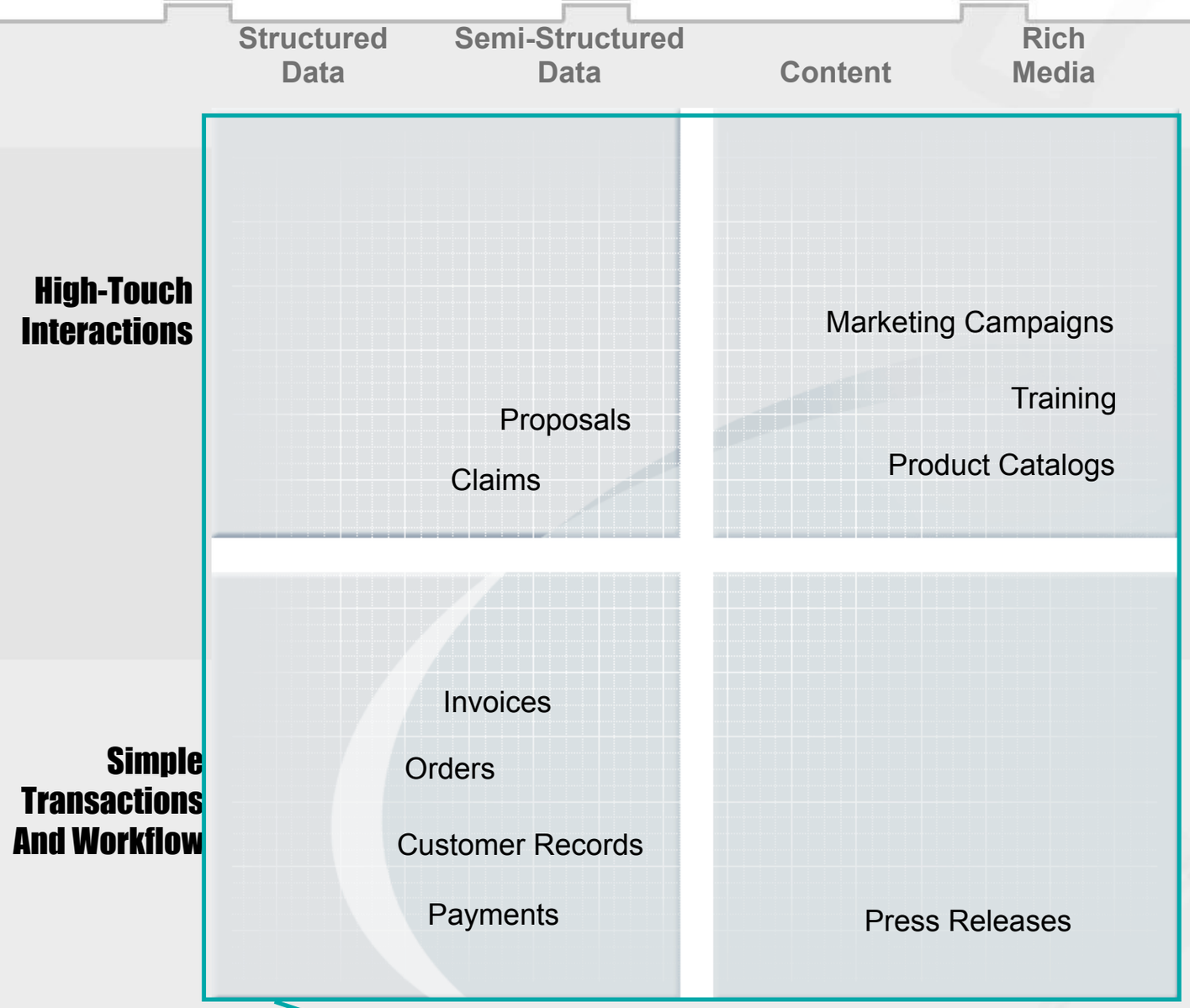
Asset Location
Search and Retrieval
Asset Description
Asset Identification

Source: **eFORCE**

Content Management and DAM

- **"It's just another binary file type"** is a superficial response
  - But so is, **"It's just managing brand assets"**
  - Digital Asset Management involves
    - Much higher **storage volumes**
    - More complex **ownership** and **usage rights**
    - More **complex content** (layers)
  - However, an organization needs a **unified content management/digital asset management strategy** to avoid unnecessary costs in hardware, licensing, software development and support

Content Management, DAM, and Portals



- Digital Asset Management is often integrated with a portal solution in order to gain comprehensive benefits such as:
  - Profiling and personalization
  - Business transactions
  - Back-end system integration
  - Legacy content integration
- If the business goals are cross selling, up selling, and self support, it is likely to be a hybrid solution

The Software Vendors

Market research company GISTICS, who has tracked the Digital Asset Management market for years, identifies as many as 616 "DAM solution providers" and 1246 "knowledge asset management solution providers" in the market.

DAM Vendors

Artesia, MediaBin, NorthPlains, WebWare

Established in Media and Entertainment & other industries

Small (50 – 150 employees, $20M revenue)

Go Mainstream or Stay in Niche?

CM Vendors

Interwoven, Vignette, …

Vignette has Artesia Adapter

Interwoven acquired MediaBin

Build, Partner, or Buy?

DM Vendors

Documentum, Stellent, …

Moved into Content Management

More Market Share

Next Step?

App Server/Portal Vendors

Sun, BEA, IBM, Oracle, ATG, BV, …

Transactions and Digital Assets?

Market Cap and Market Share

Anticipated Integration

Interwoven/MediaBin + Sun

- Interwoven recently acquired MediaBin
- MediaBin has more than 50 enterprise customers: Reebok, Delta Air Lines, Microsoft, Samsonite, John Deere, Harrah's, etc.

- Basic MediaBin/TeamSite integration exists
- MediaBin to be integrated with Interwoven's MetaTagger Intelligence Server, Open Deploy Distribution Server, and Content Services layer for web services support

- Sun Java System Portal and Identity Servers provide ability to integrate solution into an enterprise portal strategy, supporting centralized, secure and personalized portal access to enterprise applications and content

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Digital Asset Management – Case Study

Case Study #1: Music Publishing

- Leading music publishing firm: own 1.5m song copyrights and supports 132 countries and territories
- Client needed a means to further maximize and manage the value of the song copyrights that it owns through promotion, licensing and royalty processing
- Client decided to turn all their internal processes and data outward, making them available to business partners and associates everywhere, at all times
- Key technical aspect was integration of numerous IT systems including five territorial databases, search, application server/portal – not just simply a packaged DAM system deployment
- Outcome was the world's largest digital rights management system

Case Study #2: Cable Television

- Leading cable television network: multiple premium channels/multiple multiplex channels
- Client needed more effective means to provide affiliates access to digital assets: marketing materials, programming information, ads, etc.
- Client also needed ability to request print materials and to order services (e-commerce transactional back-end integration)
- Client required a single 3rd party system integrator that could:
  - Span technologies: Digital Asset Management, Content Management, Application Server, Portal
  - Span core competencies: Creative Design, Back-end Integration, etc.
  - Take over where a previous 3rd party systems integrator left off

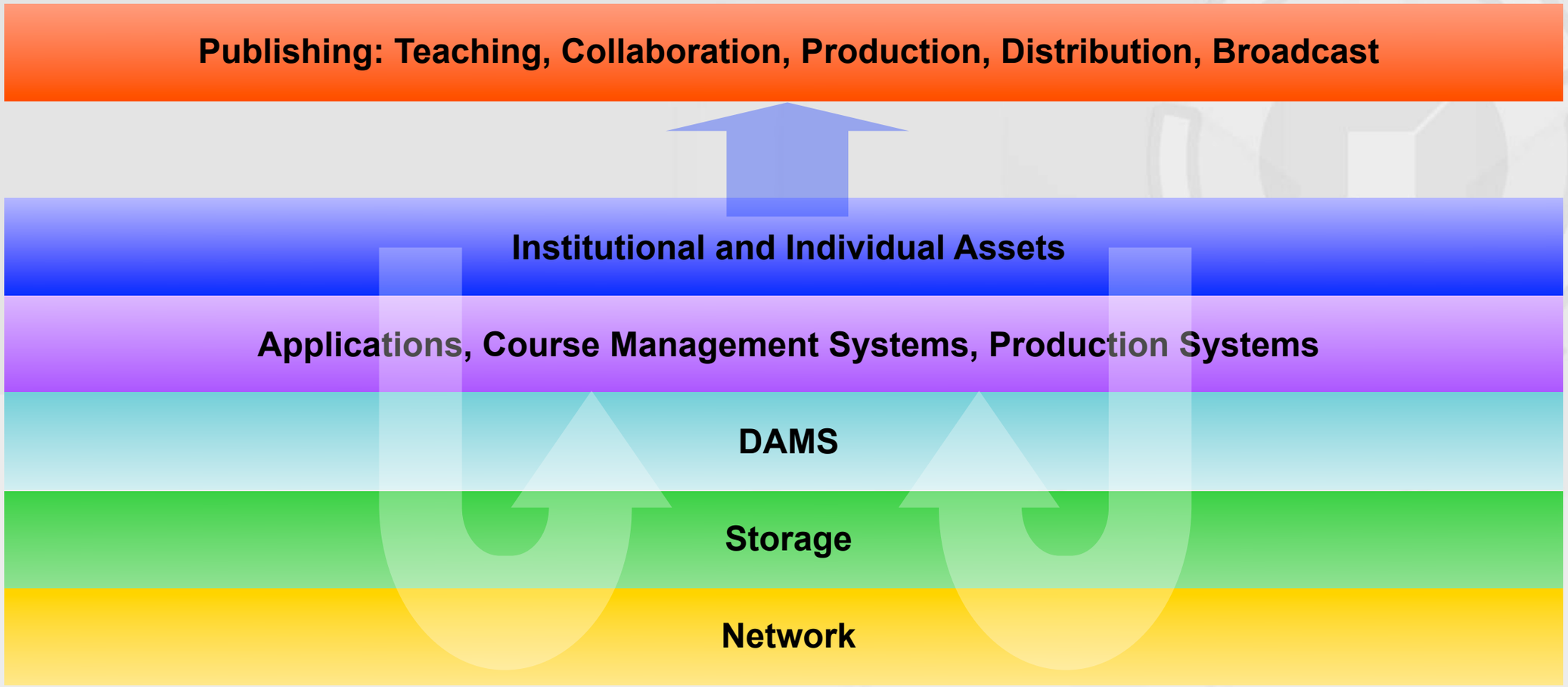
Case Study #3: A Digital Asset Management System at **University of Michigan**?

- Create a robust infrastructure to ingest, manage, store and publish digital rich-media assets and their associated metadata.
- Streamline the "workflow" required to create new works with digital rich-media assets.
- Build an environment where assets are easily searched, shared, edited and repurposed in the academic model.
- Provide a campus-wide platform for future application of rights declaration techniques (or other IP tools) to existing assets.

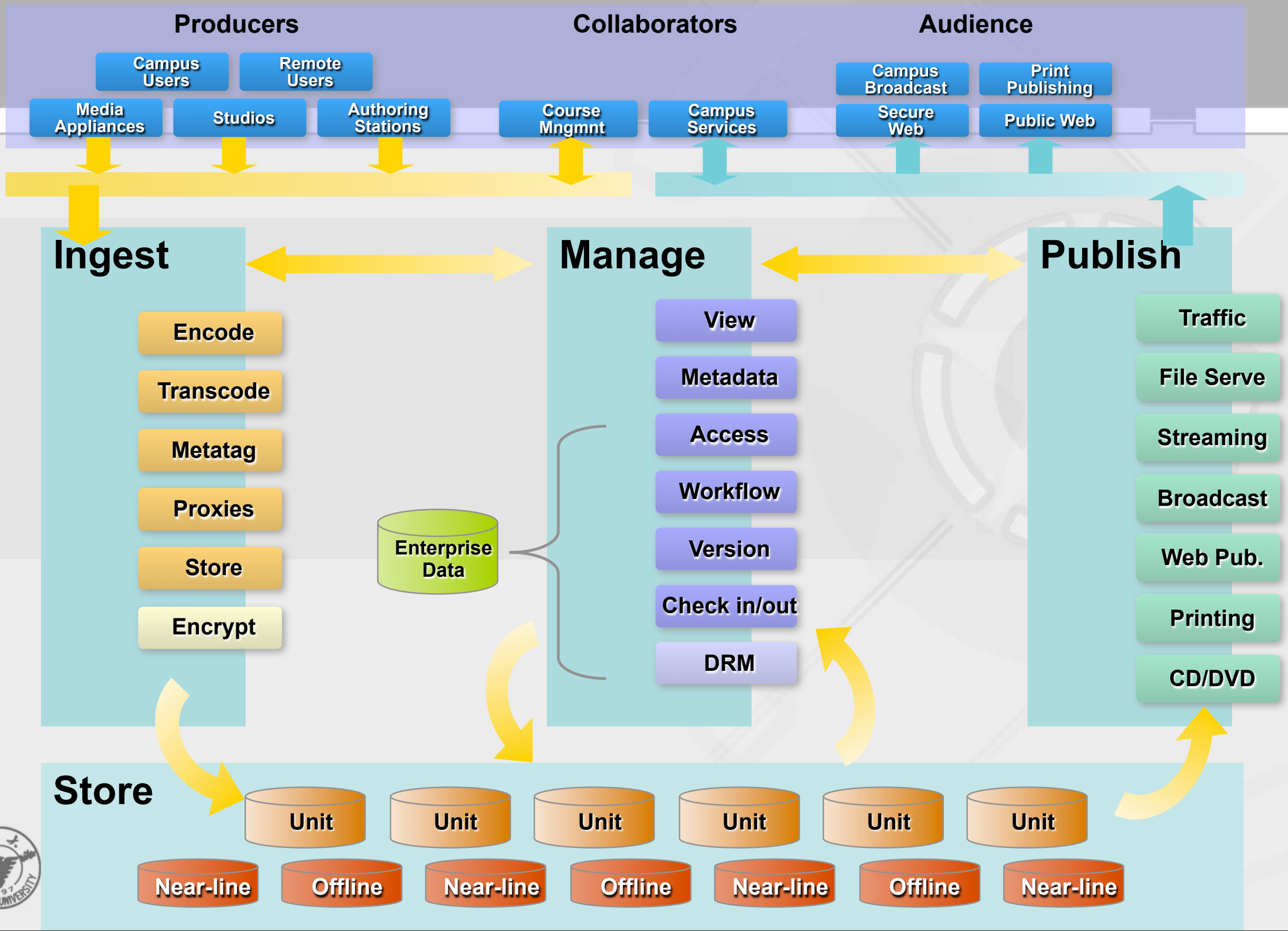
Orientation of DAMS at the UM

- Infrastructure level
- Tuned for rich media (time-based)
  - video
  - audio
  - 3D VR modeling and animation
- Capability for non time-based data (text, numerical data, still images)
- Metadata collection and management: automated or semi-automated
- Campus-wide availability
- Not primarily a content management tool nor production tool
- Coordinate with planned campus storage management practice
- Distributed management (authorization, roles, access lists)
- Integrated with centralized campus data services
- Plan for digital rights-declaration/management services

What is the place of DAMS in the campus infrastructure?



DAMS Component Services



DAMS Living Lab Configuration

Remote Source:
- Telestream ClipMail Pro
- FTP upload of existing digital file

Local source:
- Tape Deck
- Live Media Stream
- Scanner
- Existing Digital File

Asset Processing

Virage
Encoding & Logging
Metadata Extraction
Speech-to-text
Voice, face recognition

Telestream Flipfactory
Transcoding
Metadata Extraction
Proxy Creation

Streaming Servers
IBM VideoCharger
Apple QuickTime
1 TB storage

Remote iSCSI Storage

1TB

Resource Manager

Accept Media Server
Metadata creation
Version control
Check-in/out
Workflow
XML
Websphere

IBM Content Manager
Metadata Mngmnt.
Resource Management
Security
Cosign single sign-on

DB2
SMART
Self-Management And
Resource Tuning

Tivoli
Storage Management

Library Server