Media Content and Delivery Management at HBS:
Videotools

Presentation Overview

- What is HBS and why do we need (media) content management?
- Project Goals and Principles
- "Buy vs. Build" & Vendor Selection
- Technical Architecture
- Governance, Project Team, Project Calendar
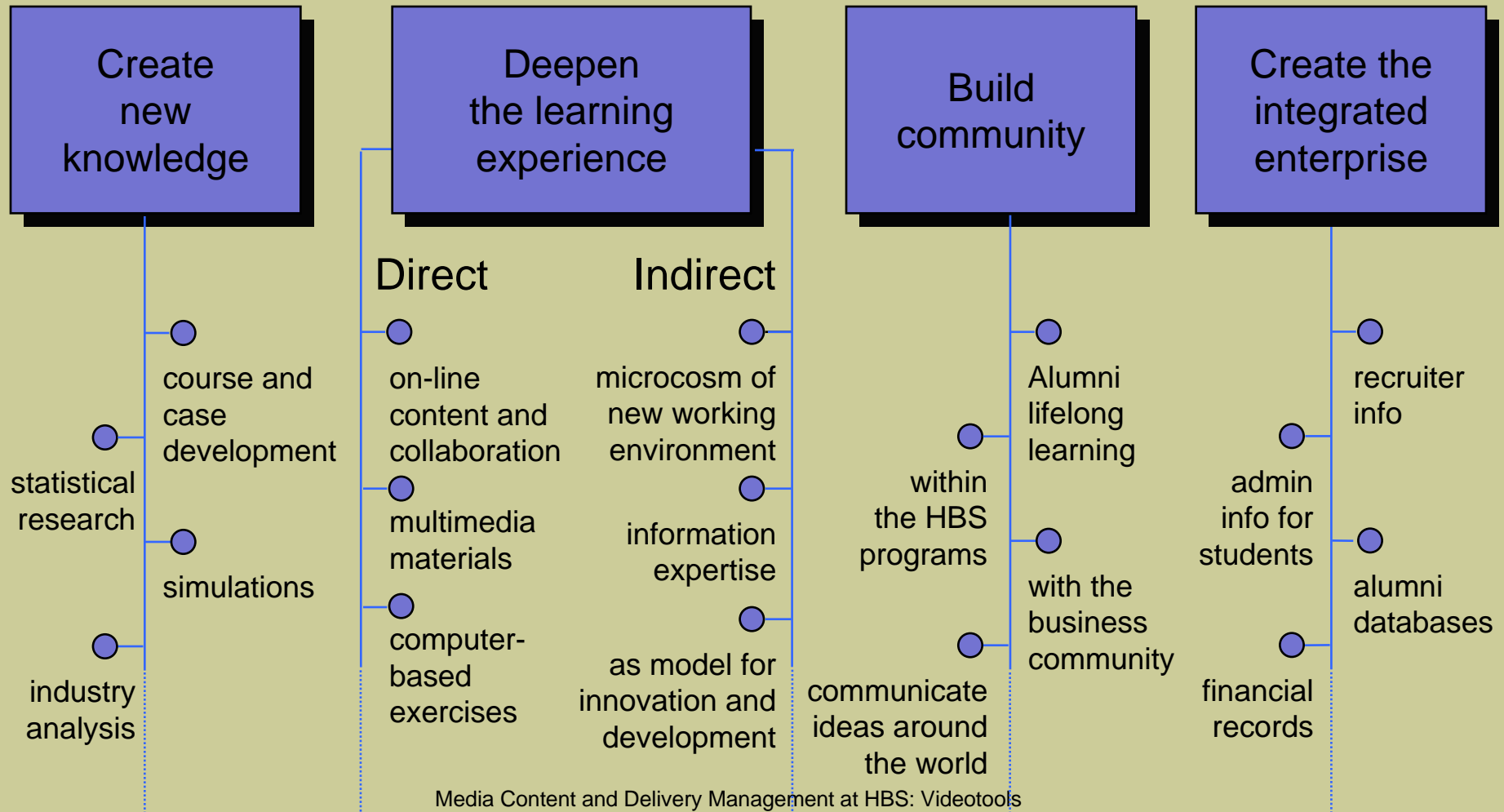- Launch Day!
- Future Plans
- Lessons….

Media Content and Delivery Management at HBS: Videotools
Presented: 12 April 2005, by Larry Bouthillier to the Gilbane Conference on
Content Management

HARVARD | BUSINESS | SCHOOL

About HBS

- Harvard's graduate business school

- 225 faculty members

- 800 staff

- 1600 full-time MBA students

- 5000 executives in residence each year

- 76,000 alumni

- HBS Publishing, Harvard Business Review, etc

- Increasing attention to external audiences

Media Content and Delivery Management at HBS: Videotools
Presented: 12 April 2005, by Larry Bouthillier to the Gilbane Conference on
Content Management

HARVARD | BUSINESS | SCHOOL

Mission of Technology at HBS

Create new knowledge

- course and case development
- statistical research
- simulations
- industry analysis

Deepen the learning experience

Direct

- on-line content and collaboration
- multimedia materials
- computer-based exercises

Indirect

- microcosm of new working environment
- information expertise
- as model for innovation and development

Build community

- Alumni lifelong learning
- within the HBS programs
- with the business community
- communicate ideas around the world

Create the integrated enterprise

- recruiter info
- admin info for students
- alumni databases
- financial records

Media Content and Delivery Management at HBS: Videotools
Presented: 12 April 2005, by Larry Bouthillier to the Gilbane Conference on Content Management

HARVARD | BUSINESS | SCHOOL

Why does HBS use video?

- Course materials:
  - Interviews
  - Documentaries
  - Case studies
- Integrated multimedia products
- Building community and maintaining relationships
- Business communications

- Internal (MBA, Executive Education, Lifelong Learning) & External Audience (HBSP)

Media Content and Delivery Management at HBS: Videotools
Presented: 12 April 2005, by Larry Bouthillier to the Gilbane Conference on Content Management

H A R V A R D | B U S I N E S S | S C H O O L

VIDEOTOOLS   HARVARD | BUSINESS | SCHOOL

HBS Online Video Library | HBS Video Showcase | Classroom Video | Portal Tool | Video Tape Library | Help | Log off

Welcome, Laurence Bouthillier, you are logged in.

Speakers and Events

Video Showcase
Events Archive

Stephen Schwarzman, CEO of The Blackstone Group
Charlie Rose Show Interview
55 min
Wednesday, March 2, 2005
The Charlie Rose Show
More info...

William Sahlman, Faculty, Harvard Business School
Charlie Rose Show Interview
29 min
Wednesday, December 29, 2004
Charlie Rose Show
More info...

Dean Kim Clark, Harvard Business School
60 Minutes Interview
13 min
Sunday, October 10, 2004
Interview with Leslie Stahl
More info...

She-E-Os and **HOTS**
She-E-Os and HOTS in Concert December 7th, 2004
1 h 9 min
Tuesday, December 7, 2004
A Capella Performance
More info...

Michael Porter, Faculty, Harvard Business School
Charlie Rose Show Interview
55 min
Friday, April 30, 2004
The Charlie Rose Show
More info...

Featured Video

State of the School Address
Duration: 1 hour 7 Minutes

Harvard Business School's Dean Kim
Clark delivered his annual "State of
the School Address" in Spangler
Auditorium on March 8, 2005.

**Want to find a video?
Search our online video database**

HBS Home
Alumni Home

MORE VIDEO:
   REUNION PRESENTATION
   STUDENT PRODUCTIONS
   ALUMNI CONFERENCES
   VIDEO ARCHIVE

VIDEO TOOLS:
   ADVANCED SEARCH
   VIDEO LIBRARY

HELPFUL LINKS:
   GET REALPLAYER
   REALPLAYER HELP
   SUBMISSION GUIDELINES

Let Us Know if you have material that should be featured
on this page. It should be a videotaped event related to
HBS. Refer to the Guidelines section for more details.

HBS IT   HBS Login

Done   Partly Cloudy, 47°F   Fri 51°F   Sat 44°F   Sun 49°F   Mon 44°F   Tue 47°F

VIDEOTOOLS

HARVARD | BUSINESS | SCHOOL

HBS Video Library   HBS Video Showcase

Reunion Presentations: Reunions 2004

Reunions 2004

Faculty Presentations to Alumni

Other Reunion Sessions

Reunions 2004
Reunions 2003
Reunions 2002
Reunions 2001
Fall 2000
Spring 2000
Fall 1999
Spring 1999
Fall 1998

Video Presentations

Opening Session of the Spring Reunions 2004
Dean Kim B. Clark

Opening Session of the Fall Reunions 2004
Dean Kim B. Clark

Predictable Surprises
Professor Max H. Bazerman

The Revolution in Retailing
Professor David E. Bell

Cost, Investment, Innovation and Values: Strategy For A Global Marketplace
Professor Joseph L. Bower

The Practices of Successful Families
Mr. Charles Collier

Cracking The Human Genome
Kevin Davies, Ph.D.

The Power of Supporting Actors in Organizations
Professor Thomas J. Delong

Creating Customer Centric Cultures
Professor Rohit Deshpande

Capitalizing on the Power of the Customer
Professor Frances X. Frei

Putting It All Together: The Building Blocks to Create the 21st Century Health Care Delivery System
Jerome H. Grossman MD

Coumbia Shuttle Mission Simulation

HBS Videotools Project Mantra (?)

If you have it…

   …but you can't find it…

   …you don't really have it.

   » Virage marketing slogan

Option 1: Librarians catalog everything

Option 2: Free text search (difficult with opaque video binaries)

Goal: Combine structured search with free-text and contextual search; allow ad hoc tagging to take place among the network

The "old" Videotools System

Simple Java/Dynamo app

- Written in 1997

- Simple metadata tracking

- Manual ingest of new media – a mix of Java, Perl, and .bat files

- Large, content-rich application

- Many manual processes, low data integrity

Media Content and Delivery Management at HBS: Videotools
Presented: 12 April 2005, by Larry Bouthillier to the Gilbane Conference on
Content Management

HARVARD | BUSINESS | SCHOOL

Videotools Project – Overall goals

- Update Web video management infrastructure to meet explosive growth in quantity of content

- Update video management to increase the usability of current system

  - Content sharing, access control, effective search, efficiency in editing & content publishing, reporting metrics, include video production lifecycle/encoding workflow, archiving

- Look ahead 5 years – what's the usage model?

  - Massive increase in production volume, 10x audiences and 10x content, complex multimedia content in multiple formats (MPEG2/4), personal publishing from portable networked devices, CMHE & WGBH …

Media Content and Delivery Management at HBS: Videotools
Presented: 12 April 2005, by Larry Bouthillier to the Gilbane Conference on
Content Management

HARVARD | BUSINESS | SCHOOL

Videotools

Manage the production and delivery lifecycle:

- Encoding video
- Content Analysis
- Transcoding to multiple formats (proxies)
- Delivery management (managing access, bitrates and formats)
- Internet, intranet, and broadcast-quality streaming
- For classroom delivery: 101% uptime

Manage knowledge:

- Structured metadata tied to enterprise
- Unstructured metadata extracted from content
- Contextual search
- Content lineage
- Publishing collections of content
- Deep-linking to content
- Shared and individual collections, playlists

HARVARD | BUSINESS | SCHOOL

Videotools Project Principles

Big problems are hard to solve

- Path-based development breaks large projects into manageable ones, decreases overhead, mitigates risk

- Solve the right amount of your problem (is <u>this</u> complexity necessary?)

- Plan for open interfaces, common technologies between "stovepipes"

  - If you have it… but it's "over there"… just use simple open APIs to get it

    – Craigslist/Google http://paulrademacher.com/housing/

Media Content and Delivery Management at HBS: Videotools
Presented: 12 April 2005, by Larry Bouthillier to the Gilbane Conference on Content Management

HARVARD | BUSINESS | SCHOOL

Requirements Gathering

- Most users of video and multimedia content will never see the Videotools application

- Key "aware" users are production staff, faculty and faculty assistants, administrative staff

- Broader population are now occasional users

- Measure of success of final implementation will be frequency of use by general HBS population

Media Content and Delivery Management at HBS: Videotools
Presented: 12 April 2005, by Larry Bouthillier to the Gilbane Conference on
Content Management

HARVARD | BUSINESS | SCHOOL

"Buy" vs. Build

- Let's be real…

  …its really "build" vs. "buy & build"

- Integration effort may equal build effort

- Payoff must come from enabling of future revisions

  - Upgrade path is essential

  - Internal development capacity is essential

Media Content and Delivery Management at HBS: Videotools
Presented: 12 April 2005, by Larry Bouthillier to the Gilbane Conference on
Content Management

HARVARD | BUSINESS | SCHOOL

Vendor selection

- "What parts of the total solution can we build ourselves?"

- Or…"What parts would we under no circumstances want to build?"

  - Can do: Web UI, metadata management, delivery management, portals

  - Don't want to do: VDF processing, automated ingest, document imaging, compound documents, contextual search

Solution: ClearStory ActiveMedia; Virage ControlCenter; RealNetworks Helix Universal Server

Media Content and Delivery Management at HBS: Videotools
Presented: 12 April 2005, by Larry Bouthillier to the Gilbane Conference on
Content Management

H A R V A R D | B U S I N E S S | S C H O O L

If you're going to buy…

If you have it….

   ...and it's locked in a proprietary format…

   …you don't really have it (for long)

- Beware closed solutions and formats

Media Content and Delivery Management at HBS: Videotools
Presented: 12 April 2005, by Larry Bouthillier to the Gilbane Conference on
Content Management

H A R V A R D | B U S I N E S S | S C H O O L

If you're going to buy…

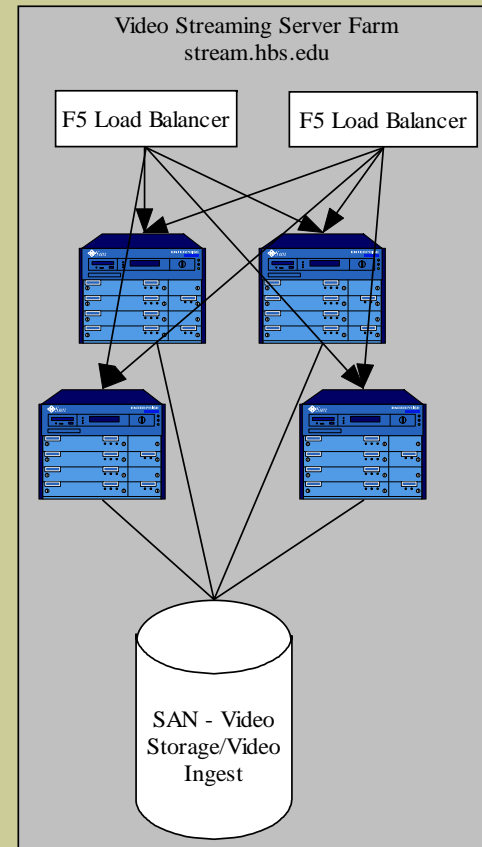- Open, public standards and protocols; platform and browser neutral
- No proprietary client-server pairings - no platform "lock-ins"
- Pluggable components and pieces
- Retain internal development capacity
- Fit with internal capacity

Media Content and Delivery Management at HBS: Videotools
Presented: 12 April 2005, by Larry Bouthillier to the Gilbane Conference on
Content Management

HARVARD | BUSINESS | SCHOOL

Architecture

Provides:

- High Capacity Media Streaming
- Content-agnostic
    MPEG1/2/4, .rm, .qt
- Load-balanced & redundant

Video Streaming Server Farm
stream.hbs.edu

F5 Load Balancer   F5 Load Balancer

SAN - Video
Storage/Video
Ingest

Media Content and Delivery Management at HBS: Videotools
Presented: 12 April 2005, by Larry Bouthillier to the Gilbane Conference on
Content Management

HARVARD | BUSINESS | SCHOOL

Architecture

ActiveMedia Back-end Application

SOAP Server   SOAP server

WW App server   WW App server

Media Processing server

MS Office Processing Server

Webware database (libra/prod1)

Provides:

- Media Metadata Management
- Media Ingest Processing
- Stream Data Extraction
- Keyframe processing
- Contextual search of documents
- Basic search of video
- Repository for VDF, XML, document files
- User/Permission Model
- Collections, Users, Groups structure

SAN - Video Storage/Video Ingest

Media Content and Delivery Management at HBS: Videotools
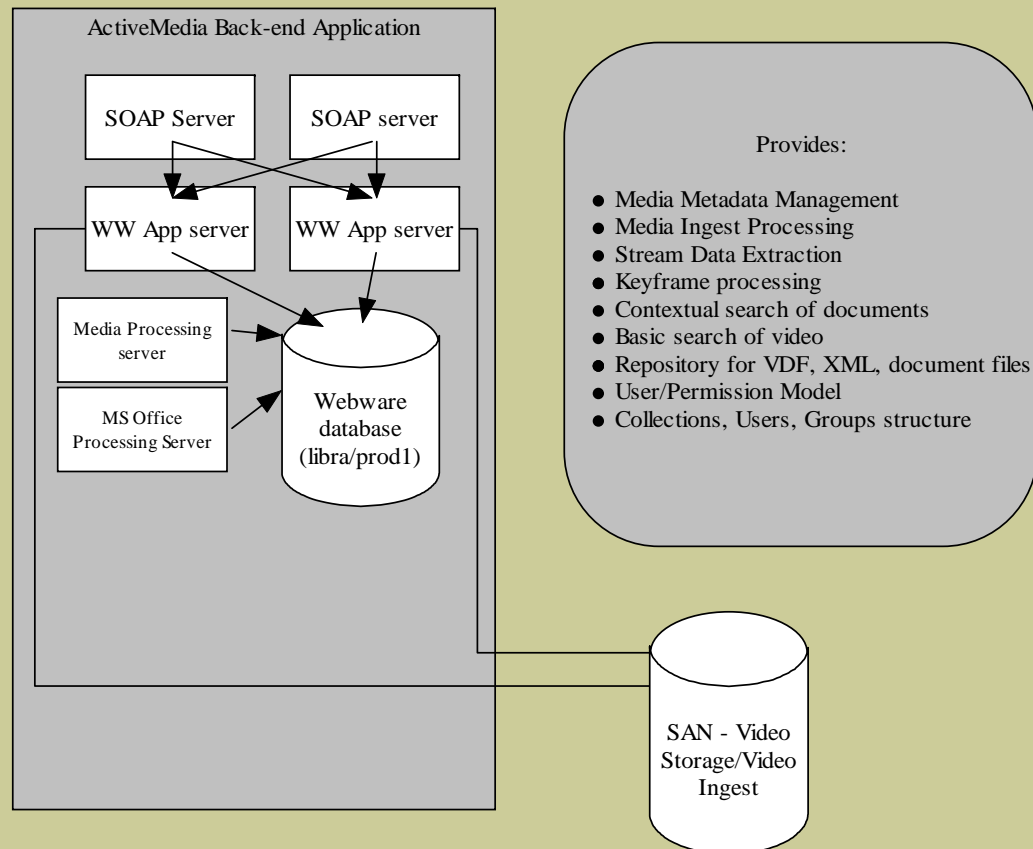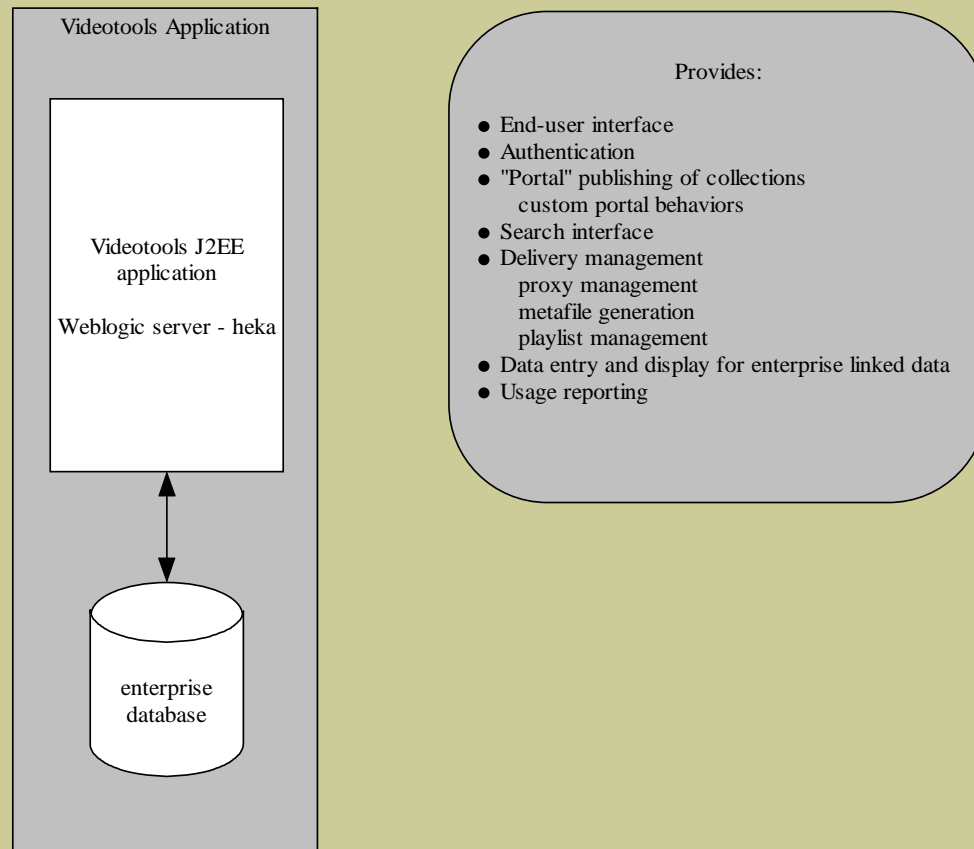Presented: 12 April 2005, by Larry Bouthillier to the Gilbane Conference on Content Management

HARVARD | BUSINESS | SCHOOL

Architecture

Videotools Application

Videotools J2EE application

Weblogic server - heka

enterprise database

Provides:

- End-user interface
- Authentication
- "Portal" publishing of collections
  custom portal behaviors
- Search interface
- Delivery management
  proxy management
  metafile generation
  playlist management
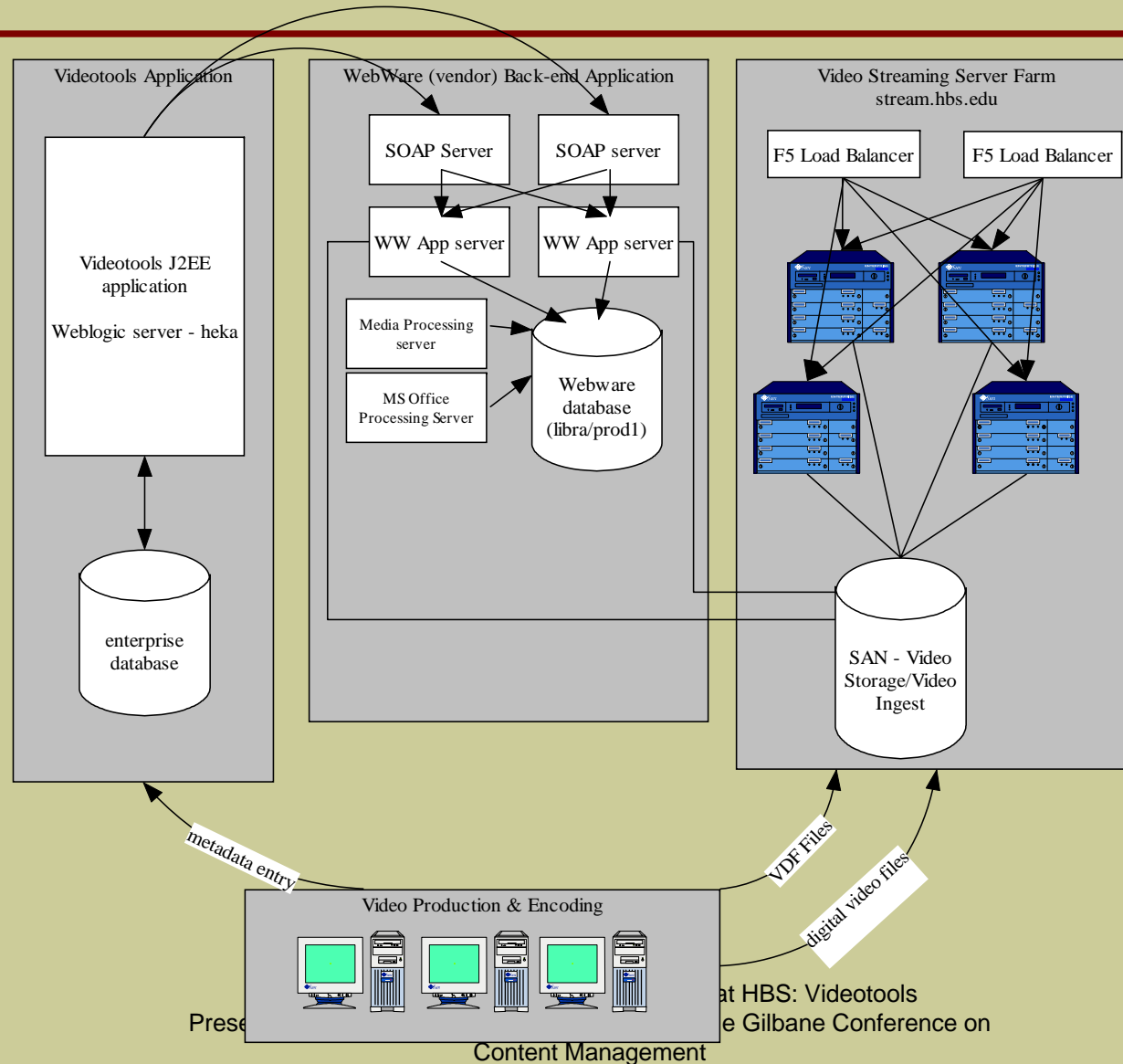- Data entry and display for enterprise linked data
- Usage reporting

Media Content and Delivery Management at HBS: Videotools
Presented: 12 April 2005, by Larry Bouthillier to the Gilbane Conference on
Content Management

HARVARD | BUSINESS | SCHOOL

Architecture

Videotools Application

Videotools J2EE application

Weblogic server - heka

enterprise database

WebWare (vendor) Back-end Application

SOAP Server

SOAP server

WW App server

WW App server

Media Processing server

MS Office Processing Server

Webware database (libra/prod1)

Video Streaming Server Farm
stream.hbs.edu

F5 Load Balancer

F5 Load Balancer

SAN - Video Storage/Video Ingest

Video Production & Encoding

metadata entry

VDF Files

digital video files

at HBS: Videotools

Prese... ...e Gilbane Conference on
Content Management

Governance

- Decisions about scope; Coordination among depts.
- Videotools Steering Committee
  - Project Lead
  - CIO
  - Director of Software Development
  - Head of Media Services
  - Head of Network Operations
  - Head of Multimedia Development

Media Content and Delivery Management at HBS: Videotools
Presented: 12 April 2005, by Larry Bouthillier to the Gilbane Conference on
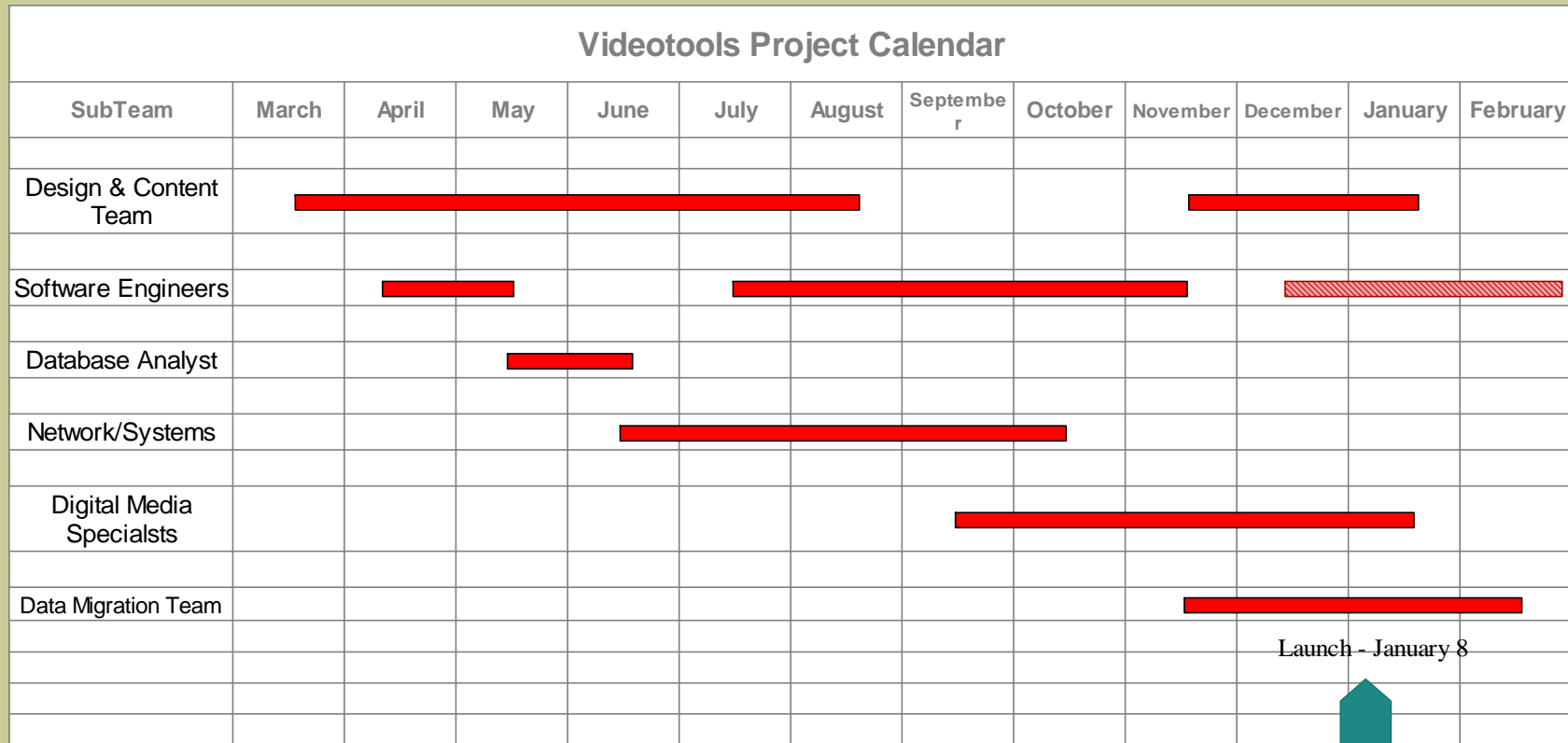Content Management

HARVARD | BUSINESS | SCHOOL

Implementation Team

Interdisciplinary team: challenge – getting the right amount of attention from every player…

- Digital Video Specialist (encoding, etc) (2)
- Software Engineers (Java, J2EE, SOAP) (2)
- Network and Systems Engineers (1.5)
- Content Manager (1)
- Project Lead (1)
- Vendor Project/Data Consulting (4-weeks)
- Vendor Tech Consulting (on-and-off for months)

Media Content and Delivery Management at HBS: Videotools
Presented: 12 April 2005, by Larry Bouthillier to the Gilbane Conference on
Content Management

HARVARD | BUSINESS | SCHOOL

Implementation Calendar

Videotools Project Calendar

SubTeam	March	April	May	June	July	August	September	October	November	December	January	February
Design & Content Team	━━━━━━━━━━━━━━━━━━━━━━━━━━━━━								━━━━━━━━			
Software Engineers		━━━			━━━━━━━━━━━━━━━━━				░░░░░░░░░░░░░░░░░░			
Database Analyst			━━━									
Network/Systems				━━━━━━━━━━━								
Digital Media Specialsts							━━━━━━━━━━━━━━━					
Data Migration Team									━━━━━━━━━━━━━━━			

Launch - January 8

H A R V A R D | B U S I N E S S | S C H O O L

Launch

- January 2005 – data migration, testing, testing, testing
- Launch – one Go-Live moment…to replace:
  - The video servers
  - The video storage
  - The network (switches, backbone, load-balancers)
  - The delivery management app
  - All of the data having been moved and cleaned

Media Content and Delivery Management at HBS: Videotools
Presented: 12 April 2005, by Larry Bouthillier to the Gilbane Conference on
Content Management

Launch

"Oh look…you changed the Web page…"

Media Content and Delivery Management at HBS: Videotools
Presented: 12 April 2005, by Larry Bouthillier to the Gilbane Conference on
Content Management

H A R V A R D | B U S I N E S S | S C H O O L

Future plans

- More searching – contextual audio search, compound document search

- Tagged metadata and logged metadata

- Lucene

- HBS Business Taxonomy integration

- Endeca-style search

Media Content and Delivery Management at HBS: Videotools
Presented: 12 April 2005, by Larry Bouthillier to the Gilbane Conference on
Content Management

HARVARD | BUSINESS | SCHOOL

Lessons

- Did not uncover all best solutions in consult sessions – you don't know until you're in it.

- Plan for many early revisions

- Data migration will take 400% of the time you plan – 95% will take about what you estimated. The other 5% will take 4x the first part.

- Plan to change your plans – an agile approach is essential

- Networking issues with F5s and streaming – major hassle, and few people know how to do this correctly

Media Content and Delivery Management at HBS: Videotools
Presented: 12 April 2005, by Larry Bouthillier to the Gilbane Conference on
Content Management

H A R V A R D | B U S I N E S S | S C H O O L

Lessons

- Don't do everything at once

- It's easier to build something totally new than to replace something old

- Integration can take as long as a custom build – be sure the future value promised by the vendor is worth it

- OEM product documentation

- Don't go outside your architecture – Java shops should stay with Java, etc…

Media Content and Delivery Management at HBS: Videotools
Presented: 12 April 2005, by Larry Bouthillier to the Gilbane Conference on
Content Management

H A R V A R D | **B U S I N E S S** | **S C H O O L**

Thank you

Contact:

Larry Bouthillier

Director of Educational Technology and Multimedia Development, Harvard Business School

larryb@hbs.edu

Weblog at http://www.emediacommunications.biz/blog

Media Content and Delivery Management at HBS: Videotools
Presented: 12 April 2005, by Larry Bouthillier to the Gilbane Conference on Content Management

HARVARD | BUSINESS | SCHOOL

File   Edit   View   Go   Bookmarks   Tools   Help

http://video.hbs.edu/videotools/index.jsp   Go   G

VIDEOTOOLS   HARVARD | BUSINESS | SCHOOL

HBS Online Video Library | HBS Video Showcase | Classroom Video | Portal Tool | Video Tape Library   Help   Log off

Hide Search Panel   Welcome, Laurence Bouthillier, you are logged in.

SEARCH [   ] GO >
☐ Search current folder   **Advanced Search**
  & subfolders

Browse | Manage Folders | New Asset

🔍 Most recent search   (0 items)

PERSONAL FOLDERS

⊞ 📁 Larry's Personal Root Folder

FOLDERS SHARED FROM OTHERS

▷ From David Upton
▷ From Judy Stahl

PUBLIC FOLDERS

⊟ 📁 Classroom Video
  ⊟ 📁 Elective Curriculum
      📁 Achieving Profit Goals and Str
      📁 Acquisitions and Alliances
      📁 Advanced Competitive Strateg
      📂 Advanced Leadership Develop
      📁 BBCL (Myra Hart)
      📁 Board of Directors (Jay Lorsch
      📁 Branding, Advertising, and Cu
      📁 Business and the Environment
      📁 Channels to Markets (Lal)
      📁 Consumer Marketing (Youngm
      📁 Coordinating and Managing Su

BROWSE FOLDER: Classroom Video > Elective Curriculum > Advanced Leadership Development (George) (3 item

View as: ▦ thumbnails ▤ details   Items per page: [20] GO   1 - 3 of 3   Go to page: [1] of 1 GO

☐ Select all on page   Selected items: Add to Clipboard | Copy | Move | Remove from folder | Delete

TITLE: Crucibles Nelson Mandella and Oprah Winfrey
DURATION: 17 min., 34 sec.
URL: http://video.hbs.edu/videotools/play?clip=ald_oprah_nelson
☐ Play Video   Details   ⊞ Add to Clipboard

TITLE: Nelson Mandella and Oprah Winfrey
DURATION: 2 min., 44 sec.
URL: http://video.hbs.edu/videotools/play?clip=ald_oprah_nelson1
MASTER: ald_oprah_nelson
☐ Play Video   Details   ⊞ Add to Clipboard

TITLE: Nelson Mandella Crucibles — Crucibles
DURATION: 14 min., 44 sec.
URL: http://video.hbs.edu/videotools/play?clip=ald_oprah_nelson2
MASTER: ald_oprah_nelson
☐ Play Video   Details   ⊞ Add to Clipboard

View as: ▦ thumbnails ▤ details   Items per page: [20] GO   1 - 3 of 3   Go to page: [1] of 1 GO

CLIPBOARD: 3 items   (remove all)   ☐ Minimize ☐ Preview ☐ Maximize

Done   Partly Cloudy, 47°F   Fri 51°F   Sat 44°F   Sun 49°F   Mon 44°F   Tue 47°F

HBS Videotools - Mozilla Firefox

File   Edit   View   Go   Bookmarks   Tools   Help

VIDEOTOOLS   HARVARD | BUSINESS | SCHOOL

HBS Online Video Library   HBS Video Showcase   Classroom Video   Portal Tool   Video Tape Library   Help   Log off

Hide Search Panel   Welcome, Laurence Bouthillier, you are logged in.

SEARCH [   ] GO >
☐ Search current folder   Advanced Search
& subfolders

Browse | Manage Folders | New Asset

- 📁 Managing For Creativity (Tere
- 📁 Managing Human Capital: How
- 📁 Managing In The Information
- 📁 Managing Innovation and Proc
- 📁 Managing Service Operations
- 📁 Marketing of Innovations (Elie
- 📁 Microeconomics of Competitiv
- 📂 Negotiating Complex Deals (W
- 📁 Negotiation and Dispute Resol
- 📁 Operations and Strategy (Ian:
- 📁 Power and Influence (Leslie P
- 📁 Professional Services (Ashish
- 📁 Real Property (Arthur Segel)
- 📁 Self Assessment and Career [
- 📁 Social Enterprise (SE)
- 📁 Social Marketing (Kash Ranga
- 📁 Strategic Corporate Citizensh
- 📁 Strategic Marketing Managem
- 📁 Strategy and Technology (Da·
- 📁 The Coming of Managerial Ca
- 📁 The Operating Manager (Kent
- 📁 Understanding Customers (Lu
- 📁 Women Building Business (Ap
- ⊞ 📁 Executive Education
- ⊞ 📁 Required Curriculum
- ⊞ 📁 Special Presentations
- ⊞ 📁 Departments
- ⊞ 📁 Faculty
- ⊞ 📁 Faculty Units
- 📁 Migrated
- 📁 New Ingested Media
- ⊞ 📁 Portals
- ⊞ 📁 Staff

BROWSE FOLDER: Classroom Video > Elective Curriculum > Negotiating Complex Deals (Wheeler) (7 items)

View as: ⊞ thumbnails ▣ details   ← item 7 of 7   Go to item: [   ] of 7 GO

Item management: Copy | Move | Remove from folder | Delete

VIDEO INFO   INSPECT   **PROXIES**   **LINEAGE**   **USAGE**

Play Video

Title: Negotiating Corporate Change (no titles)
Subtitle: Negotiating Corporate Change
Clipname: sn_neg_corp1
Searchable by: Faculty/Staff
Duration: 24 min., 50 sec.
Source Tape: Not available.
Copyright: None
Record Entered: None
URL: http://video.hbs.edu/videotools/play?clip=sn_neg_corp1
This video is available for high-quality classroom streaming.

Collections: AMP, Faculty/Staff/Students/Alumni, Negotiating Complex Deals (Wheeler), Strategic Negotiations

Description: Heads of 3 divisions negotiate the implementation of a tracking system

Event Name: None   Event Date: None
Event Location: None   Event Type: None

Related People
Faculty/Sponsor: James Sebenius

Related Cases
None

Related Courses
None

Edit Info

CLIPBOARD: 3 items   (remove all)   ☐ Minimize ☐ Preview ☐ Maximize

Done   Partly Cloudy, 47°F   Fri 51°F   Sat 44°F   Sun 49°F   Mon 44°F   Tue 47°F

Sharing Screenshot