

MICHIGAN STATE
UNIVERSITY

Project Plan

Enhanced Program Guide Authoring Services

The Capstone Experience

Team Motorola Mobility

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*From Students...
...to Professionals*

Project Overview

- Develop Content Authoring Tool
 - Allow content providers to upload and coordinate Secondary Content with Primary Content
- Develop Mobile Client
 - Create fluid interface to allow presentation of multiple content formats in layered manner
- Develop Content Service
 - Store information about Secondary Content and it's associations with Primary Content
- Design standard for Secondary Content
 - Similar to current standards for advertisement in cable services



Functional Specifications

- Content Authoring Tool
 - Upload, Delete, Modify Secondary Content
 - Coordinate presentation of Secondary Content with times in Primary Content
- Mobile Application
 - Fetch content triggers based on current Primary Content
 - Allow user to set preferences for optimal ease of use
 - Sync display of Secondary Content with Primary Content
- Content Service
 - Authenticate users and limit operations based on permissions



Design Specifications

- Content Authoring User Interface
 - Implement entirely new application
 - Emphasize usability and performance
 - Allow customization of display by individual users
- Mobile Device UI
 - Intuitive interface
 - Display multiple pieces of Secondary Content without clutter
- Design standard for organizing Secondary Content



Screen Mockups

Main Page

Content Authoring Tool

Main | Content Management | Association Management

Logged in as: Kabe | Preferences | Logout

Primary Content

- Extreme Dinosaurs
Mass grave beds in Canada and Argentina support a theory about a...
- Deep Sea Aliens
Unravel the intelligence of the octopus
- Vampires from the Abyss
The mysteries of the vampire squid.
- The Planets
The explosive birth of our solar system
- How Do They Do It?
Mega hotels; lasers; desert golf.
- How Do They Do IT?
Manufacturing drink cartons, prefabricated homes and mobile...
- How Do They Do IT?

Content Information

Title: Extreme Dinosaurs
Description: Mass grave beds in Canada and Argentina support a theory about a flesh-eating dinosaur that hunted in packs.
Series Type: Documentary
Genres: Science, History, Paleontology
Running Time: 60 minutes

Show times:

New York, NY

Los Angeles, CA

Science Channel

Date	Time	Secondary Content	Rerun
Friday 02-04-2011	6:00PM PST	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Monday 02-07-2011	4:30PM PST	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Monday 02-07-2011	8:30PM PST	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Monday 02-14-2011	4:30PM PST	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

East Lansing MI

London, England

Secondary Content | General | Lineup Specific | Instance Specific

- Title: Science Channel Facebook Page
Format: Facebook Page
Time: 1:30
- Title: City of LA PSA
Format: Image
Time: 2:45
- Title: Interview with Dr. Dinoman
Format: Video
Time: 4:00
- Title: Scale image of dinosaurs and
Format: Image
Time: 6:15
- Title: Link to Science Channel Site -
Format: Hyperlink
Time: 7:45
- Title: Advert for following program
Format: Video
Time: 14:00
- Title: Advert for LA pizza
Format: Video
Time: 16:00
- Title: Advert for Olympics
Format: Image
Time: 20:00
- Title: 3D Render of Brontosaurus
Format: Image
Time: 22:00



Screen Mockups

Content Management

Content Authoring Tool

Main | **Content Management** | Association Management

Logged in as: Kabe | Preferences | Logout

Upload New Content (On Click)

Current Secondary Content

Filters:

Search: Dinosaur [Tags]

Just my content Content Format:

Video (selected)
Image
Hyperlink
Text
Facebook Page

Dates:
Start: / /
End: / /

Results:

- Title: Interview with Dr. Dinoman
Format: Video
Time: 4:00 ✓
- Title: Jurassic Park TV Spot
Format: Video
Time: 5:45
- Title: 3D Render of Brontosaurus
Format: Video
Time: 7:00 ✓
- Title: Godzilla Advertisement
Format: Video
Time: 12:0
- Title: Picture of Brontosaurus
Format: Video
- Title: Jurassic Period - Wikipedia
Format: Hyperlink

Currently Selected Secondary Content:

Title: Interview with Dr. Dinoman
Description: Interview with acclaimed scient Dr. Dinoman. He speaks about the theories about what caused the mass extinction of dinosaurs millions of years ago.
Format: Video
Length: 4:00
Tags: Dinosaur, science, extinction, paleontology, interview, smithsonium

Edit Content

Content Preview

"Interview with Dr. Dinoman"

Primary Content Utilizing Selected Secondary Content

- Extreme Dinosaurs
Mass grave beds in Canada and Argentina support a theory about a...
Open Association Management
Mark association with note
- History of Dinosaurs
Broad overview of rise and fall of dinosaurs
Open Association Management
Mark association with note

Mark all associations with note

Upload Secondary content

Video | Image | Hyperlink | Social | Text

Title: Hugh Laurie Wikipedia Article
URL: http://en.wikipedia.org/wiki/Hugh_Laurie
Description: Link to Hugh Laurie's Wikipedia Article

Tags: House, English People, Doctor, Hugh Laurie, Medical Show, Wikipedia

Create Content **Delete**



Screen Mockups

Association Management - Table View, Searching Secondary Content with filters

The screenshot displays the 'Content Authoring Tool' interface, specifically the 'Association Management' section. The top navigation bar includes 'Main', 'Content Management', and 'Association Management'. The user is logged in as 'Kabe'. The 'Currently Selected Primary Content' section shows details for 'Extreme Dinosaurs - Episode 112'. The 'Table View' tab is active, displaying a table of 'Associated Secondary Content' with columns for 'General', 'Lineup Specific', and 'Instance Specific'. The table lists various content items with their titles, formats, and times, along with 'ON/OFF' toggle buttons and 'X' icons. A yellow callout box points to a 'Remove note' link for the 'Advert for LA pizza' item. To the right, the 'Secondary Content' panel shows a search for 'Dinosaur' with filters for 'Content Format' (Video, Image, Hyperlink, Text, Facebook Page) and 'Dates'. The 'Results' section lists items like 'Interview with Dr. Dinoman' and 'Jurassic Park TV Spot'. A red arrow points from the 'Tags' dropdown in the filters to a 'Tags' dropdown menu. Another red arrow points from a green checkmark in the results to a note: 'Refers to content already associated with primary content we are viewing, follows color coded standards'. A third red arrow points from the 'X' icon in the table to a 'Remove associated content' dialog box with the text: 'Are you sure you want to remove this Generally Associated content? This will affect all showings. Consider disabling at Lineup or Instance level.' The dialog has 'Remove' and 'Cancel' buttons.



Screen Mockups

Association Management - Tree View, Viewing Suggested Secondary Content

The screenshot shows the 'Content Authoring Tool' interface. The top navigation bar includes 'Main', 'Content Management', and 'Association Management'. The current selected primary content is 'Extreme Dinosaurs - Episode 112'. The interface is divided into two main sections: 'Associated Secondary Content' and 'Secondary Content'.

Associated Secondary Content: This section shows a timeline view. A secondary content item is displayed with the following details:

- Title: City of LA PSA
- Format: Image
- Time: 2:45

The timeline shows 'Primary Content Start' and 'Primary Content End'. A 'Jurassic Park TV Spot' is also visible. A red arrow points to the secondary content item with the label 'On Click'. Another red arrow points to the timeline with the label 'Drag and Drop to Timeline'.

Secondary Content: This section shows a list of suggested content items. The items are:

- Title: 3D Render of Brontosaurus (Format: Video, Length: 0:20) - Green checkmark
- Title: Smithsonian T-Rex (Format: Image)
- Title: 3D Render of Pterodactyl (Format: Video, Length: 0:20)
- Title: Interview with Dr. Dinoman (Format: Video, Length: 2:30) - Green checkmark
- Title: Picture of Brontosaurus (Format: Video)
- Title: Jurassic Park TV Spot (Format: Video, Length: 0:30)
- Title: Godzilla Advertisement (Format: Video, Length: 0:30)
- Title: Jurassic Period - Wikipedia (Format: Hyperlink)

A red arrow points from the 'Interview with Dr. Dinoman' item to a text box: 'Refers to content already associated with primary content we are viewing, follows color coded standards'.

Link to Science Channel Site - Dinosaur Zone: This pop-up window shows details for a specific secondary content item:

- Title: Link to Science Channel Site - Dinosaur Zone
- Format: Hyperlink
- Time: 7 : 45
- Description: This is a description of the secondary content, it gives more information to clarify

Buttons for 'Apply' and 'Remove' are visible at the bottom.

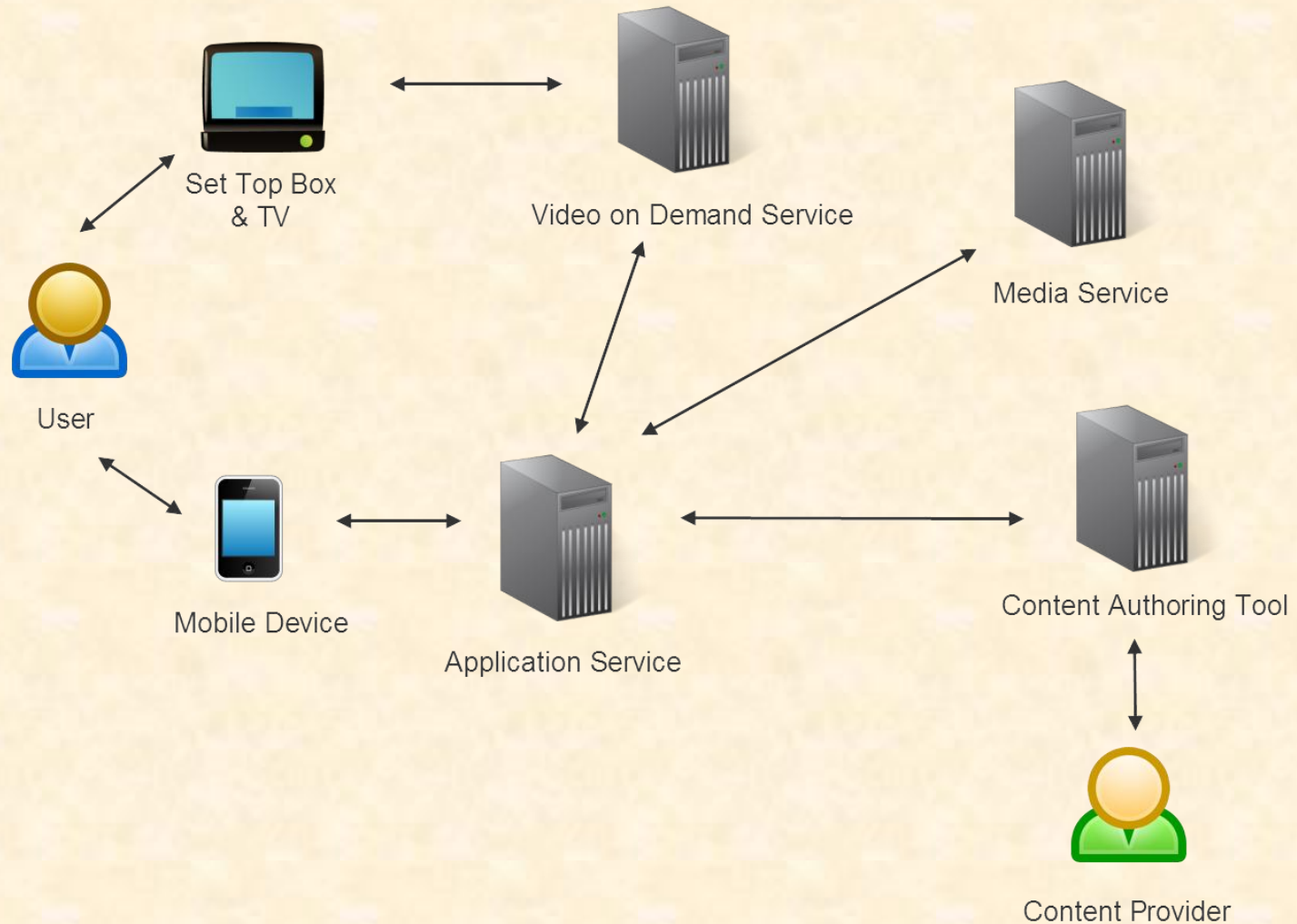


Technical Specifications

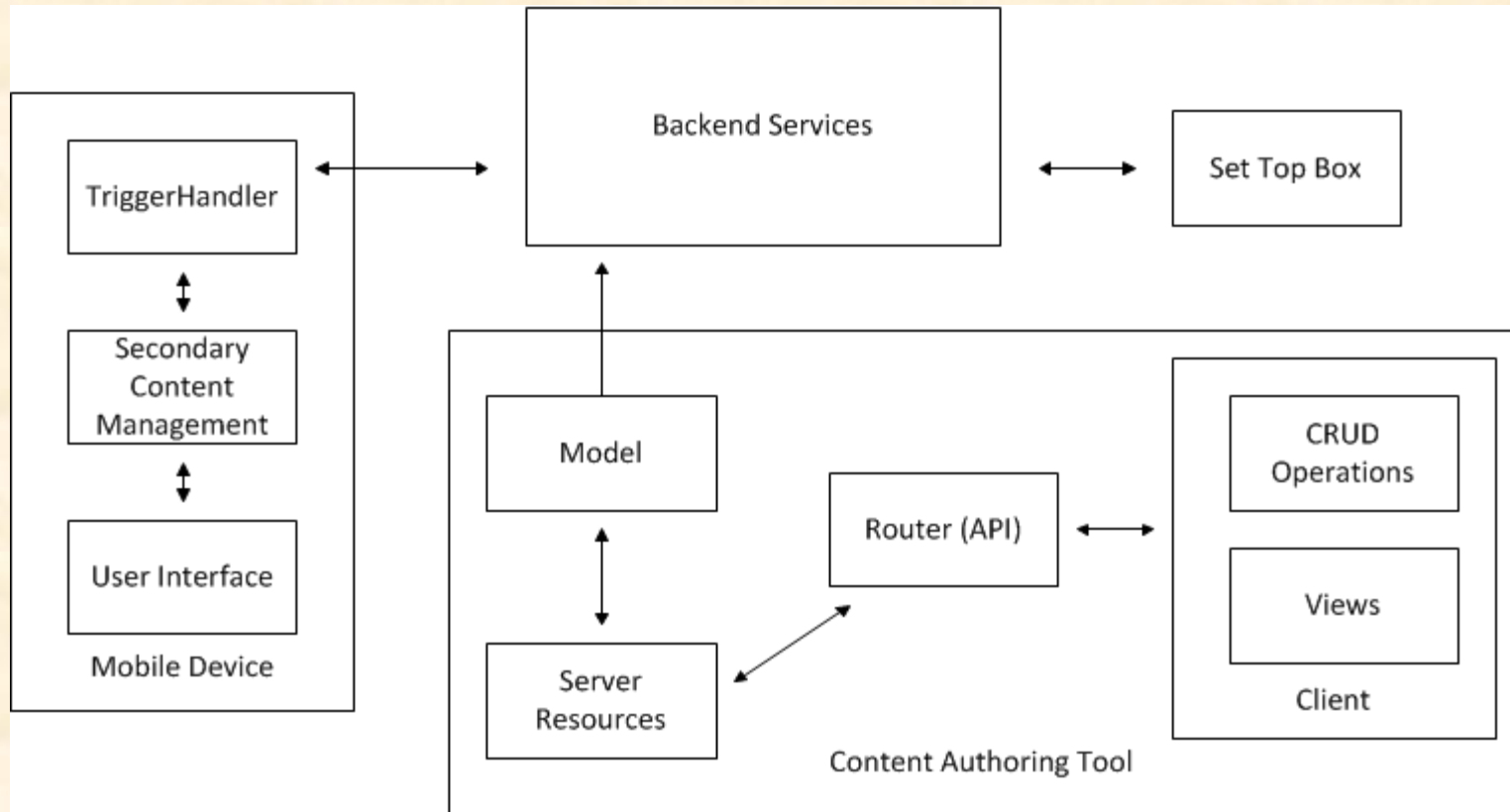
- Content Server
 - Store Secondary Content information in PostgreSQL Database
 - Accessed through iBatis persistence layer
- Application Server
 - Runs on Windows Server 2008
 - Deployed to GlassFish
 - RESTful APIs
 - All data accessed with addressable URIs
- Mobile Device
 - Communicates with proxy to contact services



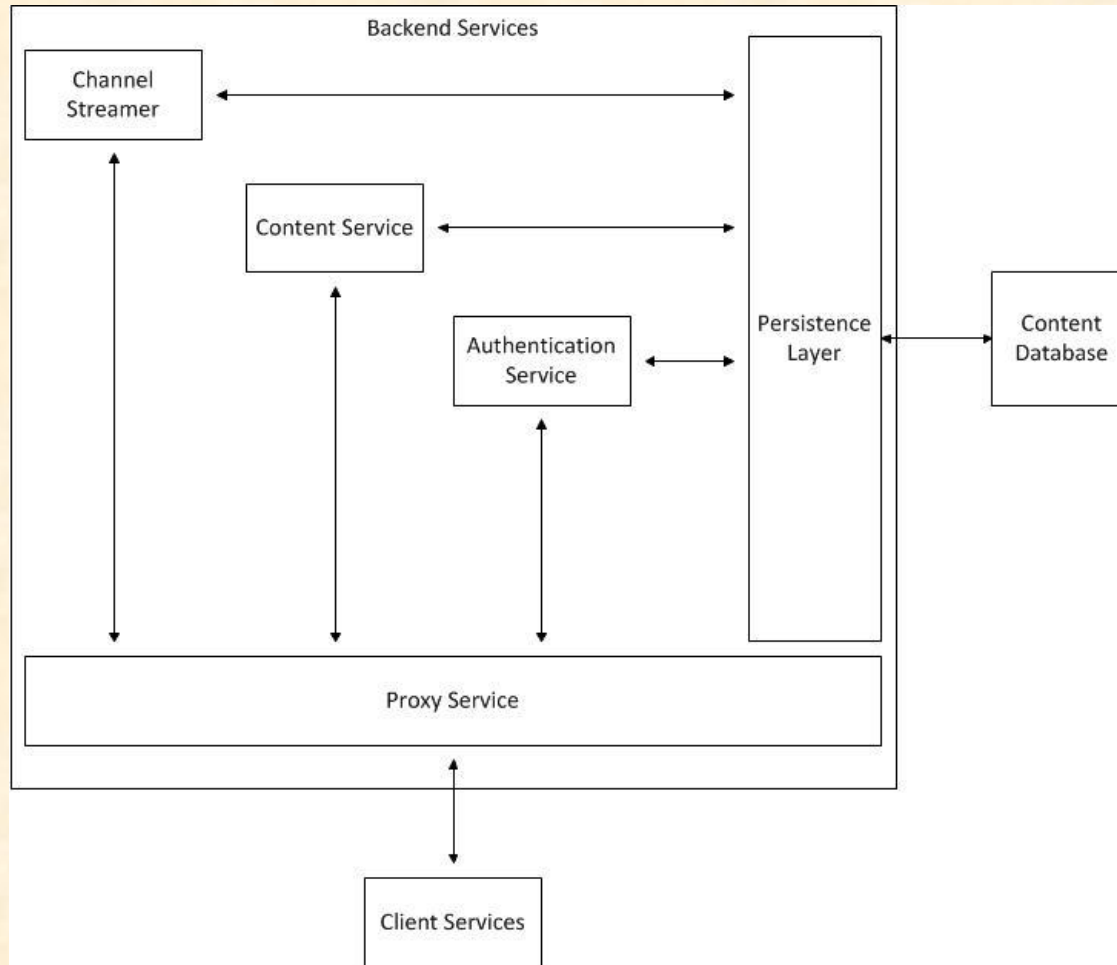
System Architecture



System Architecture



System Architecture



System Components

- Hardware Platforms
 - Motorola Set Top Box
 - Apple iPad
 - Windows & Mac Desktops
- Software Platforms / Technologies
 - Java, RESTlet framework, Eclipse
 - Objective C
 - Glassfish Application Server
 - Google Web Toolkit / Vaadin Framework
 - PostgreSQL Database / iBatis Persistence Layer



Testing

- Content Authoring Tool
 - Performance and appearance within supported browsers
- Mobile Device Application
 - Test user experience and ease of use
- Test scalability, performance with many users accessing at once
- Security testing to ensure protection of content provider's information and media



Risks

- Scalability
 - Ideally system will serve anyone with cable box and mobile device
- Performance
 - Large amounts of data, multimedia
- User Experience
 - Provide high standard of usability, ease of use
- Learning curve
 - New technologies and development concepts

