

MICHIGAN STATE
UNIVERSITY

Project Plan

Enhanced Program Guides for Mobile Devices

The Capstone Experience

Team Motorola

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

Project Overview

- Provide additional television content
 - Extend brand names beyond living room
 - Enhance user experience
- Manage Secondary Content Lifecycle
 - Create new content and new types of content
 - Associate content to specific times within a show
- Mobile User Application
 - Non-intrusive
 - User friendly
 - Multiple platforms
 - For use with live or recorded content



Functional Specifications

- Administrator Web Page
 - View, Create or delete content
 - Link content together
- Mobile Application
 - Receive content based on a specific show
 - Set preferences on types of content to receive
 - Sync mobile device to Set-Top boxes or channels
- Electronic Programming Guide
 - Displays shows available on each channel



Design Specifications

- Administrator UI
 - Minimal Layout Changes
 - Present Information in an Intuitive Manner
- Content Authoring Tool
 - Create New or Use Existing Layouts
 - Customizable Using XML
- Client UI
 - Touch Screen Friendly
 - View Current or Previous Content



Screen Mockups

Search Schedule

Type Go!

Title	Duration	Tags	1	2
Search Results			<input type="radio"/> A	<input type="radio"/> A
			<input checked="" type="radio"/> B	<input type="radio"/> B
			<input type="radio"/> C	<input type="radio"/> C
			<input type="radio"/> D	<input type="radio"/> D
			<input type="radio"/> E	<input checked="" type="radio"/> E
			<input type="radio"/> F	<input type="radio"/> F

Title New Edit Remove

Content

(Display Search Result 1 Radio Button)

Title New Edit Remove

Content

(Display Search Result 2 Radio Button)

🔗 Hr Min Sec

Screen Mockups

Content Title

Tags

Type

- ▼ 1
 - ▶ 1.1
 - ▼ 1.2
 - ▶ 1.2.1

Bold	<i>Italics</i>	<u>Underlined</u>	Size <input type="text"/>
Left	Center	Right	Font <input type="text"/>

Text Color

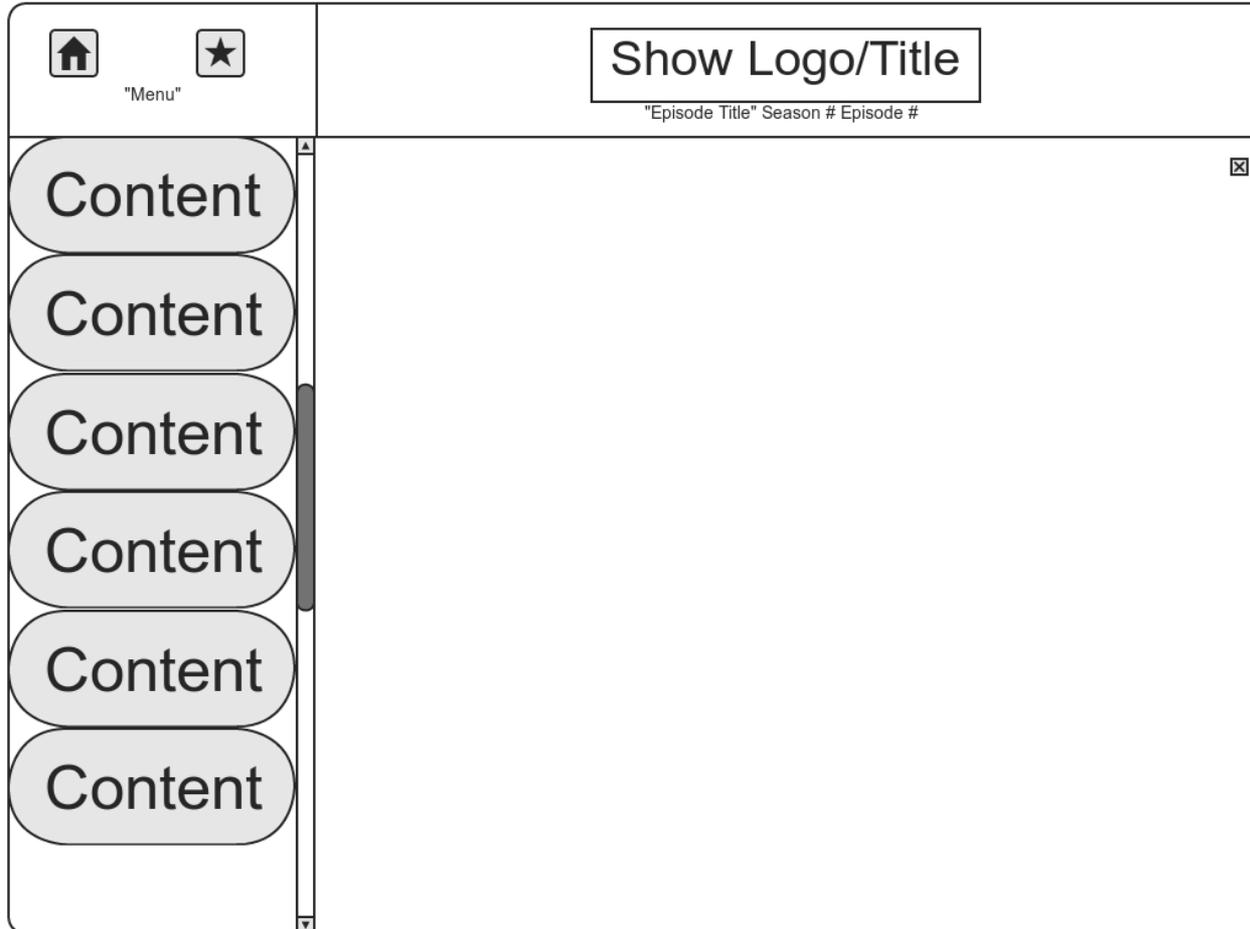
Background Color

Element Preview

Content Preview



Screen Mockups

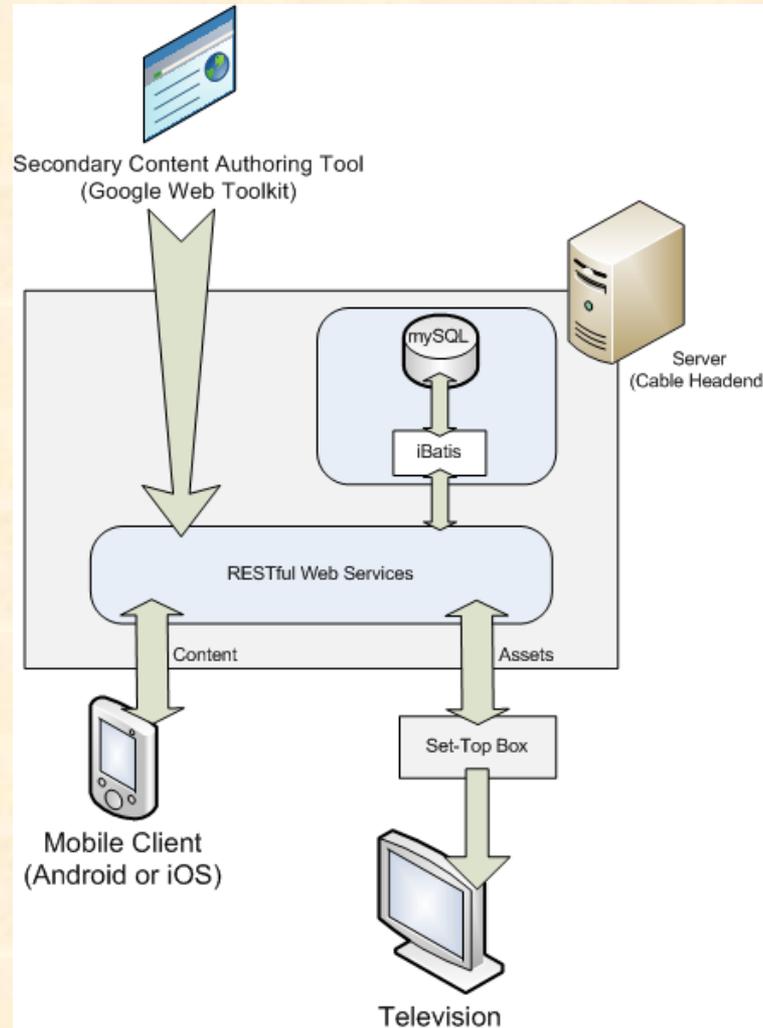


Technical Specifications

- Cable Head-End
 - Has Video On-Demand Server
- Application Server
 - Runs on Windows Server 2008
 - Uses RESTful APIs
 - Services & content accessed with addressable URIs
- Content Server
 - Stores data in a MySQL database
 - Accesses MySQL using the iBatis persistence layer



System Architecture



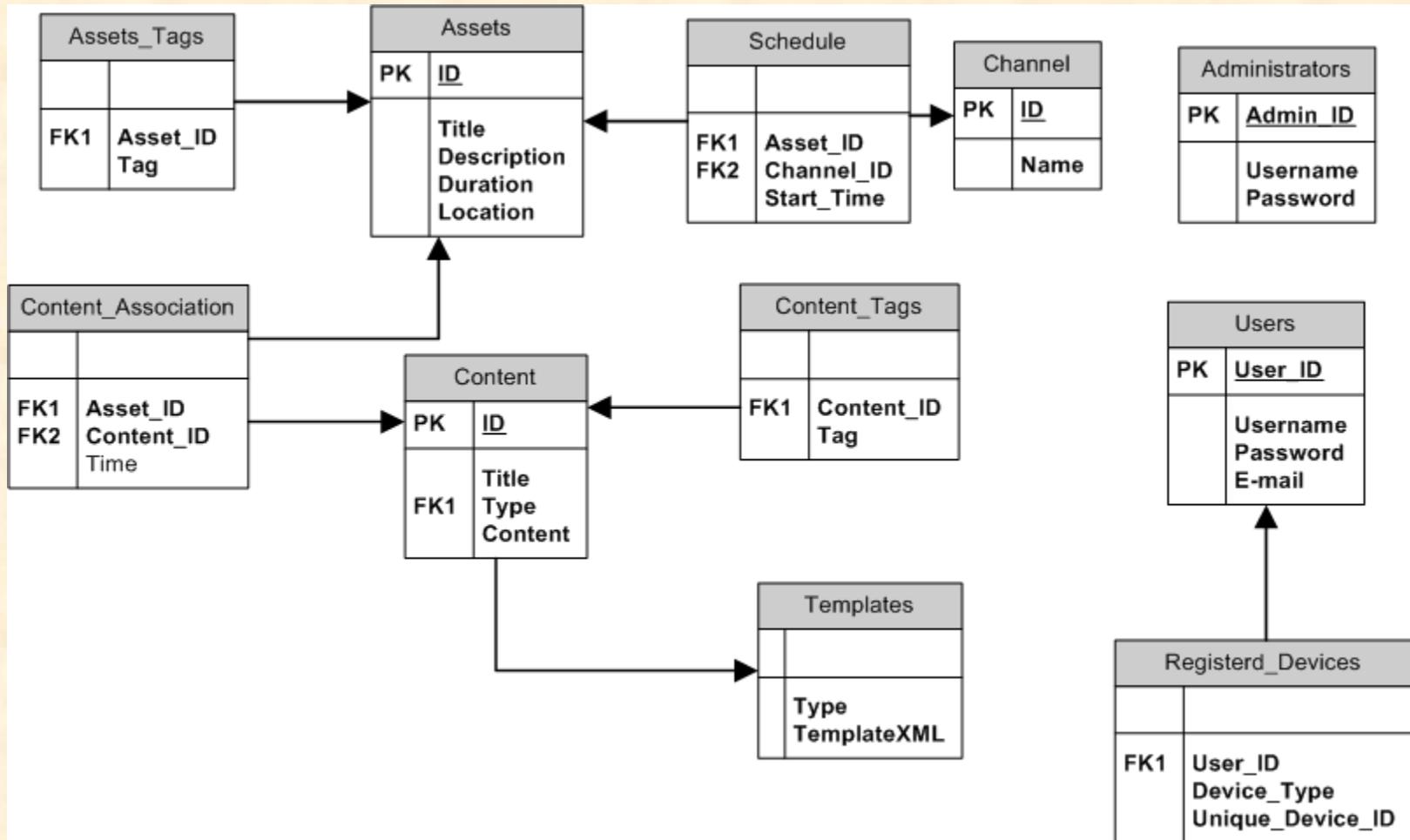
System Architecture

API Services

- Syncing
 - Coordinate mobile device with streaming content
- Scheduling
 - Set and retrieve when shows are played on each channel
- Device Registering
 - Record unique device ID with services
- Streaming
 - Deliver shows to set-top box
- Content
 - Interface with database to set and retrieve content
- Portal
 - Manage media playback
- User Account
 - Authenticate users and manage their settings

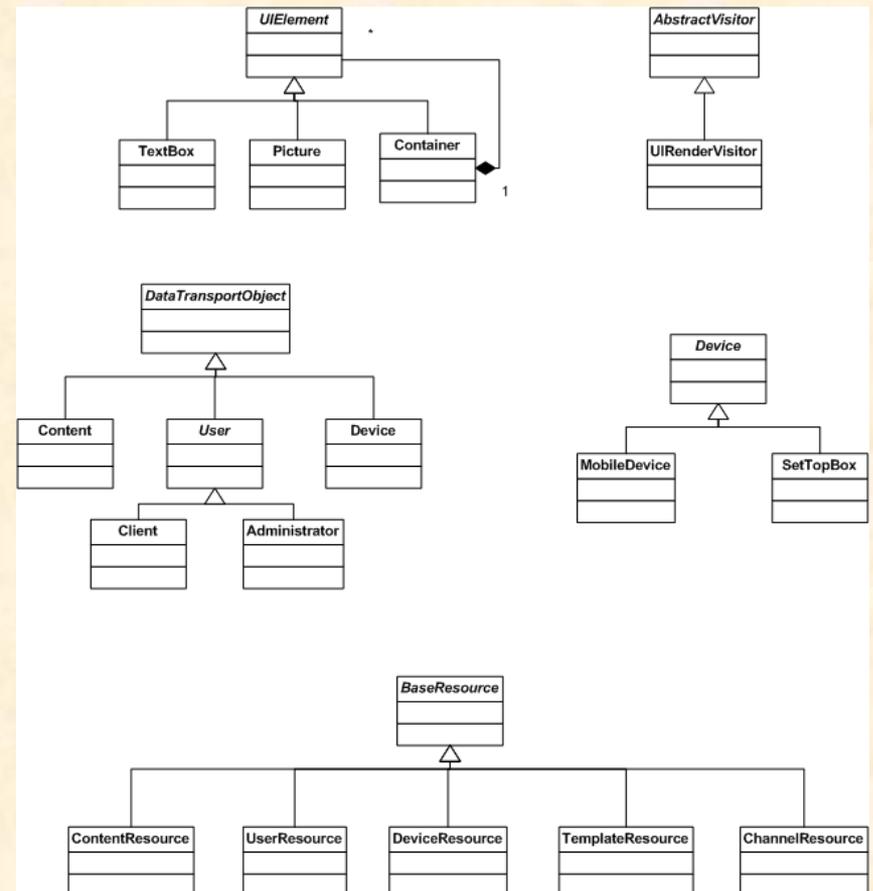


System Architecture



System Architecture

- Composite Pattern for UI Elements
- Visitor Pattern on UI elements for rendering
- Abstract classes for Resource classes, device classes, and Data Transfer Objects



System Components

- Hardware Platforms
 - iPad
 - Motorola Set-Top Box
 - Dell Power-Edge Server
- Software Platforms / Technologies
 - Java/Objective C
 - RESTlet
 - XML/JSON
 - Glassfish
 - Google Web Toolkit
 - MySQL Database
 - iBatis



Testing

- Unit tests for core classes
- Functional testing of RESTful API with mock requests
- Admin Panel UX Tests
 - Testing appearance and compatibility with browsers
- iPad UX Tests
 - Testing effectiveness of UI on Emulator & Hardware
- End-to-end use case tests



Risks

- SVN access from Motorola
 - Delays from VPN changeover
- Integration of RESTful services and UI
- Implement proxy for clients due to Same Origin Policy
- Incorporate previous capstone video services
- Notify the mobile application of changes to the status of content playback

