MICHIGAN STATE
U N I V E R S I T Y

Project Plan
Synchronized Program Content Delivery

The Capstone Experience

Team Motorola Mobility

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From Students…
    …to Professionals

Project Overview

- Develop Synchronized Program Content Delivery Tool
  - Synchronize what the user is viewing on their television with appropriate secondary content on mobile device
- Develop Audio Sync Service
  - User can record sample audio footprint of a program, and the sync service will identify the program and sync
- Develop Synchronized Complete TV mobile app
  - Smooth interface for user preferences
- Develop Set Top Box User Interface
  - Similar to a program guide

Functional Specifications

- Synchronized Program Content Delivery Tool
  - Synchronize based on user actions (e.g. pause, fast forward, rewind, channel change)
  - Synchronize based on user's progress into a particular episode
- Audio Sync Service
  - Record sample audio, identify program, and sync
- Set Top Box UI
  - User can select a program, and the mobile device will sync accordingly
- Synchronized CompleteTV Application UI
  - Users can customize sync and secondary content preferences

Design Specifications

- Synchronized Program Content Delivery
  - Accurate syncing to provide seamless integration between primary and secondary content

- Audio Sync Service
  - User should not be taken out of the experience to record audio

- Synchronized CompleteTV
  - Intuitive User Interface

Screen Mockups

Synchronized CompleteTV: Content Page

Screen Mockups

Synchronized CompleteTV: Settings Page
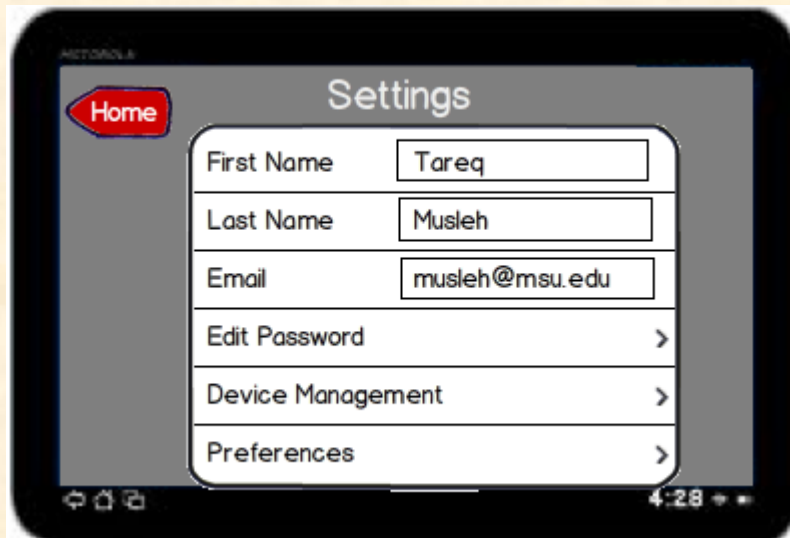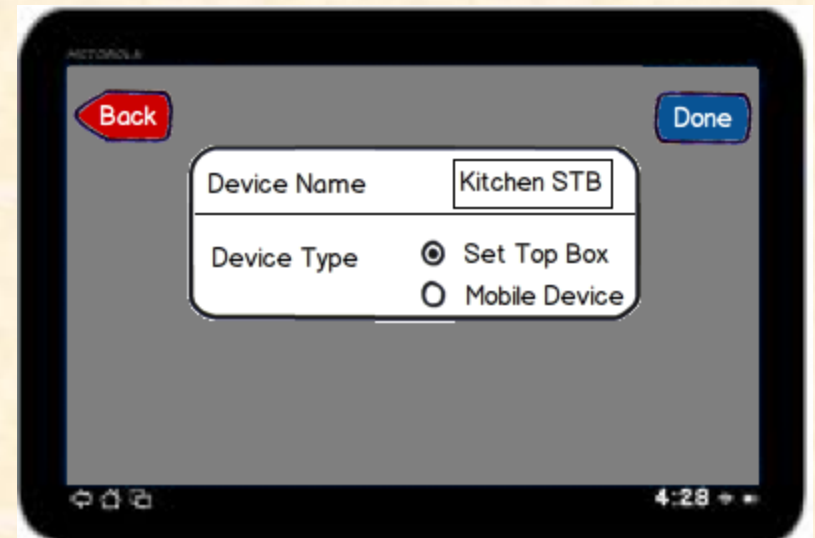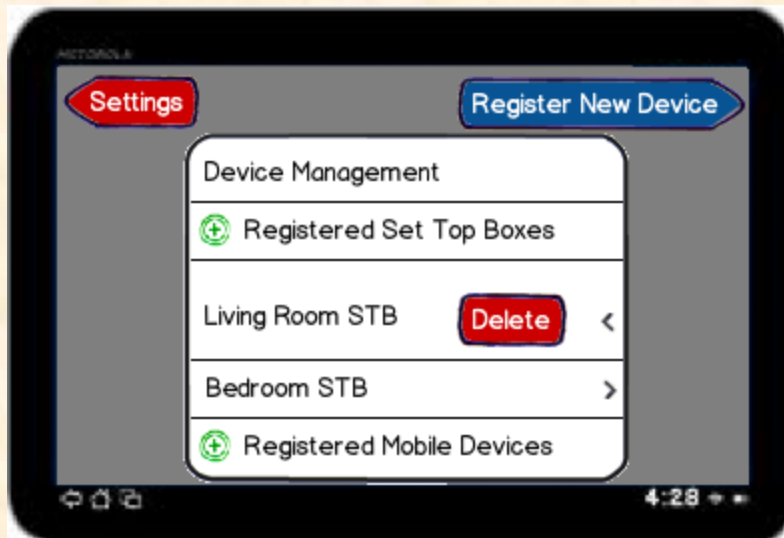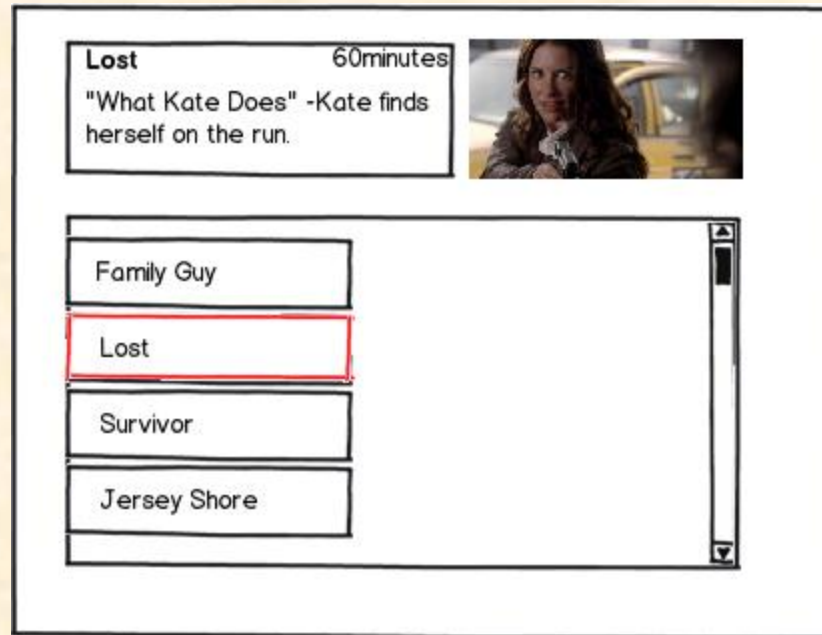
Screen Mockup

Synchronized CompleteTV: Device Management Pages

Screen Mockups

Set Top Box UI

Technical Specifications

- Databases
  - Identity Management Database
    - Store information about the user, devices, and associations between them in PostgreSQL Database
  - Sync Database
    - Stores sync events in PostgreSQL Database.
- Application Server
  - Deployed to GlassFish
  - RESTful APIs
- Mobile Device
  - Communicates with Sync Service and Content Service
- Set Top Box
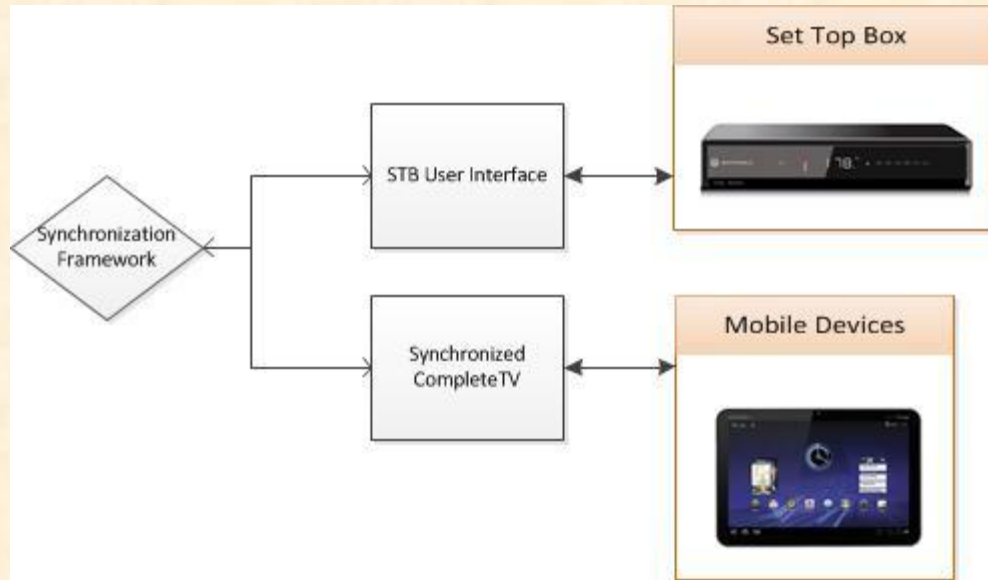 - Sends information about the program being played to the Sync Service
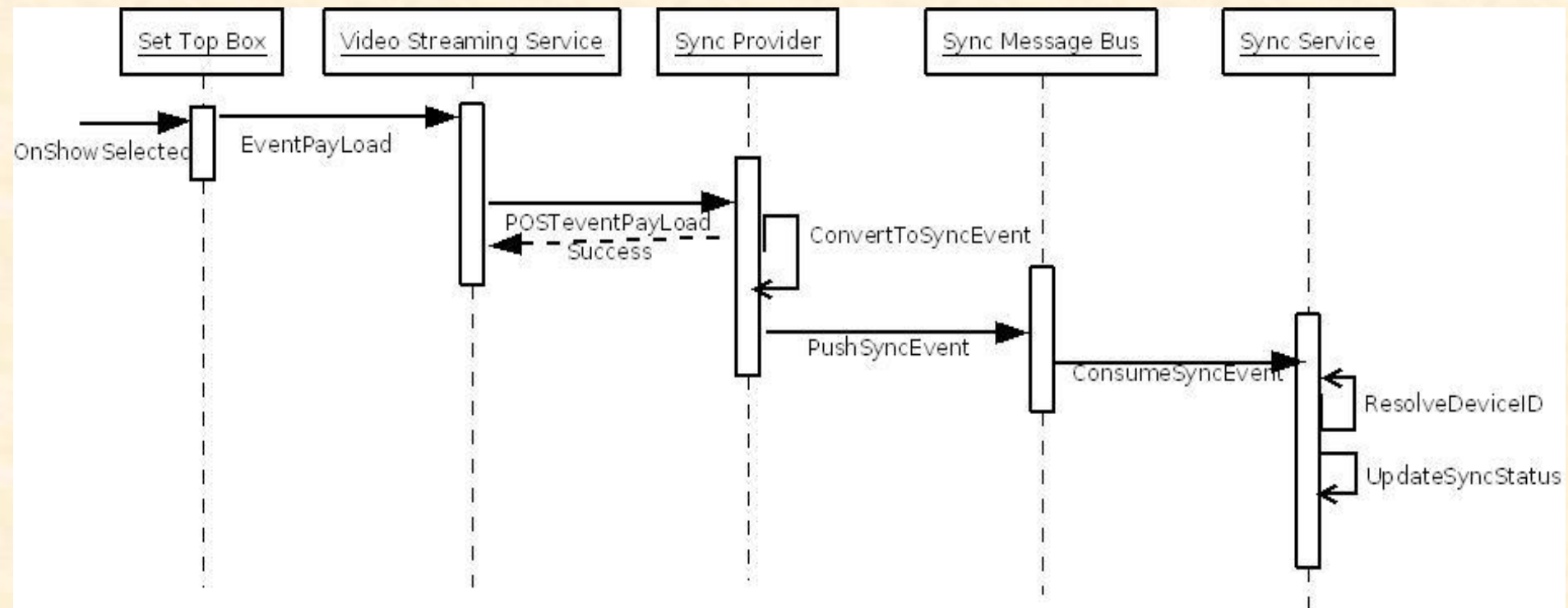
System Architecture
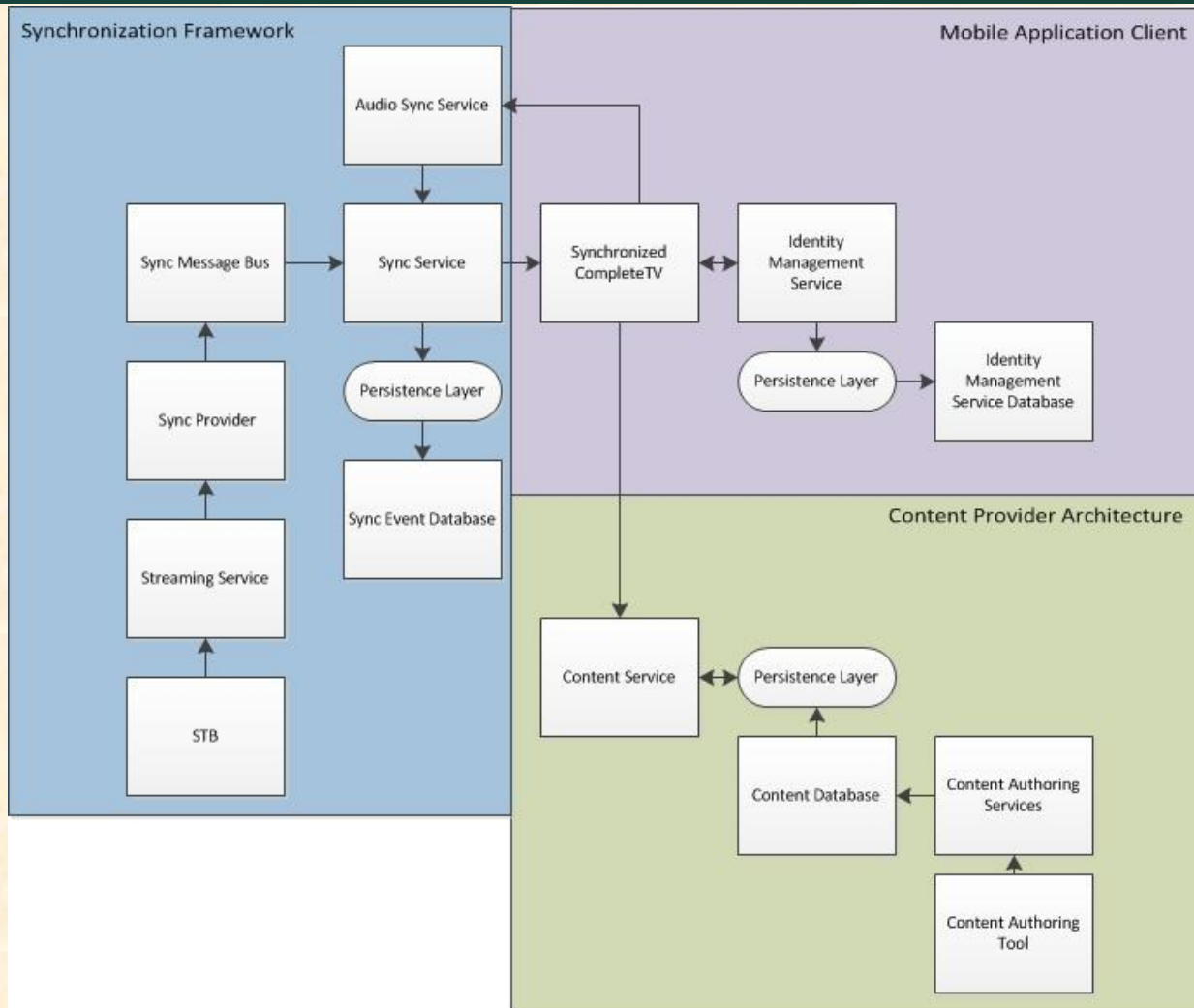
System Architecture

Clients

System Architecture

Sync Sequence Diagram

System Components

- Hardware Platforms
  - Motorola Set Top Box & TV
  - Android mobile device
  - Windows & Mac Desktops
- Software Platforms / Technologies
  - Java, RESTlet framework, Eclipse
  - jQuery, jQuery Mobile
  - Set Top Box Portal
  - PostgreSQL / MyBatis Persistence Layer

Testing

- Synchronized Program Content Delivery Tool
    - Accurate syncing of primary and secondary content
    - Test performance with many users syncing at once
- Audio Sync Service
    - Test user experience and ease of use

Risks

- Scalability
  - Needs to be able to support multiple users syncing simultaneously
  - Needs to be able to support multiple Set Top Boxes sending sync events simultaneously
- High Performance
  - Syncing needs to be accurate to deliver appropriate secondary content
- Intuitive Syncing
  - Syncing process should have very little user involvement; we don't want to take them out of the user experience