MAL - Mobile Applications And Services Lab

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What are we talking about here?

• **Mobile** - not tied to your desktop
  • cell phones, pdas, tablets, watches, earbuds, cerebral implants, etc

• **Applications**
  • interactive, social, gaming, business, e-commerce, travel, informational, health care, etc

• **Services**
  • presence, location, identity mgmt, group mgmt, PoC, voice, text, video

• **Networks**
  • cellular, WiFi, WiMax, 2.5 G, 3G, 4G, etc
Differences from Fall Class

Focus on the GT Convergence Innovation Lab

• Learn what is there
• Learn how to configure, use, develop
• Contribute to the overall mobile applications ecosystem at GT and beyond

Team Project vs Class Project

• No single class project like ConCal
• Student teams will have longer term projects but with multiple intermediate deliverables
2007-2008 IMS Research Competition:

- Focus on Converged and Mobile Applications
- Multidisciplinary student teams
- Prototypes & Business Plans
- IMS Specific Courses

End to End “Convergence Innovation Platform”

- Full IMS core + enablers
- Carrier and Campus integration
- Industry support and co-management
  - Cingular Wireless->AT&T
  - Siemens->Nokia-Siemens Networks
- Accessible broadly for academics and research
Platform:

› Expand to support more end-to-end use cases:
  › telecom + Web 2.0 + enterprise
  › include IPTV, enhanced location
  › additional handset and other client platforms.
› Embed platform in academics and research throughout GT

Competition:

› Open to additional sponsors participating at graduated levels of investment.
› Mobility and Convergence focus to include blended SIP+Web Services on three screens.
› Enhanced Commercialization Pipeline
Convergence Innovation Competition - CIC

• Focus on innovative applications in the mobile and converged space

• Commercially viable - must have a business plan

• Winners will receive support to move their ideas to commercialization

IP Multimedia Subsystem - A core technology but not the only one

• Convergence around IP - including VoIP, IPTV and Web
Commercialization Pipeline

Student Innovators
- Training
- Preparation
- Team Building
- Classroom & Lab Courses
- Hackfests

GT-RNOC
- Develops and administers the platform
- Hosts Academic & Research activities

Research Competition
- Independent Study
- Class projects

GT Venture Labs
- Angel funding

Sponsor's Product Development
- OR

Sponsor equity
- and/or VCs

Startup A Round
- Live trials

GT - RNOC
- Hosts & administers the competition
- Supports development teams with coaching & tier one support on the platform

Sponsorship fees

Supports in preparation for Angel investor presentations

Continues support
- with platform access & resources.

GT-RNOC
- Partners with Venture Labs for bridge grants & assists in preparation for Angel investor presentations

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General Judging Criteria

- Commercial viability (includes business plan, market research and analysis, pricing and business model(s))
- Leveraged use of IMS-based network resources (includes voice, video, messaging, web)
- User interface/experience (includes potential use on multiple platforms)
- Leverage of community and collaboration features and services (functionality involving three or more parties)
- Leverage of personalization features and services
- Adherence to standards
- Completeness of the prototype (how much of the planned functionality was implemented and demonstrated)
- Presentation of the prototype by one or more team members to the panel of judges
* Research Competition teams should include 2 to 4 people

* The most successful teams will have a mix of skill sets
  * marketing, business,
  * networking, handset development
  * not necessarily all in this class

* We will facilitate team building through the lab and web site
• Two primary goals for this class are:
  • Support students in the IMS RC
  • Enhance the knowledge and resources in the GT lab

• Your active participation will be critical
  • Group presentations: startup overviews and end of semester reports - focus on less formal, working meetings
  • Discussions in-class and all over campus!
  • Time in the lab
But what should you do?

- Inspiration
  - keep it simple -vs- the kitchen sink
  - first hand experience and frustration
- review some concepts from previous years
- search and re-search - read up on what is going on in the world today
All Those Mobile Applications

- I keep seeing articles about thousands of new mobile applications.
  - iPhone - 10,000+
  - Java
  - Android
- Yes, but how many of them leverage real network services? - very few
- Still lacking simple things like shared presence, address book, identity
- Still too many silos!
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All Those Web Applications

• And they’re using Web APIs for Network Services
• They’ve made it fun and easy!
Business Integration Challenges

“Primary barriers to deployment are company culture and structure, not technical.” - IMS FOKUS Workshop

• IPR and product realization
• access and control
• content ownership
• custom solutions
  • generalized platforms with significant investment (SAP/Oracle)
  • financial transactions (banking, stock market, etc)
  • Security (video, alarming)
  • travel (schedules, coordination, reservations, etc)
  • ...plenty of other large verticals

• In short, who makes money and how?
• lessons from the iPod
• have to account for diversity
  • handsets, I/O, and networks
• location services case study .... “coupon spam”
• can’t assume *always on* connections (problem of Mobile Google Maps)
IMS Benefits - Official Story

• Access Independence - not just Cellular: wired, WiFi, WiMax, etc
• Standards Based - IP, SIP, portable across providers
• QoS - ability to link application needs to provisioning
• Billing/Charging - for commercial viability, carrier ROI, “one bill”
• Integration of new services - no more stovepipe applications
  • presence, location, group management, PoC, voice, text, video
Figure 1: Position of the IP Multimedia Subsystem within a mobile network
IMS - S stands for SUBsystem

SIP is just about signaling
• call and session management

What about:
• legacy telephone systems?
• other carriers and their services?
• ISPs, cable and satellite operators?
• content providers?
• service providers?
• large enterprises?
Technical Integration Challenges

• What is the relationship between IMS and Web 2.0?

• congruent and consistent scale, resolution, and access controls

• exposing IMS services to web applications

• leveraging web services in IMS applications

• converged web and IMS services
Coming Up With A Project

• Some questions you should be asking are:
  • What is doable?
  • What is the scope?
  • What tools and resources will we have?

• Today, let’s answer this with some examples:
  • Some previous projects
  • Some ideas we have
Research Competition Results
SoCoNet - Social Community Network  
*Nils Kjellin, Christian Menkens, Matthew Rhodes, Anders Davoust*

Idea: Provide a social community network application that enables individuals to interact, inform, and communicate using IMS enabled mobile phones. “…your whole community in your pocket”

Features:

- Profiles (buddies and hotspots)
- Communication
  - Text Chat, Text Message, Picture Message, Voice Call, Video Call, Wall, Blog
  - Push-to-Talk IMS enabling service
- Multimedia
  - Photo Albums, Video / Audio Clips
- Lectures
  - Class Information, Lecture Material, Class Interaction, Announcements, Live / Recorded Lecture
- Events, Ticketing and News
  - Event Information, Reservations
- Subscriptions and Notifications
  - Community updates
Kinship

Devin Hunt, David Jimison

Idea: Instant video sharing with live interaction through chat and location-based collaboration.

Features:
- Video capture streamed to an IMS-based video service.
- Instantly accessible to multiple consumers
- Simultaneous chat for true participatory experience
- Video stored automatically - even if phone is lost
- Encourage collaborative capture and contribution of multiple users
- Videos also available to web users

Winner - Family
MobMedia

_Gaurishankar Krishnan, Shivam Goyal_

Idea: Location based mixed media sharing using mobile devices.

Features:
- A medium for location-based encounters
- Discover and share media
- Drop media
- Get media recommendations and suggestions
- Create multiple avatars
- Buddy list
- Private, Protected and Public media
- Alerts, News Feed, Comments
Distributed Asset Tracking

David McCann, Dannon Baker, John Etherton

Initial Problem: current approach to asset tracking
- Infrastructure overhead
- Rigid process
- Special purpose technology

Solution
- Personal responsibility
- Natural transactions
- Extensible tracking technologies
Idea: Mobile Advertising for the Food Service Industry

Features:
- targeted advertising based on rich user profile data
- real-time response
- friends social network, social site integration
- For Patrons:
  - Discounts
  - Group coordination
  - High yield, quality leads
- For Vendors:
  - Marketplace analysis
  - Customer analysis
  - Advertisement distribution
Pervasive Healthy Diet Adviser
Jiten Chhabra, Daniel Serrano, Mayank Goel

Idea: Personalized, Professional Dietary Advice
- tailored to user’s diet profile
- based on latest medical findings
- localized, contextual

The Problem
- Increasing obesity rates
- Conflicting, confusing dietary advice
- Difficulty matching needs to available food offerings

The Solution
- Individualized dietary monitoring and analysis
- Meal recommendations for nearby restaurants based on user’s current situation
- Restaurants gain high value customers
3GAdS Mobile Tour Guide 3D  
*Karthik Halukurike, Matt Weber, Aileen Morales, Matthew Swarts*

**Idea:** An Enhanced Direction Finder Experience  
- location based ads and coupons  
- enhanced 3D visual interface  
- fly through capabilities  
- augmented reality

**Leveraging IMS**  
- Presence, Buddy lists, PTT, Video and Audio calls  
- Streaming data services  
- Content management, geo tagging

**Targeted Advertising**  
- Individualized, based on user preferences  
- Integrating social aspects  
- Targeting high value customers
MAD: Mobile Advertising and Multimedia Broadcasting
Srinath Kalavichirattil, Saumil Jain, Vighnesh Venkatesan

Idea: Ad Based Mobile Phone Services
• SIP-based pre-call advertising
• universal advertising platform
• sponsored telco services
• making the process “enjoyable”

Highly targeted
• In-call ads
• Location based ads
• Event based ads
• Social network based ads

Leveraging IMS
• SIP call management entry point
• Location services
• Presence services
• Media server
WhereAmI - Location Services

- A location service for the Georgia Tech community
- A research and education enabling service
- Aggregates data from multiple determination methods
- Location information returned in multiple formats
- Allows user feedback through map interface
- Third party lookups and service interface
- Rich Geo-data working with campus GIS
ConCal

Conferencing via Calendars

Your calendar sets up the conference call and calls you!
## Why ConCal?

<table>
<thead>
<tr>
<th>Without Concal</th>
<th>With Concal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Get invited via email</td>
<td>Get invited via email</td>
</tr>
<tr>
<td>Accept via email</td>
<td>Accept via email</td>
</tr>
<tr>
<td>Remember conference time</td>
<td>Answer your phone</td>
</tr>
<tr>
<td>Call into the conference</td>
<td>talk</td>
</tr>
<tr>
<td>Enter conference ID</td>
<td>talk</td>
</tr>
<tr>
<td>Enter PIN</td>
<td>talk</td>
</tr>
</tbody>
</table>
Scheduler: Zimbra Extension

Zimlet allows a meeting to become a conference call.
Components of ConCal

• This project included multiple components
  • Web services
  • Zimbra Zimlet development
  • Voice service integration - Asterisk
  • Web client UI
  • Mobile client UI - iPhone, Android, WM
Other Ideas

• **Personal Notebook**
  - a true replacement for the notebook, accessible everywhere, organizable, easy drawings

• **Consumables Manager**
  - keep up with the stuff I regularly buy - filters, bags, bulbs, batteries, ink cartridges, paper
  - make re-ordering easy, watch for bargains

• **Augmented Serendipity**
  - increase the likelihood of a valuable “chance” encounter
  - location, calendar, interest profile
Other Ideas

- **Personal IPTV**
  - TV is generally a shared experience, how do you manage interaction? Bring in the personal mobile device.

- **Campus Life Tools**
  - open gathering place locator - not the formal schedules but where are the people right now?
  - campus navigation - open parking spaces, trolley schedule, walk paths
  - food services: what’s open, what’s crowded, what’s on the menu
Next Steps

• These are the things we’ll be working on to start bringing you next week

• Timelines and schedules

• Lab resources
  • Development tools
  • Devices
  • Expertise