MAL - Mobile Applications And Services Lab

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January 5, 2009

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

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

Convergence Innovation

2007-2008 IMS Research Competition:

▶ Focus on Converged and Mobile Applications

▶ Multidisciplinary student teams

▶ Prototypes & Business Plans

▶ IMS Specific Courses

IMS
Research Competition

End to End "Convergence Innovation Platform"

BACKHAUL: 1700 Miles of Fiber on Campus. Peer on NLR & Internet II. ACCESS: 3G, EDGE, WiFi, Cable, LTE*, WiMax* [*future]
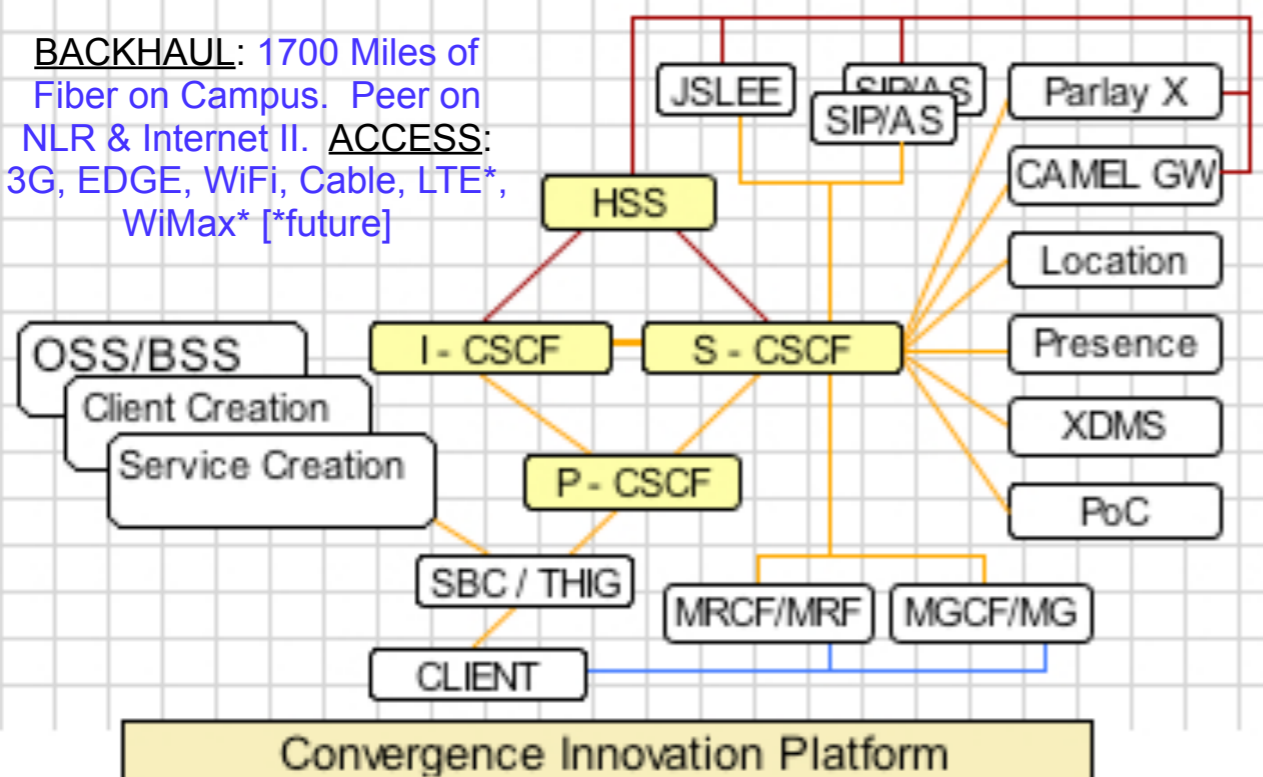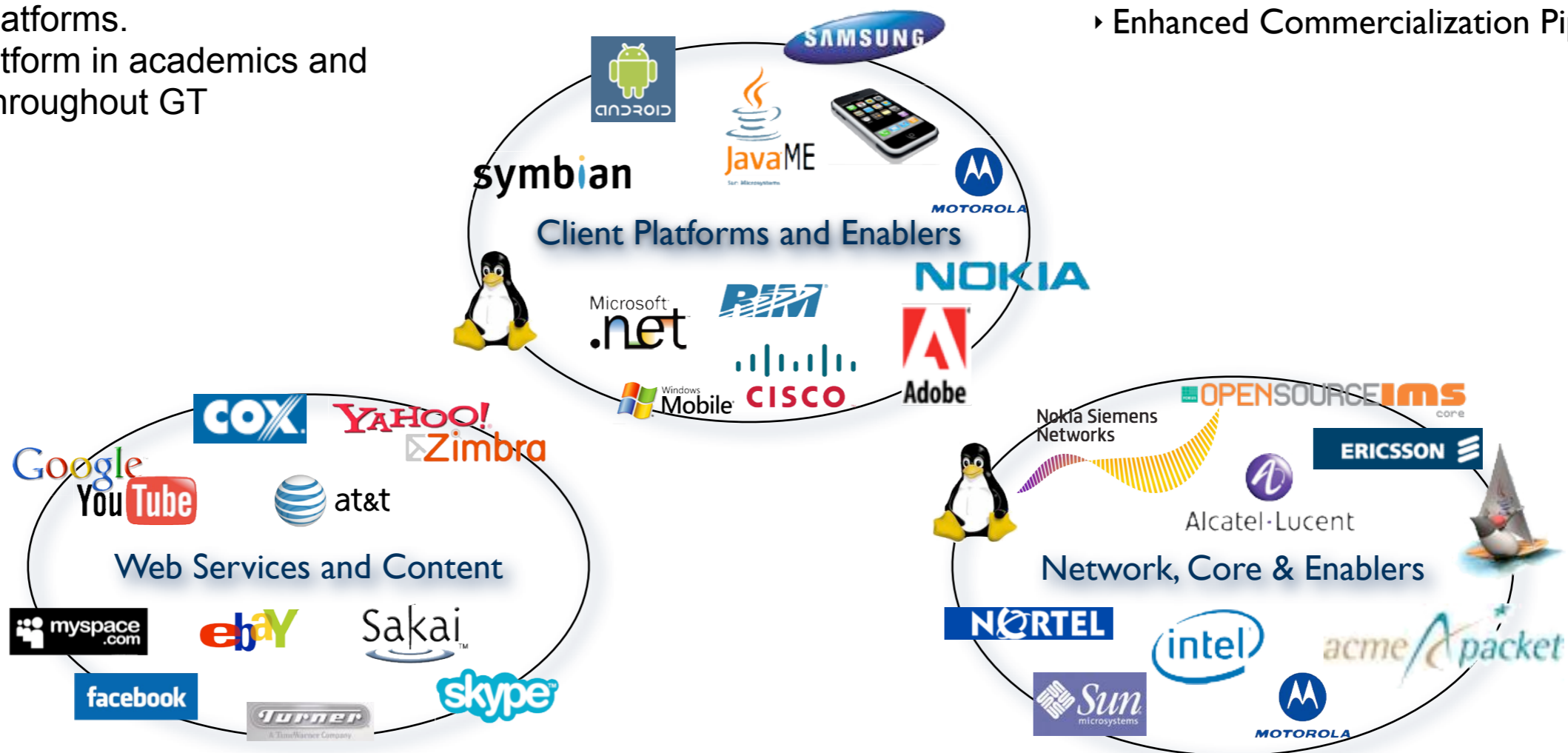
▶Full IMS core + enablers
▶Carrier and Campus integration
▶Industry support and co-management
  ▶ Cingular Wireless->AT&T
  ▶ Siemens->Nokia-Siemens Networks
▶Accessible broadly for academics and research

Building on Success: What's Next?

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

Client Platforms and Enablers

Web Services and Content

Network, Core & Enablers

GT-RNOC
Georgia Tech Research Network Operations Center
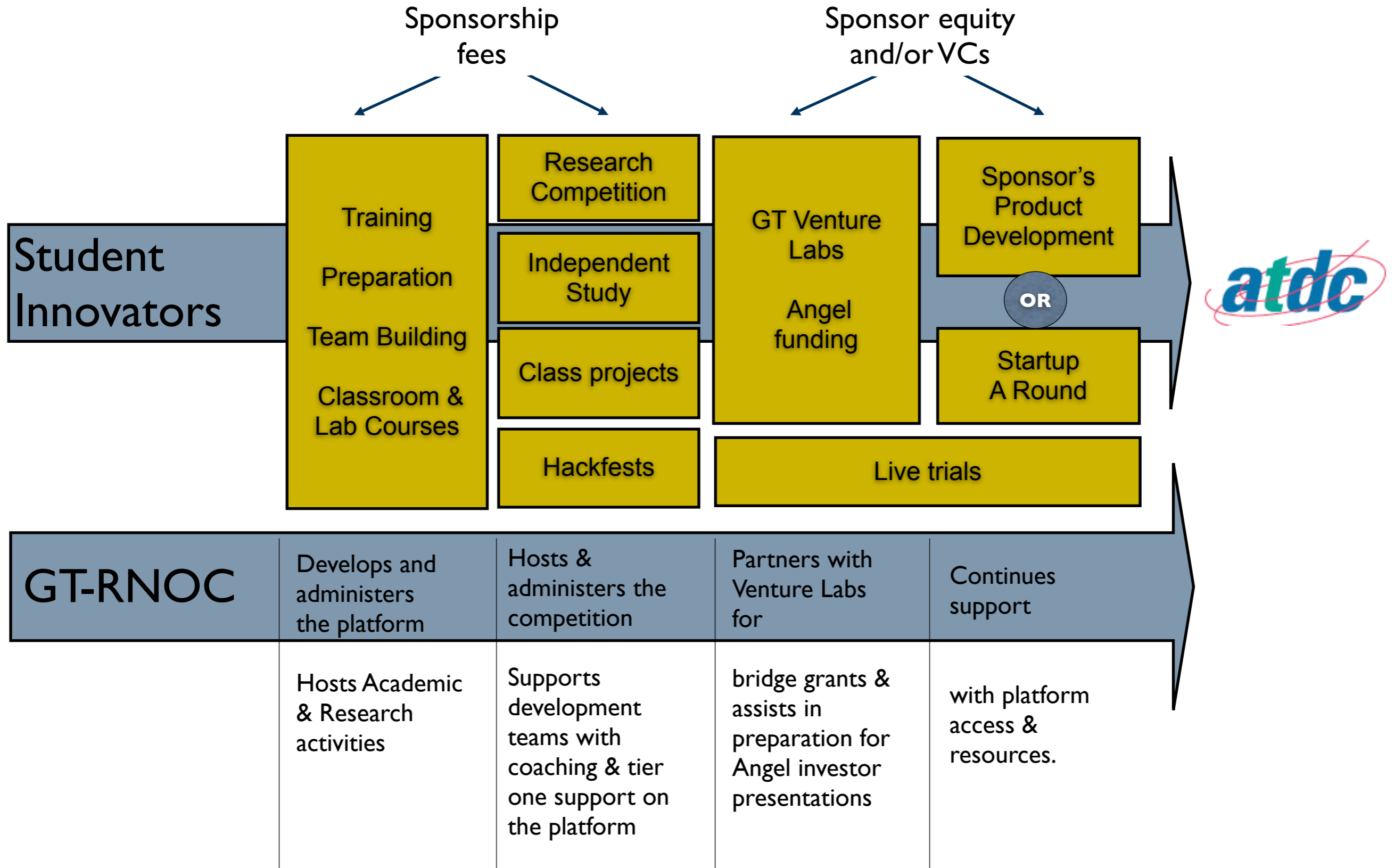
Convergence Innovation Competition - CIC

- 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

GT-RNOC — Georgia Tech Research Network Operations Center

Sponsorship fees

Sponsor equity and/or VCs

Student Innovators

Training Preparation Team Building Classroom & Lab Courses	Research Competition Independent Study Class projects Hackfests	GT Venture Labs Angel funding	Sponsor's Product Development Startup A Round Live trials

OR

atdc

GT-RNOC

Develops and administers the platform	Hosts & administers the competition	Partners with Venture Labs for	Continues support
Hosts Academic & Research activities	Supports development teams with coaching & tier one support on the platform	bridge grants & assists in preparation for Angel investor presentations	with platform access & resources.

- 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

- 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

- 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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- And they're using Web APIs for Network Services

- They've made it fun and easy!

"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)

- 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
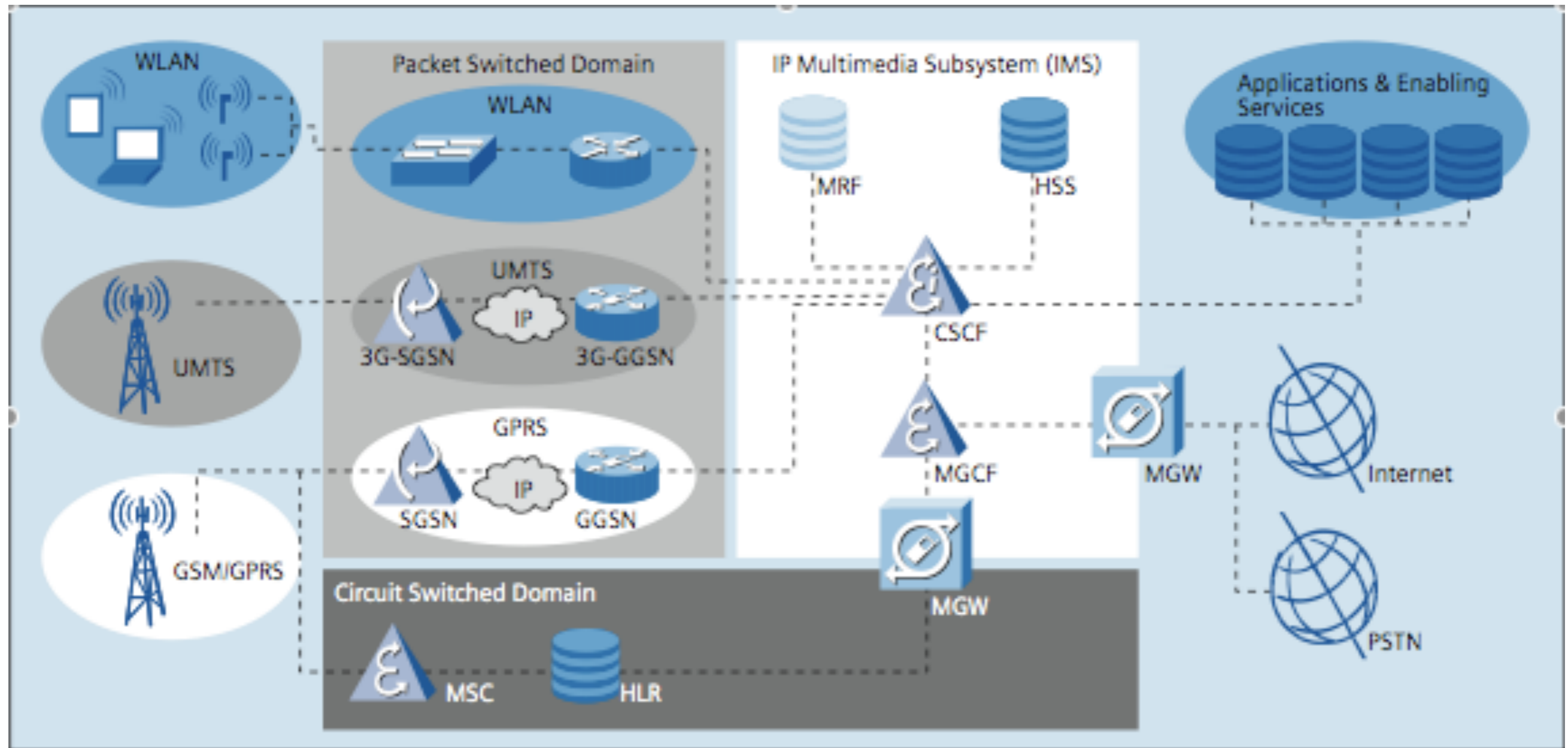
Figure 1: Position of the IP Multimedia Subsystem within a mobile network

GT-RNOC
Georgia Tech Research Network Operations Center

IMS - S stands for *SUBsystem*

SIP is just about signaling
• call and session management

Figure 1: Position of the IP Multimedia Subsystem within a mobile network

What about:
• legacy telephone systems?
• other carriers and their services?
• ISPs, cable and satellite operators?
• content providers?
• service providers?
• large enterprises?
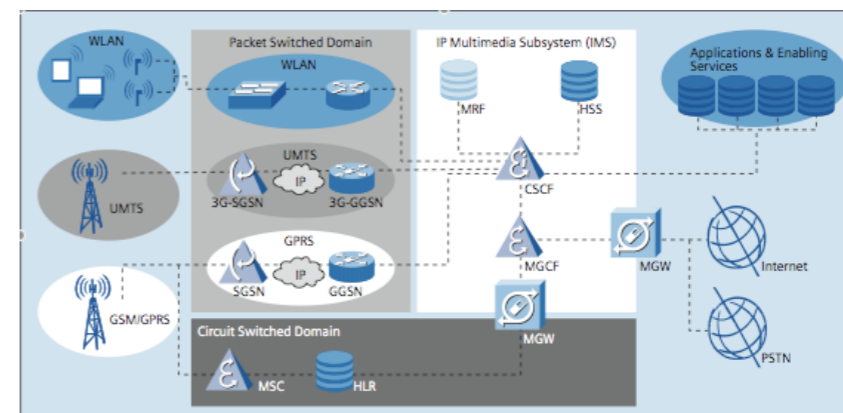
- What is the relationship between IMS and Web 2.0?

- 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

- 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
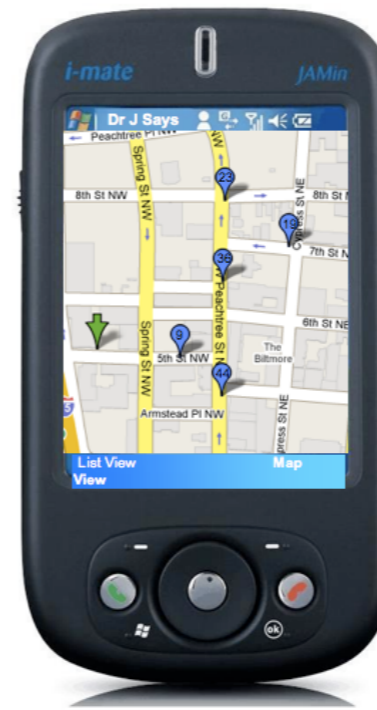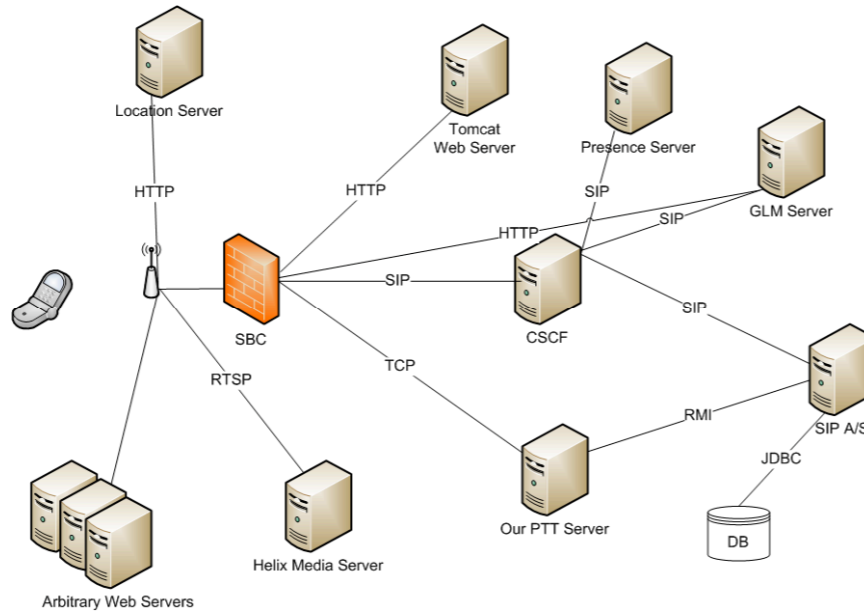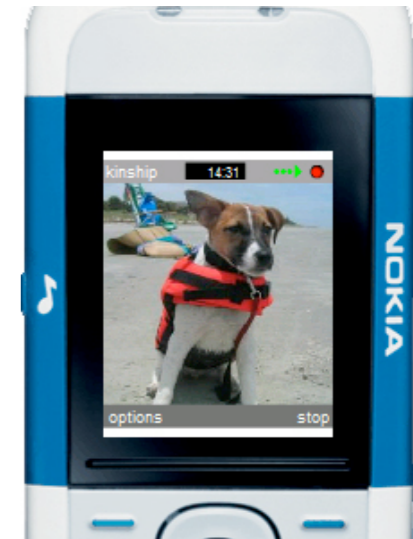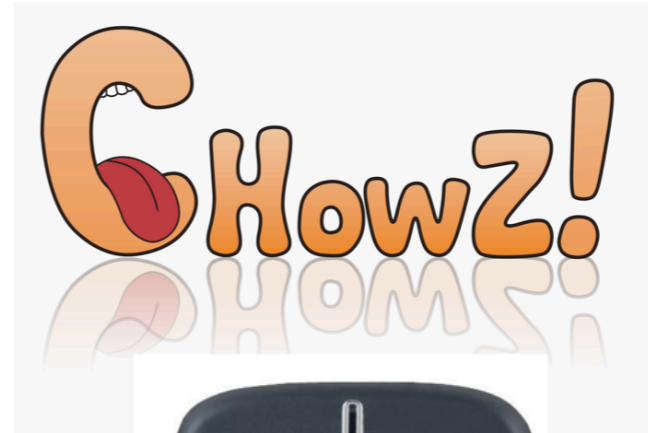
SoCoNet - Social Community Network

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
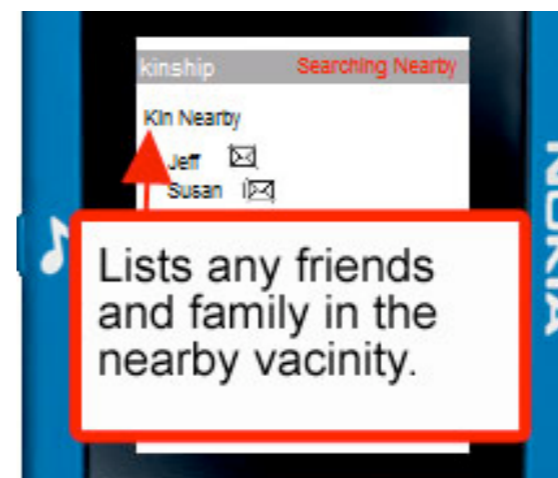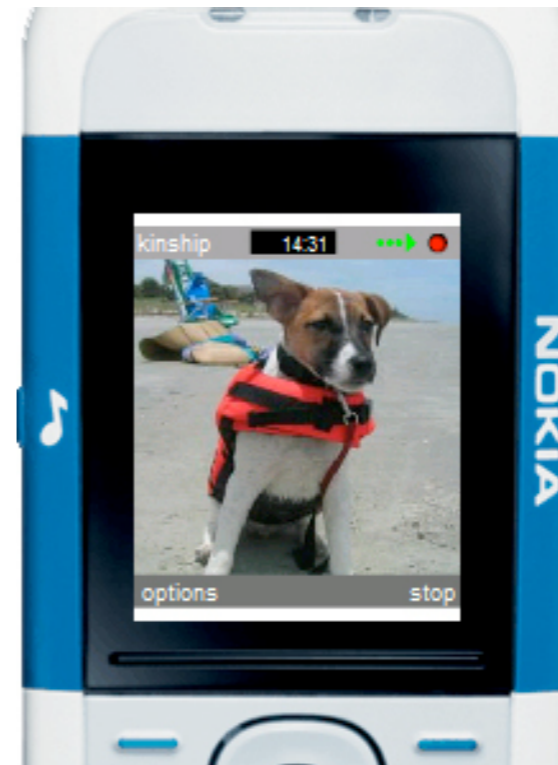   - Community updates
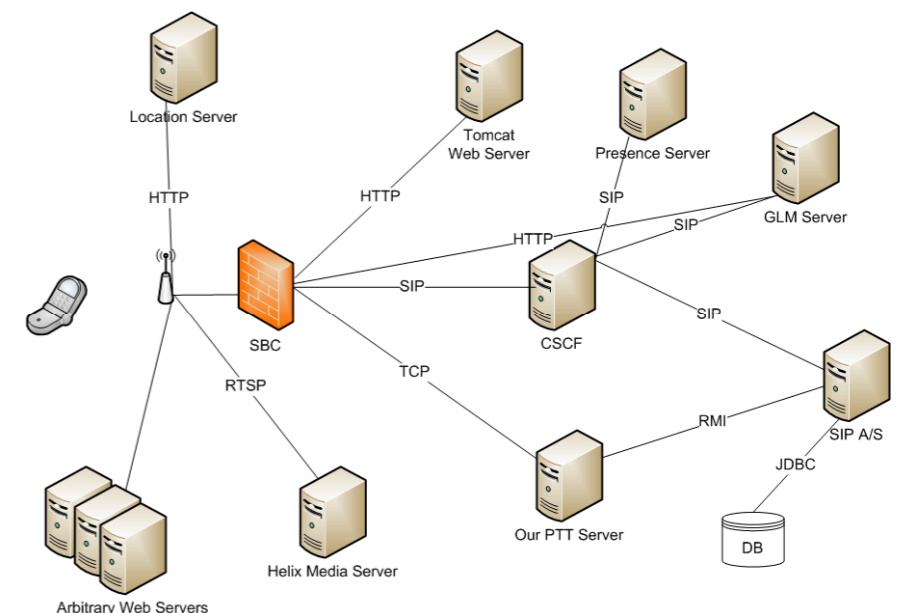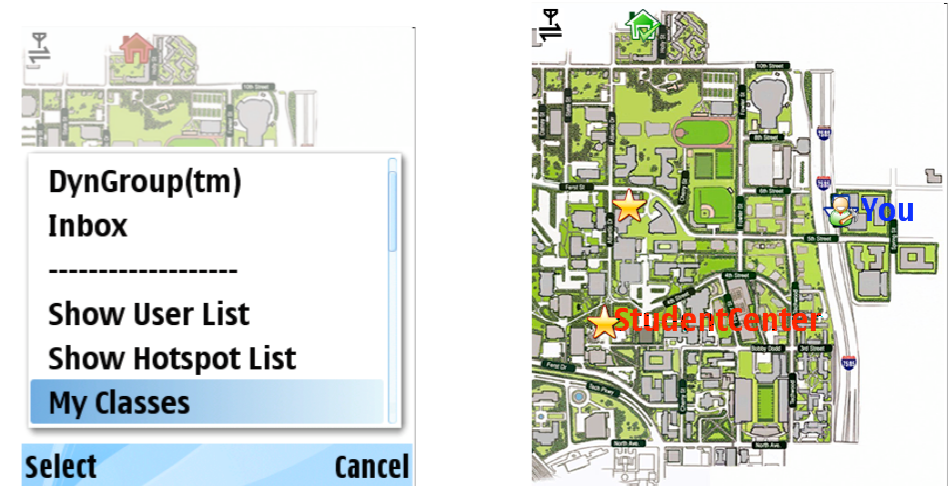
Kinship

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

User's messages appear as scrolling ticker.

Lists any friends and family in the nearby vacinity.

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

CHOWZ!

Harry Marr, Jason George

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
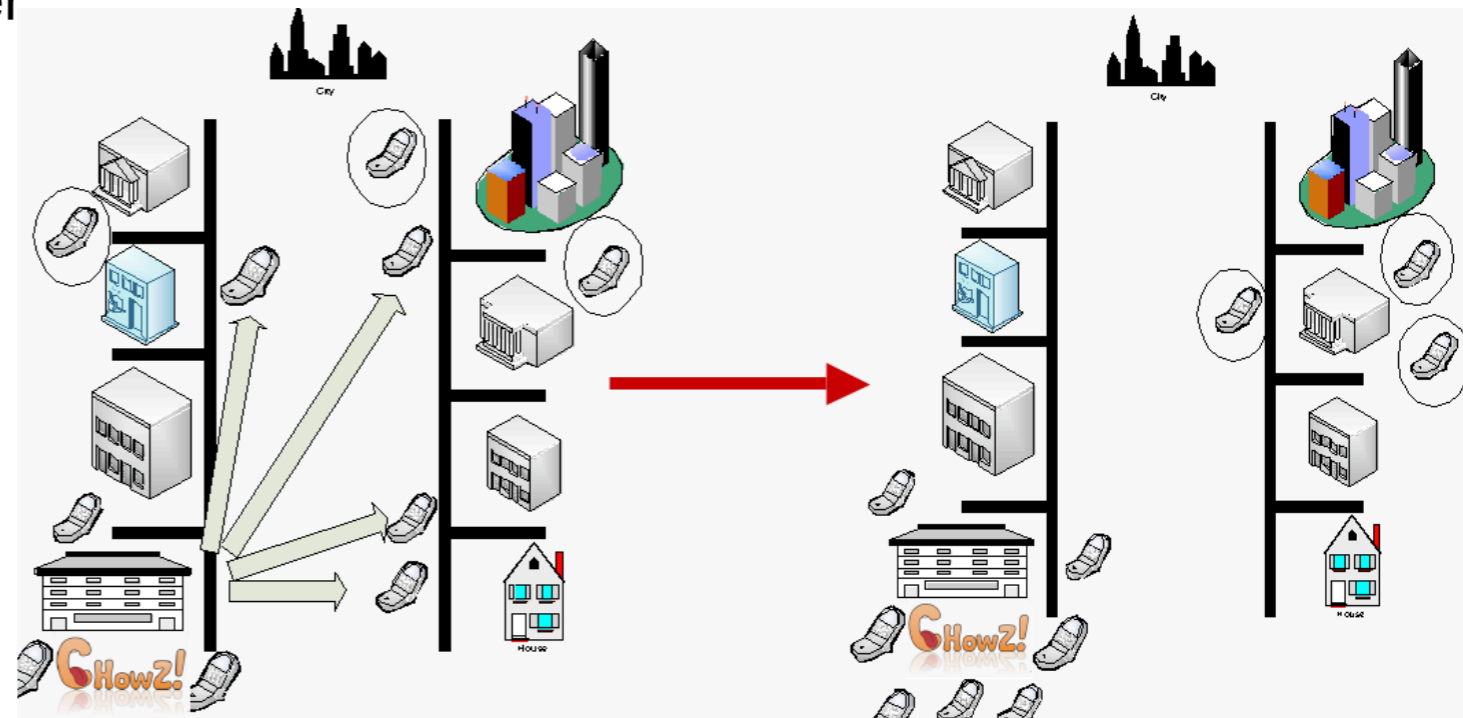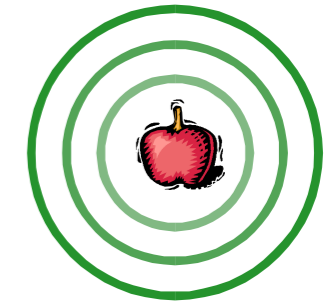
Pervasive Healthy Diet Adviser

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 advise
- 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
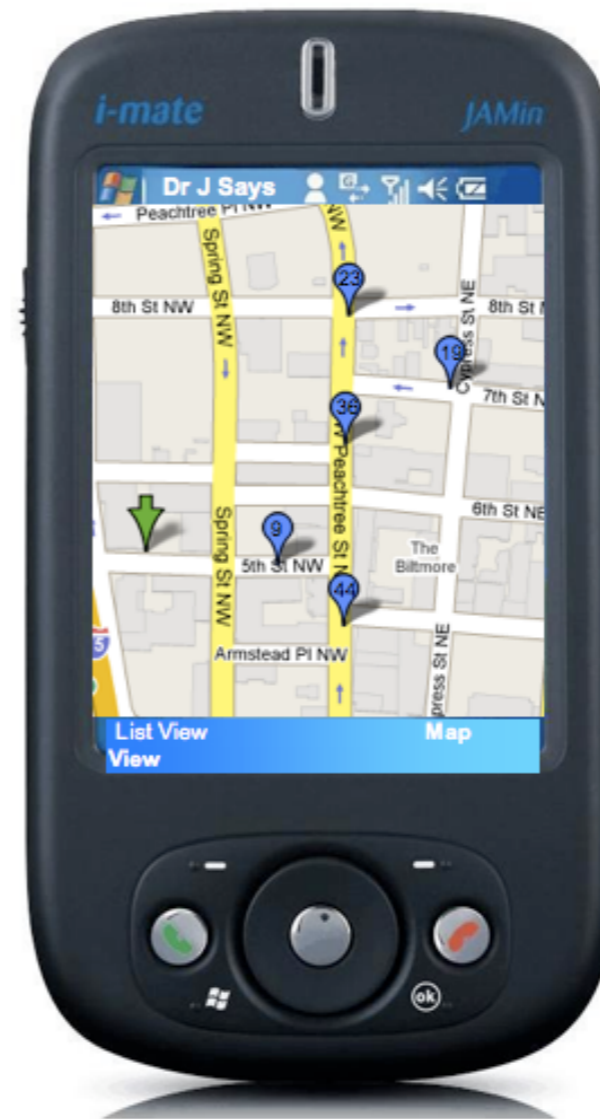
3GAdS Mobile Tour Guide 3D
Karthik Halukurike, Matt Weber, Aileen Morales, Matthew Swarts

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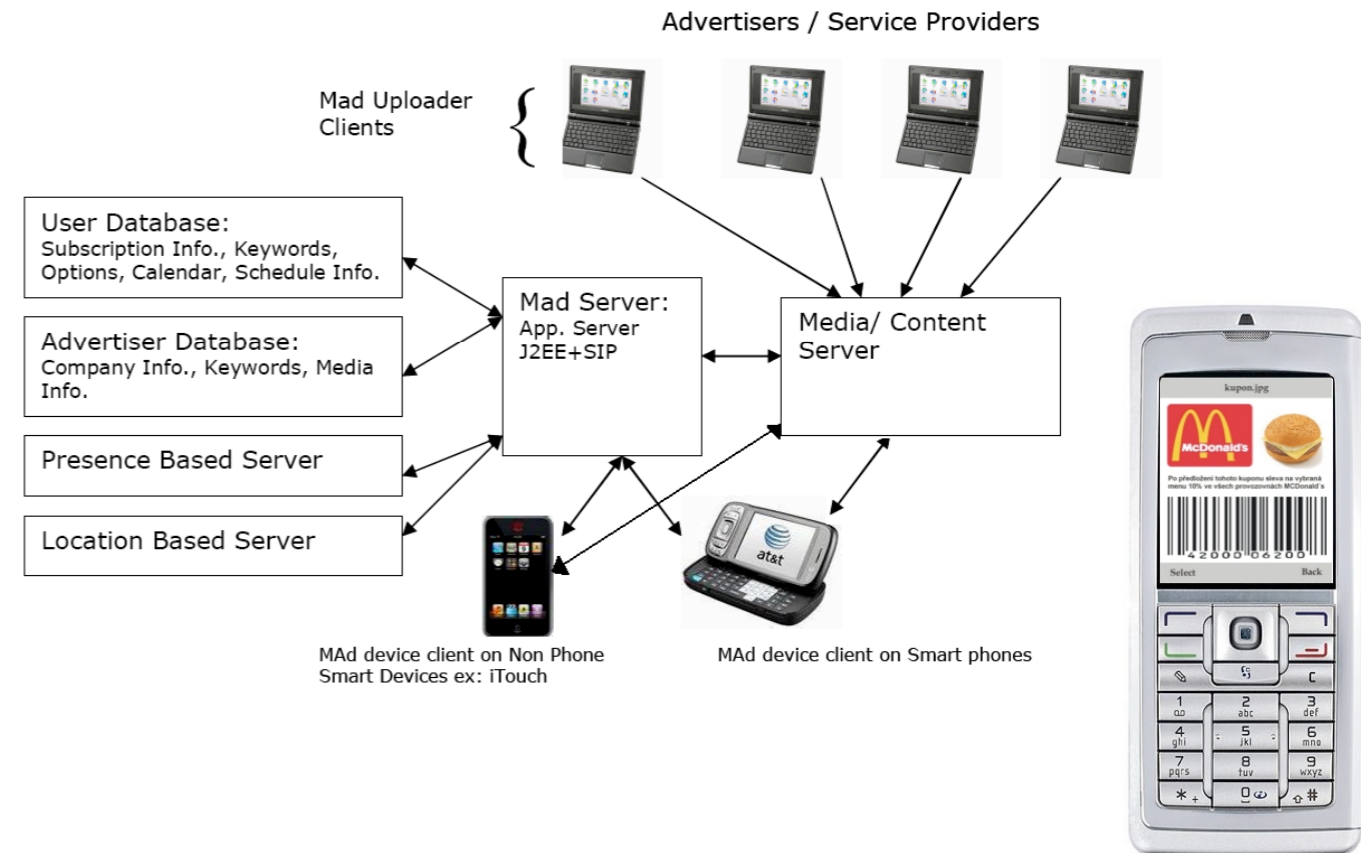
Idea: Ad Based Mobile Phone Services
- SIP-based pre-call advertising
- universal advertising platform
- sponsored telco services
- making the process "enjoyable"

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

- 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 feed back 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?

Without Concal	With Concal
Get invited via email	Get invited via email
Accept via email	Accept via email
Remember conference time	Answer your phone
Call into the conference	talk
Enter conference ID	talk
Enter PIN	talk

Scheduler: Zimbra Extension

Zimlet allows a meeting to become a conference call
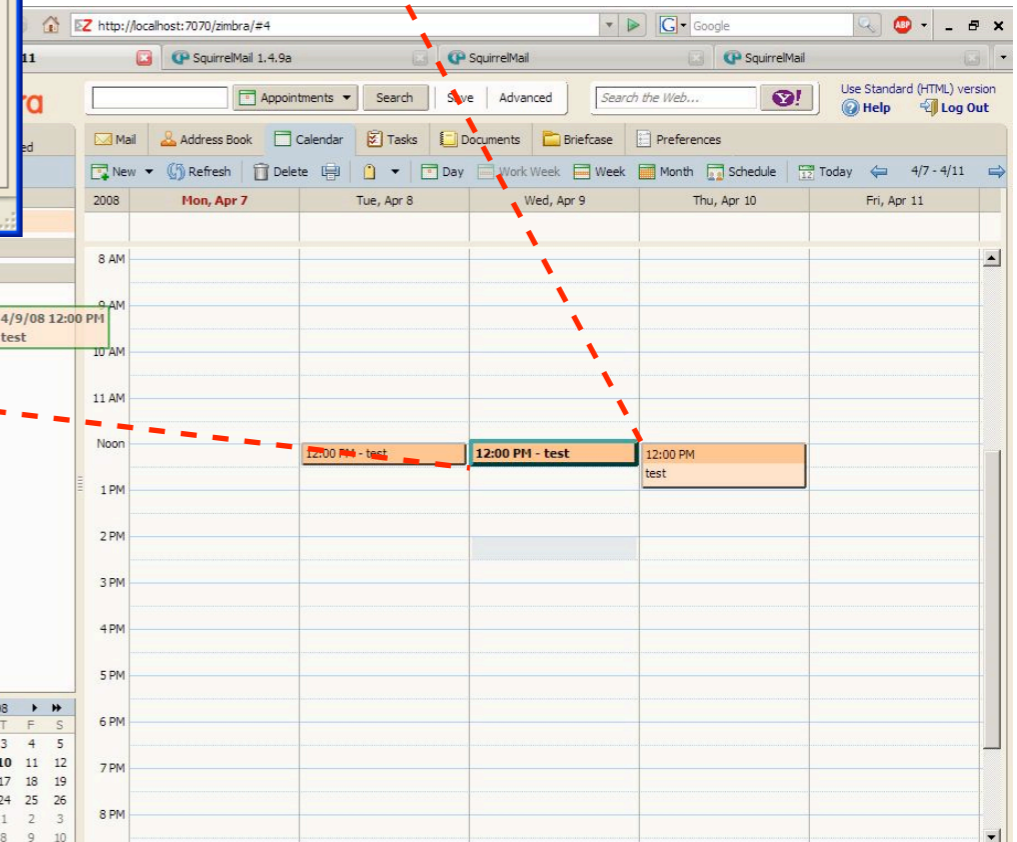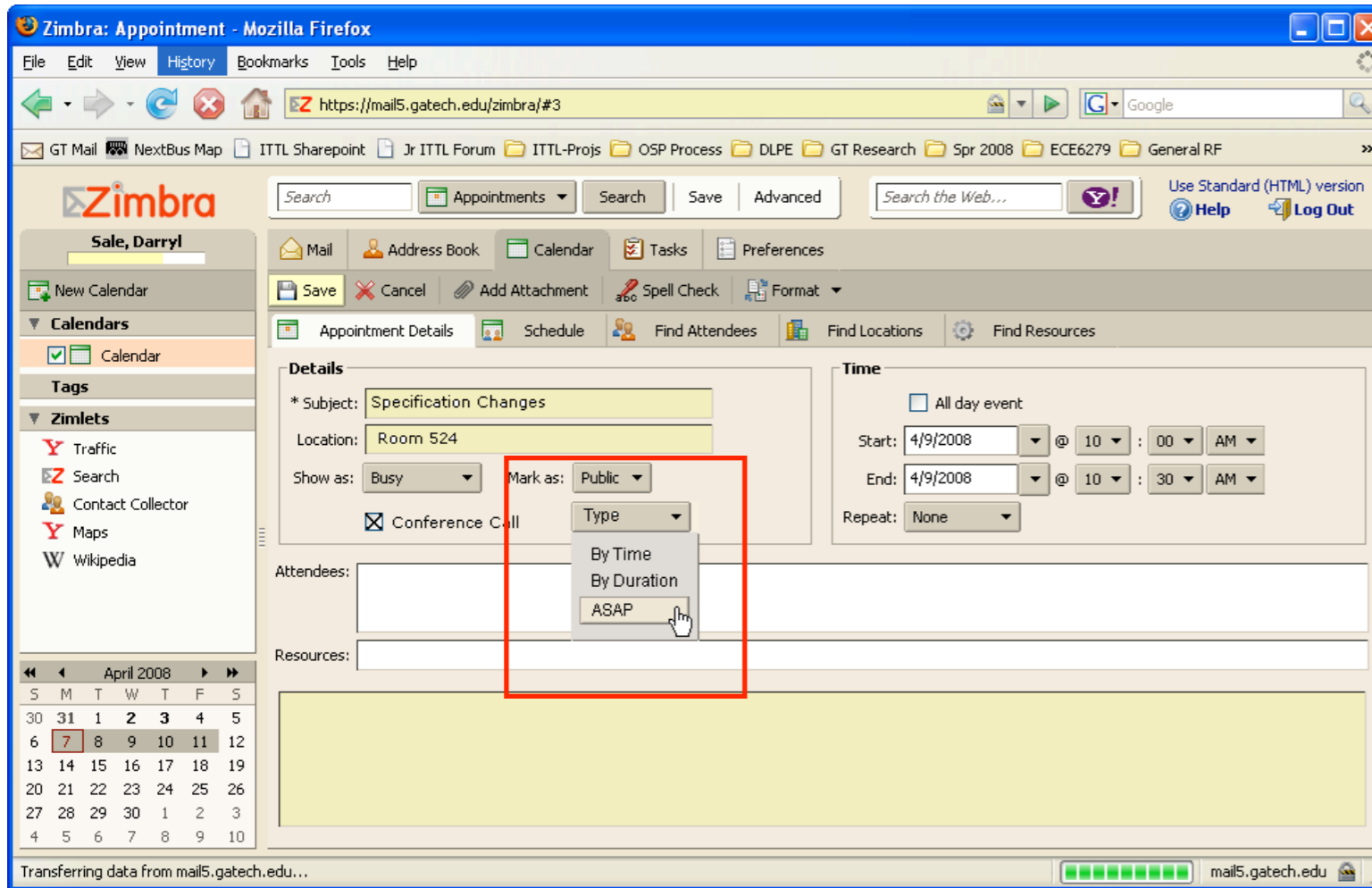
- This project included multiple components

  - Web services

  - Zimbra Zimlet development

  - Voice service integration - Asterisk

  - Web client UI

  - Mobile client UI - iPhone, Android, WM

- **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

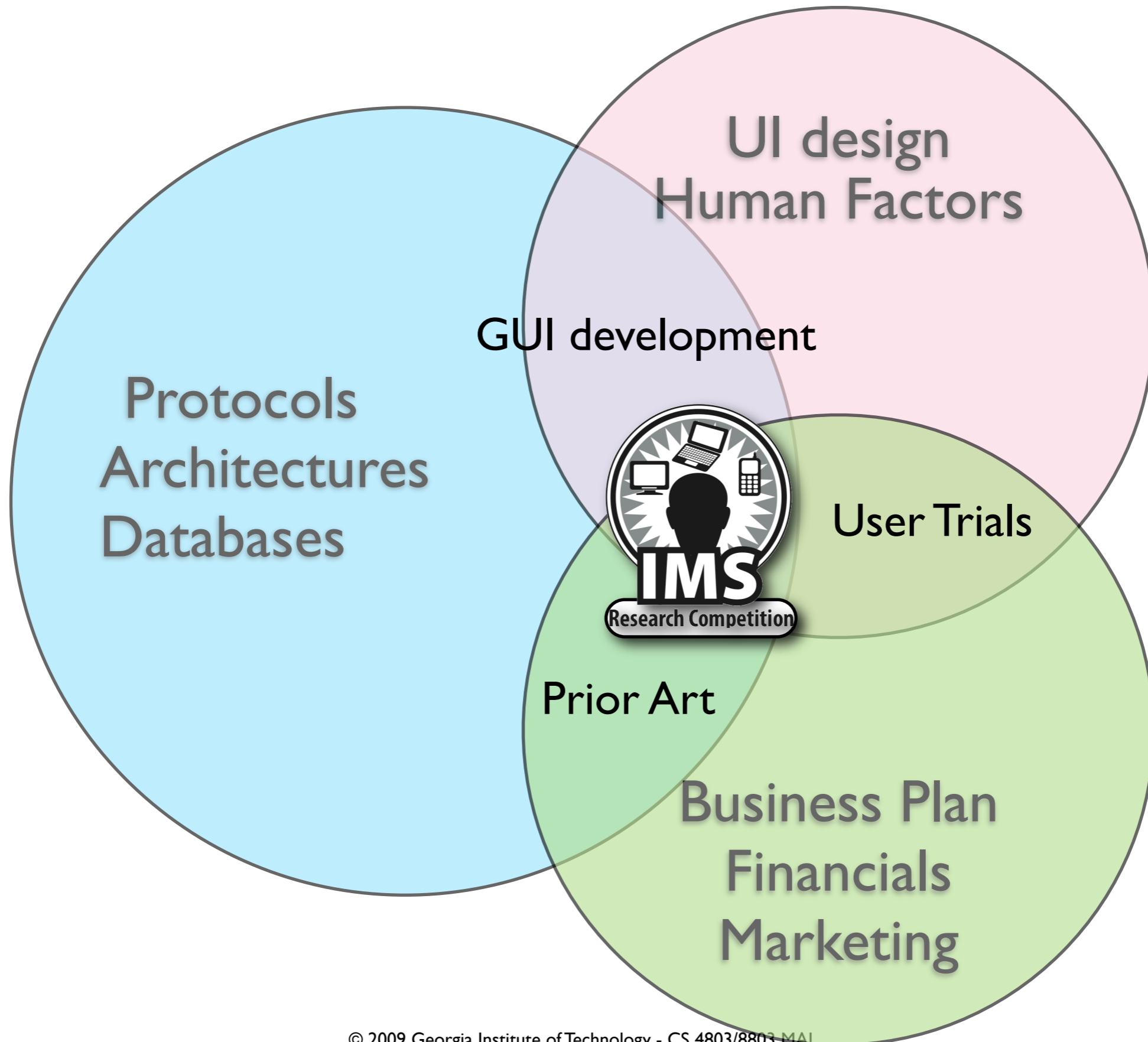 - location, calendar, interest profile

- **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

Back to the Team

UI design
Human Factors

GUI development

Protocols
Architectures
Databases

User Trials

Prior Art

Business Plan
Financials
Marketing

- These are the things we'll be working on to start bringing you next week

- Timelines and schedules

- Lab resources

  - Development tools

  - Devices

  - Expertise