

The Computer Science Senior Capstone Experience

CSE498 Collaborative Design

Department of Computer Science and Engineering

Michigan State University

Spring 2008

Professor Wayne Dyksen

Course Objectives

- Complete a Large Software Project
 - Architect
 - Implement
 - Test
 - Document
 - Deliver
- For a Client
- From “Scratch”
- In 15 (Short) Weeks

Course Objectives

- Build and Administer Systems
- Use Advanced Tools And Environments
- Integrate Computer Science Knowledge

Course Objectives

- Work In A Team Environment
- Develop Communication Skills
- Develop Some Interview Talking Points

All-Hands Meetings

- MW, 3:00-3:50pm, 2243 EB
- Presentations By
 - Professor
 - Teams
 - Status Reports
 - Demonstrations
 - Formal Presentations
 - Project Videos
 - Guest Speakers

All-Hands Meeting Agendas

01-07: Course Overview / Skills Inventory
01-09: Technical Specifications / Team Assignments
01-14: Project Schedule & Risk
01-16: Teams: Status Reports
01-21: Martin Luther King Day, No Meeting
01-23: Prototyping
01-28: Teams: Technical Specifications / Schedule
01-30: Teams: Technical Specifications / Schedule
02-04: Teams: Technical Specifications / Schedule
02-06: Teams: Technical Specifications / Schedule
02-11: Resume Writing & Interviewing
02-13: Creating & Giving Presentations
02-18: Teams: Alpha Demonstrations
02-20: Teams: Alpha Demonstrations
02-25: Teams: Alpha Demonstrations
02-27: Teams: Alpha Demonstrations
03-03: Spring Break, No Meeting
03-05: Spring Break, No Meeting

03-10: Ethics
03-12: Intellectual Property and Copyright
03-17: Teams: Beta Demonstrations
03-19: Teams: Beta Demonstrations
03-24: Teams: Beta Demonstrations
03-26: Teams: Beta Demonstrations
03-31: The Project Video
04-02: Camtasia Demo
04-07: Teams: Progress Reports &/Or Demos
04-09: Teams: Progress Reports &/Or Demos
04-14: Teams: Progress Reports &/Or Demos
04-16: Teams: Progress Reports &/Or Demos
04-21: Teams: Project Videos
04-23: Teams: Project Videos
04-24: Design Day Setup
04-25: Design Day
04-30: Teams: Project Videos

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Nick Frattaroli

Ken Davidson

Clayton Boylan

Team 1 Auto-Owners Insurance

Team Photo

Team 1 Auto-Owners Insurance

Project Overview

Vendor Tracking System

- Security System to Track Vendors Visiting Auto-Owners
 - Application Runs on Lobby Desktop
 - Vendor Signs In
 - Vendor Name
 - Vendor Company
 - Auto-Owners Person Visiting
 - Etc
 - System Prints Badge with Barcode
 - Visitor Signs Out by Scanning Badge Barcode
- Technologies
 - .NET
 - C#
 - SQL Server
 - Etc...

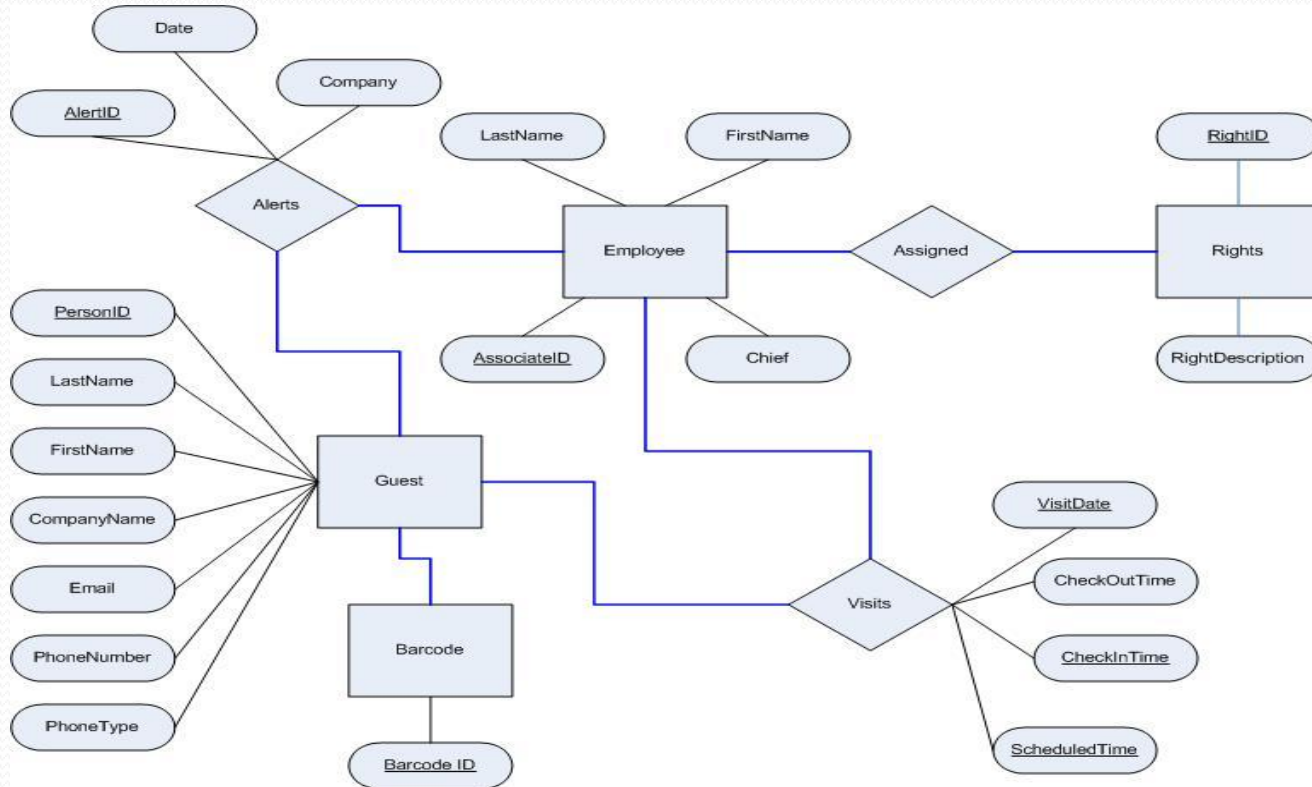
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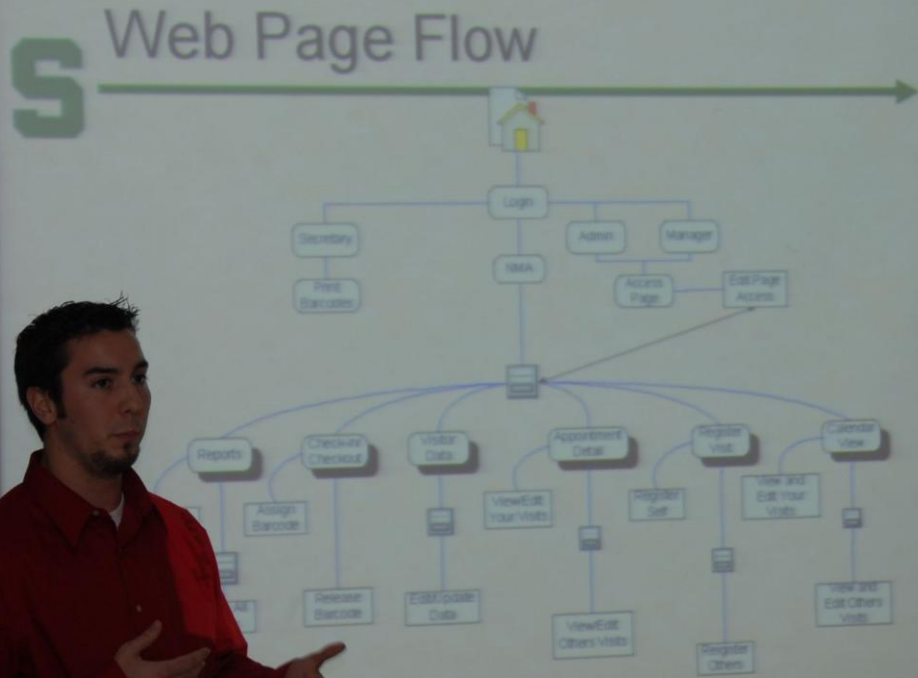
S Project Overview

- Develop a web-based application to check vendors (and possibly all visitors) in and out of the building and assign them visitor tags branded with a barcode to identify them.
- This will be done by using ASP.NET and C# while using a SQL server backed database.
- The Project will maintain records of all guests to visit the premises.

Team 1 Auto-Owners Insurance
Technical Specifications Presentation

Team 1 Auto-Owners Insurance Database Schema

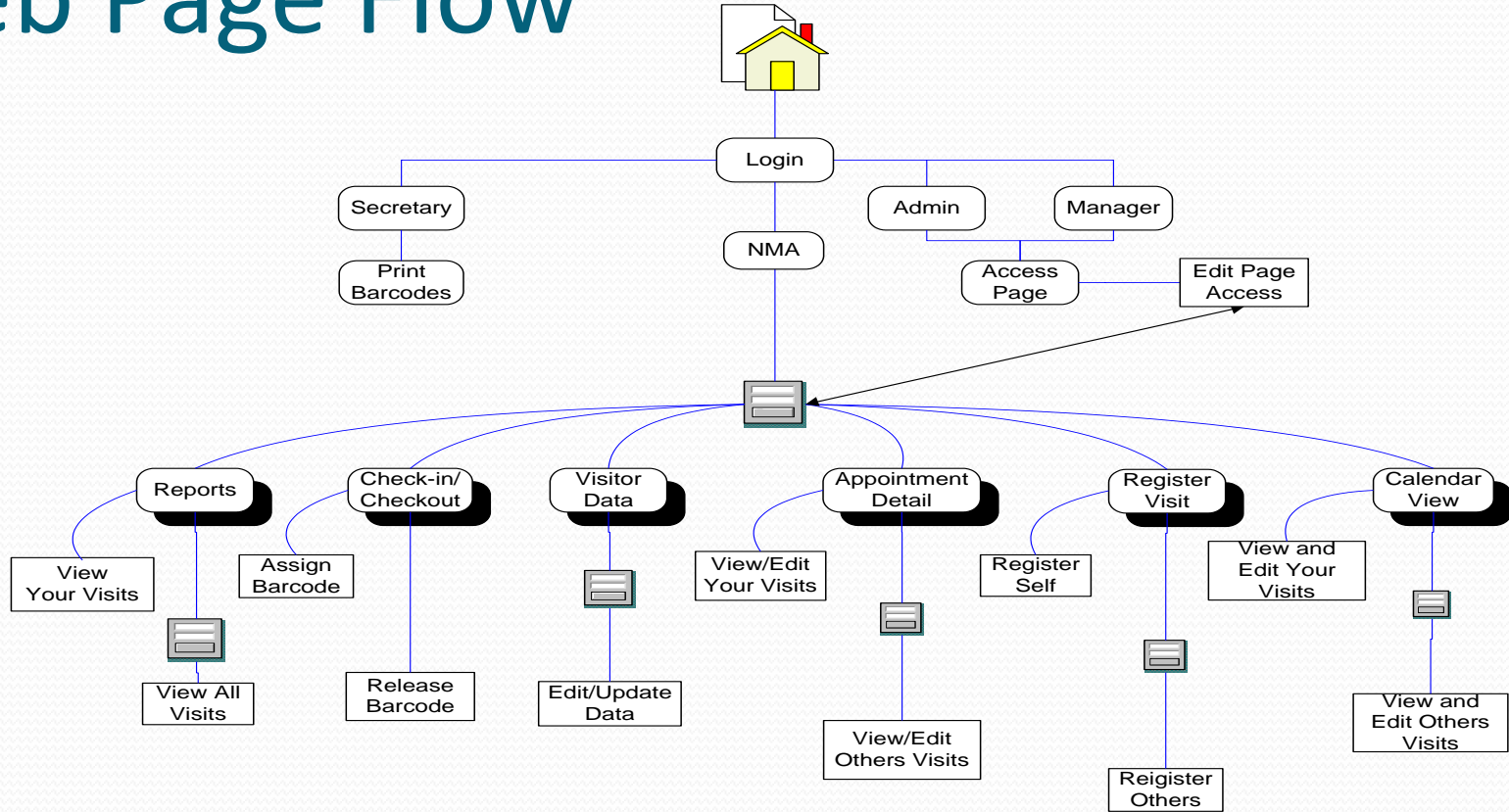




Team 1 Auto-Owners Insurance
Technical Specifications Presentation

Team 1 Auto-Owners Insurance

Web Page Flow

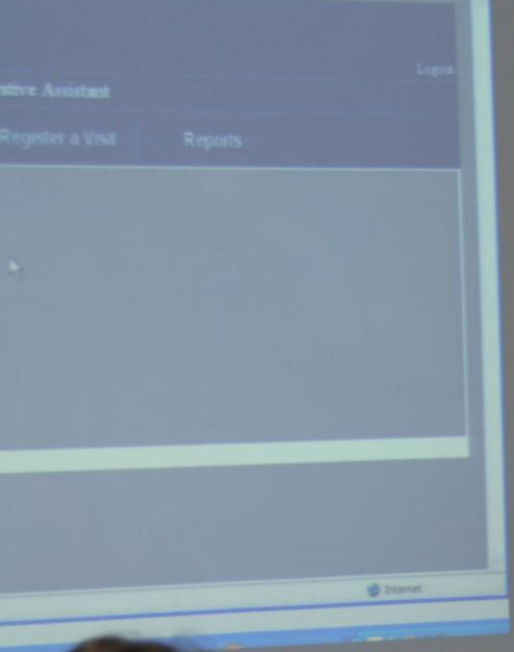


Team 1 Auto-Owners Insurance Homepage Mockup

<p>Currently On-Site</p> <ul style="list-style-type: none">Smith, JohnDoe, JaneLee, JasonBob, Silent	<div data-bbox="1116 325 1510 375"><i>Auto-Owners Insurance</i></div> <div data-bbox="981 390 1644 426">Check-In Check-Out Admin Reports Register a Visit Calendar Print More Barcodes Visitor Data</div>
<p>Scheduled:</p> <ul style="list-style-type: none">JaySmith, KeviLord, The D	
<div data-bbox="672 590 996 784"><p>Log In</p><p>User Name: <input type="text"/></p><p>Password: <input type="password"/></p><p><input type="checkbox"/> Remember me next time.</p><p><input type="button" value="Log In"/></p></div>	



Team 1 Auto-Owners Insurance Beta Demonstration



Team 1 Auto-Owners Insurance Beta Demonstration



Select Country/Language

BA stock price 87.00 [+ 0.38] at 11:32 AM ET on Jan 03

Quick Links:

- Commercial Airplanes
- Integrated Defense Systems
- Boeing Capital Corporation
- Employment
- Boeingmedia.com
- Image Gallery
- Employee/Retiree
- Global Corporate Citizenship
- History

Inspiring daydreams daily.
BoeingStore.com
go

787-8 MODEL



News Feature:

- 2007 Year in Review

In The News:

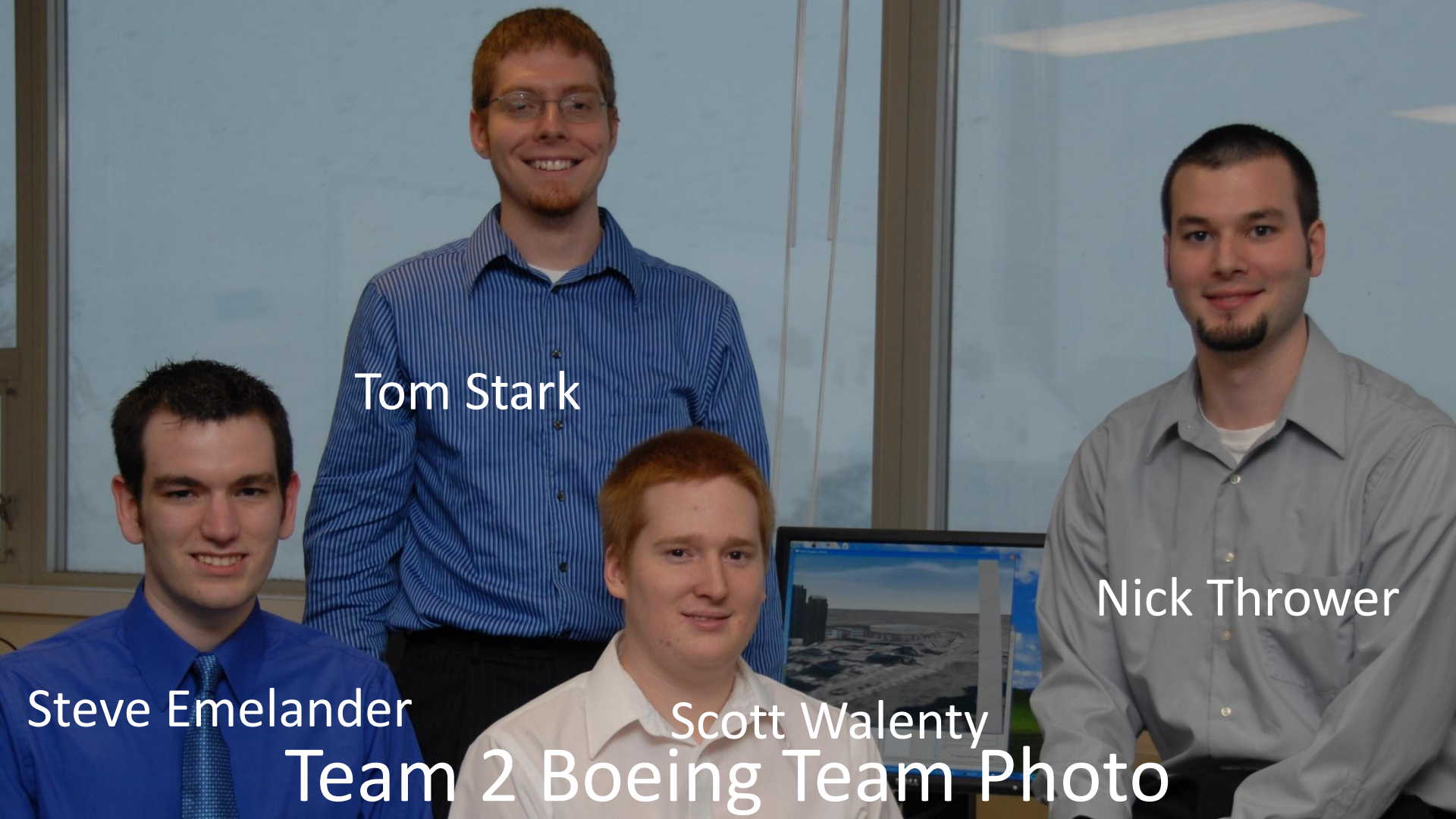
Boeing Announces GOL Airlines Order for 40 Next-Generation 737s

Boeing, DAE Capital Conclude 100-Airplane Order

Boeing Finalizes 787 Order with Vietnam Airlines and Vietnam Aircraft Leasing

Boeing, South Korea's Jeju Air Complete Order for 737-800s

All News Releases >>



Tom Stark

Nick Thrower

Steve Emelander

Scott Walenty

Team 2 Boeing Team Photo

Team 2 Boeing

Project Overview

Poseidon Executor 2008

- Visualize Flight of P-8A Poseidon Submarine Hunter
- Poseidon Aircraft CIGI Integration (PACI)
 - Create Graphical Models
 - P-8A Poseidon Aircraft
 - Submarines
 - Display Aircraft In Flight
 - Automated: Input from Data File
 - Operator: Input from User (Keyboard or Joystick)
- IOS Execution Tool (IOSET)
 - Process Management
 - Isolated Process Launcher
 - Visual Studio Solution Builder
- Technologies
 - C/C++
 - CIGI (Common Image Generator Interface)
 - DIS (Distributed Interactive Simulation)
 - Etc...

NO SMOKING

S Project Overview

- Flight Simulator of the Poseidon P8-A
 - Submarine Hunting Aircraft
 - Missile Launching
- Command and Automatic Control
 - Data in Excel File
 - Control via Joystick or Keyboard
- Graphical User Application
 - All parts of the Simulation
 - The Aircraft in Flight

Team 2 Boeing
Technical Specifications Presentation

Team 2 Boeing

Functional Specifications

PACI

- IG – Visualization of the Flight Simulator
- Host – Configuration/Control of Simulator
- Communication through CIGI

IOS Execution Tool

- End User Interface
- Open/Kill Processes
- Manages Shared Memory

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S Risks

• Shared Memory

- We need to set up File Mapping to share data and communicate between processes.
- This is the main objective of the IOS team right now. We are in the process of experimenting with this by making simple applications that share memory and figuring out how to implement that into our simulator.

Team 2: Boeing

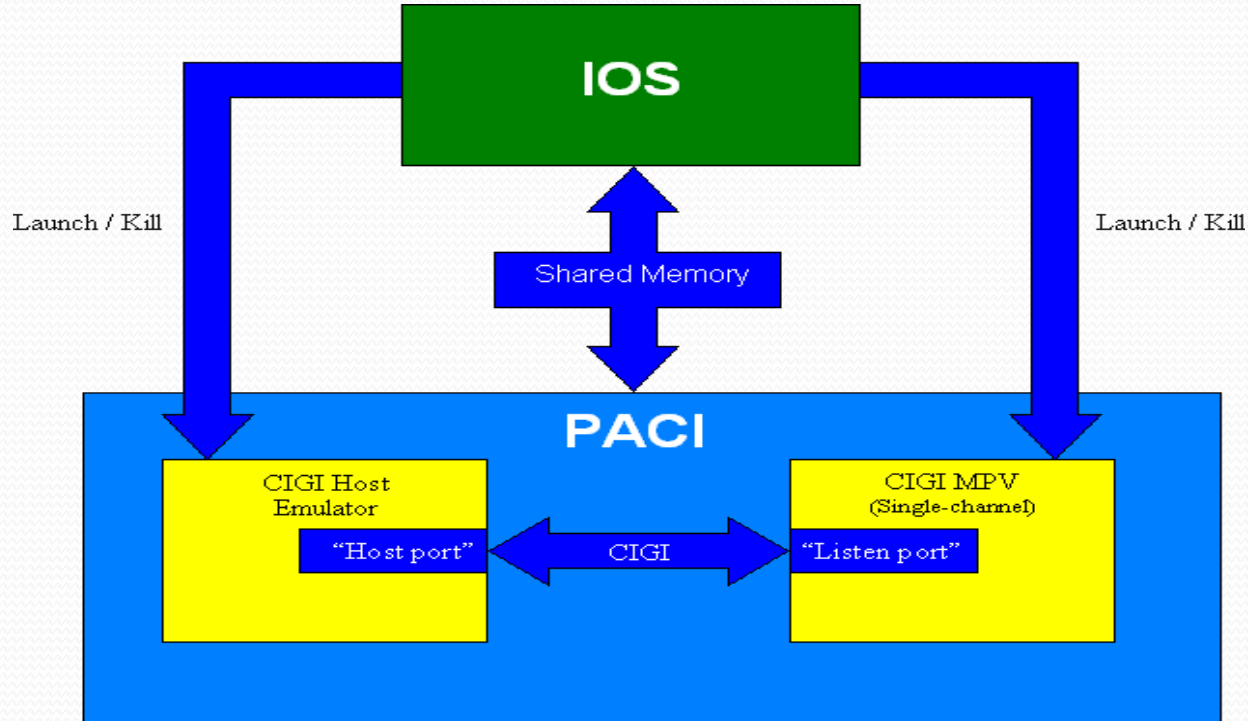
• Process Management

- Making the IOS capable of launching any process and taking that processes console output and printing it within a tab.
- We can currently retrieve a console applications output and print it within a tab but we need to make this update intermediately and the main focus now is on making this capability dynamic.

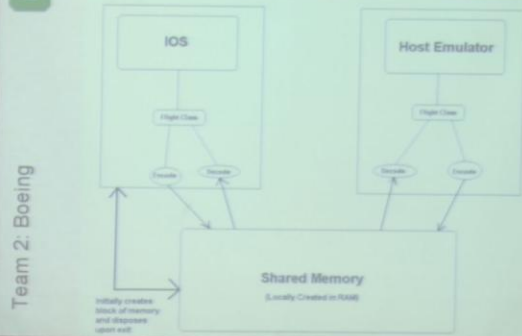
Team 2 Boeing
Technical Specifications Presentation

Team 2 Boeing

Architecture Illustrated



S Shared Memory



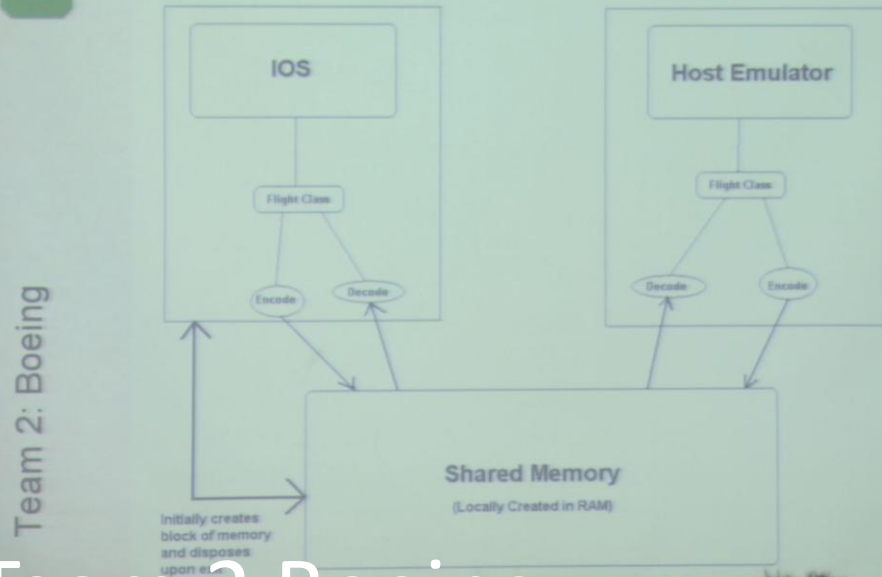
Team 2: Boeing

Initially creates block of memory and discards when not used.

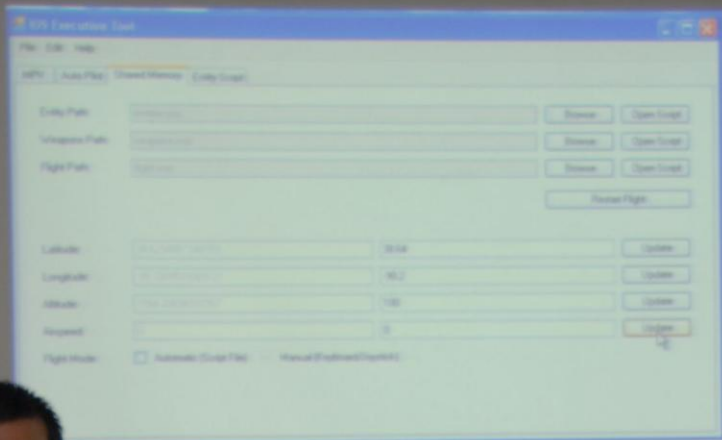
Shared Memory
(Locally Created in Host)

Team 2 Boeing
Beta Demonstration

S Shared Memory



Team 2 Boeing
Beta Demonstration



Team 2 Boeing Beta Demonstration

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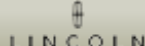
Driving Thrills

Vehicle Quality
Soars

RACING, AUTO SHOWS, PERFORMANCE VEHICLES



Great Products Our family of brands



To Global Sites





Austin Drouare

Colin Nemchik

Nathan Crosty

Devin Schnepf

Team 3 Ford Team Photo

Team 3 Ford

Project Overview

Ford Sensor Showroom

- Automatically Measure Interest in Vehicles
 - Auto Shows
 - Car Dealerships
- Use Wireless Sensors
 - Count
 - Door Opened
 - Hood Popped
 - Trunk Unlatched
 - Etc...
 - Time
 - Standing by Vehicle
 - Sitting in Seat
 - Looking at Engine
 - Etc...
- Technologies
 - Crossbow iMotez Wireless Sensors
 - Temperature, Humidity, Light
 - Motion (By 3-Axis Accelerometer)
 - .NET Micro Framework
 - Etc...

S System Components

- Hardware Platforms
 - iMote2 wireless sensors / receiver
 - Web/Database server
 - Sensor hub PC
- Software Platforms / Technologies
 - .Net Micro / C#
 - MySQL database
 - Apache web server

Team 3: Team Ford

Team 3 Ford
Technical Specifications Presentation

Team 3 Ford

System Components

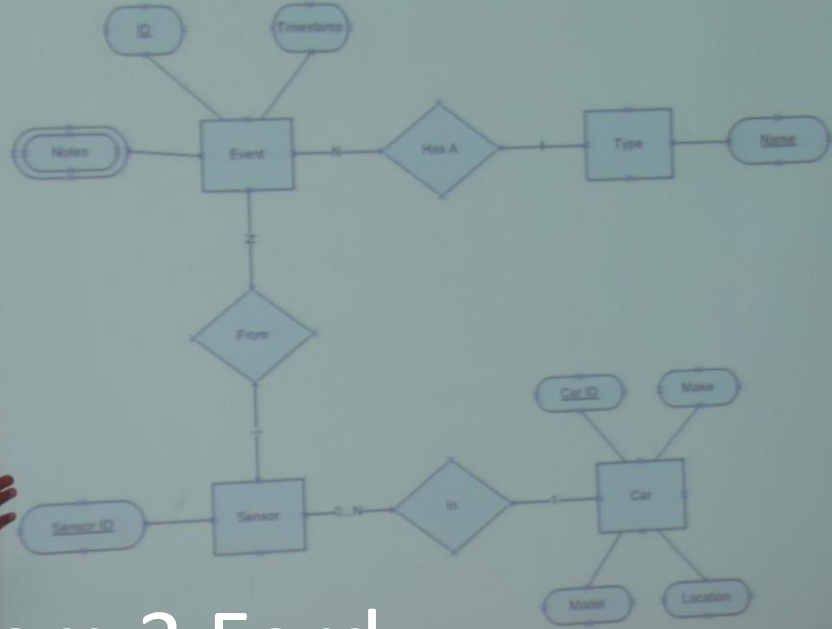
- Hardware Platforms
 - iMote2 wireless sensors / receiver
 - Web/Database server

- Software Platforms / Technologies
 - .Net Micro / C#
 - MySQL database
 - Apache web server

S

Architecture - Database

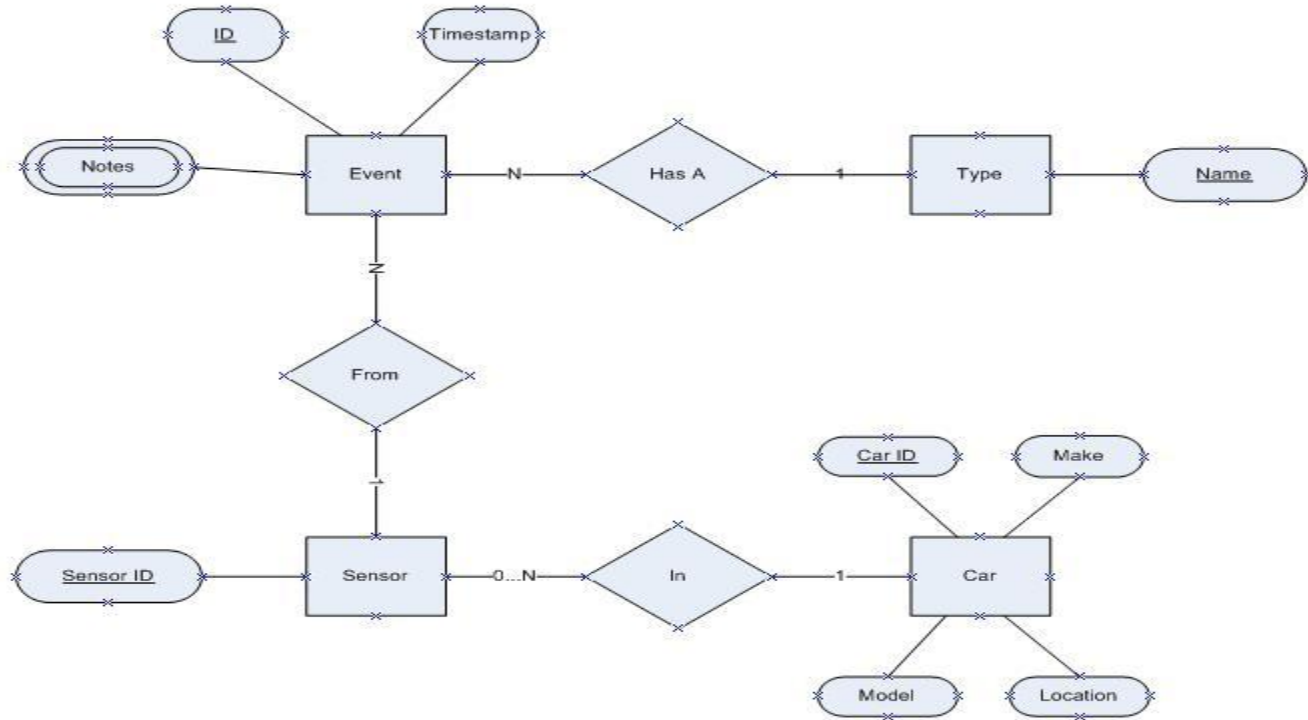
Team Ford



Team 3 Ford
Technical Specifications Presentation

Team 3 Ford

Architecture Illustrated





S Browser Compatibility – IE6

Ford Sensor Network

Team 3: Team Ford

Select a Car: 1999 Ford F150
Detroit, MI


- Passenger Side
- Driver Side
- Left Rear
- Right Rear

Internet Explorer

Version: 6.0.2600.5512 (x64) MSN, MSN, MSN ©2006
Caption: Copyright © 2006
Product ID: 60026.0601.00000.0001
Caption: Microsoft © 2006

Download the Ford Sensor Network (FSN) software
to be installed on the vehicle's on-board computer. For
instructions on the installation of the software, please
refer to the manual at the following URL:
www.ford.com/vehicles/ford.com

Team 3 Ford
Beta Demonstration

A man with short brown hair, wearing a white long-sleeved button-down shirt and dark trousers, stands in a classroom. He is gesturing with his hands as if speaking. Behind him is a green chalkboard. To the left, a projector screen is partially visible. In the foreground, the back of a person's head with reddish hair is visible, looking towards the speaker.

Team 3 Ford
Beta Demonstration



Team 3 Ford
Beta Demonstration



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Joshua Roys

Jordan Fish

Scott Judd

Team 4 IBM Team Photo

Project Overview

POWER Hypervisor hcall Testing Tools

- IBM POWER Hypervisor
 - Virtual Machine Environment
 - Supports Multiple Processors
 - Partition Processors
 - Assign Particular Processor to Particular Virtual Machine
- hcall Testing Tools
 - 100's of Hypervisor hcall System Calls
 - Testing Tools
 - Make hcall Calls
 - Test Return Values Against Known Return Values
 - Automate
- Technologies
 - Hypervisor
 - Linux Kernel
 - C/C++
 - Perl Scripting
 - X Window System

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S Functional Specifications →

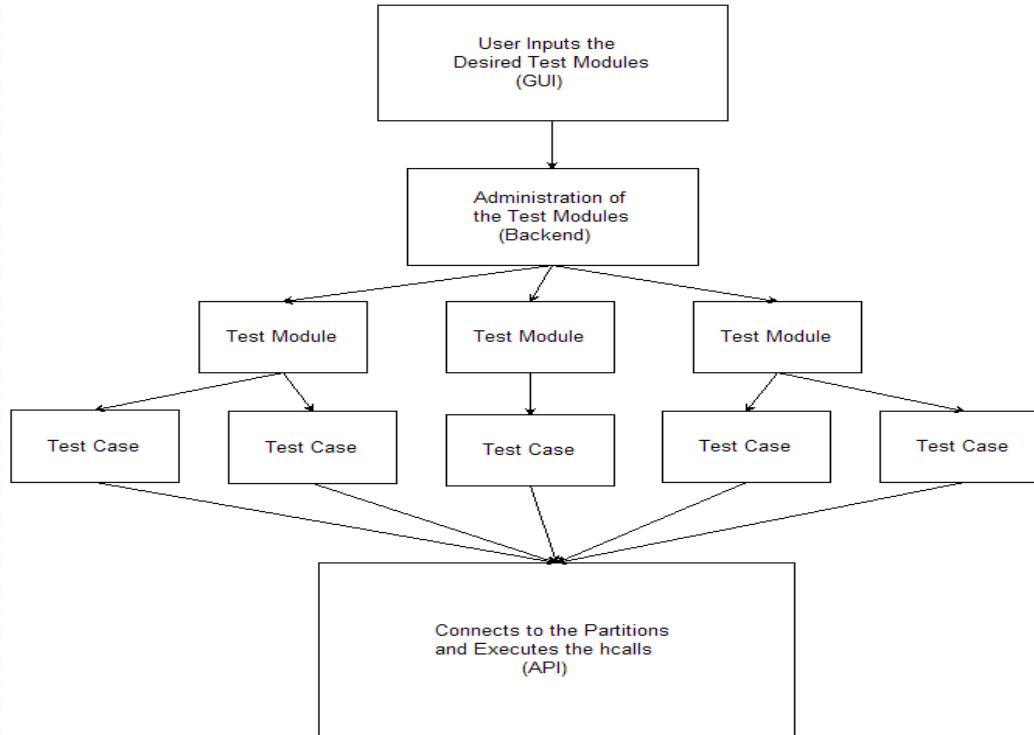
- Make Hypervisor Calls
- Retrieve Results
- Break tests in to modules
- Modules to test all hcalls (~100)
- Graphical reports of results
- Report of how thorough the tests are

Team #4: IBM

Team 4 IBM

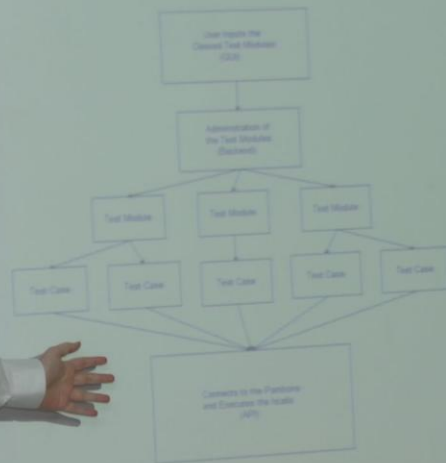
Technical Specifications Presentation

Test Harness Design



Architecture Illustrated (Test Harness Design)

S

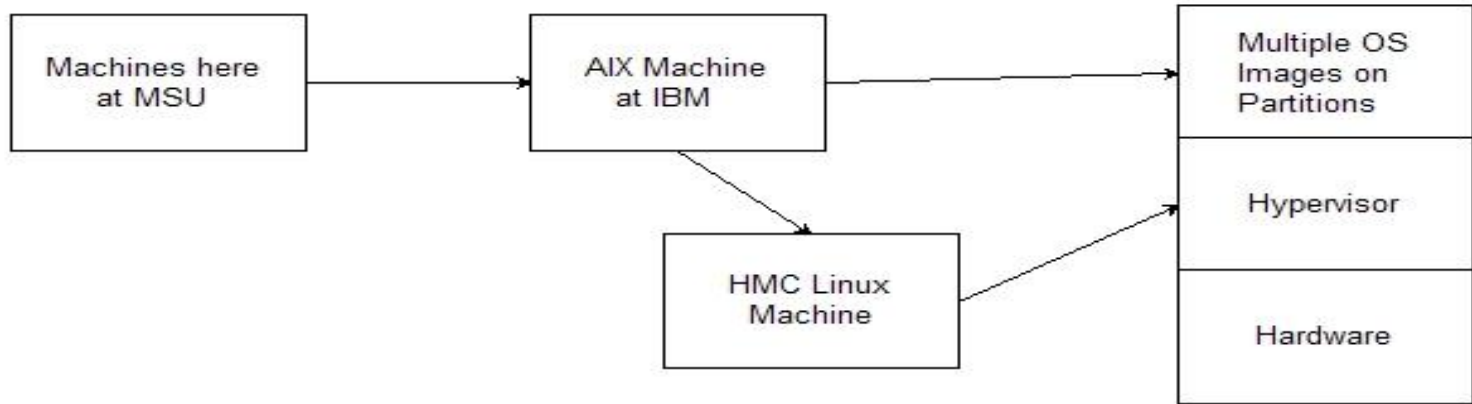


Team 4 IBM

Technical Specifications Presentation

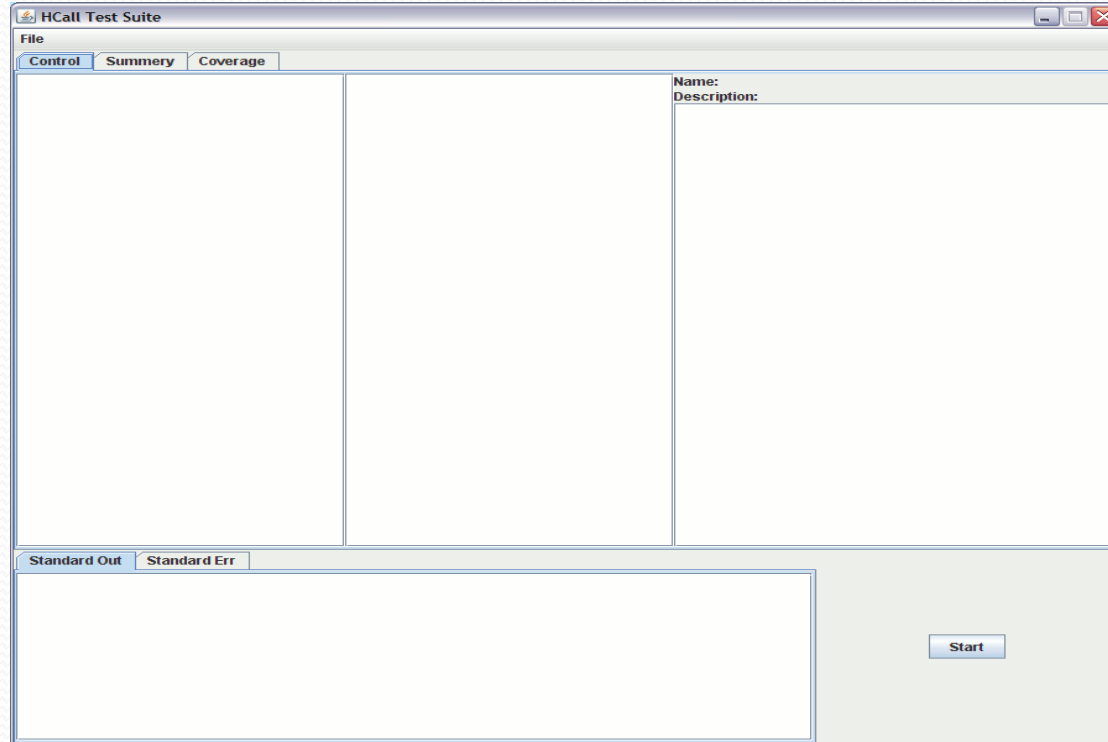
Team 4 IBM

Hardware Interconnections



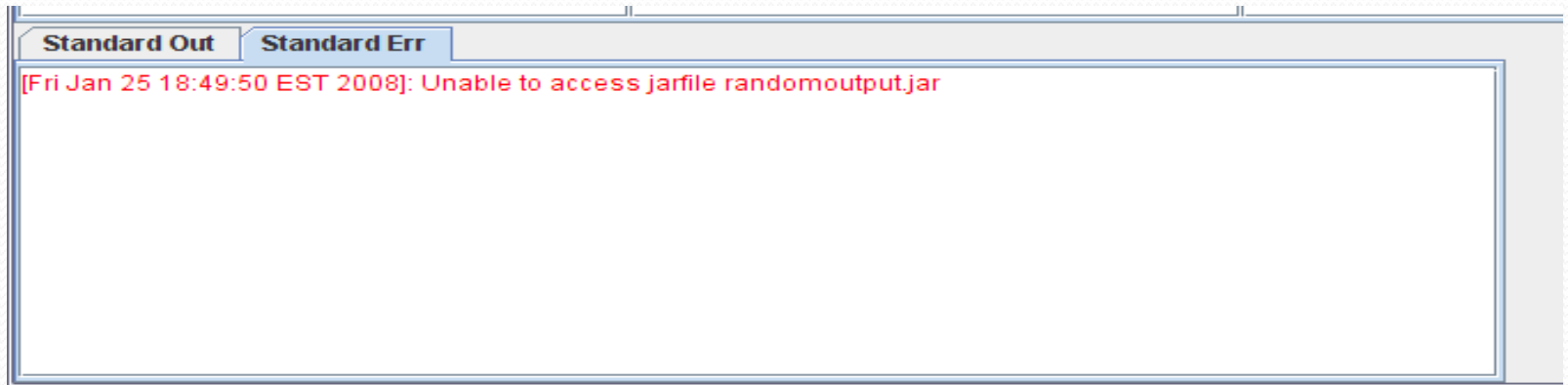
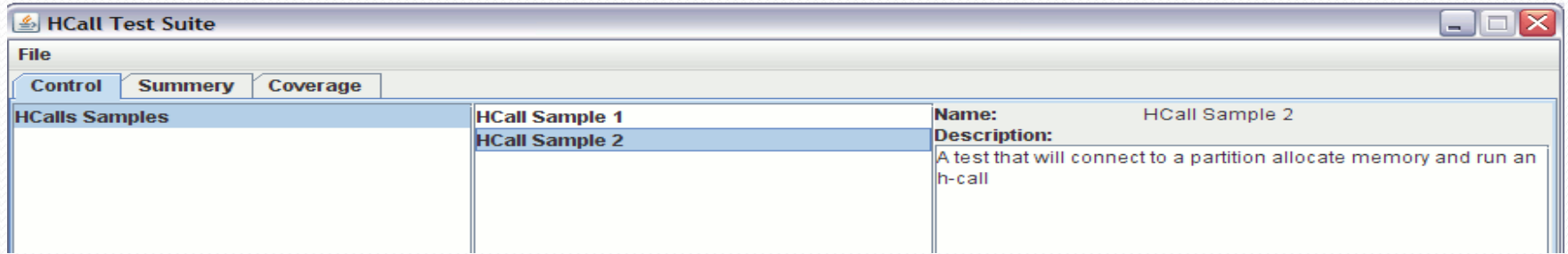
Team 4 IBM

Proposed Graphical User Interface



Team 4 IBM

Proposed Graphical User Interface





NO SMOKING

File Session

Controls Summary

Module: OS PHP HC all Test Module

Module Description: Run this module's tests 2 times

Test Case: Page list

Testcase Description: in real mode either to zero or to the copied contents of another page in this test 1 times

Partition: Partition Host

Argument Value: 10.4.10.1 Required Constant

Standard Out Standard Err

11:52:27 AM: Successfully created session with name betaDemo

11:54:14 AM: Module OS PHP HC all Test Module will run 2 times

11:54:52 AM: Test case Page list will run 1 times

Team 4 IBM
Beta Demonstration

File Session

Control Summary

Module: OS PHYP HCall Test Module
Module Description:
Run this module's tests 2 times

Test Case: Page Init
Testcase Description: in real mode either to zero or to the copied contents of another page.
Run this test 1 times

Argument: Partition Name
Argument Value: Required Constant

Standard Out Standard Err

[11:53:20 AM]: Successfully created session with name BetaDemo
[11:54:34 AM]: Module OS PHYP HCall Test Module will run 2 times
[11:54:52 AM]: Test case Page Init will run 1 times

Team 4 IBM Beta Demonstration

MATRIX

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Projects

A Note about MATRIX's Approach to Developing & Designing Internet Projects: MATRIX uses its unique position in the communications revolution to pioneer ideas and innovations, as the heirs of the Internet develop into the 21st century. While we have a cautious view of the value of the communications revolution for teaching, we support experimentation and innovation in the classroom. In addition to developing a wide range of teaching tools, we are focusing at the present on two main challenges: the digitation of sound files so that they can best be utilized by teachers, students, and researchers, and the development of large-scale integrated research tools that can be developed by widely disparate repositories and freely accessed worldwide.

Education

- [American Black Journal](#)
- [Artists Working with Teachers Working with Art](#)
- [CLASS: Center for Learning & Application of Interdisciplinary Social Science](#)
- [Civics Online](#)
- [Explore PA](#)
- [HCCP: Humanities Computing Certificate Program](#)
- [Humanities](#)

A group photograph of four men in an office setting. One man is seated in the center foreground, while the other three are standing behind him. The background includes a whiteboard and a computer workstation with a monitor displaying code.

Dustin Manning

Chung-Hi Kim

Jared Wein

Chris
Samiadji-Benthin

Team 5 MATRIX Team Photo

Project Overview

Event Logging System for KORA

- KORA
 - Digital Archiving Platform
 - Content Management Capabilities
- Provide Archival Data Integrity via Event Logging
 - On Ingestion Computes and Stores Checksum
 - Intermittently
 - Checks Checksum
 - Add Record to Datastore
 - Provide Searching Over Logs
- Scale Challenges
 - Hundreds of Thousands of Files
 - Hundreds of Gigabytes of Information
- Technologies
 - Open Source
 - Platform Independent
 - Handle Multiple Database Backends Including MySQL
 - Standard Messaging Protocol
 - Support Multiple Checksum Methodologies
 - Etc...

A photograph of four men standing behind a wooden podium in a classroom or lecture hall. The man on the far right is operating a black Toshiba laptop. The man next to him is wearing a light blue shirt and glasses. The two men on the left are wearing a dark patterned shirt and a striped shirt, respectively. A green chalkboard is visible in the background.

Team 5 MATRIX
Technical Specifications Presentation

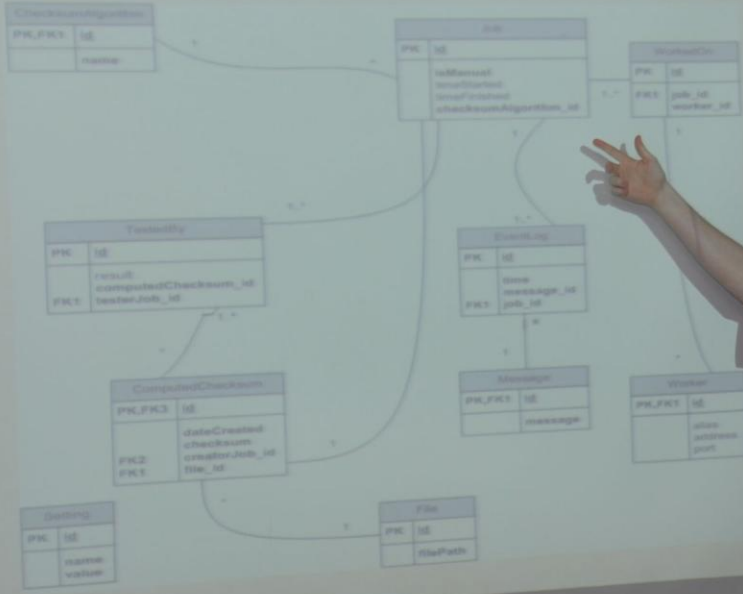
System Components

- Hardware Platforms
 - Standard Personal Computer
 - Server
 - Ethernet Connection
- Software Platforms / Technologies
 - Python 2.5.1
 - Python Libraries (ADODB, SimpleXMLRPCServer, Hashlib)
 - OS/ Database Independent

S

Manager Database Schema

Team 5: MATRIX



Team 5 MATRIX
Technical Specifications Presentation

Architecture Illustrated

Matrix Event Log System

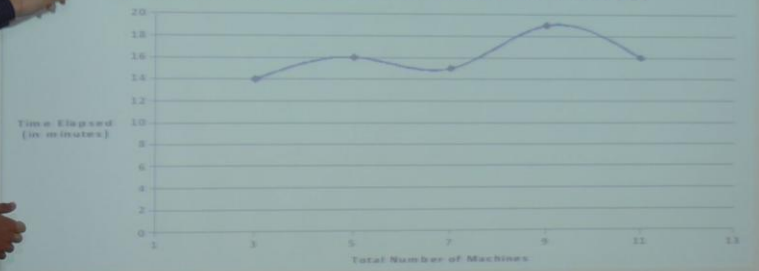


S Test 1

Setup:

- 12 Gbyte of randomly generated files
(sized: 295 Kbyte to 60 Mbyte)
- 1 server, ~15 Mbyte/sec typical bandwidth
- from 3 to 11 machines, (2 workers/machine)

Test Results for 12 Gb of Data and 1 Server



Team 5: MATRIX

Team 5 MATRIX
Beta Demonstration



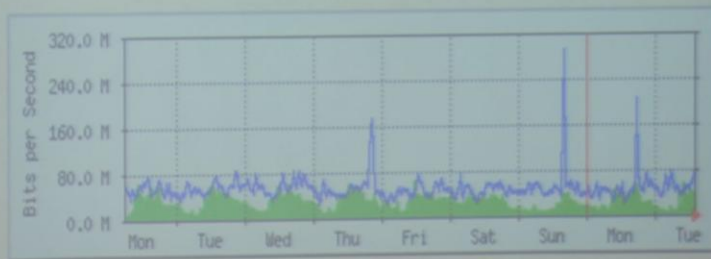
```
Application Places System |  
-----  
file Edit View Terminal Tabs Help  
10.0.0.1:8080/...  
10498189c.cse.essu.edu - - [15/Mar/2008 18:33:23] "POST /RPC HTTP/1.0" 200 -  
10498189c.cse.essu.edu - - [15/Mar/2008 18:37:37] "POST /RPC HTTP/1.0" 200 -  
10498189c.cse.essu.edu - - [15/Mar/2008 18:39:49] "POST /RPC HTTP/1.0" 200 -  
10498189c.cse.essu.edu - - [15/Mar/2008 18:43:11] "POST /RPC HTTP/1.0" 200 -  
10498189c.cse.essu.edu - - [15/Mar/2008 18:47:57] "POST /RPC HTTP/1.0" 200 -  
-----  
administrator@matlab... Desktop, File Browser | Desktop / ubuntu
```

Team 5 MATRIX Beta Demonstration

S

Future Work

- Improved event reporting: job history
 - API
 - user's manual or man. page
 - Tests with larger data sets
- how much we're sending now:



Team 5: MATRIX

Team 5 MATRIX Beta Demonstration

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Charles Otto

Kirsten Partyka

Sean Murphy

Rob Meyer

Team 6 Microsoft Team Photo

Team 6 Microsoft

Project Overview

LiveSketch

- Whiteboard
 - Web-Based
 - Users
 - Multiple
 - Simultaneous
- Client/Server
 - Client
 - Runs on Local Machine
 - User Drawing Surface
 - Silverlight/C# Based
 - Server
 - Runs on Remote Machine
 - Maintains State of the Whiteboard
 - Resolves Potential Conflicts from Multiple, Simultaneous Use
 - C# Based
- Technologies
 - .NET
 - C#
 - Silverlight
 - Etc...

S Project Overview

- Online Virtual Whiteboard
- Multiple Users Concurrently
- Internet based, physical location irrelevant
- Targeted towards technical users
 - Work-related brainstorming
- Designed with usability in mind

Team 6 : Microsoft

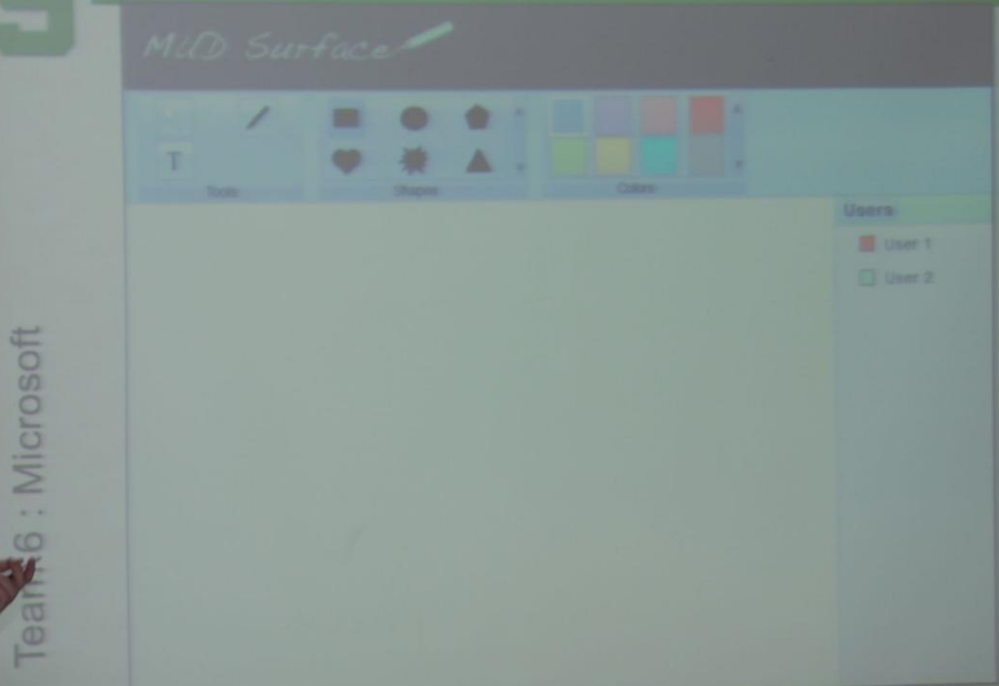
Team 6 Microsoft
Technical Specifications Presentation

Team 6 Microsoft

Proposed Graphical User Interface



S Mockup

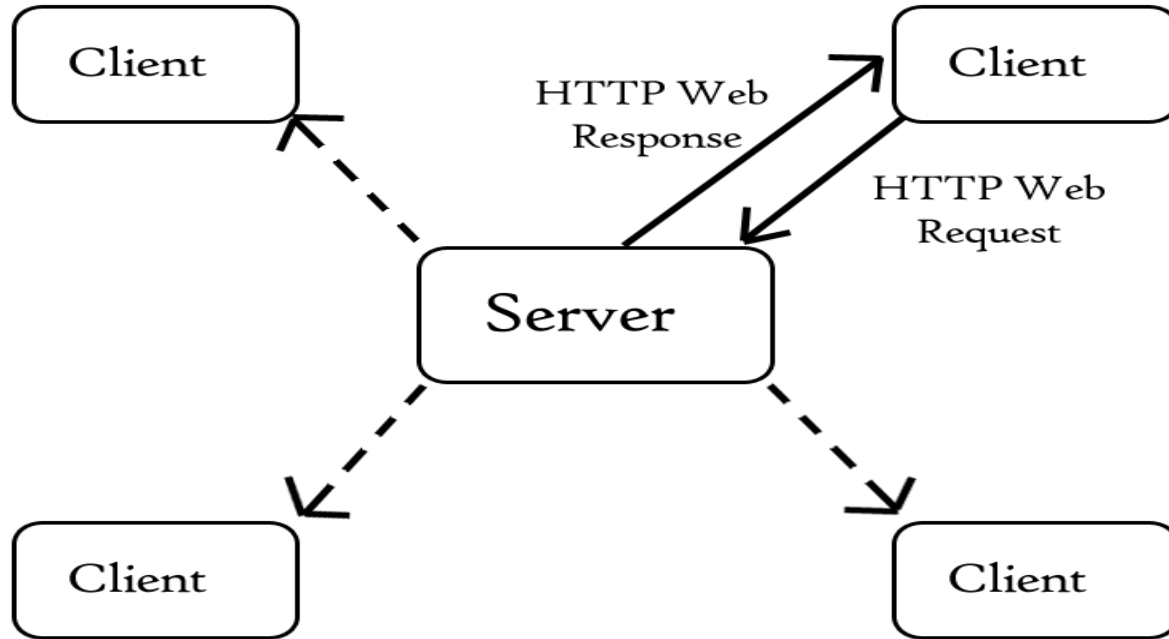


Team 6 : Microsoft

Team 6 Microsoft Technical Specifications Presentation

Team 6 Microsoft

Architecture Illustrated



S Project Schedule

1. Exploration

- a) Goal: Understanding Silverlight; working class diag.
- b) Date: January 26

2. Foundations

- a) Goal: start coding; well into basics by end of week
- b) Date: February 2

3. Foundations cont.

- a) Goal: Finish basic components and base classes
- b) Date: February 9

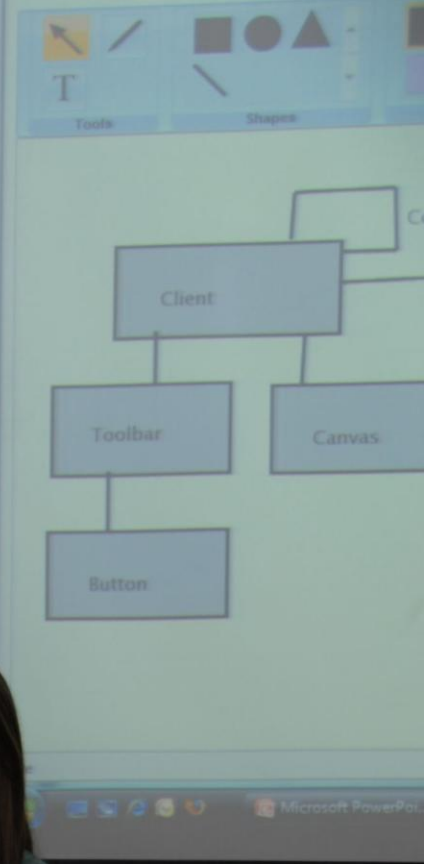
4. Prepare for Alpha

- a) Goal: Polish UI appearance and user interaction
- b) Date: February 16

Team 6 : Microsoft

Team 6 Microsoft
Technical Specifications Presentation

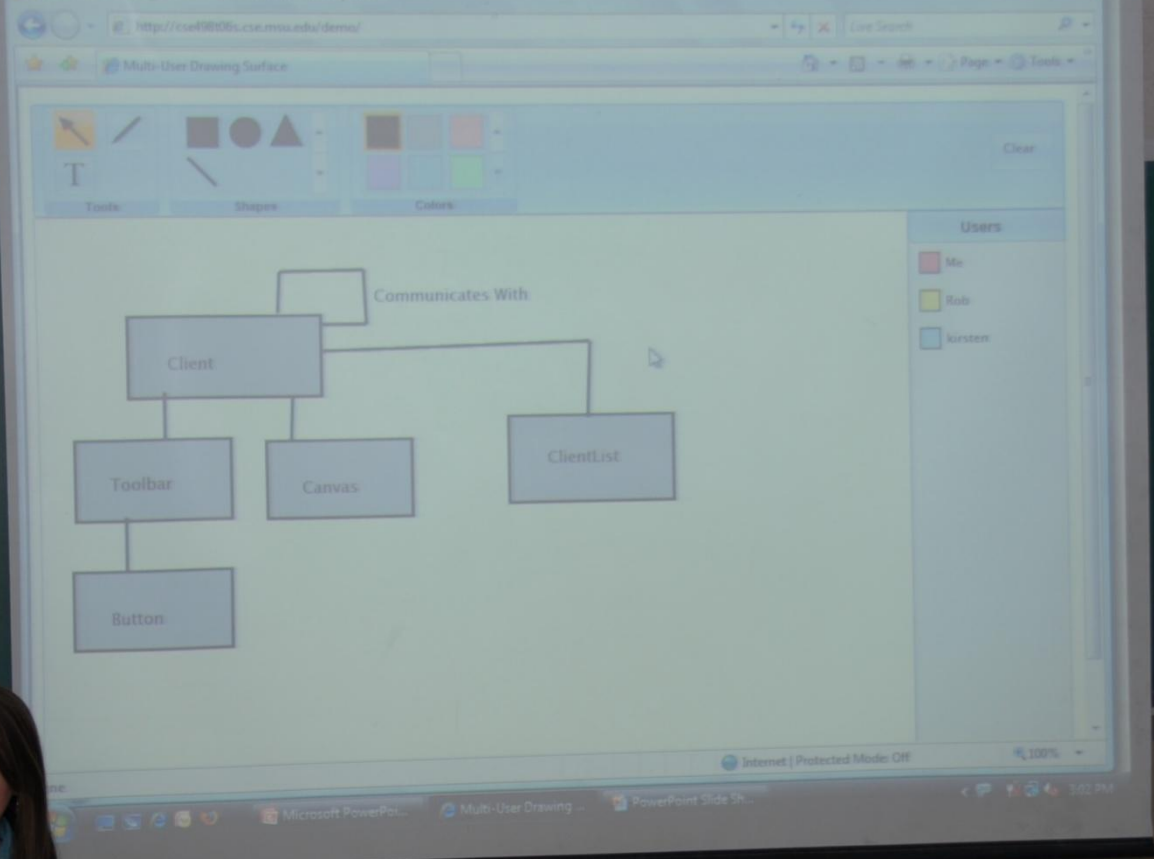
NO SMOKING



Florida

Hawaii

Team 6 Microsoft Beta Demonstration



Hawaii

Team 6 Microsoft Beta Demonstration

Seattle

A man with brown hair and glasses, wearing a blue button-down shirt, is seated at a desk in a classroom. He is looking down at a silver laptop. The laptop lid has the word "Seattle" written on it in green marker. In the background, there is a green chalkboard and a projector screen on the left. The projector screen shows a presentation slide with a progress bar at 100% and the time 3:03 PM. The text "Team 6 Microsoft Beta Demonstration" is overlaid in white at the bottom of the image.

Team 6 Microsoft
Beta Demonstration



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PHONES

- ▶ Phones with new plan (U.S. Only)
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Matt Filipiak

Kyle Shumaker

Dan Savoie

Tamy Liang

Team 7 Motorola Team Photo

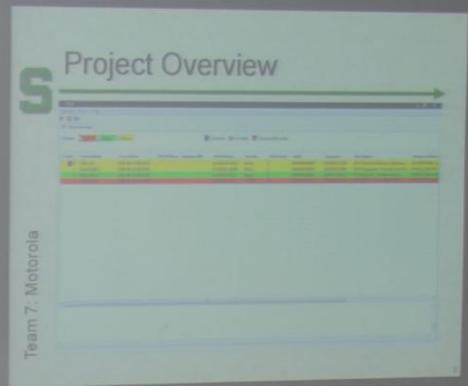
Team 7 Motorola

Project Overview

Advanced Network Fault Management

- Network Fault Management
 - Devices Report Faults
 - Manage Network Based on Faults
- Motorola INFM System
 - Manages Faults
 - Records
 - Correlates
 - Reports
 - Stand-Alone Application
- Create Distributed INFM System
 - Migrate Stand-Alone Tool to Distributed
 - Reuse Existing Code
 - Create Deployable Services
 - Communicate via Services Infrastructure
 - AJAX User Interface
- Technologies
 - Java
 - XML
 - JBoss
 - Etc...
 - Javascript
 - AJAX
 - Eclipse
 - Etc...

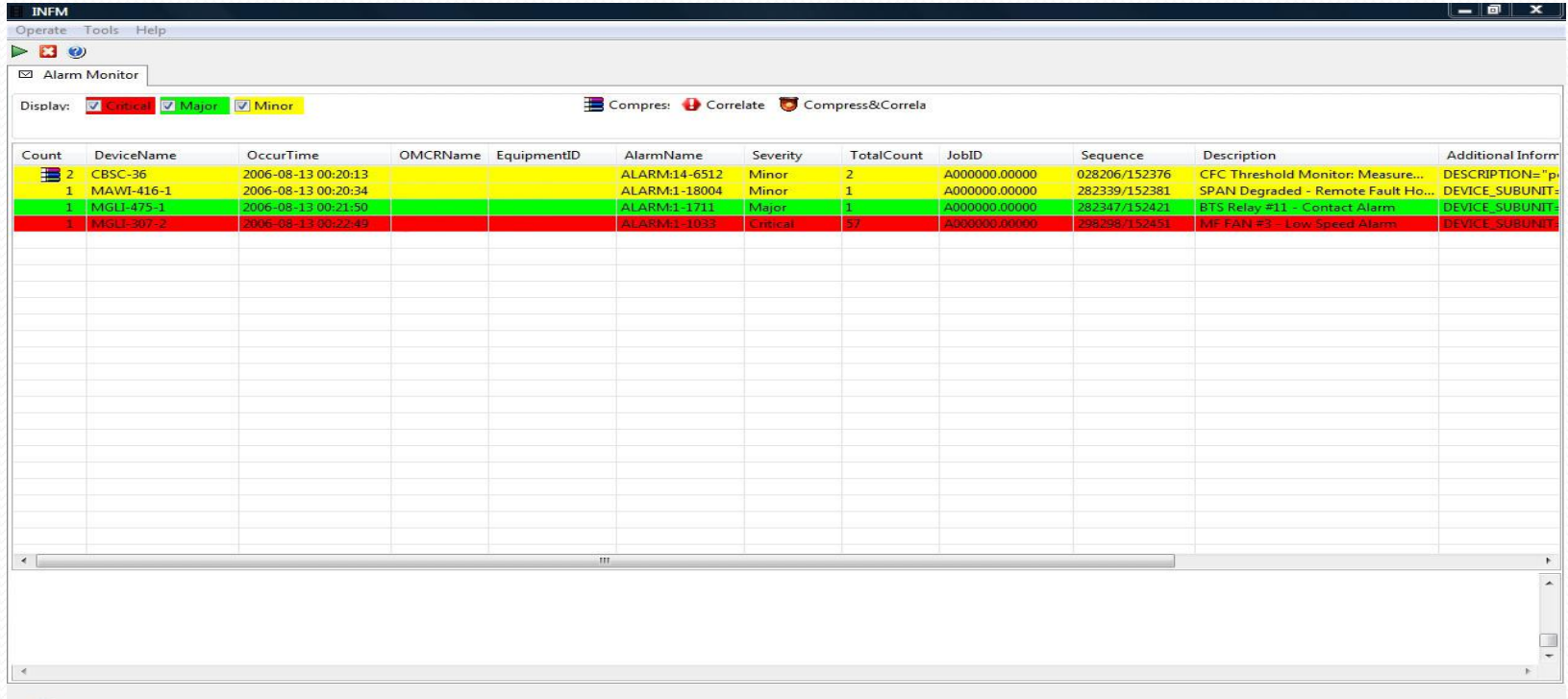
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Team 7 Motorola
Technical Specifications Presentation

Team 7 Motorola

Existing INMF Application

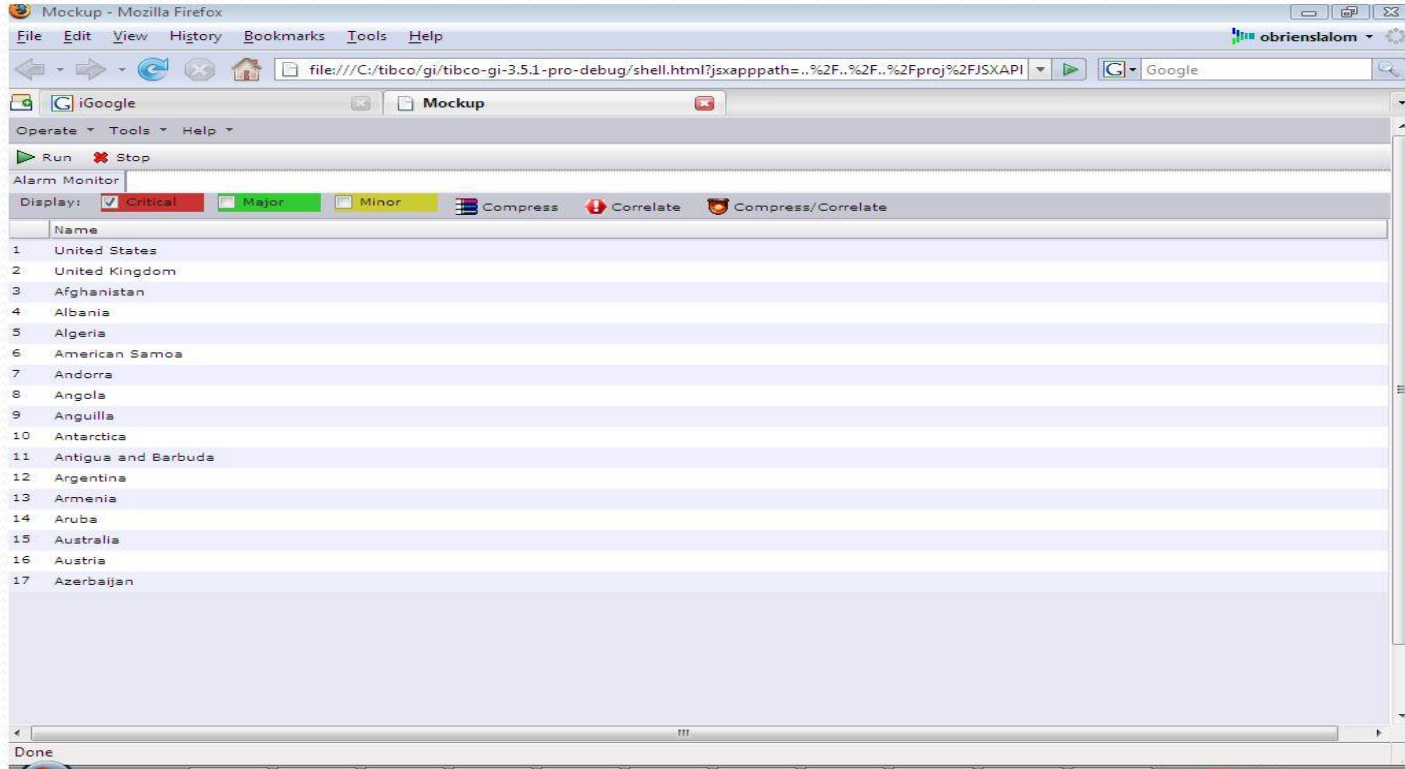


The screenshot shows the INFM Alarm Monitor application interface. The window title is 'INFM'. The menu bar includes 'Operate', 'Tools', and 'Help'. Below the menu bar, there are icons for 'Alarm Monitor', 'Compress', 'Correlate', and 'Compress&Correlate'. The 'Display:' section has checkboxes for 'Critical', 'Major', and 'Minor', all of which are checked. The main area contains a table with the following columns: Count, DeviceName, OccurTime, OMCName, EquipmentID, AlarmName, Severity, TotalCount, JobID, Sequence, Description, and Additional Information. The table displays four rows of data, each with a different background color: yellow, green, green, and red.

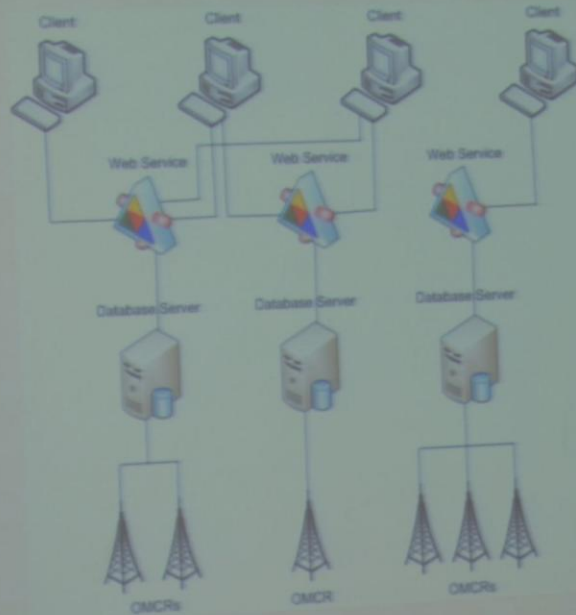
Count	DeviceName	OccurTime	OMCName	EquipmentID	AlarmName	Severity	TotalCount	JobID	Sequence	Description	Additional Information
2	CBSC-36	2006-08-13 00:20:13			ALARM:14-6512	Minor	2	A000000.00000	028206/152376	CFC Threshold Monitor: Measure...	DESCRIPTION="p...
1	MAWI-416-1	2006-08-13 00:20:34			ALARM:1-18004	Minor	1	A000000.00000	282339/152381	SPAN Degraded - Remote Fault Ho...	DEVICE_SUBUNIT=
1	MGLI-475-1	2006-08-13 00:21:50			ALARM:1-1711	Major	1	A000000.00000	282347/152421	BTS Relay #11 - Contact Alarm	DEVICE_SUBUNIT=
1	MGLI-807-2	2006-08-13 00:22:49			ALARM:1-1033	Critical	1	A000000.00000	298238/152451	MF FAN #2 - Low Speed Alarm	DEVICE_SUBUNIT=

Team 7 Motorola

Proposed Graphical User Interface



Project Overview

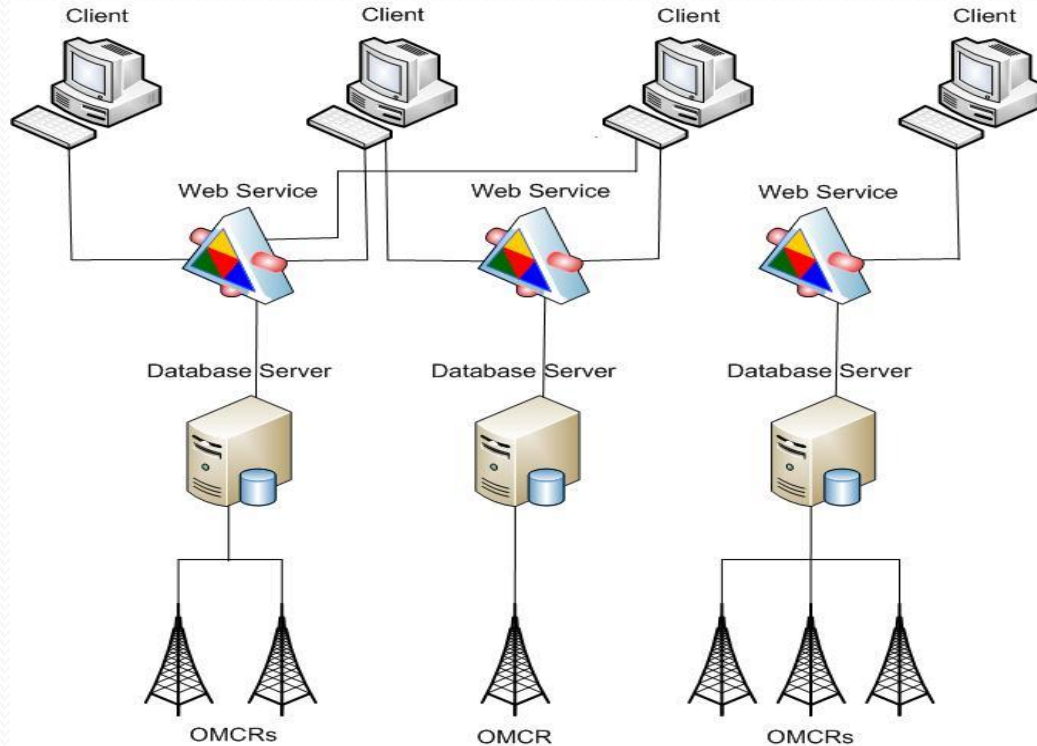


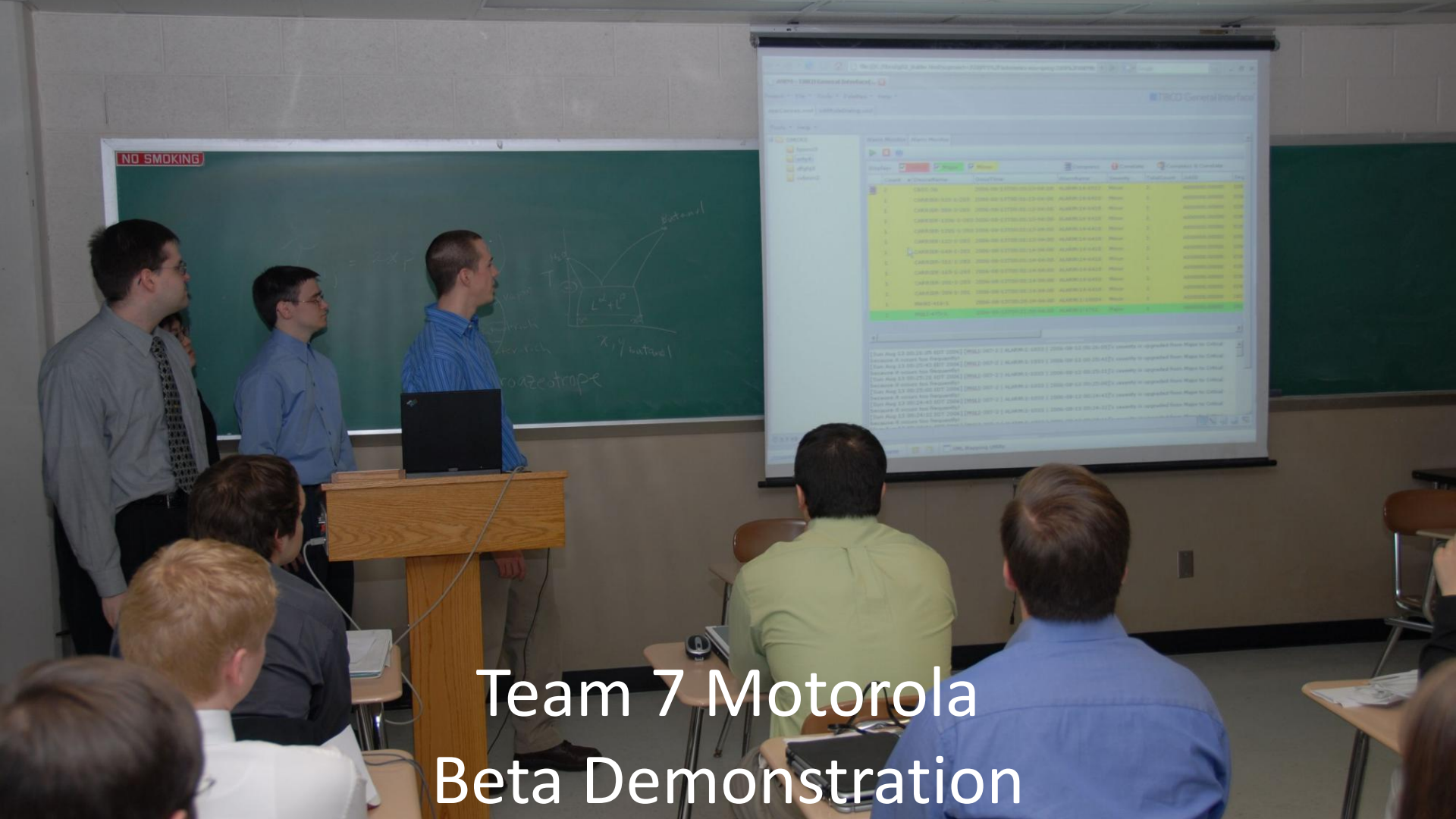
Team 7 Motorola

Technical Specifications Presentation

Team 7 Motorola

Architecture Illustrated





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TRCCO General Interface

Case	Case Name	Case Type	Case Status	Case Date	Case Time	Case Location	Case Description
1	CASE001-001-001	Case	Open	2008-08-01 10:00:00	10:00:00	ALABAMA	Case Description
2	CASE001-001-002	Case	Open	2008-08-01 10:00:00	10:00:00	ALABAMA	Case Description
3	CASE001-001-003	Case	Open	2008-08-01 10:00:00	10:00:00	ALABAMA	Case Description
4	CASE001-001-004	Case	Open	2008-08-01 10:00:00	10:00:00	ALABAMA	Case Description
5	CASE001-001-005	Case	Open	2008-08-01 10:00:00	10:00:00	ALABAMA	Case Description
6	CASE001-001-006	Case	Open	2008-08-01 10:00:00	10:00:00	ALABAMA	Case Description
7	CASE001-001-007	Case	Open	2008-08-01 10:00:00	10:00:00	ALABAMA	Case Description
8	CASE001-001-008	Case	Open	2008-08-01 10:00:00	10:00:00	ALABAMA	Case Description
9	CASE001-001-009	Case	Open	2008-08-01 10:00:00	10:00:00	ALABAMA	Case Description
10	CASE001-001-010	Case	Open	2008-08-01 10:00:00	10:00:00	ALABAMA	Case Description

Team 7 Motorola
Beta Demonstration



The image shows three men in a classroom setting. The man on the right is standing at a wooden podium with a laptop, appearing to be presenting. The other two men stand behind him, looking towards the right. The background is a green chalkboard with handwritten technical diagrams and equations. One diagram shows a phase diagram with axes labeled H_2O , T , and x , and a region labeled $L^\alpha + L^\beta$. Another diagram shows a phase diagram with axes labeled x, y and $butanol$, and a region labeled $butrope$. There are also some equations like $= 2XP$ and x, y written on the board.

Team 7 Motorola Beta Demonstration



Removing roadblocks to revenue for the insurance industry through producer lifecycle automation.



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Select a state

Important Notices

- [2007 Minnesota Producer License Renewals](#)
- [Idaho Insurance Licensing Services](#)
- [Louisiana Licensing System Conversion Update](#)





Mark Aikman

Andrew Blossom

Akif Catal

Matt Newman

Team 8 Sircon Team Photo

Project Overview

Workflow Editor for AutoPilot

- Sircon's AutoPilot
 - Automated Workflow Technology
 - Based On Open Source OSWorkflow Project
- Workflow Editor
 - Create and Edit AutoPilot Workflows
 - Represent Workflows as Flowcharts
 - Reduce Time and Training Required to Use AutoPilot
- Technologies
 - Java
 - Swing
 - Etc...

S Project Overview (1 of 16)

- Introduction
 - Producer Express (PX) automates the interaction between producers, distributors, and carriers.
 - AutoPilot is one of the central concepts in PX that is a completely configurable system
 - AutoPilot is driven by the open-source project OSWorkflow and its task is to configure the XML files to define the steps in a workflow.
 - A graphical desktop application will be useful to assist users in minimizing the amount of time and work to configure workflows: AutoPilot Workflow Editor
- Purpose
 - To design a graphical desktop application in order to configure AutoPilot workflows and create/view/edit the corresponding XML files.
- Scope
 - Useful tool to create/view/edit the corresponding XML files graphically using basic flowchart shapes
 - Will decrease the required time spent by users dealing with XML configuration files which will result in an increase in productivity.
 - Sircon's PSO analysts will benefit from the application as well as Sircon's development and professional support teams.

Team 08: Sircon

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Team 8 Sircon
Technical Specifications Presentation

Team 8 Sircon

System Components

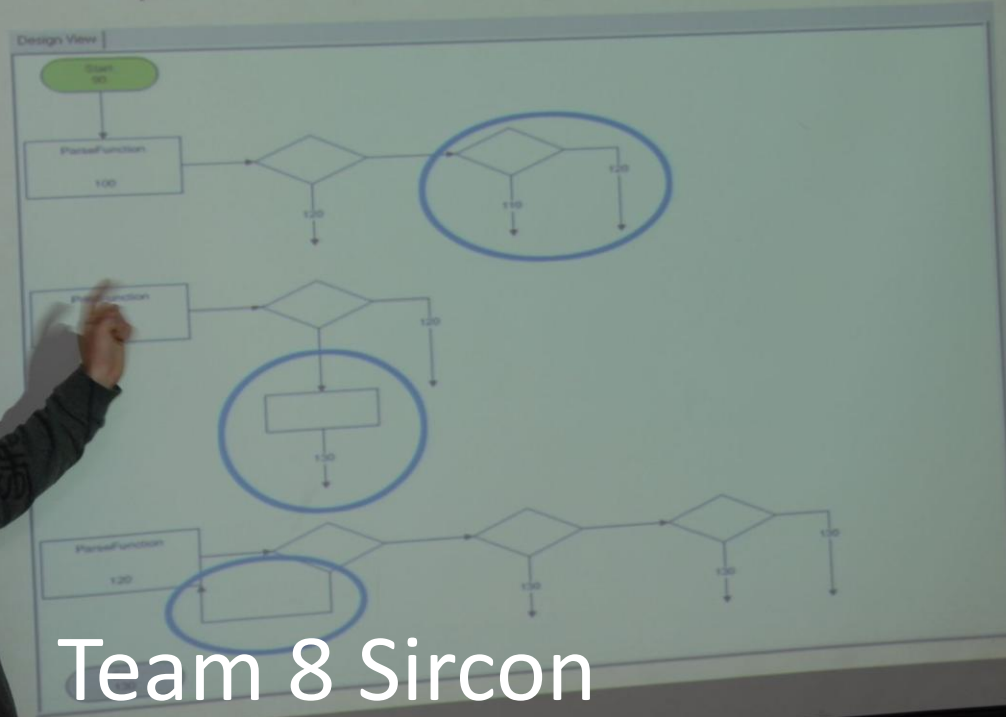
- Software Platforms / Technologies
 - Java
 - NetBeans IDE
 - SWING UI
 - XMLBeans Parser Library



Prototype – Cont.

(11 of 16)

- Autopilot Workflow Editor: Prototype Part 2



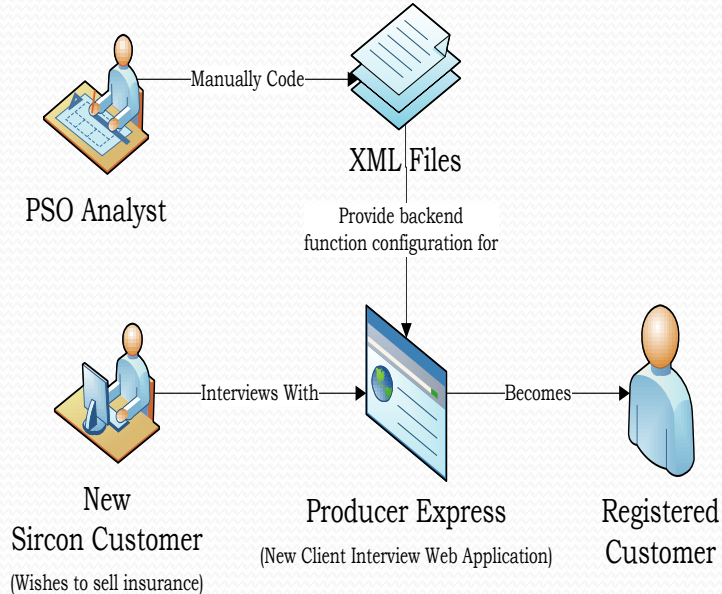
Team 8 Sircon

Technical Specifications Presentation

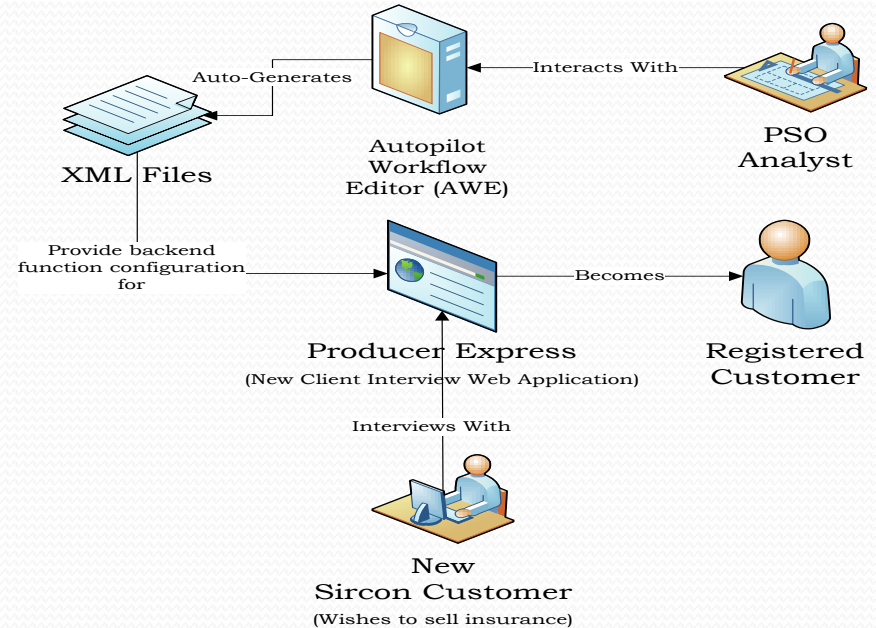
Team 8 Sircon

Functional Overview

Current Workflow Editing Process



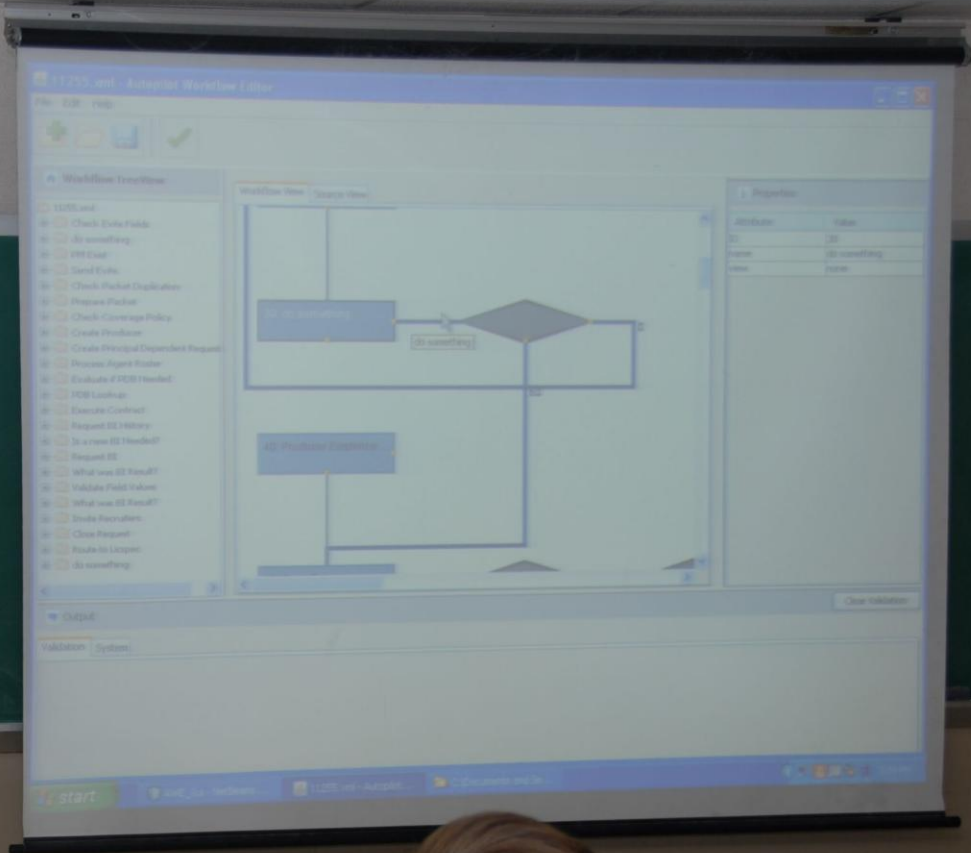
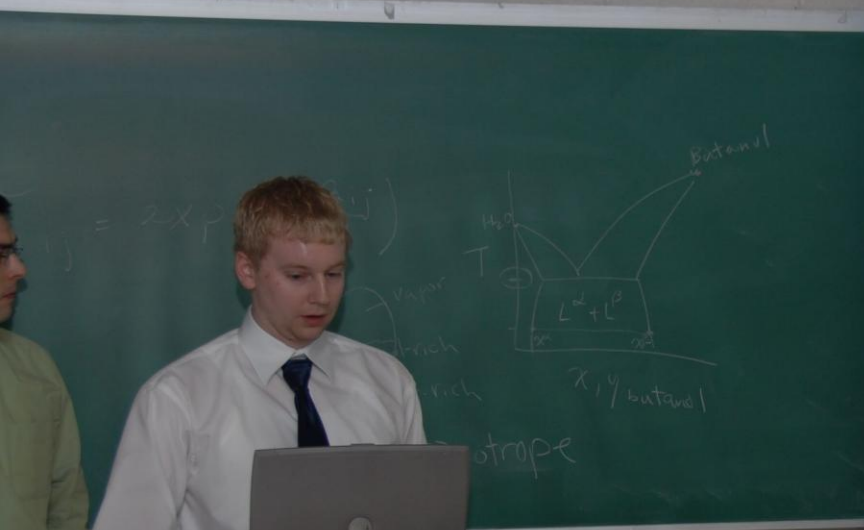
New Workflow Editing Process





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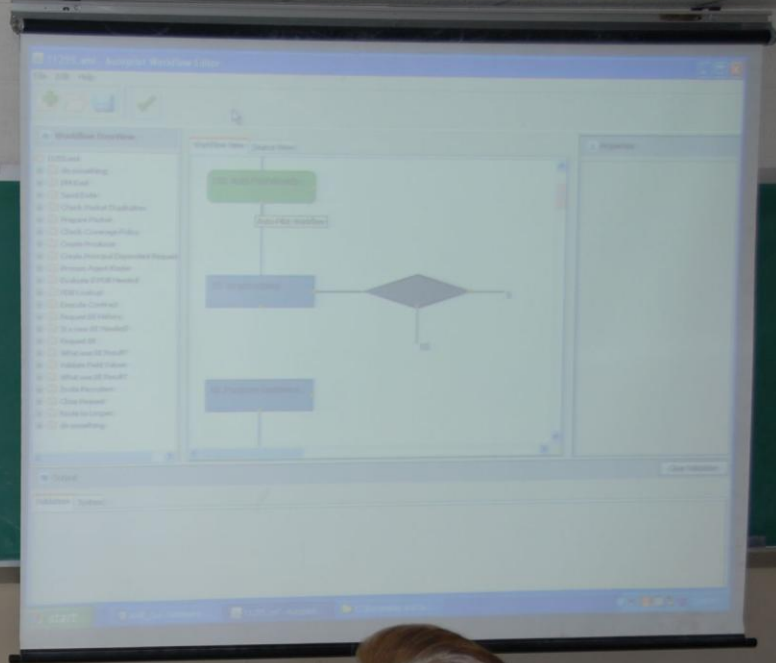
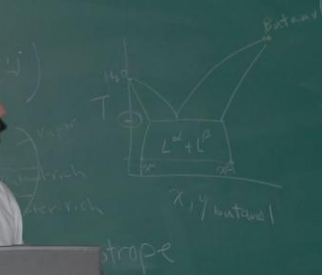
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Team 8 Sircon
Beta Demonstration





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Ian Taylor

Mike Ezzo

Keith Barnes

Mike Harriman

Team 9 TechSmith Team Photo

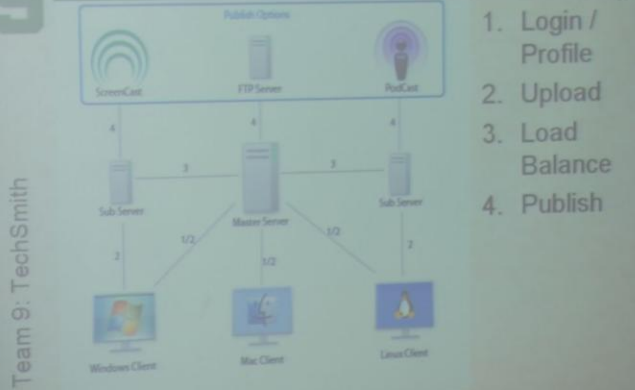
Project Overview

Screen Recorder for Linux

- Camtasia Relay Server
 - Beta 1, 1.0.0 Release
 - Video Recording Server
 - Receives
 - Transcodes
 - Publishes to Remote Locations for Viewing
- Linux Relay Recorder
 - X Window System Based
 - Records Screen Activity Plus Audio
 - Uploads to Camtasia Relay Server
 - Must Have Look-and-Feel of Existing Windows and Mac Relay Recorders
- Three Components
 - Recorder
 - Uploader
 - Screen Recording SDK
- Technologies
 - C++
 - Open Source Tools
 - QT Cross Platform GUI Toolkit
 - Etc...

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S Network Architecture



Team 9: TechSmith

Team 9 TechSmith
Technical Specifications Presentation

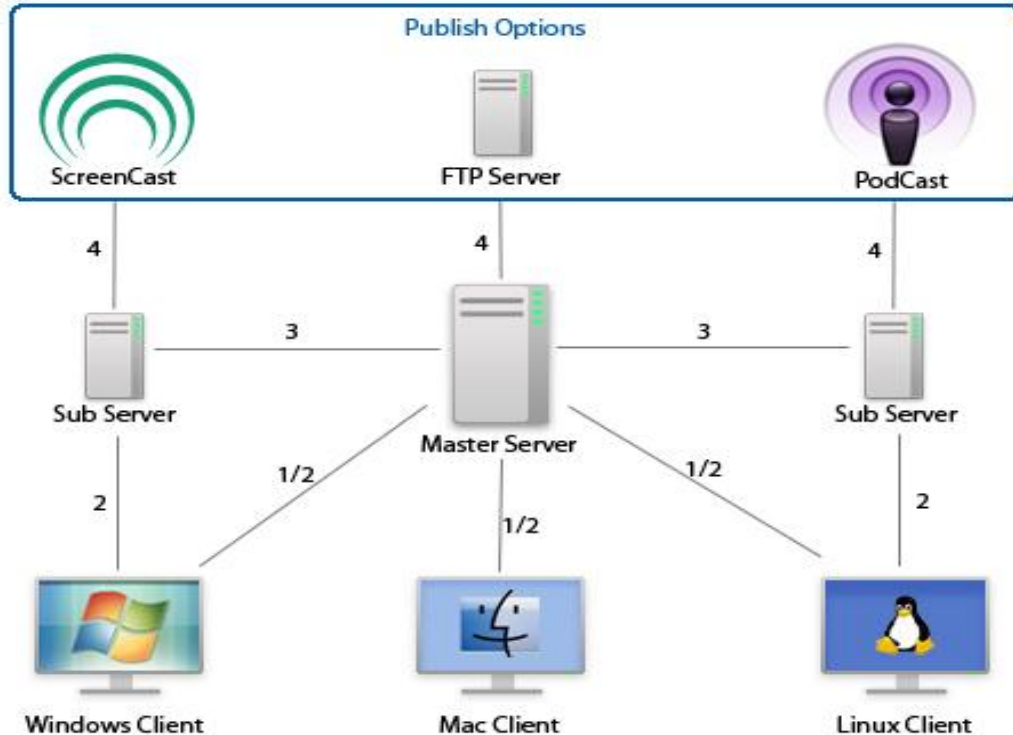
System Components

- Hardware Platforms
 - Recorder Client runs on Linux
 - Server runs on Windows Server 2003 or Windows XP
 - Microphone Present for audio
 - Network Connection
- Software Platforms / Technologies
 - X11 for video display
 - QT libraries
 - Eclipse for Development



Team 9 TechSmith
Technical Specifications Presentation

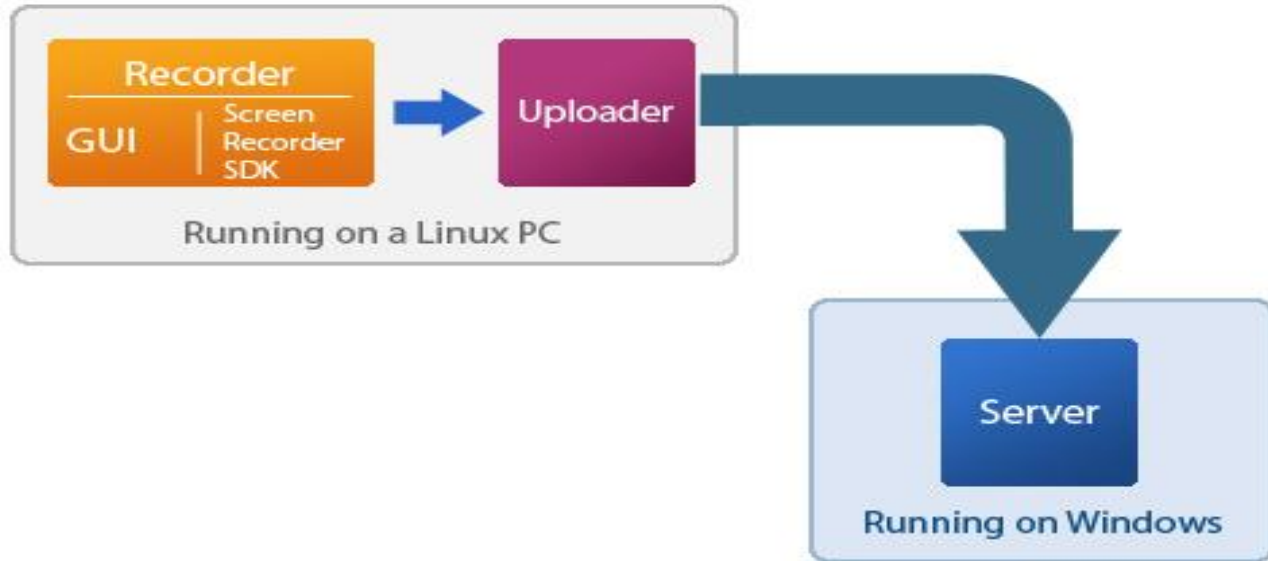
Network Architecture



1. Login / Profile
2. Upload
3. Load Balance
4. Publish

Team 9 TechSmith

System Architecture Illustrated





FFMPEG Screen Recording

- **Alpha**

- GUI application with socket control interface (separate recorder program)
- Socket-controlled recorder cannot pause/resume

- **Beta**

- Cleaner, intuitive, SDK-style screencast class
- No more sockets, controlled by "QProcess"
- Pause/resume enabled!

- **The Future**

- Encoding to QT RLE
- True integration of FFMPEG API

Team 9 TechSmith

Team 9 TechSmith
Beta Demonstration



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Product Information

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Toro and the Rose Bowl

Toro is the official provider of turf maintenance equipment for the 2008 Rose Bowl

Highlights

Introducing the NEW Power Clear™ snowthrower series. With amazing new features like



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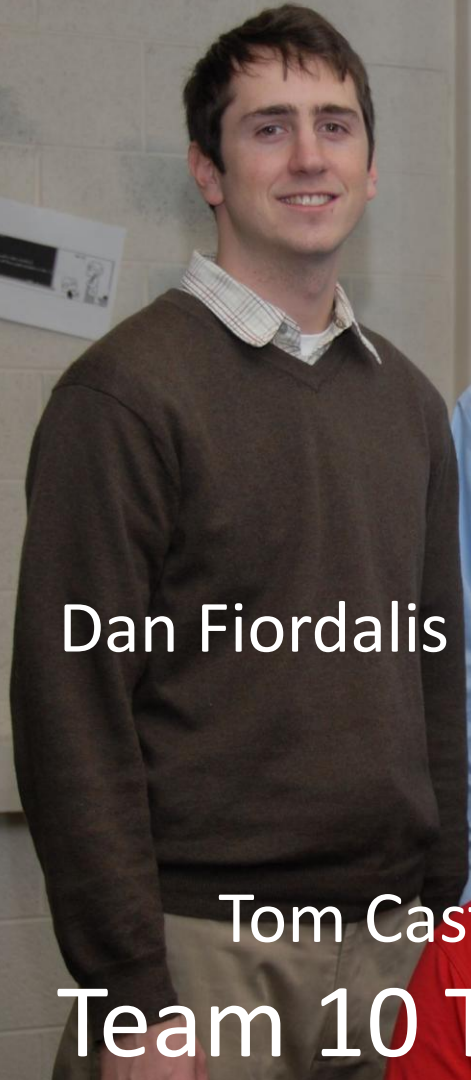
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Dealer/Distributor Locator

Where to Buy, Service or Rent Your Toro

- ▶ USA or Canada
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New Products and Services



Dan Fiordalis



Matt Grabow



Stephanie Cook



Tom Castellani

Team 10 Toro Team Photo

Team 10 Toro

Project Overview

WPF-Based User Interface for Irritrol

- Toro Wireless Sprinkler System
 - Partitioned Into Zones
 - Wireless Controller
 - Connected Via Wires to Zones
 - Turns Zones On and Off
 - Programmed with Watering Schedule
 - Uploaded From PC
 - Through Wireless Hand-Held Remote
- Existing Irritrol
 - PC-Based Controller Watering Schedule Software
 - Create, Edit, & Upload
 - Front-End Written in Macromedia Flash
- Proposed Irritrol
 - Re-write Front-End in Windows Presentation Foundation
 - Re-Use as Much of Backend as Possible
- Technologies
 - C++
 - Windows Presentation Foundation
 - Etc...

NO SMOKING

S

Project Overview

- Controller

- Receives signals from USB Remote with information on desired watering and lighting behavior
- Implements schedule by sending power to appropriate zones

- USB Remote

- Sends signals to Controller wirelessly
- Communicates with PC Control via USB

- PC Control

- Create watering and lighting schedule
- Clean, usable user interface

Team 10: Team Toro

Team 10 Toro

Technical Specifications Presentation

Architecture Illustrated



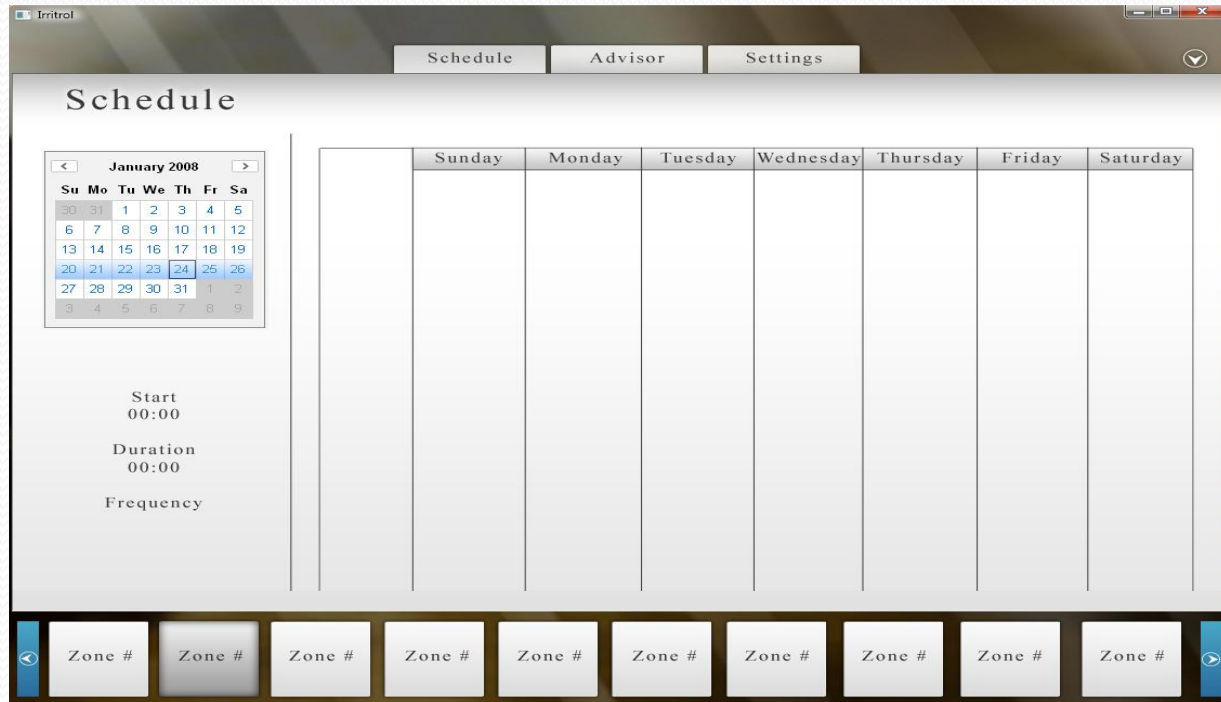
S Architecture Illustrated



Team 10 Toro
Technical Specifications Presentation

Team 10 Toro

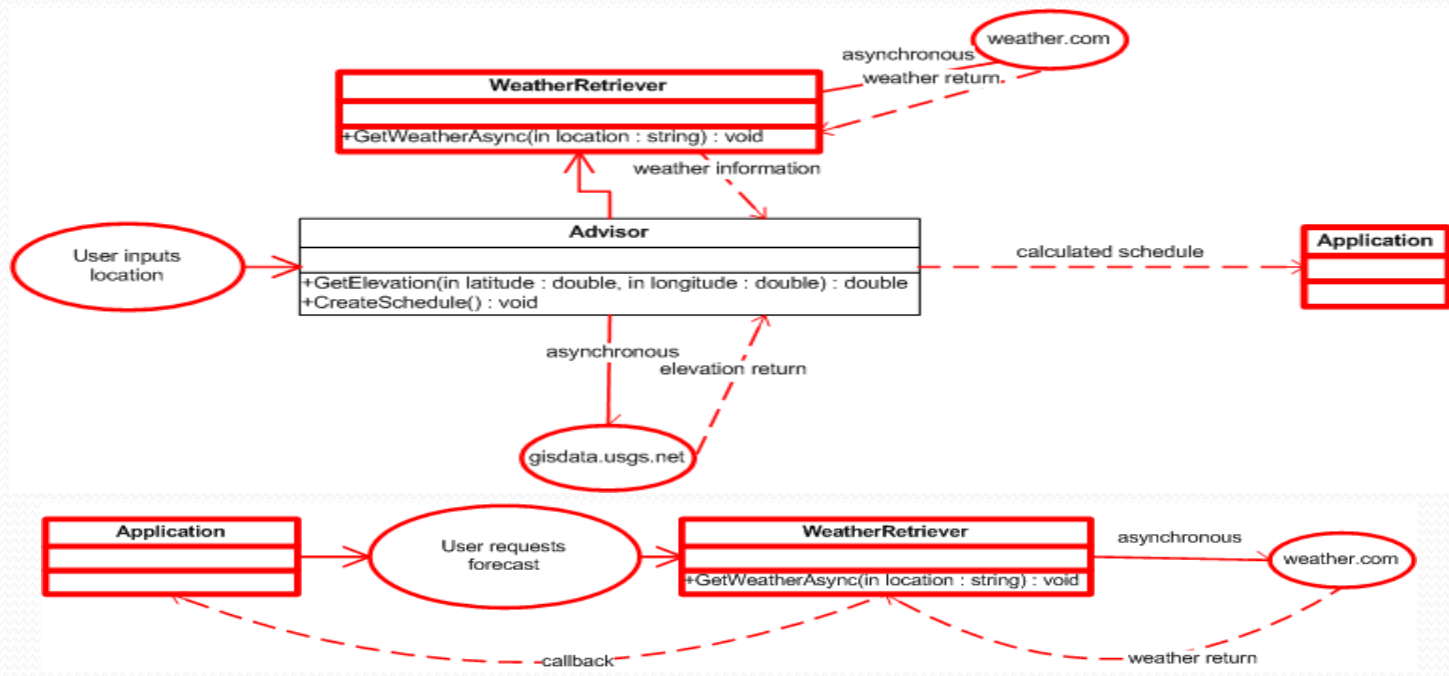
Proposed Graphical User Interface



Team 10 Toro

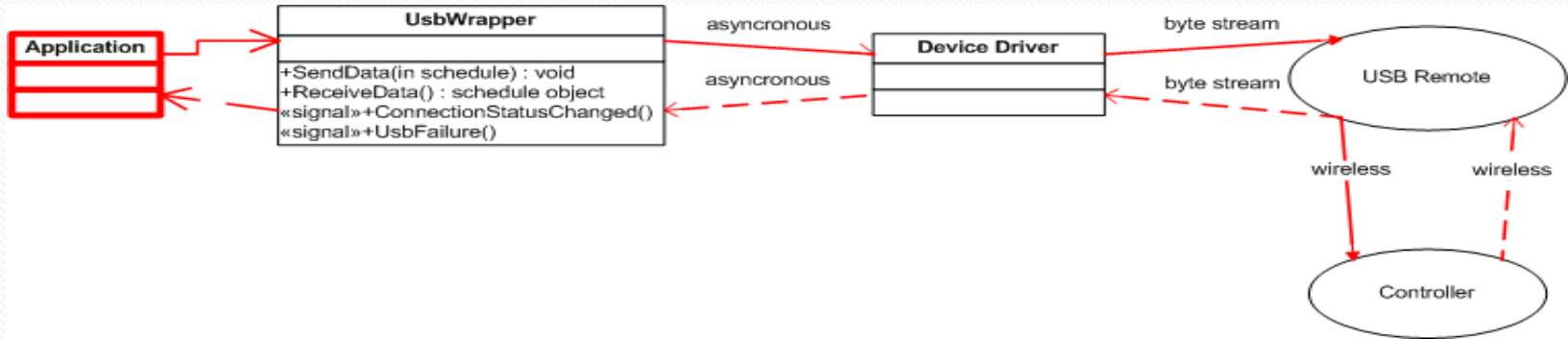
Architecture Illustrated

Scheduling Advisor



Architecture Illustrated

USB Communication





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Team 10 Toro
Beta Demonstration



Team 10 Toro
Beta Demonstration

S Where We're Going

- WPF
 - Finalize schedule controls
 - Continue to polish the PC Control interface
- C#
 - Connect USB driver functionality to interface
 - Tying WPF schedule control to existing data structures

Team 10, Toro

Team 10 Toro
Beta Demonstration

The Computer Science Senior Capstone Experience

CSE498 Collaborative Design

Department of Computer Science and Engineering

Michigan State University

Spring 2008

Professor Wayne Dyksen

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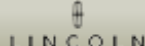
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Projects

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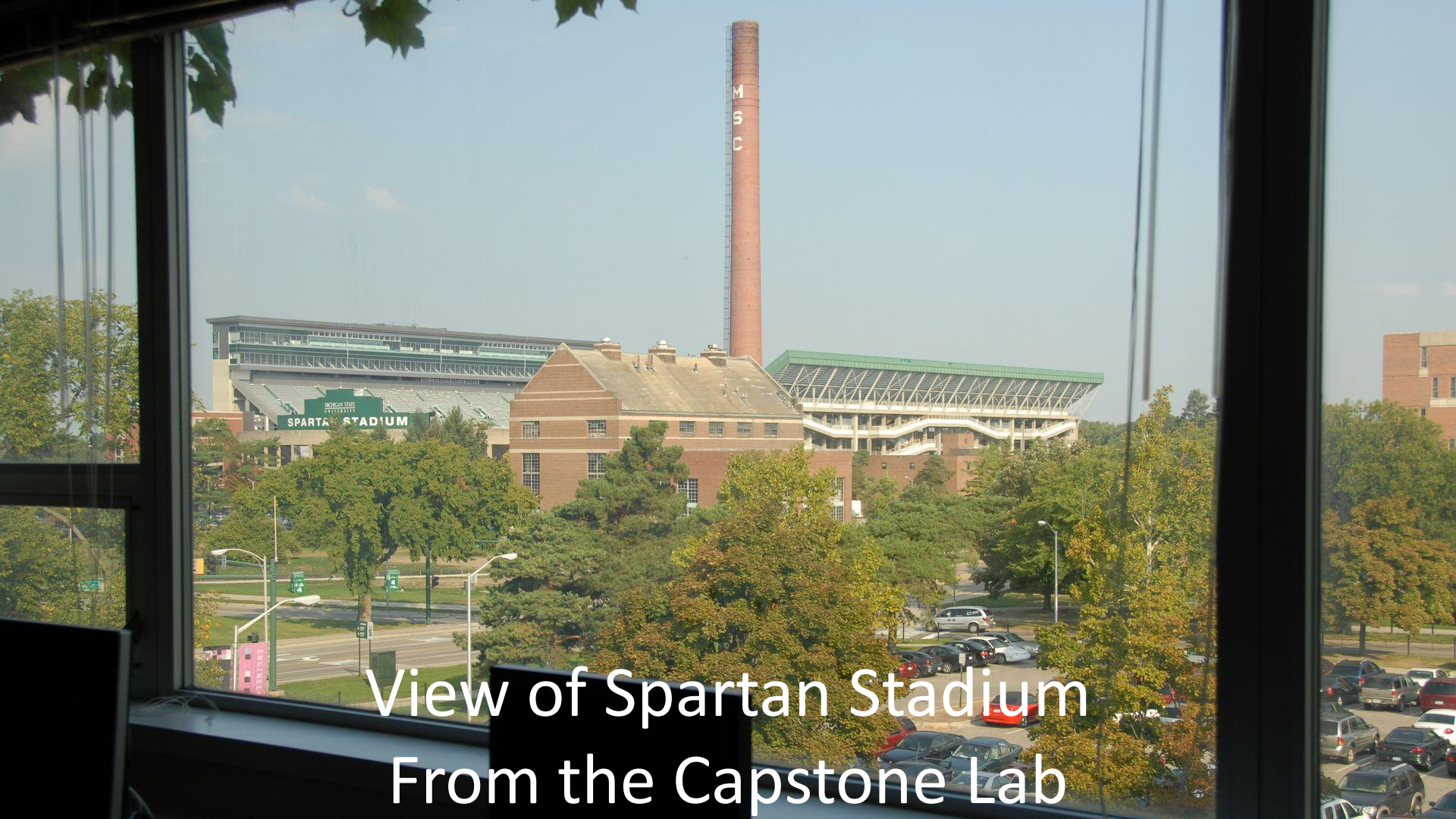
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Department of Computer Science and Engineering

Michigan State University

Spring 2008

Professor Wayne Dyksen



View of Spartan Stadium
From the Capstone Lab



Team 6 Microsoft
Triage Meeting with TA Matt Luciw



Team 6 Microsoft
Reports Progress to Matt



Team 6 Microsoft
Matt Needs More Convincing



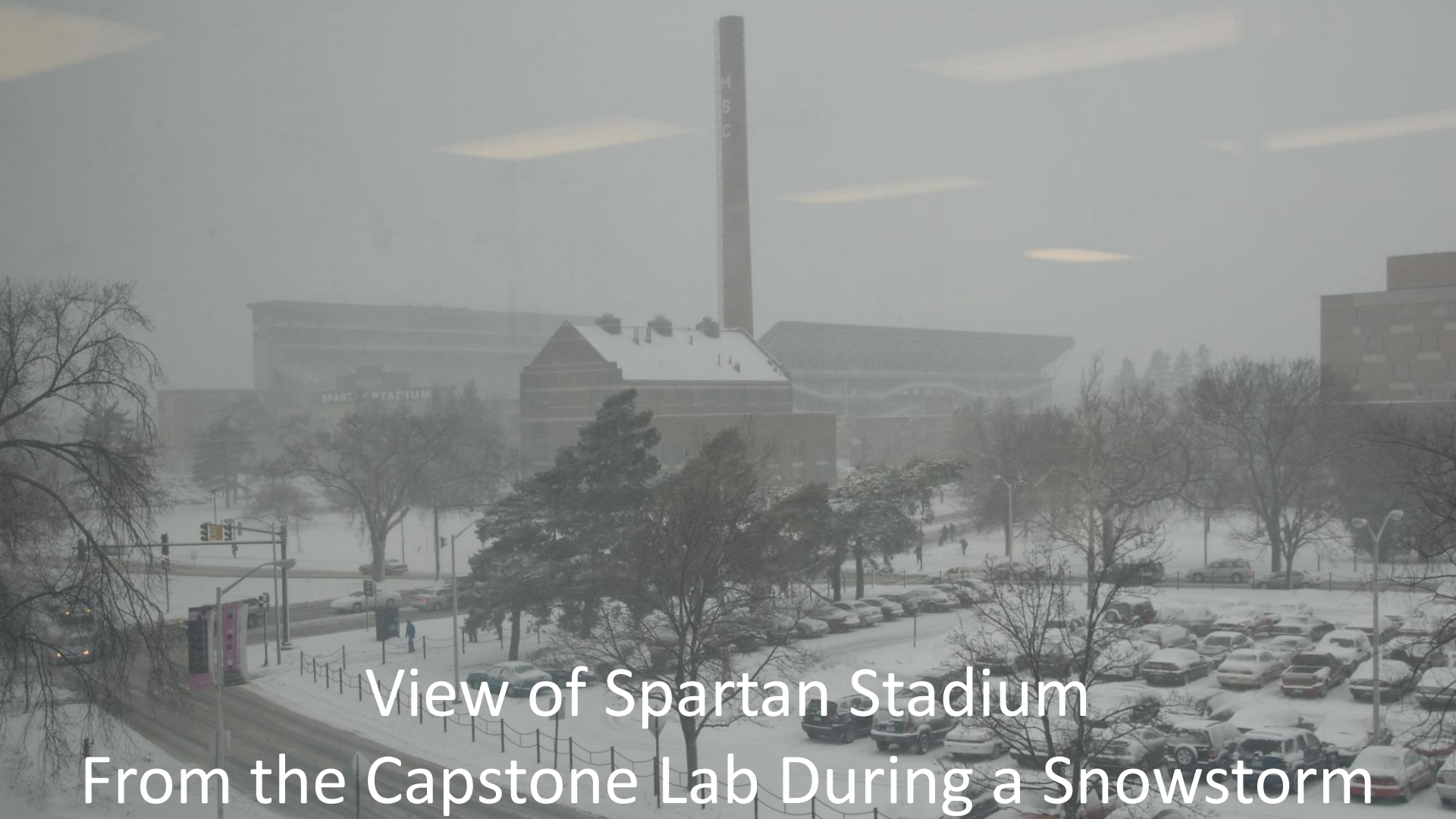
Team 5 MATRIX
Jared Wein



Team 10 Toro
Matt Grabow



Team 4
Jordan Fish



View of Spartan Stadium
From the Capstone Lab During a Snowstorm



Team 7 Motorola
Kyle Shumaker



Team 5 MATRIX
Working in the Capstone Lab



The Capstone Lab at Work



Bob Buchanan of Auto-Owners Insurance
Presents at a Capstone All-Hands Meeting



Auto-Owners Exhibition Award
Team TechSmith, Fall 2007

A photograph of three men standing side-by-side, each holding a Chrysler Praxis Award. The man on the left is wearing a dark suit and glasses. The man in the middle is wearing a dark suit and a patterned tie. The man on the right is wearing a grey suit and glasses. They are all smiling. The awards are blue plaques with gold borders. The text on the awards is partially obscured by a large white text overlay at the bottom of the image.

Chrysler Praxis Award
Design Day
December 2007
College of Engineering
Computer Science and Engineering
Michigan State University

Team IBM, Fall 2007



TechSmith Screencast Award
Team Sircon, Fall 2007



Crowe Sigma Award
Team Motorola, Fall 2007



MSU Trustee Melanie Foster
With Team Sircon, Fall 2007



MSU Trustee Melanie Foster
With Team Auto-Owners, Fall 2007



MSU Trustee Melanie Foster
With Team TechSmith, Fall 2007