Change Management Board Meeting

Bridgeline # 850-414-1711

Welcome and Introductions

Steve Corbin, CMB Chairman

Change Management Board

Agenda

Time	Item	Lead	Supporting Materials
10:15 – 10:20	Welcome and Introductions	Corbin	
10:20 – 10:30	Previous Meeting Recap and Action Item Review	Corbin	November 2, 2006, Meeting Minutes
10:30 – 10:40	SunGuide^{SM} Software Footprints Issues Review	Tillander	CMB.ppt
10:40 – 10:50	SunGuide^{SM} Software Support for FY '07 and FY '08	Tillander	CMB.ppt, *Support Definition and Response Times* White Paper
10:50 – 11:15	SunGuide^{SM} Software Alternative Map Approaches	Heller	CMB.ppt, White Paper

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Agenda

Time	Item		Lead	Supporting Materials
11:15 – 11:50	SunGuide℠ Software Release 3	AVL Subsystem Funding Approval (*Vote*)	Tillander	Requirements Specification, Ballot
		EM Subsystem, PM Subsystem, IM Subsystem	Bonds	Release 2.2 Documents – SICP, IV&V Report, VDD, SUM, Concept of Operations; Draft Release 3 Requirements Specification
11:50 – 10:05	SITSA Change Request from LYNX (*Vote*)		Tillander	CMB.ppt
10:05 – 10:25	SunGuide℠ Software Release 2.2.2, CCTV Preset Scheduling Enhancement – High Level Design Overview		Heller	CMB.ppt, White Paper, Requirements
12:25 – 12:30	Closing and Action Item Review		Corbin	

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Previous Meeting Recap and Action Item Review

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- Trey Tillander will find out how the funding transfer takes place to cover the cost of COTS software that is used in conjunction with SunGuide.
- Liang Hsia will find out whether the annual cost of TeleAtlas software will be covered by the Chief Engineer's Office for the next fiscal year.
- Concerning global ITS device numbering, Ken Courage will distribute a table that shows the device IDs. He will also do a comparison with the ITE standards for the center-to-center global device numbering system and make a recommendation. Ken will send the metadata spreadsheet that was discussed.
- Trey will provide direction to SwRI on whether to utilize ActiveX software in future SunGuide versions to gain a processing advantage during the SunGuide log-in process. He will see that FDOT provides guidance to SwRI on this.
- Peter Vega will conduct a test in which a posted message is misspelled and corrected through the DMS subsystem spell checker. It will be a lower priority message and when it comes back up in the queue, Peter and Jason Summerfield will see if the spell-check response comes back.

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- Steve Dellenback will provide Trey and Steve Corbin with three options available for the SunGuide DMS subsystem spell check function.
- SwRI will provide a high-level design review session at the next CMB meeting for the CCTV preset scheduling module in SunGuide.
- John Bonds will provide Steve Corbin with the corrected versions of the camera preset scheduling requirements that were edited during the meeting and approved in a voice vote. Steve Corbin will distribute to the CMB.
- Steve Dellenback will develop and break out AVL requirements costs estimate for Trey and Steve Corbin to review and forward to the board members.

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SunGuide^{SM} Software Footprints Issues Review

Trey Tillander

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- Created for SunGuide Software Users as on-line knowledge base.
- Read/Write access for users paying for Support; Read-only access for other users.
- URL Link:

  http://fdotweb.datasys.swri.edu/MRcgi/MRentrancePage.pl
- Currently has total 100 issues, 9 since last CMB on Nov 2, 2006; majority of issues are closed.
- Will have highlight review in every CMB meeting.

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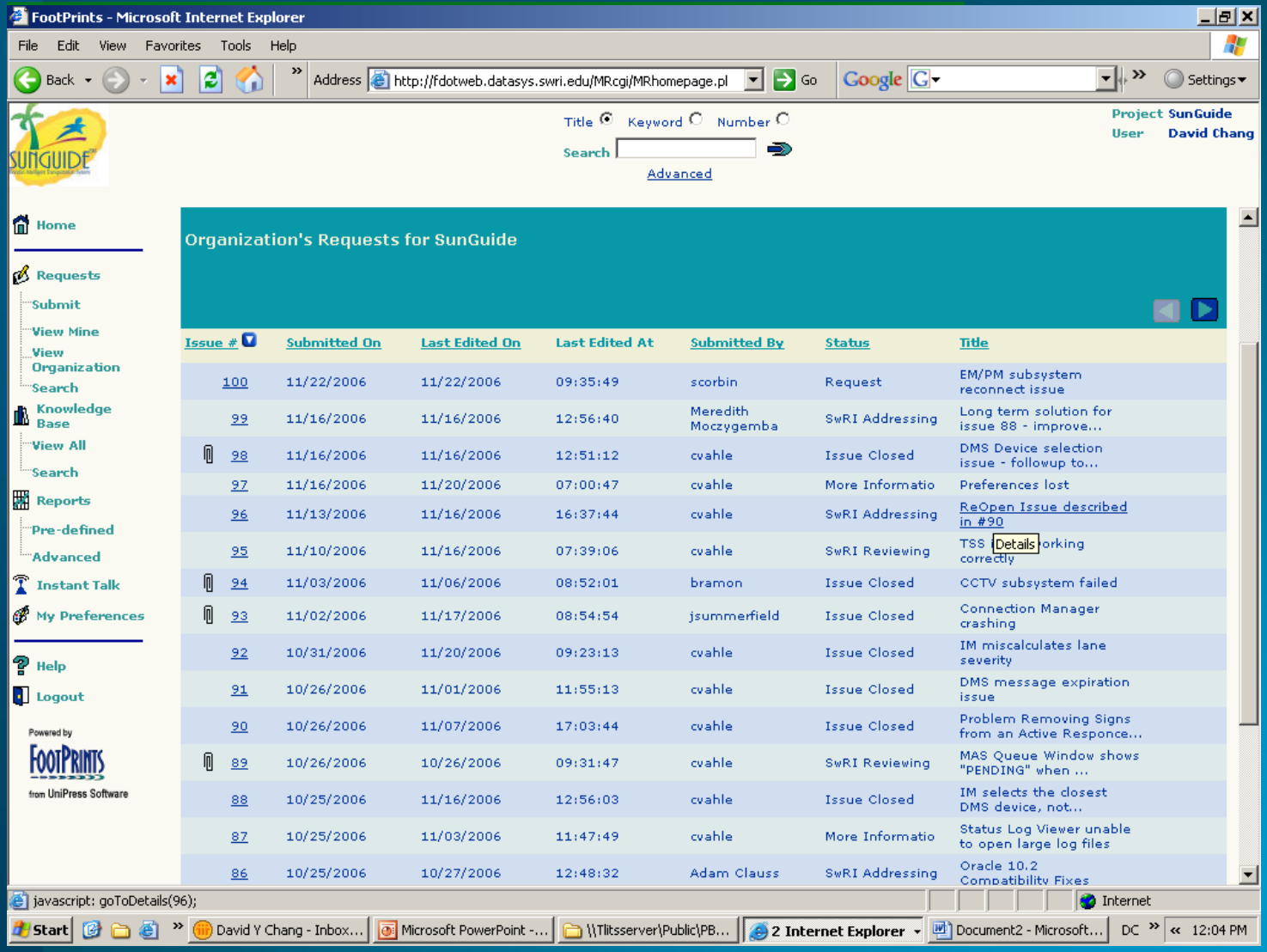

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SunGuide^{SM} Software Support

Trey Tillander

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SunGuide℠ Software Support

FY ’06 (Current) Scope:

- Full-Time Support with Periodic On-Site Presence
- SwRI San Antonio-based staff members provide:
  - 24 X 7 Telephone Support with Answering Service
    - Support Line # 210-522-6883
  - Footprints Issues Tracking Database
  - Diagnosis and troubleshooting of problems
  - Installation/upgrade services and support
  - Minor Enhancements
  - 1 week-long trip to Florida per month
- Budgeted Cost – $395,702

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FY ’07 Expanded Scope:

- Full-Time and On-Site Support
- SwRI San Antonio-based staff members provide same services as in FY ’06
- In addition, SwRI provides one full-time support person at TERL in Tallahassee
- Estimated Cost – $477,551
  - TERL staff full-time support - $182,000

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SunGuide^{SM} Software Alternative Map Approaches

Robert Heller

SunGuide^{SM} Software Alternative Map Approaches

SunGuide℠ Map: Summary of Existing Requirements

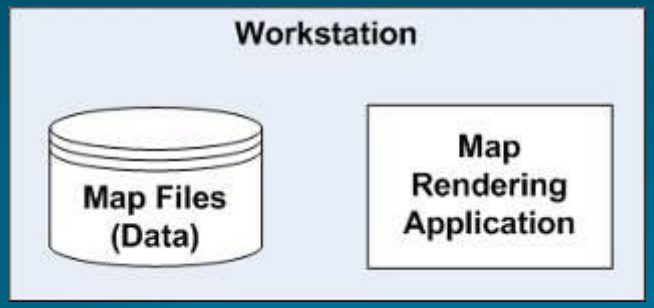
- Map shall display:
  - Congestion (color coded to indicate conditions)
  - Incidents (use color, flash, audio, icons to indicate status)
  - Device (e.g. DMS, camera, detectors) locations (use color to indicate status)
- Map shall support:
  - Manual creation of incidents
  - Selection of alternate map views
- General requirements:
  - Map source shall be shape files
  - SVG (Scalable Vector Graphics based)
  - Color choices shall be user selectable

Why is this being discussed?

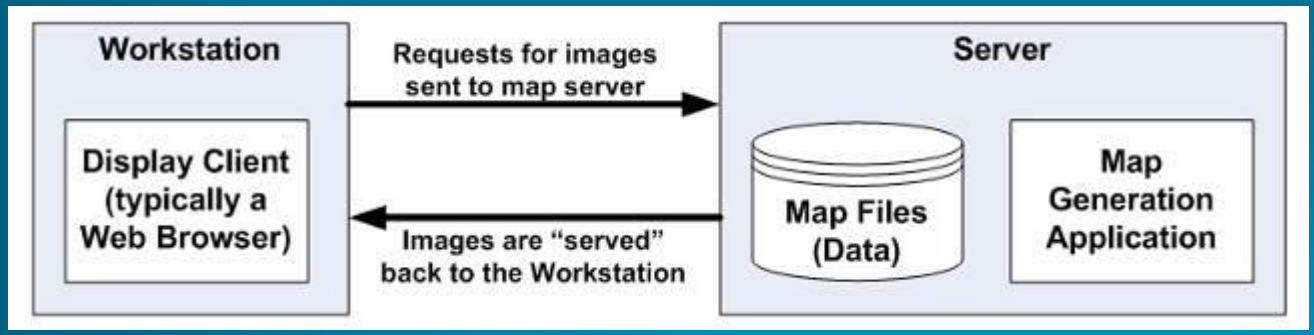
- Questions about SunGuide℠ map "performance":
  - Performance issues are based on XML messages being processed by GUI (and not map rendering)
  - GUI enhancement in process to address parsing issue
- New functionality being requested of the map as deployments utilize the SunGuide℠ map
- Questions to be considered:
  - Should the Operator "base" map (the map in the control center) be the same as provided on an Internet web site?
  - How often should the base map be updated?
  - Should FDOT control the "map services" (i.e. the creation of maps)?

Map Creation Options

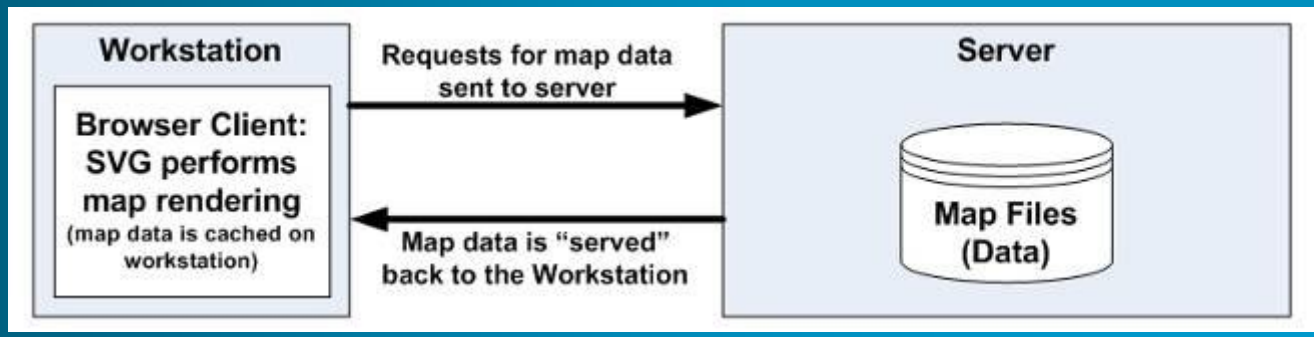
- Workstation based Map (e.g. ESRI GIS tools)



- Server based map (e.g. Google Maps)

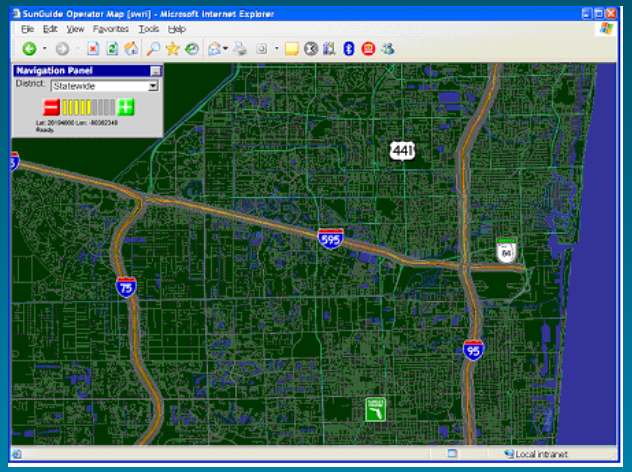


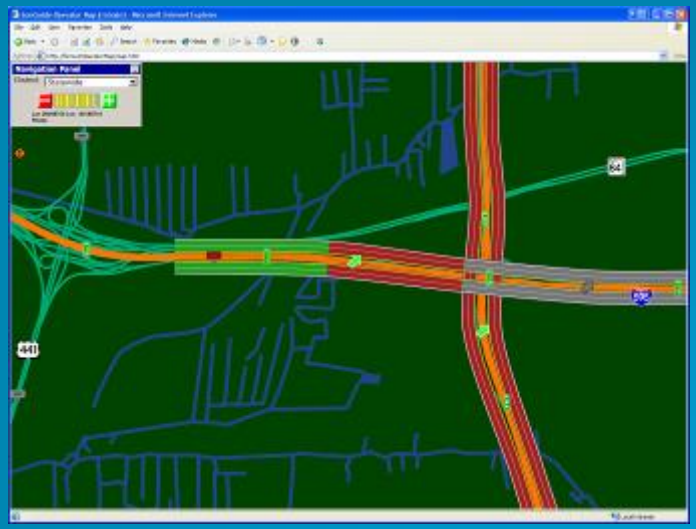
- SunGuide^{SM} (combination of both of the above)



What SunGuide℠ Map Displays

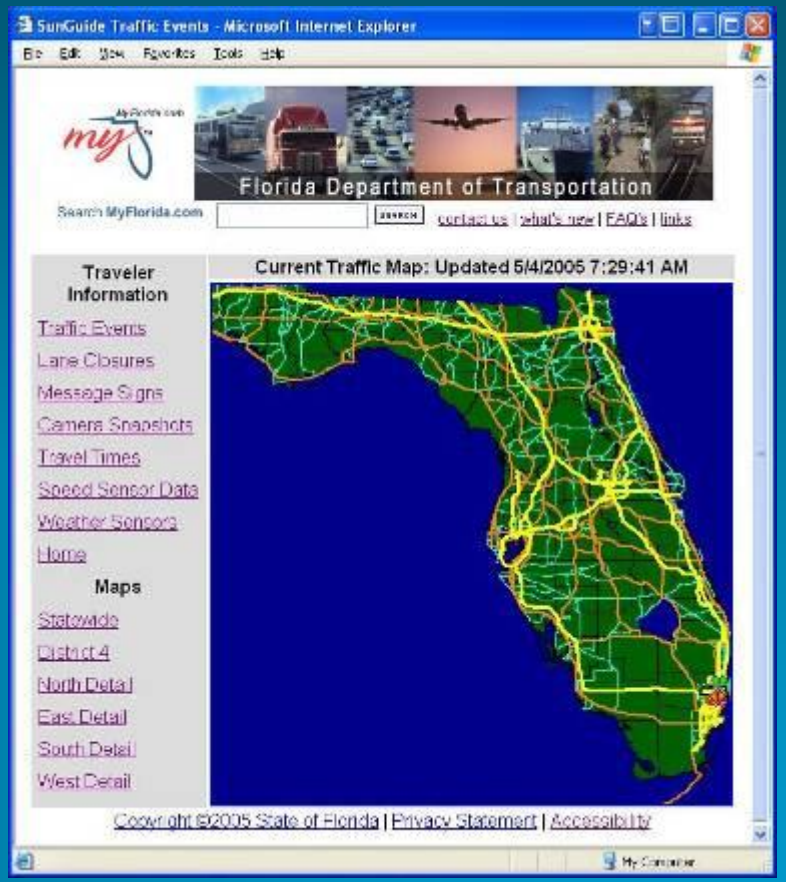
- ITS Devices:
  - Cameras
  - DMS
  - HAR (Highway Advisory Radio)
  - Ramp Meter Stations
  - RWIS (Roadway Weather Information Systems)
  - Safety Barrier Stations
  - TSS Detectors
- IM Events (Incidents, Congestion, Construction, etc.)
- TSS Lane Diagrams
- Center-to-Center:
  - C2C Cameras
  - C2C DMS
  - C2C Incidents
  - C2C Lane Closures
  - C2C HAR
  - C2C RWIS
- The map also displays highway shields, roadway names, state roads, local roads, bodies of water.





What SunGuide℠ Web Server Displays

- Meets OIS Internet Guidelines
- User options:
  - Incident information
  - Lane closures
  - DMS messages
  - CCTV snapshots
  - Travel Times
  - Detector data
  - RWIS Data
- Maps:
  - "Administrator" defined regions of interest
  - Devices are user selectable icons on the map



Alternatives Investigated:
Alternative Map Approaches White Paper

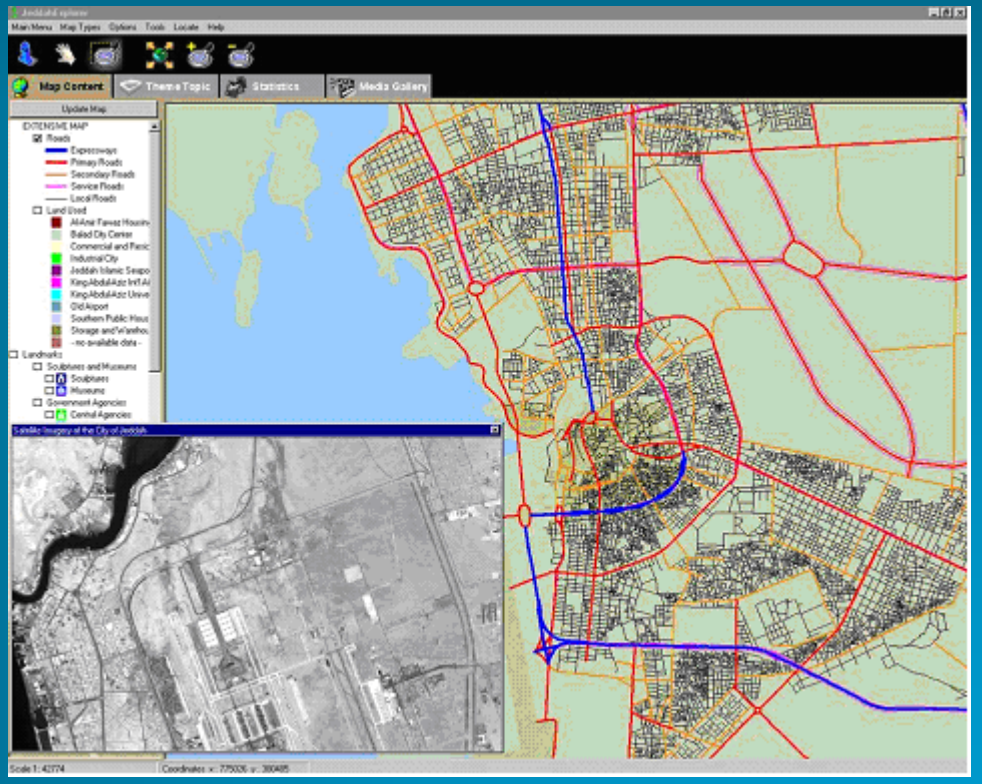
- **Workstation Based Maps:**
  - **ESRI ArcObjects**
  - **ESRI MapObjects**
  - **MapPoint 2006 SE**

- **Server Based Maps:**
  - **MapPoint Web Services**
  - **Google Maps**
  - **Yahoo! Maps**
  - **ESRI ArcWeb**
  - **ESRI ArcIMS**

- **Note: SunGuide℠ uses SVG (WC3 Internet Standard) – HTML like syntax for "vector" drawing**

Sample Workstation Based Maps

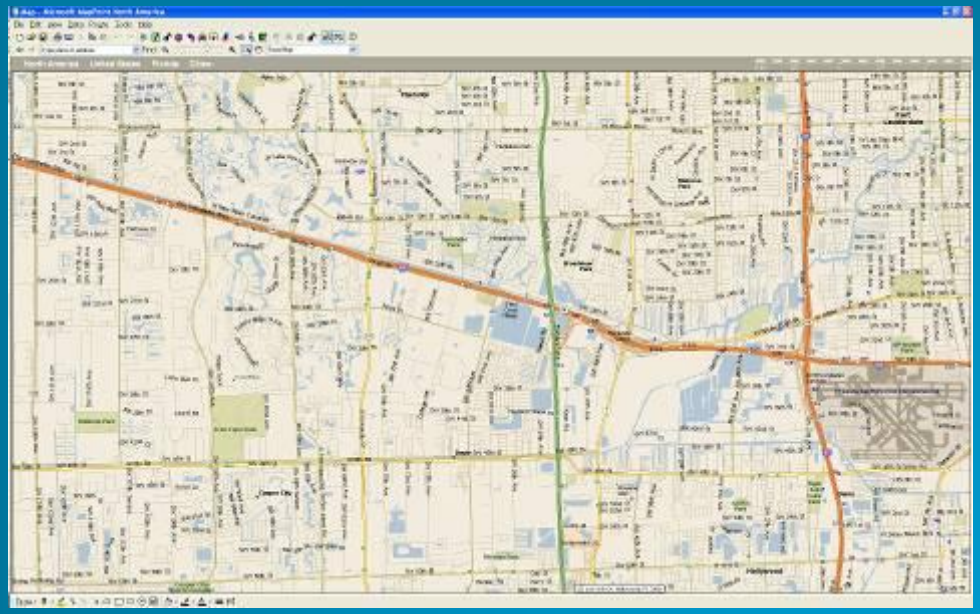
- **ESRI Tools:**
  - Map Objects is a long-term development product
  - Provides extensive “shape file” manipulation tools
- **Benefits**
  - Shape file data readily available
  - Complete control over rendering
  - Widely used in the GIS industry



Courtesy ESRI: http://www.esri.com

Sample Workstation Based Maps: Continued

- Microsoft MapPoint (similar to "Streets and Trips"):
  - API is provided for developer manipulation of map
  - State of Texas statewide program utilizing product for TMC based maps
- Benefits
  - Provides visually appealing maps
  - Well integrated with Microsoft products
- Limitations
  - Base map data cannot be altered



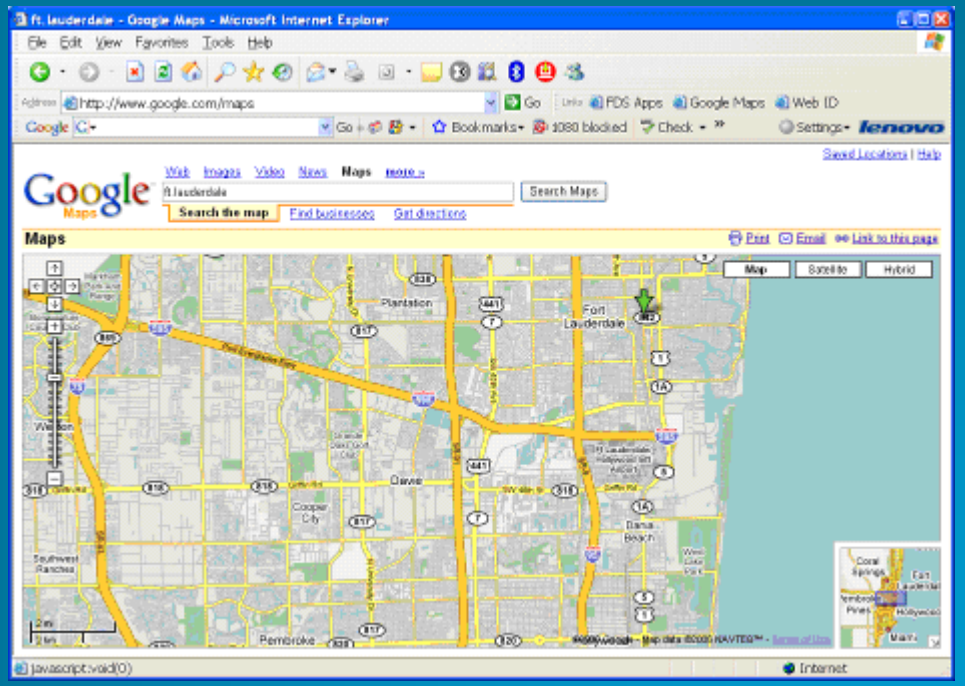
Workstation Based Maps: Functionality and Cost Summaries

Product	Languages/ Environments	Platforms	Benefits of API	Limitations of API
ESRI ArcObjects	COM, C++, .NET, Java	Windows, Solaris, and Linux	Modular and well organized. Allows for multiple sources of map data.	.NET interaction is provided through COM interoperability assemblies.
ESRI MapObjects	Visual Basic, Visual Studio.NET (C# and VB.Net), others	Windows	Long term ESRI product – used as a foundation in MANY GIS applications	ESRI run-time libraries must be provided with the end application. Each installation of an application with MapObjects embedded requires a deployment license.
MapPoint 2006 SE	COM, VC++, .NET	Windows	Simple to use.	.NET interaction is provided through COM interoperability assemblies. The simplistic nature of the API can limit the flexibility of the product.

Product	Cost per Developer	Cost per Deployment	License Restrictions
ESRI ArcObjects	$5,000	$500	Varies based on actual product selected to "serve" maps
ESRI MapObjects	$5,000	Includes 50 deployment licenses	An Internet Developer kit is available for $12,000 for server based applications – allows up to two CPUs.
	$2,500	Includes 25 deployment licenses	
MapPoint 2006 SE	$250	$250	Can not use for real-time tracking without the purchase of a fleet edition.

Sample Server Based Maps

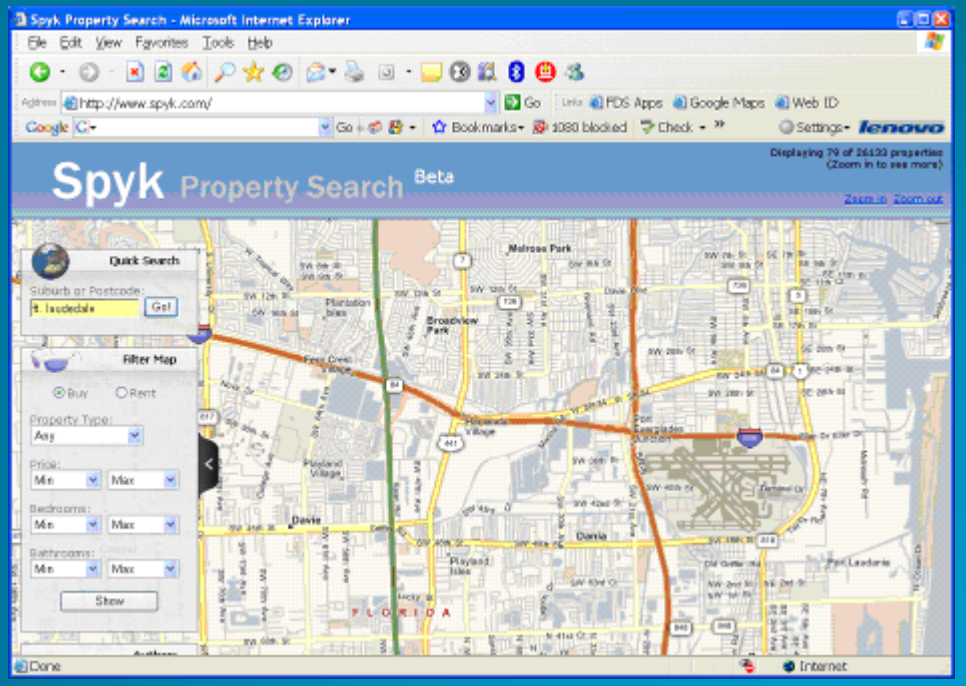
- Google Maps:
  - Widely used Internet based map tool
  - Easy to build map applications that combine custom data and Google provided base maps
- Benefits
  - Visually appealing maps
  - Easy to use
- Limitations
  - Product is still “beta”; long term plans undefined



Courtesy: Google maps (http://www.google.com/maps)

Sample Server Based Maps: Continued

- Microsoft Maps:
  - Internet mapping tool that is quite similar to Google Maps
  - Microsoft provides "Map Server" for a usage fee
- Benefits
  - Visually appealing maps
  - Easy to use
  - Microsoft supported
- Limitations
  - Fee based usage structure



Courtesy: Spky (http://www.spyk.com/)

Server Based Maps: Performance and Cost Summaries

Product	Languages /Environments	Platforms	Benefits of API	API Implementation Details
MapPoint Web Services	SOAP	All	Provides routing information.	Zooming and panning causes a fetch to the Microsoft servers.
Google Maps	JavaScript	All	The most commonly used map service at current time.	Zooming and panning causes a fetch to the Google servers.
Yahoo! Maps	Flash, JavaScript	All	Includes support for showing traffic conditions.	Zooming and panning causes a fetch to the Yahoo servers.
ESRI ArcWeb	SOAP	All		Zooming and panning cause a fetch to the ESRI servers.
ESRI ArcIMS	SOAP / XML	All	Application is purchased – no transaction fees	Zooming and panning cause a new image to be served back to the user from the server

Product	Setup Fee	Transaction Cost	Description
MapPoint WebServices	$250	0.001 – 0.003 per transaction (price varies widely based on service plan)	Various plans available – can set up: • Pay as you go • By transaction (purchase blocks of transactions) • Pre-paid annual (includes 250,000 transactions) Note: a transaction consists of "one request" to the server and "one response" (which may contain small or large amounts of data)
Google Maps	$0.00	$0.00	Can charge at any time; Can insert advertisement at any time; Can change API at any time; Must be used in applications that are "generally accessible to consumers without charge"
Yahoo! Maps	$0.00	$0.00	50,000 transactions/IP/24 Hours; Unable to use in critical life-dependant applications. Can not use in combination with GPS or sensing data newer than 6 hours; Can charge at any time.
ESRI ArcWeb	$0.00	0.011 - 0125 per transaction	Different transactions (requests) each have a different cost (credits are purchased and different requests are charged different numbers of credits)
ESRI ArcIMS	$15,000	$0.00	Setup fee is a purchase price – this can widely vary based on purchasing agreement with ESRI. Requires yearly support fees, transactions are free.

Recommendations

- Do not select a map tool until desired functionality is captured
- "Needs" for map be captured:
  - Write as requirements
  - Prioritize and establish consensus
- Evaluate implementation alternatives:
  - Evaluate implementation options
  - Evaluate development costs
  - Evaluate deployment / maintenance / usage costs

Questions?

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SunGuide^{SM} Software Release 3

Trey Tillander
John Bonds

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SunGuide^{SM} Software Release 3

AVL Subsystem Funding Approval (Vote)

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- Requirements approved on Nov. 2, 2006 CMB Teleconference.
- Total Cost for creating AVL Subsystem: $234,791.
  - GUI - $36,895.
  - Subsystem - $155,509.
  - Driver - $42,387.

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SunGuide^{SM} Software Release 3

EM Subsystem + PM Subsystem

Integrated SunGuide

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System Requirement

S033

SunGuide shall support the addition of new functionality by third party developers using an open architecture approach that conforms to the existing SunGuide Software architecture.

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SunGuide Release 2.2

- Quick integration of District 4 SMART functionality with SunGuide.
- Did not adhere to the SunGuide architecture
- Cannot be installed and maintained by FDOT personnel without direct support from SMART SunGuide contractor.
- An integration of the SMART functions into the SunGuide architecture with complete documentation will provide the long term sustainability that is required of SunGuide.

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SunGuide Release 3.x

- Why 3.x?
- Some functions may be implemented after others, so the list of requirements applicable to the next generation of SunGuide may be found in Release 3.0 or 3.1 or 3.2, etc.
- A complete list of requirements is found in the document
  - 2006-11-21 SunGuide 3.0 Requirements List Draft.doc

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New Functionality

- **Implement R2.2 functions in SunGuide IAW architecture rules and documentation standards**
- **AVL including geo-fencing**
- **More map functionality (Google maps to be determined)**
  - See SwRI white paper and provide direction
  - Evaluating cost and scope to implement street name display when mouse hovers over map
- **CCTV Schedule**
- **FHP Interface (subject to FDOT vote)**
- **Additional Performance Measures collection and reporting**
  - District 3 RFP Section on Performance Measures
  - Road Ranger Procedure Draft Version 8

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Recommendation

- AVL and Camera Control requirements have been approved by the CMB and are being implemented
- Additional requirements need to be reviewed by CMB, SwRI to provide costs and voted on by the CMB
- A vote on the additional requirements at a CMB meeting in January or February 2007 is recommended.

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LYNX FlexBus Regional Architecture Change Request

Trey Tillander

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Required Changes

- New Project not in D5 RITSA
- Identified Project Stakeholders
  - Existing RITSA Stakeholders
    - FDOT – involved in planning, design and implementation process
    - LYNX – operator of service
  - New RITSA Stakeholders
    - City of Altamonte Springs – customer of service

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Required Changes

- Updates to the ITS Inventory
  - FlexBus Operations
    - Dispatch
    - Vehicle Tracking
    - Security
    - Fare Management
    - Data Collection
    - Emergency Management
  - FlexBus Vehicles
    - On-board ITS devices
  - FlexBus Kiosks
    - Kiosk Hardware
    - Kiosk Software
    - Interfaces with ITS Systems/Subsystems
  - FlexBus Stations
    - DMS
    - Communication Infrastructure
    - Other ITS Systems/Subsystems installed at Stations
  - FlexBus Traveler Information
    - All systems associated with real-time and other traveler information systems

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Required Changes

- Updates to the Market Packages
  - All Market Packages Exist
  - Market Packages will be remapped to show connections for new services
- Updates to the Equipment Packages
  - Equipment Packages will need to be updated to indicate the addition of the FlexBus services by LYNX
- Updates to the Architecture Flows
  - Architecture Flows will need to be updated to reflect the addition of the FlexBus services by LYNX

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SunGuide℠ Software Release 2.2.2, CCTV Preset Scheduling Enhancement – High Level Design Overview

Robert Heller

SunGuide℠ Software Release 2.2.2, CCTV Preset Scheduling Enhancement

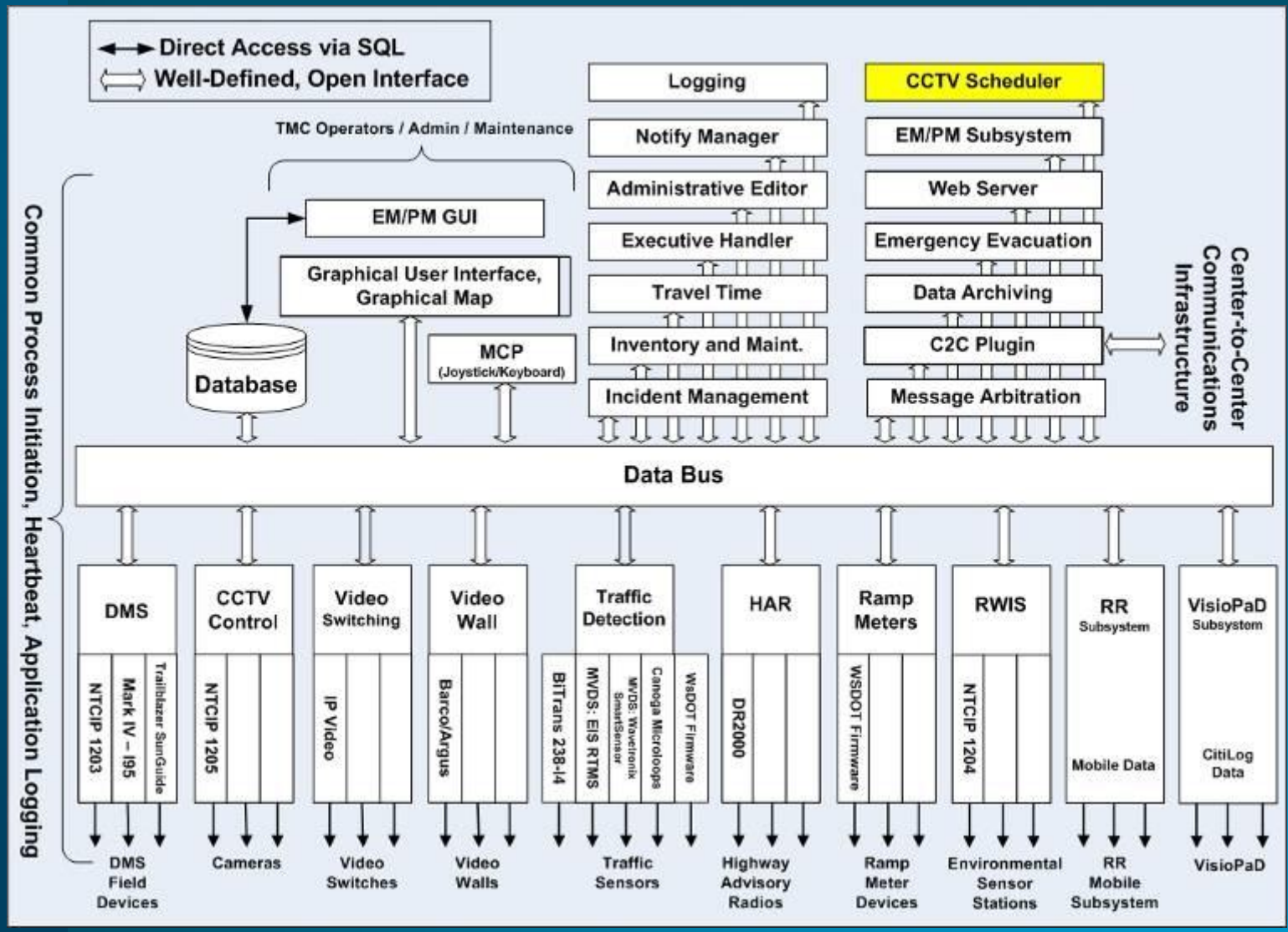
High Level Design Overview

Purpose of CCTV Scheduler

- Provide a mechanism to “schedule” CCTV “preset” operations

- Example usage include:
  - System-wide Presets
    - Allow one or more cameras to be moved to predefined presets
    - Accessible as a “perform now” type of action or could be scheduled to occur at certain times of day
  - Preset Homing
    - Allow one or more cameras to be periodically returned to a preset position
  - Preset Tours
    - A feature to cycle cameras between various presets

CCTV Scheduler: Integrating with SunGuide℠



CCTV Scheduler: Summary of Requirements

- General:
  - A “preset schedule status” will be maintained for each CCTV if it is currently being included in a “tour”
    - This status will be visually depicted in the GUI
  - Permissions to “start/stop” and “suspend” tours will be added (configured on a per user basis by the Administrator)
  - XML schema:
    - Added to support scheduling
    - Existing CCTV schema will be modified to support enhancements

CCTV Scheduler: Summary of Requirements – con't

- GUI:
  - A new screen accessed from the CCTV context menu to be developed, will allow the operator (with correct permissions) to:
    - View all available schedules (created in the admin tool):
      - Select for execution
    - View all schedules currently active:
      - Stop an active schedule
      - Suspend an active schedule
  - From the CCTV control screen:
    - Operator can cause a CCTV to be "excluded" from a schedule (which will allow the CCTV to be left in position even if no one has "ownership" of the CCTV)
  - CCTVs contained in an "active" tour will be visually identified using color changes
  - User will be able to edit the color that us used to show active tour

CCTV Scheduler: Summary of Requirements – con't

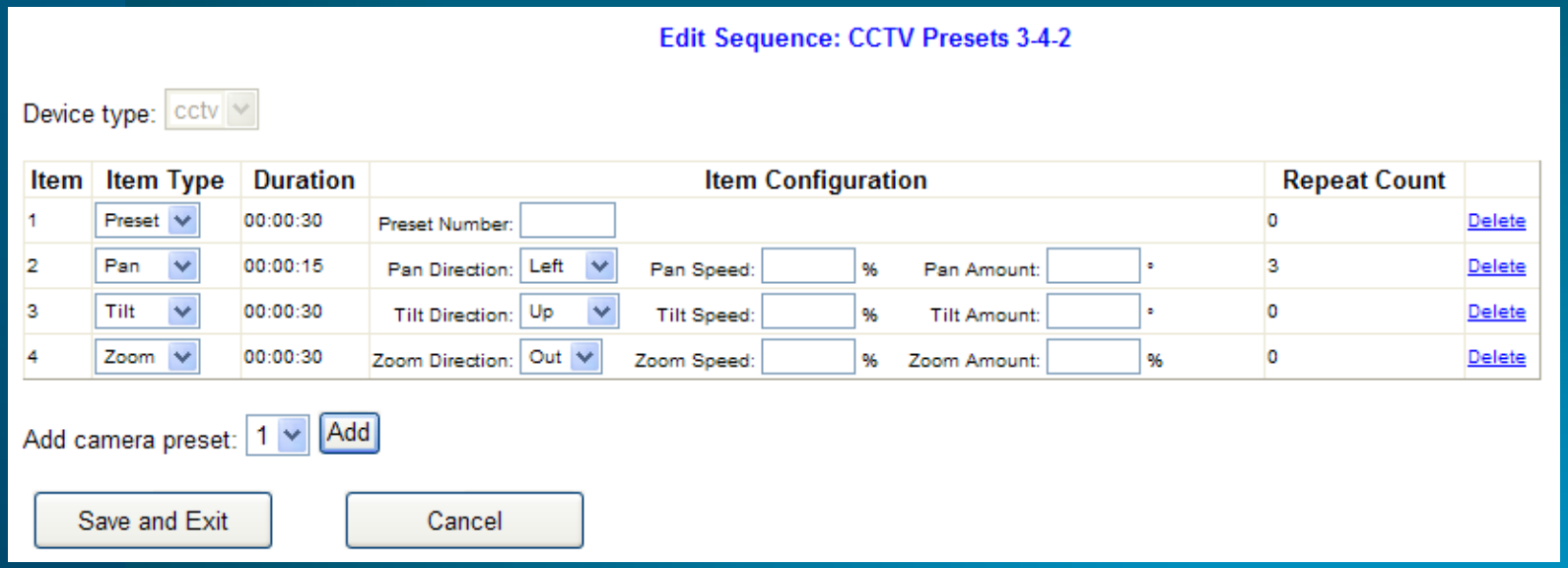
- Subsystem:
  - Manage schedules:
    - Provide list of schedules to operators when requested
    - Manage execution of schedules (series of commands to CCTV subsystem):
      - If a CCTV device is "locked", it will be skipped
      - If a CCTV is in "excluded" mode, it will be skipped
      - Handle schedules on a calendar basis
  - Code to save/retrieve schedules from the database
  - Permissions will be implemented by the subsystem (i.e. requests from the GUI will be processed by the subsystem)

CCTV Scheduler: Summary of Requirements – con't

- **Admin editor:**
  - **Allows an admin to create/delete/modify CCTV schedules:**
    - **Add / delete / modify schedules**
    - **Support:**
      - **PTZ**
      - **Presets**
  - **Schedules are stored in the database**

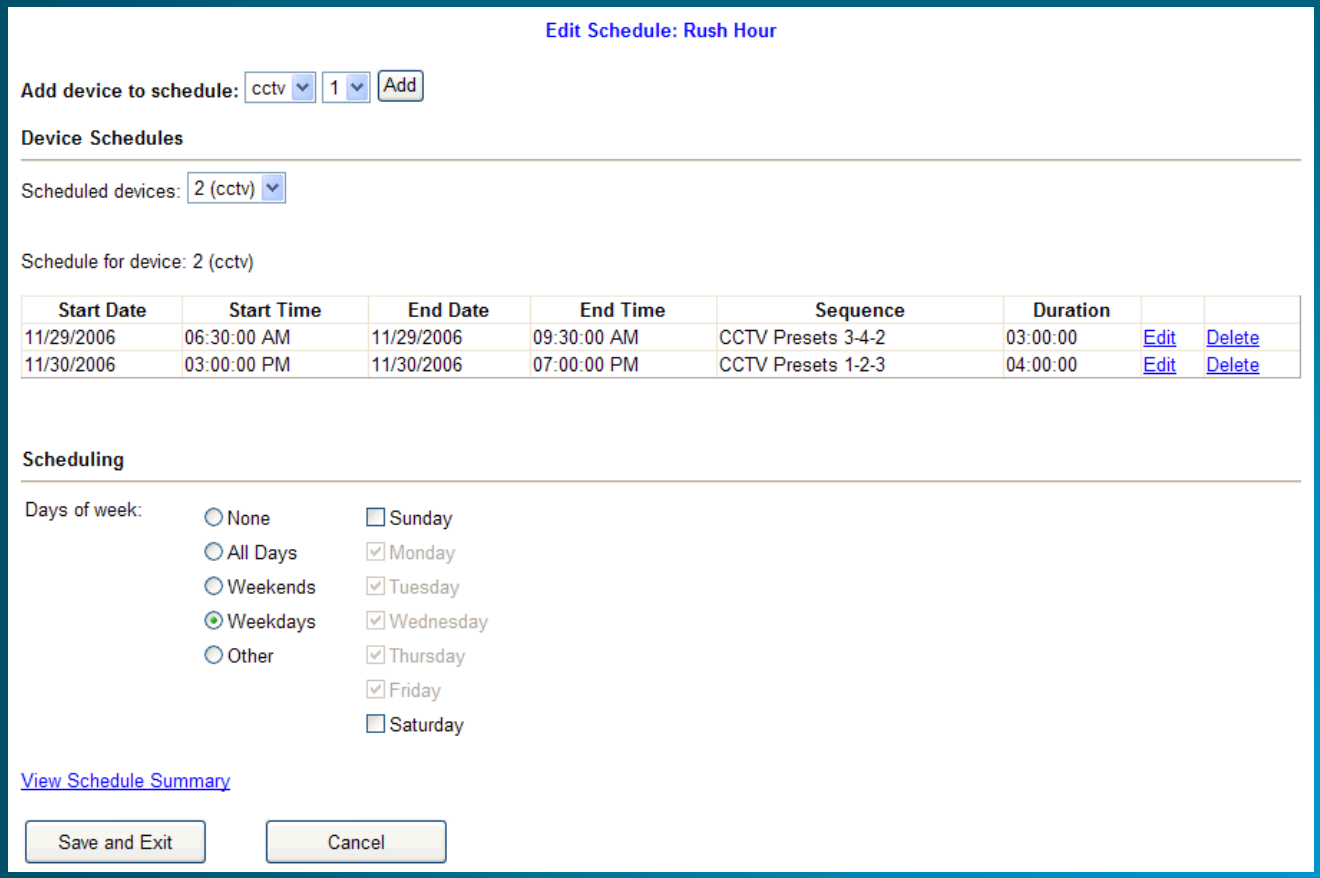
Admin Editor Screen Concepts

- Establish a series of commands a CCTV



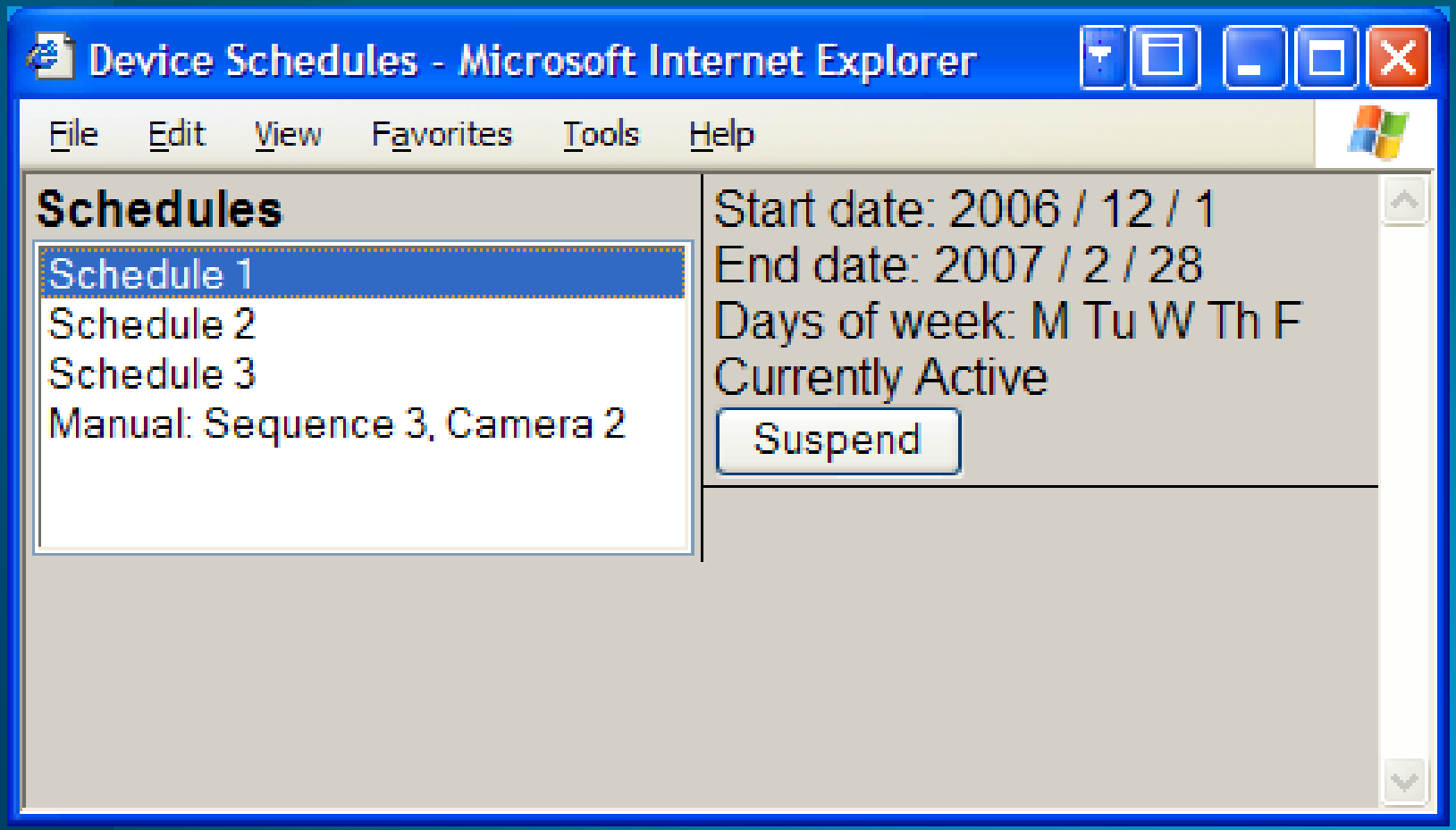
Admin Editor Screen Concepts: Continued

- Establish a schedule containing a collection of sequences of CCTV commands
- Summaries can be started / stopped by any user with the appropriate permissions



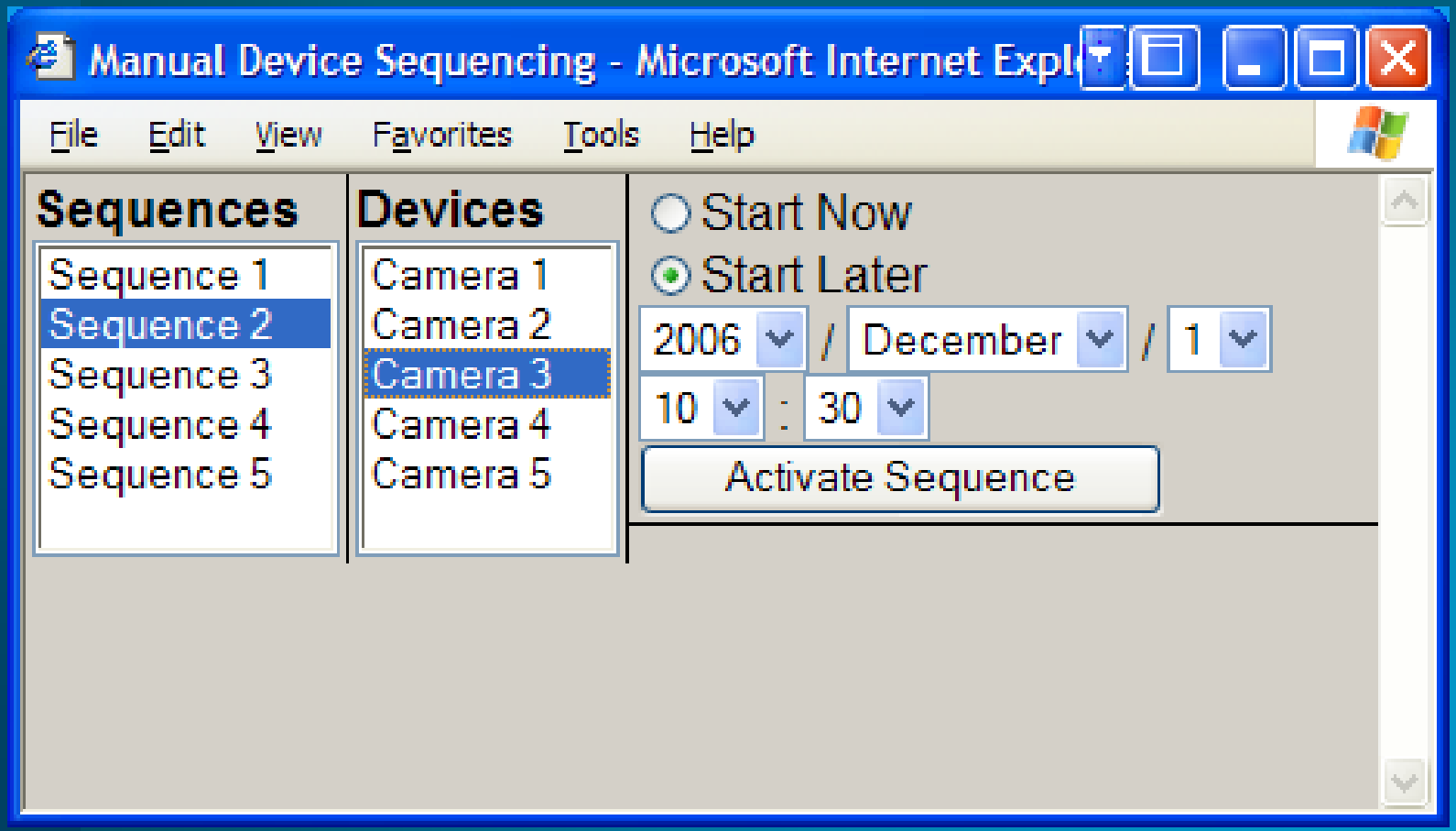
Operator Map Screen Concepts

- Review current schedules



Operator Map Screen Concepts: Continued

- Manually activate a (one) sequence



CCTV Scheduler: Summary

- Being implemented as a "traditional" SunGuide[SM] "subsystem"
- Subsystem will manage / store schedules
- Administrative editor will be used to create schedules
- GUI will be used to "control" (start / stop / suspend) schedules

Questions?

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Closing and Action Item Review

Steve Corbin, CMB Chairman