Change Management Board Meeting

Tuesday, November 27, 2012

Video Conference: CO- Burns Video Bridge 3

Audio Only: 850 - 414 - 4973

Welcome and Call for Quorum

Javier Rodriguez, CMB Chairman

Agenda

Time	Item	Lead
1:30 – 1:35	Welcome and Call for Quorum	Javier Rodriguez
1:35 – 1:40	Previous Meeting Recap and Action Item Review	Javier Rodriguez
1:40 – 1:50	Intelligent Transportation Systems (ITS) Wide Area Network (WAN) Update	Randy Pierce or Frank Deasy
1:50 – 2:00	SunGuide® Software User Group (SSUG) Update	John Hope
2:00 – 2:20	PostgresSQL and SunGuide Software Cloud Computing	Steve Novosad
2:20 – 2:40	SunGuide Software Permissions ***(vote)***	Tucker Brown
2:40 – 3:00	SunGuide Software Installer Improvement	Clay Packard
3:00 – 3:10	Break	

Agenda

Time	Item	Lead
3:10 – 3:30	Road Ranger Multiple Agency Coordinator Enhancement	John Hope
3:30 – 3:45	SunGuide Software Reporting Update	Brian Ritchson
3:45 – 4:05	Regional Integrated Transportation Information System (RITIS) Update	Arun Krishnamurthy
4:05 – 4:20	SunGuide Software Top Priority Items	Arun Krishnamurthy
4:20 – 4:30	Action Item Review	Javier Rodriguez

CMB agenda, slides, and attachments posted here: http://www.dot.state.fl.us/trafficoperations/ITS/Projects_Deploy/CMB.shtm

Previous Meetings Recap and Action Items Review

Javier Rodriguez

August 2012 Action Items

1. Central Office (CO) to conduct stress test of ITS WAN and provide white paper
2. SSUG to review SunGuide software permission options and provide recommendation for voting at next meeting
3. CO and District to follow up with highway advisory radio vendor to see if a driver can be developed and follow-up with SwRI for cost estimate for the graphic user interface (GUI) and subsystem enhancements

August 2012 Action Items (contd)

4. CO to evaluate if the 2,030 alerts from D5 were actual or false alarms
5. CO to review the possibility of providing a comprehensive vehicle make and model to be included in the SunGuide software so transportation management centers (TMC) do not have to manually type it in

August 2012 Action Items (contd)

6. Districts to provide any Florida Highway Patrol (FHP) computer-aided dispatch (CAD) issues and suggestions to CO so they can address them
7. CO to provide a plan for working out RITIS and Statewide Transportation Engineering Warehouse for Archived Regional Data (STEWARD) transition

ITS WAN Update

Randy Pierce, FDOT

and

Frank Deasy, Telvent

ITS WAN Update

- **Connecting D1 & D7**
  - ITS WAN equipment operational
  - UniCast connectivity operational
  - Static routes being verified for any overlapping address space that must be resolved
  - MultiCast connectivity will be implemented after addresses are resolved
- **Connecting D3 Regional TMCs (RTMC) Tallahassee**
  - Tallahassee RTMC fiber connection in process

ITS WAN Update

- **Florida's Turnpike Enterprise (FTE) RTMC Pompano**
  - FTE switch configuration and connection to ITS WAN still in process
  - Fiber outage on mainline being addressed by FTE
  - Need date for completion from FTE
- **FHP CAD**
  - Available to Districts connected to ITS WAN

ITS WAN Update

- **MultiCast Re-Addressing**
  - Districts should re-address their multicast devices now to resolve any overlapping addresses
  - D4 in process to re-address their multicast devices
  - What is the status of this effort in D3, D5, D6 and MDX?
  - VAS can then receive MultiCast video without the need for further re-addressing
- **Florida Advanced Traveler Information System & VAS**
  - Replacing dedicated circuits with ITS WAN connectivity

Questions?

Randy Pierce, FDOT

Randy.Pierce@dot.state.fl.us

SSUG Update

John Hope, Atkins

SSUG Update

- **Center-to-Center (C2C) Reliability**
- **Expanded User/Device Permissions Options**
  - Four Districts/Agencies in favor of Option 1: *Single permission set per user*
  - Three Districts/Agencies in favor of Option 2: *Multiple permission sets per user*
  - Three Districts/Agencies no preference
- **Locking/Unlocking Presets**
- **Miles Ahead Calculation Issue**
  - Hotfix and sequencing configuration fix
- **Proximity Issue with Mile Marks, FP 1616**

QUESTIONS?

John Hope, Atkins

John.Hope@atkinsglobal.com

PostgresSQL Database for SunGuide Software

Steve Novosad, Atkins

PostgreSQL

- Benefits
- License and Cost
- Specifications
- Programmatic Interfaces
- Support
- Features
- Maintenance

Benefits

- Increased Interest by Local Agencies
- Improved Relationship with Local Agencies
- Utilize Backup Database for Reporting
- Increased Interest by Other States
- Additional Alternative for Current Deployments

License and Cost

- **License Required for PostgreSQL**
  - Database management system
  - JAVA interface
  - C# Sharp interface
- **MIT-Style License**
- **Issued thru OSI**
- **Modifications Permitted**
- **No Cost to License or Distribute the Product**

Specifications

- **Server**
  - Supports both Windows and Unix/Linux
  - Requires 64 bit CPU
  - Requires 64 bit OS
  - Dual Core/CPU
  - RAID 1
- **Database Limitations**

Maximum Database Size	Unlimited
Maximum Table Size	32 TB
Maximum Row Size	1.6 TB
Maximum Field Size	1 GB
Maximum Rows Per Table	Unlimited

Programmatic Interfaces

- Includes C and Embedded C Interfaces
- C# Interface Available as a Separate Download
- Java Interface Available as a Separate Download

Support

- Developer Mailing Lists
- User Community
- Bug/Issue Submission
- Professional Companies

Features

- **Extended Subset of ANSI SQL:2008**
- **Standard Features of Other Proprietary Database Management Systems (DBMS)**
  - Transactions
  - Subselects
  - Triggers
  - Views
  - Foreign key referential integrity
  - Sophisticated locking
- **Auto-Increment Through Sequences**
- **Fully ACID Compliant**

Features (contd)

- **Additional Features**
  - User-defined types
  - Inheritance
  - Rules
  - Multi-version concurrency control
- **Security**
  - Allows connections from only the local machine
  - Access for other machine provided in configuration file
- **Performance**
  - Advertised to be equivalent to proprietary DBMSs

Availability and Recovery

- **High Availability**
  - Server node failover provided by third party tools
  - Uses same data store
- **Disaster Recovery**
  - Offsite, log-shipping / streaming replication / synchronous replication / cascading replication
  - Uses separate data store
  - Complete redundancy for catastrophic failure
  - Standby read-only mirror database usable for reporting

Maintenance

- **15 Years of Active Development**
- **Releases**
  - Committee of 5 to 7 senior contributors set release dates
  - Encourage installing any minor releases of major release implemented
  - Goal to support major releases for five years
  - Goal of one major release a year
  - Current release is 9.2.1
- **GUI Tools**

Maintenance (contd)

- **Debugging Tools**
- **Compatibility**
  - Previous versions do not support new operating system (OS) releases
  - New version will support latest OS release
- **Reliability**
  - Beta testing minimum of one month for major releases

QUESTIONS?

Steve Novosad, Atkins

Steven.Novosad@atkinsglobal.com

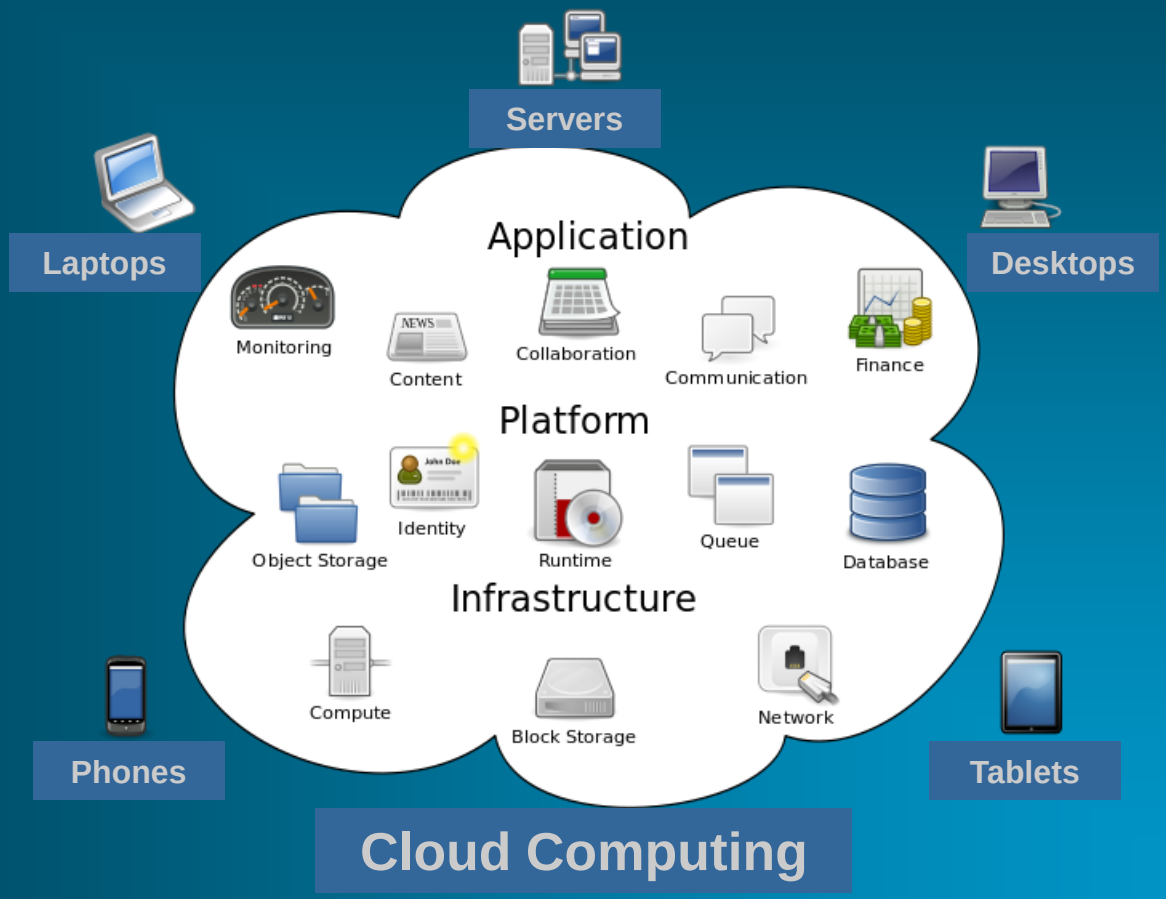
Cloud Computing for SunGuide Software

Steve Novosad, Atkins

What is Cloud Computing

- The Use of Computing Resources Delivered as a Service Over a Network
- What do You Want it to Mean?

Cloud Computing



Courtesy of Wikipedia

Benefits

- **Provides Opportunities to**
  - Add small agency deployments
  - Stretch deployment funds
  - Stretch maintenance funds
  - Simplify software deployments
  - Add storage capability
  - Add backup capability

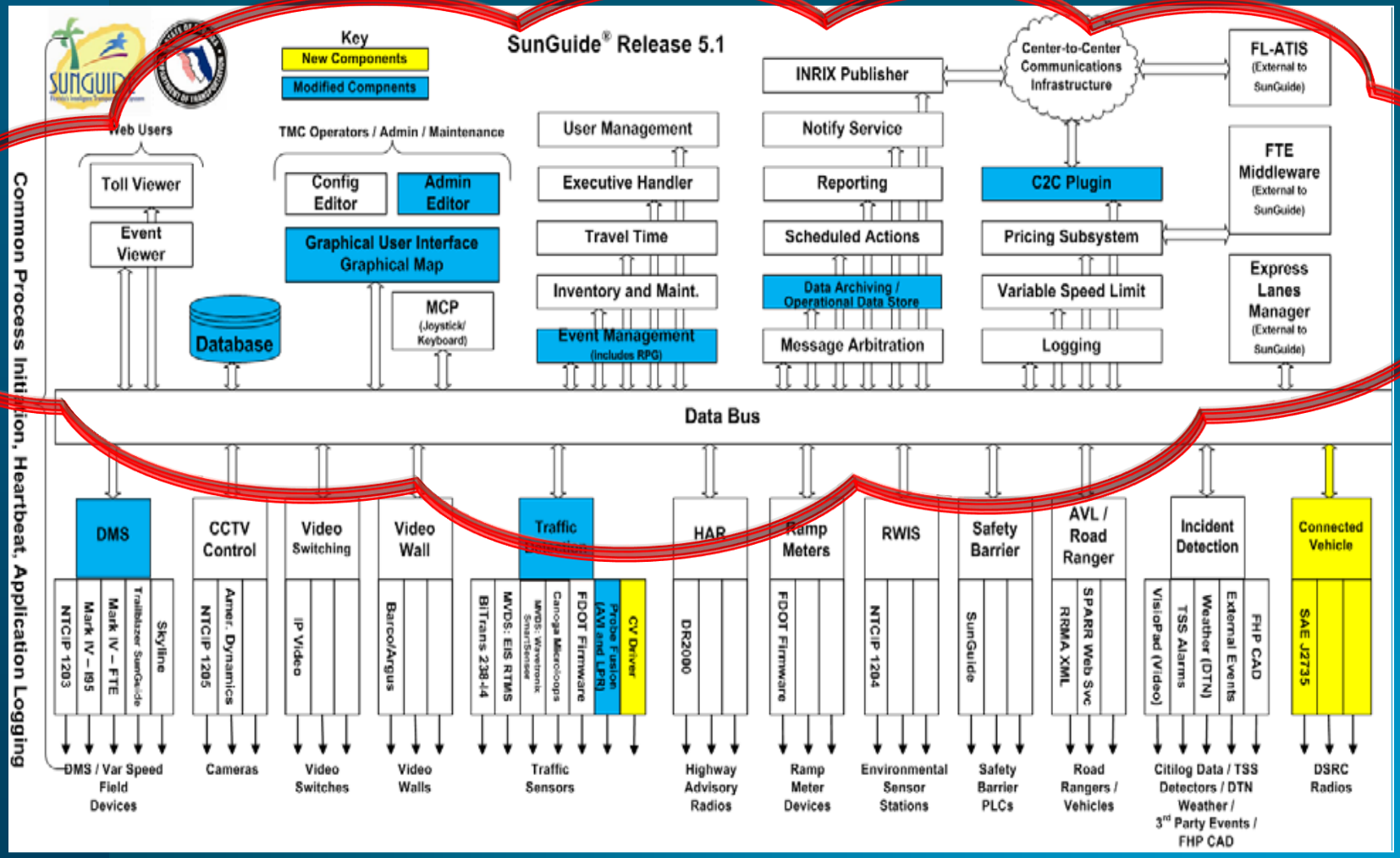
Cloud Services

- **Multiple Services Available**
  - Software as a Service (SaaS)
  - Infrastructure as a Service (IaaS)
  - Platform as a Service (PaaS)
  - Storage as a Service (STaaS)
  - Security as a Service (SECaaS)
  - Data as a Service (DaaS)
  - Test environment as a Service (TEaaS)
  - Others

Deployment

- **Where to Host – Public, Private, or Hybrid Cloud**
- **Connect to Cloud thru ITS WAN or Internet**
- **User Interface**
  - Most cloud applications are typically browser-based user interfaces
  - Do not anticipate significant changes to SunGuide software operator interface
- **Device Drivers**
  - Field device communications latency

Cloud Versus Local Deployment SunGuide Architecture



Next Steps

- **Establish Business/Service Model**
  - Primary system
  - Backup system
  - Small TMC system
  - Region TMC system
  - Backup
  - Data storage
- **What Would You Want the Cloud to do for You?**

Questions?

Steve Novosad, Atkins

Steven.Novosad@atkinsglobal.com

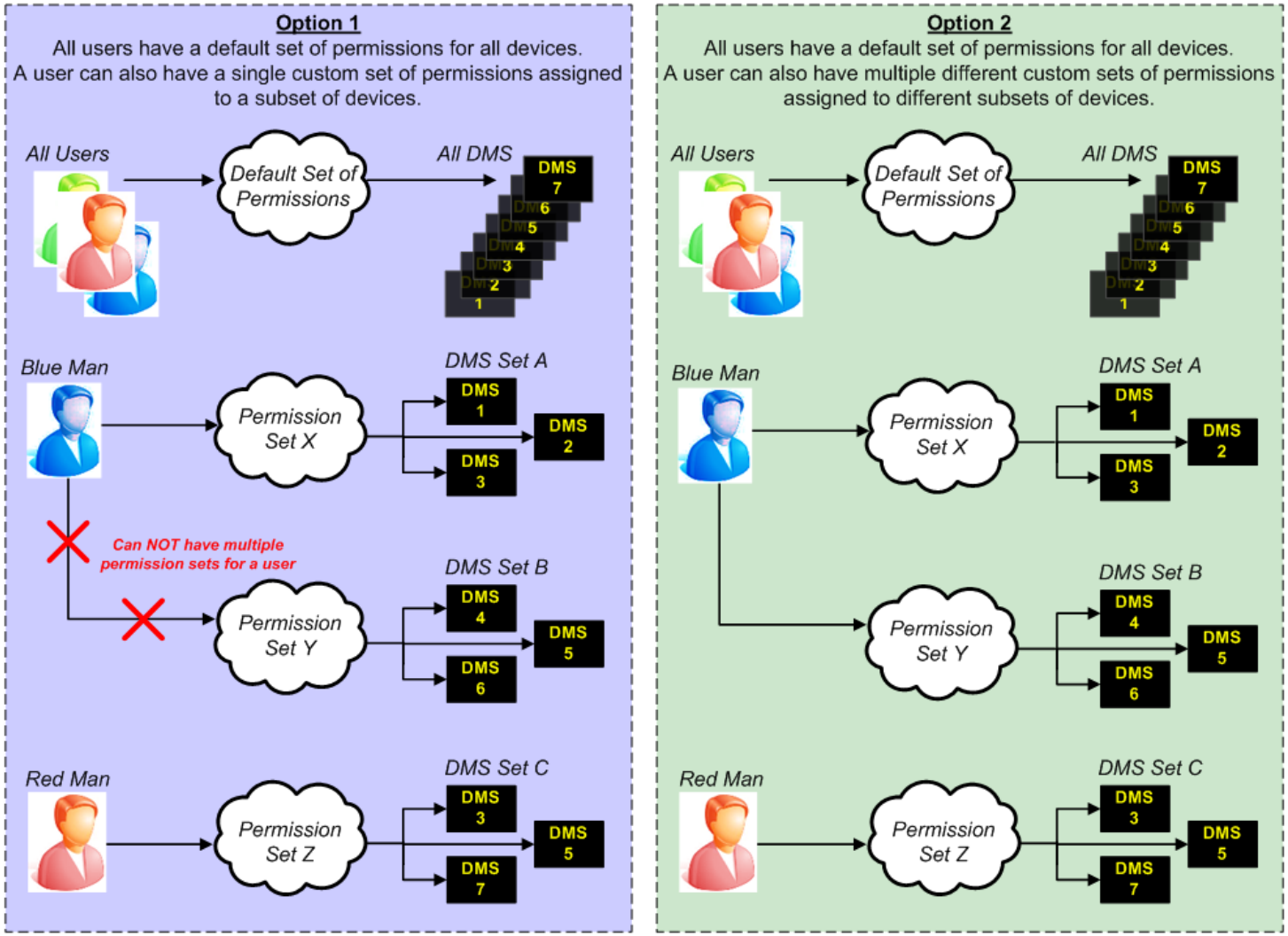
SunGuide Permissions Model Changes

Robert Heller / Tucker Brown, SwRI

Context

- **SunGuide permission model is simplistic**
  - User has set of permissions, though highly granular
  - E.g. if a user can control a DMS, then can control all DMS
- **Request to subset devices has been raised more than once**
  - Grant user permission to control subset of devices
  - District 2 most recently

August CMB


Option 1
All users have a default set of permissions for all devices.
A user can also have a single custom set of permissions assigned to a subset of devices.
All Users
Default Set of Permissions
All DMS
DMS 7
DMS 6
DMS 5
DMS 4
DMS 3
DMS 2
DMS 1
Blue Man
Permission Set X
DMS Set A
DMS 1
DMS 2
DMS 3
Can NOT have multiple permission sets for a user
Permission Set Y
DMS Set B
DMS 4
DMS 5
DMS 6
Red Man
Permission Set Z
DMS Set C
DMS 3
DMS 5
DMS 7
Option 2
All users have a default set of permissions for all devices.
A user can also have multiple different custom sets of permissions assigned to different subsets of devices.
All Users
Default Set of Permissions
All DMS
DMS 7
DMS 6
DMS 5
DMS 4
DMS 3
DMS 2
DMS 1
Blue Man
Permission Set X
DMS Set A
DMS 1
DMS 2
DMS 3
Permission Set Y
DMS Set B
DMS 4
DMS 5
DMS 6
Red Man
Permission Set Z
DMS Set C
DMS 3
DMS 5
DMS 7

Proposed Changes

- **Two operations at issue:**
  - User authentication
  - Command authorization

- **Move all authentication and authorization to new subsystem**
  - Currently performed in “generic”
  - Moved to “SAA”
  - Centralized, ease of maintenance, enhancement, (like TxDOT Lonestar)

Proposed Changes (continued)

- **For a device type define a default set of permissions inherited by all users**

- **For a user**
  - For a device type (DMS), define user permissions
  - Assign those permissions to a device subset

  - Different users may have different device subsets
  - Device may appear in multiple device subsets

Example

- **Example 1**
  - Default all users to “see” all DMS and current message on DMS configured in system
  - If “User A” has only default configuration, then can see DMS but not change them
  - Allow “User B” to have full control of DMS on I-95 through Broward County
  - Allow “User C” to have full control of DMS on I-95 through Broward County and I-75 through Broward County
  - Allow “User D” to have bull control of all DMS configuration in the system

CONOPS

- **Option 1 proposal**
  - Based on further discussions
  - SSUG
  - SunGuideSoftware website

- **Estimated cost: $125,000**

QUESTIONS?

Robert Heller, SwRI, robert.heller@swri.org
Tucker Brown, SwRI, tucker.brown@swri.org

SunGuide Software Installer Improvement

Clay Packard, Atkins

Overview

- **Installation Process is a Very Manual, Complex Process:**
  - Installation Notes: http://sunguidesoftware.com/sunguidesoftware/documentlibrary/ReadingRoom/ProjectDocuments/transmittals/SunGuide-IN-5.1.1(Draft).pdf

Overview (contd)

- **As Districts Perform Their Own Installs/Upgrade**
  - Moving from on-site support
    to remote support
    to as-needed support
  - Install/upgrade support will facilitate system understanding by local staff
  - Allows support to focus on defect removal and enhancement rather than maintenance

Objectives

- **Need to Separate Software Issues From Installation Issues**
  - Latent – revealed only when features are used
  - Sticky – requires SunGuide software engineer to diagnose and correct, especially database issues
  - Hazardous – many manual verification and configuration steps provide opportunity for human error

Installer Objectives

- **Automation – Dependency Verification**
  - .NET 4.0, .NET 2.0, Visual C 2012 runtime, IIS & ASP.NET, admin privileges, database connectivity, verify available ports, verify Crystal runtime 11.5
  - Copy new XML schema files, verify Navteq map data, verify map tiles exist and auto-download
- **Clear, Specific Error Messages for Failure**
  - Makes diagnosis and resolution much easier

Configuration Consolidation

- **All Configuration Moved into Database**
  - config.xml,
  - ipvideodevices.xml,
  - SnapshotDevices.xml,
  - OMInterface.dll.config,
  - schedules.xml,
  - sequences.xml,
  - FL-ATIS_FloodGate_Data.xml
- **Automatic Update of Configuration**
  - User prompted for some parameters with defaults provided

Database Tools

- **User-Friendly Suite of Database Tools**
  - Version-specific validation of physical and logical database (schema/users, tablespaces, synonyms, etc.)
  - Export (backup), import
  - Maintenance
    - Recreate synonyms
    - Rebuild indexes
    - Synchronize sequences
    - Etc.
    - Other maintenance needed ?

Database Tools (contd)

- **Clear, Specific Error Messages for Failures**
  - Makes diagnosis and resolution much easier
  - Removes benign error messages
  - Progress bar / percent complete

Database Upgrade

- **Database Physical and Logical Verification**
  - Validate version X before upgrade
  - Validate version Y after upgrade
    - Running scripts multiple times should not corrupt the database
- **Upgrade and Validate Within Single Transaction;**
  or else, Roll-Back to Valid Version X
  - Progress bar / percent complete

Database Upgrade (contd)

- **Clear, Specific Error Messages for Failures**
  - Specify database tables and/or subsystem in error
  - Makes diagnosis and resolution much easier
  - Removes benign error messages

Report Templates Mgmt

- **"Out-of-the Box" Templates**
  - Centrally managed and versioned
  - Deployed as a new set with each installer
  - Eliminates versioning issues from adding/removing (without any verification)
- **Custom User Templates**
  - Flagged as "custom"
    - Stored in separate folder
    - Backup folder for prior version

      (automatically, and once – if it doesn't exist)
  - Not affected by installation process

Questions / Discussion

- **Questions?**
- **Other Ideas to Include?**
- **Next Steps:**
  - Gather additional ideas from SSUG
    - http://sunguidesoftware.com/component/kunena/6-general-discussion/78-installation-and-upgrade-process-improvements?Itemid=0#80
  - Requirements, cost estimate, and vote at next Change Management Board meeting?

Clay Packard, Atkins

Clay.Packard@dot.state.fl.us

Road Ranger Multiple Agency Coordinator Enhancement

OOCEA / FDOT D5 / FTE

John Hope, Atkins

Current Road Ranger Management

- Currently, Road Ranger Applications Connect and Share Event/Dispatching Information with One SunGuide Software System

Dispatched / Event Info

Dispatched / Event Updates

District X SunGuide

Current Road Ranger Management

- If Road Ranger is Patrolling Roadways for Multiple Agencies, There's no "Easy" Way to Share Data with Multiple Agencies

Dispatched / Event Info

Dispatched / Event Updates

District X SunGuide

Dispatched / Event Info

Dispatched / Event Updates

District Y SunGuide

Current Road Ranger Management

- **If Road Ranger Only Connects with District X SunGuide Software**
  - District Y may be able to see District X events via C2C
  - District X operators would see all events reported by Road Rangers
    - District X operators would have to ignore events that Road Ranger handles on District Y roadways
    - If District Y creates events in their system for events reported to District X, the 511 system may report the event twice
  - Only District X operators would be able to dispatch Road Rangers

Multi-Agency Coordinator

- **Proposed Concept**

Dispatched / Event Info

Dispatched / Event Updates

Multi-Agency Coordinator

District X Data

District Y Data

District X & Y Data

District X SunGuide

District Y SunGuide

District Z SunGuide

Multi-Agency Coordinator

- **Where Would the Multi-Agency Coordinator Function?**
  - Within the Road Rangers application
    - Pros: No changes to SunGuide software
    - Cons: Changes to several vendors' applications; some vendors may not be compatible
  - Within SunGuide software
    - Pros: No changes to vendor software; FDOT would have direct control over functionality and configuration
    - Cons: Cost and possible complexity of design
  - External Application
    - Pros: No vendor or SunGuide software changes needed
    - Cons: Complicates connections with SunGuide software and adds dependency that may make operations and maintenance difficult

Questions?

John Hope, Atkins

John.Hope@atkinsglobal.com

SunGuide Software Reporting Update

Brian Ritchson, MCG

SunGuide Reporting Update

- **Overview**
  - Report reformatting
    - A comprehensive pass through all reports correcting differences in formatting and fixing minor errors
  - Newly available reports
  - Updated reports
  - Proposed new features
  - SunGuide software web site
    - The new hub for obtaining current, updated, and new reports

Report Reformatting

- **Purpose of Reformatting**
  - Create a consistent, professional look and feel to all reports
  - Uncover and fix minor errors that may otherwise never be discovered
- **Reformatting Progress**
  - ~50% completed
  - Will be completed by the release of SunGuide 6.0

New Reports

- **Ramp Event List**
  - Functions identically to the event list report except that only events that include “Ramp From” or “Ramp To” in the location are included
- **DMS Filtered Messages for Travel Time Subsystem**
  - Returns message text and other data related to travel times on DMSs
- **Traffic Sensor Links**
  - Returns all database information for every traffic sensor link

New Reports (contd)

- **Device Locations**
  - Presents location information for all ITS devices configured in SunGuide software, separated by device type
- **Detector Data Quality**
  - Calculates the percentage of “good” detector data for each detector
  - The thresholds for what is “good” are derived from a previous detector data study conducted by the Federal Highway Administration

Updated Reports

- **Traffic Detection Rollup Data Tabular and Detector Data Detail**
  - Now can be optionally filtered by choosing a travel time link
  - If a travel time link is selected, then only detectors within this link will be included
- **Regional Floodgate Messages**
  - SunGuide 5.1.1 changes the way floodgate data is stored in the database; this report now benefits from these changes by including location information, related event id, and comment text

Updated Reports

- **Many reports received bug fixes**
- **These include:**
  - DMS Filtered Messages for Safety
  - Weekly Performance Measures
  - Monthly Performance Measures
  - Quarterly Performance Measures
  - Annual Performance Measures
  - Incident Duration Full Detail
  - Incident Duration Flagged
  - Road Ranger Response Time QA
  - Detector Data Quality
  - CCTV Report
  - Traffic Flow Report
  - Detector Volume Tabular
  - Detector Speed Tabular
  - Basic Safety Messages
  - DMS Report
  - TSS Report
  - Regional Floodgate Messages
  - Probe Vehicle Database Messages

Proposed New Features

- **Ideas for Enhancements to Reporting Subsystem**
  - Being discussed by SSUG via the SunGuide software project web site forum
  - Installer management of report configuration
  - Scheduled action to generate and email report
  - Progress bar or estimated time remaining for report generation
  - Ability to cancel report generation
  - Add help dialogs that explain what reports do and what the output should look like
  - More clarity in error messages

SunGuide Software Web Site

- www.sunguidesoftware.com/Report-Repository
- A Zip File Containing all Reports can be Downloaded from the SunGuide Software Web Site
- Individual Reports can be Searched by Name or Category
- New and Updated Reports can be Obtained Between Major SunGuide Software Releases

Questions?

Brian Ritchson, MCG

Brian.Ritchson@dot.state.fl.us.com

RITIS Update

Arun Krishnamurthy, FDOT

Questions?

Arun Krishnamurthy, FDOT

Arun.Krishnmurthy@dot.state.fl.us.com

SunGuide Software Top Priority Items

Arun Krishnamurthy, FDOT

Top Priority Item

- D1 Issue of Floodgate Text-to-Speech Still Being Investigated
- D2 Wanted BlueToad Integration in SunGuide; we Hope this will be in R5.1.1 or Soon After
- D4 Asked About SunGuide Permission Issue, Discussed at CMB Meeting
- FTE Miles Ahead Issue has Been Fixed
- D6 Requested a Listing of Hot Fixes on the SunGuide Web Site; This has Been Done

Questions?

Arun Krishnamurthy, FDOT

Arun.Krishnmurthy@dot.state.fl.us.com

Action Items Review

Javier Rodriguez, CMB Chairman