ALLIED AGENCY REPORTING SERVICE TO SWITRS

Category: Business Process Innovations

STATE OF CALIFORNIA

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Executive Summary

California law enforcement agencies are required by law to send completed crash reports to the California Highway Patrol (CHP) for processing. California law enforcement agencies represent 57 percent of all crash reporting in the state of California. Crash reports are completed by either use of a computer software program, or manually by use of a form. Once received, the CHP manually enters this data into the Statewide Integrated Traffic Records System (SWITRS). In 2018, approximately 425,000 collision reports were produced in the State of California. The timely reporting of this crash data is critical not only for law enforcement to help identify traffic enforcement needs, but also for Caltrans to help identify road condition hazards.

Back in October 2015, the CHP began implementing their goal of electronically merging crash report data into the SWITRS system. The CHP enters their collision data using their own California Automated Reporting System (CARS) software, which electronically transfers data into the SWITRS. This software includes an electronic version of the CHP's standard form 555 with drop down boxes to enforce policy compliance. Because of this implementation, a reduction of data entry backlog totaling two years was accomplished and approximately 43 percent of manual crash reporting in the state has become automated.

The CHP continues their vision for 100 percent electronic crash report submission by making their webservice interface to the SWITRS available to all law enforcement agencies in California. The timely delivery of crash data to our allied agency partners will help to provide key information, help reduce traffic collisions, and help to prevent injuries and fatalities.

Concept

The goal to fully automate crash data reporting and crash data management involved the CHP working with allied law enforcement agencies to move toward 100 percent electronic reporting submission. This initiative would enhance the efficiency and effectiveness of the collision reporting and analysis process statewide. The electronic crash data transfer solution, called Allied Agency Reporting Service (AARS), allows all law enforcement agencies to electronically submit crash reports to the SWITRS database electronically by webservice. The development and implementation of the AARS served two purposes. The first was to implement an electronic crash data transfer webservice for all law enforcement agencies to the central database SWITRS. The second was to automate and consolidate the process of collecting electronic crash reports within the CHP to further reduce the manual workload and to increase the availability of timely collision statistics and analytics.

California traffic safety stakeholders use the California Strategic Highway Safety Plan (SHSP) to coordinate the efforts of a wide range of organizations to reduce traffic accident fatalities and serious injuries on all public roads. The SHSP is a statewide data-driven traffic safety plan that establishes goals, objectives, and identifies challenge areas. A goal of the SHSP was to improve the quality, timeliness, accessibility, and usefulness of traffic safety data. Good highway safety data systems strive for six qualities: timeliness, accuracy, completeness, uniformity, integration, and accessibility—referred to collectively as the "six-pack." This Strategic Safety Data Plan improves the way California collects, manages, stores, compiles, analyzes, and distributes highway safety data including crash, roadway inventory, volume, driver, vehicle, citation/adjudication, and injury surveillance data. It is written in response to clearly identified needs at the state-level, as well as several federally-sponsored assessments of California's traffic records systems. Chief among these are the Traffic Records Assessment and the Crash Data Improvement Programs.

Outreach and education campaigns were started to notify all allied agencies and their software vendors of the webservice and the benefits it provided to all parties. Information was also shared regarding the onboarding process. Local crashes may be reported in electronic or paper formats, depending on technology capabilities of the local law enforcement agency. Many agencies are using field data collection software for capturing of crash data. There are many vendors that offer electronic crash data collection software. Crossroads, for example, is a third-party vendor software package used by more than 100 allied law enforcement agencies in California.

As of 2018, the CHP became capable of receiving electronic crash reports. Currently, the Bakersfield Police Department and Inglewood Police Department submit their crash reports electronically. CHP is working with the Office of Traffic Safety (OTS) and vendors to bring several other allied law enforcement agencies online within the next 90-120 days.

Allied law enforcement agencies not yet using the service send their reports as hardcopies to the CHP Support Services Section and are processed manually. Therefore, it was desirable to set up a webservice where the majority of the allied agencies can efficiently transmit the collision data electronically to the CHP directly from their own crash reporting systems. This not only eliminates the errors in the manual data entry process, but it also reduces the workload for mail processing and data validation.

***Costs*:**

The development effort was completed CHP employees to complete the project and one consultant for the outreach to Allied agencies and their vendors. The cost for this effort was the $250,000 to secure the consultant to assist with the outreach.

***Project Management*:**

This technical project was managed per standard Systems Development Life Cycle (SDLC).

Challenges:
With over 500 local law enforcement agencies in the State of California, determining and providing a standard interface for crash report collection was challenging. A Data Dictionary was key for providing a common language across multiple collection methods.

The development team created the Data Dictionary and worked with the allied agencies and service providers to insure accuracy and shared understanding of the data fields. The in-bound message schema is described in the AARS Data Dictionary provided to Allied Agencies and their vendors. The data dictionary provided clear direction on minimum mandatory SWITRS fields required for submission and included data validation for optional data collection fields. The ability to collect and store more than 200 data fields provides analytics beyond the what is available today. The complete data fields from crash reports are stored in the California Collision Reporting System database which is a more robust database that delivers data to the state required SWITRS database.

Technology:
The Allied Agency Reporting System (AARS) Web Service is load balanced between multiple servers and has an expected availability of 24/7/365, apart from any planned maintenance window.

The Web Services architecture provides several benefits, including: Promoting interoperability by minimizing the requirements for shared understanding. Enabling just-in-time integration with our partners. Reducing complexity by encapsulation. Enabling interoperability of legacy applications across the State of California.

Security:
The application is secured using multiple layers:

1. Firewall

The CHP provides an IP address to the allied agencies and service providers where the AARS Web Service resides. In return the allied agencies and service providers provide an IP address that they will be using to communicate with the AARS Web Service.

2. Secure Sockets Layer

All communication between the CHP and the allied agencies and service providers takes place over an assigned port and utilizes SSL encryption, ensuring that the data is encrypted and safe.

3. Authentication

The CHP provides each participating allied agency and service provider with a unique assigned username and password.

Timeframe

This initiative was completed in 2018. The milestones needed to complete this initiative were as follows:

1. The Information Technology Section (ITS) developed a webservice solution to electronically import data into the SWITRS database from Allied Agencies within months of concept.
2. Create a fully functional technically agnostic service that provides SWITRS business rule data validation.
3. Survey the capabilities of allied agencies to send and receive electronic crash data.
4. Survey software vendors that provide software for crash report data collection as identified by Allied Agencies for ease of integration.
5. By 2018, crash data can be accepted electronically from allied agencies.

Performance Measures

There are several performance measures that could be used to track the performance of this initiative. The primary performance measure is the percent of the total allied agency crash reports that are accepted electronically and the secondary the number of allied agencies onboarded to the service.

Significance

The California Highway Patrol (CHP) maintains the Statewide Integrated Traffic Records System (SWITRS) which is the primary data repository for all traffic crash records in California. SWITRS collects and stores crash report information from State and allied law enforcement agencies (Allied Agencies) and makes the data available to users through the CHP SWITRS website.

The California Department of Transportation (Caltrans), the California Department of Motor Vehicles (DMV) and the California Office of Traffic Safety (OTS) utilize the SWITRS data to propose highway improvements, take appropriate action against negligent drivers, and justify priorities for expending traffic safety funds.

Description of Initiative
The Scope of the AACR project included:

- Developing an allied law enforcement agency facing environment which provides the allied agency and their various contracted service providers (i.e., Crossroads Software, Inc., etc.) with an automated method for the submission of crash reports.
- Ensuring the new web service meets all security and enterprise architecture standards.
- Ensuring the SWITRS validation business rules are enforced and only accepts data that passes validation rules.

Before January 2018, California was not capable of receiving traffic collision reports electronically to the Statewide Integrated Traffic Records System (SWITRS) from allied law enforcement agencies. Only the CHP had the capability of submitting crash reports electronically into the SWITRS database. Allied law enforcement agency submissions were manual.

Although a number of allied law enforcement agencies are using field data capture methods to enter the data into their locally designed records management systems, they were previously required to print hard copy reports and mail them to the CHP for manual entry. Because of several compounding factors, this can create a backlog with the paper/manual system for allied agency crash reports, which has resulted in significant delays in providing timely collision information and statistics to the consumers in need of the information.

All these metrics should be built into electronic transfer of collision data. This initiative should create the capability to produce a report or reports for quality, quantities, timeliness, and accuracy of traffic collision reports and SWITRS data. Tracking these metrics can be used to provide feedback to the reporting law enforcement agencies and improve the quality, quantities, timeliness, and accuracy of traffic collision data entry. Input from local engineering agencies would be useful in determining what the measures of accuracy should focus upon.

This collaboration between State partners ensured benefits were incorporated into the project such as a vendor agnostic service, secure transfer mechanism, and a value proposition to not only the partners but to all drivers in the State of California. In addition, this project incorporated the *NASCIO State CIO Top Ten Priorities for 2019* of: Security and Risk Management, Digital Government, Customer Relationship Management; and Data Management and Analytics.

Impacts

There are many significant immediate and long-term benefits not only to the following agencies, but all drivers in California by providing safer roadways.

The benefits to the **California Highway Patrol** include the elimination for the need of manual data entry of traffic crash reports, thus reducing processing time and increasing the accuracy and completeness by validating data against established business rules. The reduction

in the amount of time needed to input collisions and increased transaction accuracy and security. Direct workload reduction within CHP Support Services. Allied Agencies crash reports represent 57 percent of the crash reports in the state. With each allied law enforcement agency that onboards to the service, the CHP will realize immediate benefits by the reduction of the manual workload. Staff can be allocated to additional proactive and challenging work to benefit the people of California.

The benefits to **California law enforcement Allied Agencies** are many. CHP is providing improved services to our allied agencies. Immediate benefits include the elimination of the printing and mailing of collision reports to CHP Support Services. Allied Agencies can be benefit by this green initiative. Improved program processes by reducing paper and automating program processes. Allied Agencies have the opportunity to provide timely information that is shared among partners

The benefits to **State and Federal partners**: Including Caltrans, OTS, NHTSA, DMV, County Public Works, etc. Crash data updates are shared between agencies to made public safety quality improvements. The reduction in time for analytical reporting availability has immediate benefit. This allows for timely identification of potential trouble spots due to the ability to more quickly identify clusters of collisions, etc. Caltrans receives all state highway related crash reports as soon as the report is approved and received electronically to CHP. County Public Works can receive county road crash data as soon as the report is approved and received. NHTSA receives all California crash reports to identify quickly identify trends without having to wait for a manual paper Annual Report. This new process allows for a continuous work flow from the law enforcement agencies to our partners - instead of manual crash processing which results in years in the ability to analyze crash data.

This innovative project provides collaboration among all law enforcement agencies in the State of California to ensure safer roads for all. In addition, this project also improved the organization's operations by more efficient workflows and business processes. The California Highway Patrol is pleased and proud to nominate the AARS project for this award, because we believe that the innovations this project helped create will serve California and its citizens for safer roads today and in the future.