SaaS Livestock Protection

Improving State Operations
Implemented October 1, 2013

Executive Summary

Though a small agency, the Minnesota Board of Animal Health (BAH) plays an important role in keeping Minnesota's food supply safe by monitoring the health of State's livestock. For the past 15 years, BAH has used a generic Oracle client/server database for animal disease management. Over that time the capability needs of the agency grew and maintenance and support costs rose dramatically as the database became too large to efficiently manage. BAH replaced the existing generic database with a SaaS livestock disease surveillance system that reduces support costs, allows remote access and mobile functionality, dramatically improved animal traceability capabilities and automates data uploads from remote livestock sites.

BAH partnered with the US Department of Agriculture (USDA) and other state organizations to launch a disease surveillance application called CoreOne. CoreOne uses open source technology, which helps control costs and takes advantage of new innovations. BAH worked closely with MN.IT Services, the state's IT agency, database developers to add and subtract functionality as needed to cater to specific programs and the changing needs for animal disease traceability. As a result, features continue to be developed within CoreOne, which will result in an even more robust animal health database to fulfill BAH's needs and assist in protecting Minnesota's livestock industries.

One of those features is mobility. Personnel located in the field now have portable internet connections usable within each of their home offices, as well as anywhere in the field with cellular service available through the state's provider, offering 24/7 web-based access to the system. In addition, the CoreOne application is hosted on State servers to protect data security and privacy.

Livestock disease surveillance is a very specialized type of application that cannot be easily found. The USDA has been working on setting animal disease traceability standards that states will have to meet. BAH's transition to CoreOne and electronic record keeping has helped them perform well in the USDA trace exercises and the disease traces they have been involved in with other states. By collaborating with the USDA and similar organizations – and leveraging SaaS providers – the Minnesota Board of Animal Health is protecting Minnesotans while saving taxpayers money.

Business Problem and Solution Description

Problem statement, including magnitude, duration, relative importance or priority

For the past 15 years, BAH has used a generic Oracle client/server database for animal disease management. Over that time the capability needs of the agency grew and maintenance and support costs rose dramatically as the database became too large to manage efficiently. The database did not allow for mobile access, which was needed because 33 percent of BAH employees work in remote areas of the state. In addition,

the database was a risk as it did not allow for continuity of operations in case of an emergency situation. If the database went down, there was no continuity of operations provision. Lastly, the system had little effect on traceability efficiency standards as directed by USDA.

Barriers, challenges and opportunities

The BAH is a small agency, so there was little budget available to get the robust system it needed for disease tracking. Trace First, a software company specializing in animal health information systems, had provided a system to the USDA. Through that contract, BAH was able to implement a similar system at an affordable price that would correct the issues of the outdated database, including improvement in the area of business continuity.

Issue or problem context, including programs, resources and activities of which the initiatives is a part

In disease surveillance, traceability and the time it takes to locate animals is key to state animal health organizations to response and control animal disease outbreaks. Time saved in this activity provides an important advantage to state organizations, producers and agriculture industry.

Elements of the solution:

Project management approach, architecture and/or the use of a vendor

BAH contracts with MN.IT Services to offer necessary information technology support through a Service Level Agreement (SLA). BAH also contracts with Tracefirst through MN.IT to use their animal health application, CoreOne. BAH houses the CoreOne application along with its own MySQL database which is scalable to meet traceability requirements. Information technology staff continues to assist with updates and releases of the CoreOne application. The Board has also hired a data manager, who works with BAH and MN.IT staff to actively engaged in testing the CoreOne application and requesting additional functionality to meet the traceability and other program needs of the BAH. In addition, MN.IT staff increased security and expanded access capabilities for remote field and office staff.

Cost, including dollars, people, time

The system had an initial hardware and software cost of $50K to implement. An assessment revealed a bare-bones (without traceability enhancements) internally-built solution would have had initial costs of $250K. The full implementation was about one year. Ultimately, BAH achieved greater business capabilities, broader staff access, and improved security at a lower initial investment.

Project definition, management and control

The SaaS nature of the solution allows for reduced levels of management oversight and control, another benefit of the chosen solution.

Architecture

The new solution is a three-tiered architecture which increases system management capabilities while reducing customer impacts caused by planned downtime. Over time the architecture enhances business capabilities and security through better management of patches, upgrades and enhancements.

Innovation characteristics, including type of problem addressed, use of technology or the nature of the project itself

BAH uses CoreOne for a tag distribution record keeping system. This system allows a single tag or series of tags to be tied to a Minnesota premises with a date. Each record reflects where the tags originated from and what premises the tags were last assigned to. If tags are reported to have been moved from one premise to another, the tags are easily "redistributed" within the table and all of that information is tracked. A quick and simple query can show the entire history of any given tag that is entered beginning with the original entry which would be the day the tag series was assigned to the ear tag manufacturing company for printing.

Leverage and transferability

BAH is able to leverage core functionality while also evaluating and using features driven by other states disease management best practices. In addition, BAH is able to develop its own enhancements and potentially partner with other states and the vendor to reduce overall costs while expanding business capabilities. This continuous improvement feature is important to the continued value of CoreOne.

Significance

How the project improves the operation of government

BAH's previous experience with bovine tuberculosis required that it track animals in and out of a disease control zone. Because of this, much of the infrastructure necessary for a state-wide traceability system is already in place and Minnesota is well on its way to creating an excellent traceability system. It has identified the vast majority of livestock premises in our state to store locational and contact information in our database along with information about the livestock held at the site. BAH developed a searchable database to store animal identification (ID). In the end of September 2013, all of this data was migrated from the Board's previous animal health database into the new CoreOne database. Animal "sightings" are captured as a snapshot in time with an animal ID tied to a premise on a specific date. BAH officials captured sightings on imported and exported officially identified cattle and each of the sightings are also associated with the CVI number that was issued for that animal movement. Board staff entering sightings from livestock auction markets as well as capturing animals that are tested for livestock disease.

In August 2014, BAH began its fourth year implementing a permit system for breeding cattle. This information was also entered into the searchable . This searchability is beneficial in the event breeding cattle which need to be traced as all information captured as part of the import permitting process is available to the Board before the cattle arrive in Minnesota. It typically takes, at minimum, two weeks before the Board would receive the CVIs that would allow us to begin tracing. The import permit database allows for immediate access to valuable information such as the origin and destination of all imported breeding cattle.

In September 2014, USDA conducted a series of traceability exercises with states to assess its capabilities. The average time to complete the exercise across the US was 112 hours. Minnesota, using Core One, achieved an average of 12 hours. This provides on average 100 hours of critical lead time to find and track animals thus having a huge impact on BAH's ability to respond.

Description of beneficiary/stakeholder groups

This solution has impact to producers specifically and the agriculture industry at large. State and federal agencies charged with animal disease surveillance benefit from Minnesota's ability to trace animals at a fraction of the US average.

Service Sectors (health, public safety, transportation, etc.)

Agriculture

Policy, strategy and goal alignment with gubernatorial priorities, IT strategic plans, enterprise architecture, agency business plans, goals and strategies, and/or state and federal mandates

This project aligns with MN.IT Services 2012 IT Master Plan in the area of "promoting smart government." This area says, "Partner with business leadership to increase state government's efficiency and effectiveness through data-driven decision-making, better processes, smarter investments and measurable results and outcomes; enhance data quality and integrity; and facilitate the effective sharing of data to improve government service and accountability." The new database fulfills this imperative through the use of business partnerships to make state government work more effectively and efficiently in gathering and tracing animal health information.

Benefit of the Project

How does this align with NASCIO's 2014 state of CIO priorities?

This project aligns with the 2014 CIO priority of shared services and budget and control cost. Without the right relationships and collaboration, BAH would not have these business capabilities or would have paid five times the cost for its system.

The partnership with vendor, Trace First, the sharing of a contract through the USDA, and the technology partnership with MN.IT Services, came together to create a better, faster and less risky way to store important animal health information.

Operational effectiveness and efficiencies which might include accuracy, collaboration, process improvements, productivity, risk and staffing requirements

BAH replaced the existing generic database with a SaaS livestock disease surveillance system that reduces support costs, allows remote access and mobile functionality, enhances business continuity and automates data uploads from remote livestock sites and improved traceability.

Security, privacy

The application is hosted on State servers to protect data security and privacy.

Cost avoidance data

For the past 15 years, BAH used a generic Oracle client/server database, but maintenance and support costs rose dramatically and the database became too large for the generic system to manage. The difference between maintenance of the old system and the new system is approximately $60,000 annually.

Non-Financial Return on Investment

Qualitative or intangible benefits

The Core One system has improved overall data quality, expanded the number of data attributes available and added auditing capabilities. Lastly, CoreOne better supports geospatial data which has increased efficiency by eliminating additional processes to create maps and other GIS artifacts.

Advancement of public policy goals

Increased efficiency or other quality improvements

Improved system availability

The new system increased availability from business hours to 24-hour availability.

The system is available online and can be accessed in remote locations through mobile devices.