



Fighting Bird Flu with Technology

Cross-Boundary Collaboration
State of Minnesota

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Project start: March 2015; Project end: July 2015

Executive Summary

The avian flu had a severe impact on Minnesota, which is the number one turkey producer in the nation. Losses in poultry production and related business due to avian influenza were estimated at \$309.9 million in greater Minnesota. The highly pathogenic strain of avian flu causes very high death rates in poultry: once one bird is infected, the entire flock is destroyed in an effort to stop the disease's spread. From March 2015 (when avian flu was first confirmed in a commercial farm) to July 2015 (when the final farm was released from quarantine), more than 100 farms in 23 counties were impacted, and about 9,000,000 birds were lost to the disease.

In order to respond, monitor and control the disease, the outbreak needed to be tracked and managed. Moreover, the movement of unaffected birds to market was an important economic need for the industry. Data needed to be gathered, stored and shared. Mechanisms were needed to assist with the flow of information in near real-time. However, with the outbreak happening in rural areas, connectivity was a major challenge.

MN.IT Services joined the fight against the flu using technology to cross multiple physical and logistical boundaries. Technology aided in the fight by connecting more than 500 workers from multiple levels of government in the many impacted areas of the state; through telecommunication, networking and desktop services. MN.IT's geospatial services also created a self-service application so flu fighters could produce customized maps to help track and monitor the spread of the disease and assist in permitting to allow unaffected birds to go to market. Technology also kept farmers, the media and consumers updated on the latest impacts and efforts.

The goal of using technology in the avian flu outbreak included:

- Keeping responders connected to one another
- Having timely information available
- Providing tools to make the effort run
- Tracking the response through mapping capabilities



Concept

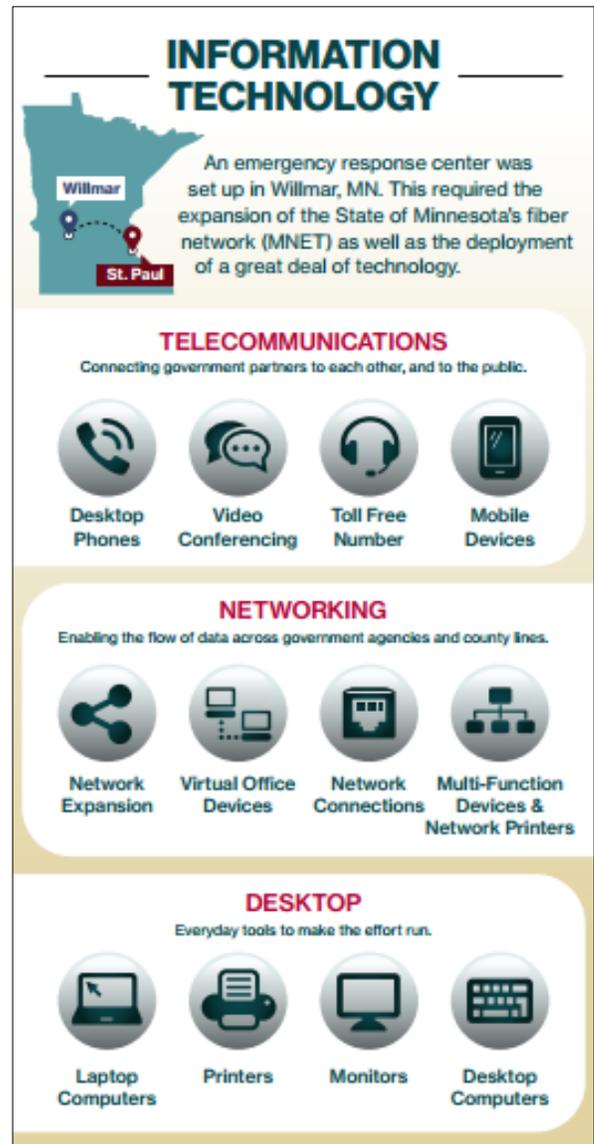
The Minnesota Board of Animal Health (BAH) and Minnesota Department of Agriculture (MDA) are the lead state agencies in animal disease outbreaks and response. Because of the vast area and sheer number of flocks, BAH and MDA needed to work with local government jurisdictions and the federal government to meet the challenge. This multi-jurisdictional team presented logistical challenges to a coordinated and effective response.

Attacking the flu meant getting the tools in place that responders needed to do their jobs. In order to better combat the avian flu, a response center was set up in Wilmar, Minnesota, closer to the main areas of the outbreak. Setting this up required an expansion of the State of Minnesota's fiber network (MNET), as well as the deployment of a great deal of technology.

Mapping was a critical function to tracking, monitoring and responding to the avian flu. MN.IT's geospatial team created a self-service app that allowed responders to generate a variety of maps to track the progression of the disease and help them better respond to the infected zones. In addition, the application facilitated near real-time permitting which allowed unaffected birds to move to market.

Government partners from local, state and national levels needed to stay in touch with one another while in the field, so MN.IT provided video conferencing services and mobile devices. In addition, networking enabled the flow of data across agency and county lines, which helped create virtual offices, provided network connections and allowed for multi-functioning devices and network printers to operate.

It was also necessary to create physical office space. This work included the procurement and set up of laptop and desktop computers, monitors and local printers.



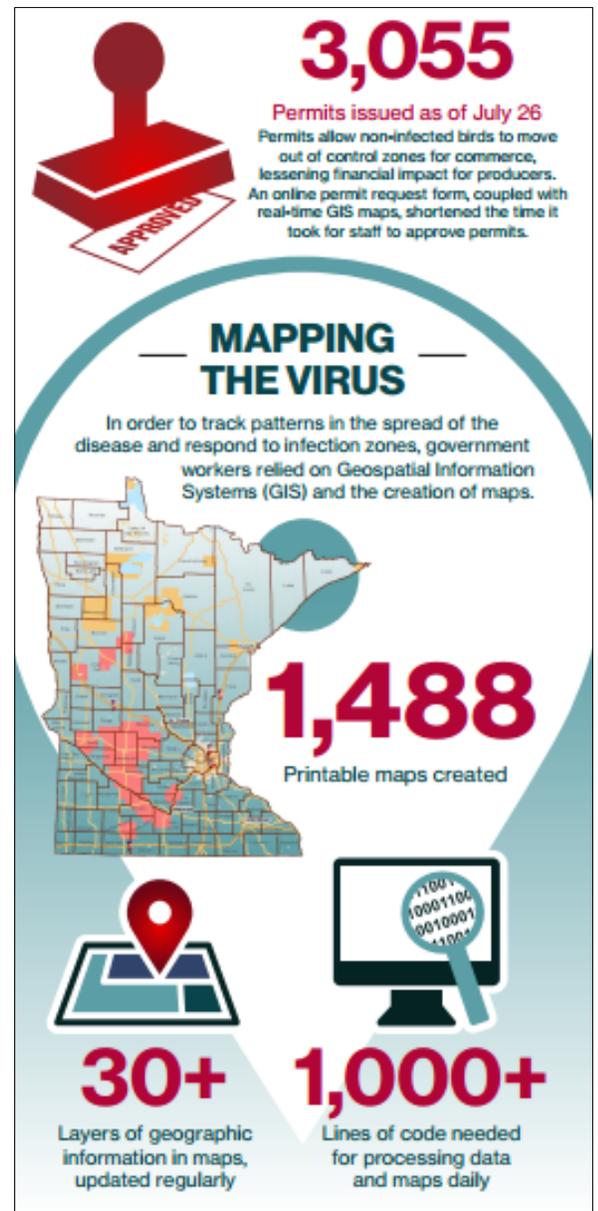
Government also needed to stay connected to the public. This was accomplished by setting up phone banks with a toll-free number, and creating webpages and social posts for continuous updates.

Significance

Agriculture is Minnesota's largest exporting industry and Minnesota is the nation's largest turkey producer, raising 45 million birds annually. The U.S. is the world's largest turkey producer and exporter contributing 48% of the world's total production and 30% of the world's total turkey export. The total economic impacts of the industry in Minnesota include: \$1.8 billion and nearly 4,000 jobs within turkey production; and \$196 million and nearly 500 jobs within exporting activities. These economic data points highlight the urgency and impact of a properly run response to the avian flu outbreak.

Speed, accuracy and flexibility are the hallmarks of an incident response. Operating within the federal disaster framework, the team relied on technology to maintain clear lines of communication up and down the command structure. Daily IT briefings allowed incident responders to partner with IT staff to communicate daily goals, plans and actions. This allowed for adjustments in an informed and coordinated fashion. It also allowed IT staff the space to lead within their areas of expertise to achieve short and long-term goals.

[An infographic](#) was created following the events to help explain the role technology played in Minnesota's avian flu response. Technology was used in a variety of ways to assist the avian flu response, including the use of SharePoint technologies to bridge MDA, BAH and USDA network challenges, and the use of GIS and self-service capabilities for mapping and permitting functions. The mapping capabilities leveraged existing reliable statewide county GIS data. This fostered stronger data normalization and sharing standards between state and USDA teams and systems.



Other states, including Pennsylvania and North Carolina, are looking to use the Minnesota data-sharing model. When compared to other state responses, USDA leaders saw very clearly the major impact GIS data had on combating and managing the disease. This included the use of existing state facilities to centralize a command center and expand the state network to provide state workers the ability to access critical tools.

Impact

Because of the technology provided by MN.IT Services, such as internet connections, computer equipment and software capabilities, much of the critical work by flu fighters could be done in the field. This meant time spent driving back to a central location and manually entering data into a system, instead was spent helping prevent further spread of the disease. Time spent waiting for a paper form to be processed, instead was used to help non-impacted farmers bring their product to market. Time spent manually tracking the spread of the disease, instead could be used for preventative measures due to real-time mapping capabilities.

The mapping piece was an important part of the overall effort. More than 1,700 maps were created to aid in the tracking and response. The real-time maps were used in conjunction with an online permitting request, which allowed non-infected birds to move from control zones for commerce more quickly. For many producers, this lessened the financial impact of the disease. During the outbreak, more than 3,000 of these permits were issued.

More than 9,000 people visited the avian influenza page on the Board of Animal Health website, including more than 4,000 new visitors to the website. Each day, Facebook updates reached more than 500 people, adding more than 170 page “likes.”

The efforts by MN.IT staff were recognized by Dr. Bill Hartmann, Executive Director and State Veterinarian, Board of Animal Health:



“Responding to avian influenza has been a very difficult job. We were seeing new cases every day during the peak of the event, and our need for up-to-date maps was very demanding. We also relied heavily on our ability to communicate with field staff members while they were working the incident across the entire state. The support we received from the state’s information technology professionals was second-to-none. They set up new workstations, ordered and programmed extra phones and worked long hours to keep up with mapping and other requests. I would like to personally thank each and every MN.IT employee for helping us when we needed it the most.”

– Dr. Bill Hartmann, Executive Director and State Veterinarian, Board of Animal Health