



Utah speeds contact tracing capabilities and prepares for a surge in vaccine distribution using the cloud

State quickly migrates core IT systems to manage sudden spikes in demand related to COVID-19

The Utah Department of Health (UDOH) recently migrated several core COVID-19 response systems to [Amazon Web Services \(AWS\)](#). With the cloud, the state is better positioned to handle increased demand in tracking vaccine distribution and administration activities across its communities this spring.

Improving COVID-19 tracking and reporting

Public health agencies collect information related to communicable diseases as part of their mandate to ensure the general health of the population. A fundamental component of this disease surveillance is accurate and timely diagnosis, which often takes the form of a positive lab test result and involves the transport of information from hospitals and labs to public health departments — a process called electronic lab reporting (ELR). In Utah, data from the state's ELR system flows into [EpiTrax](#), a homegrown, open-source system designed to support the state's epidemiologic and disease surveillance needs. This includes receiving or entering disease reports, conducting outbreak investigations, managing cases, analyzing data, and reporting to the Centers for Disease Control and Prevention.

When the COVID-19 pandemic began, use of EpiTrax grew by 1,000 percent. The on-premises system couldn't scale to meet the new demands and consequently began to experience performance issues during peak user loads. It was particularly high in the afternoons when contact tracers from around the state were investigating cases.

UDOH officials asked AWS Professional Services working with the state Department of Technology Services (DTS) team to examine the application's legacy infrastructure and suggest alternatives.

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Jon Reid, Utah Statewide Immunization Information System Program Manager, Utah Department of Health

“Within 30 days, we migrated the EpiTrax system to an AWS environment,” says Jon Reid, USIIS Program Manager at UDOH. “We rapidly spun up new AWS instances, and moved our database and web servers over to AWS.”

Those changes rapidly improved the EpiTrax system's ability to meet growing demand, significantly reduced crashing and latency issues, enhanced system reliability, and improved response times.

Around the same time, the state brought on a number of new agents to assist with its COVID-19 contact tracing efforts. It initially used [Amazon Workspaces](#) and eventually settled on [Amazon AppStream](#) to centrally manage desktop applications and securely deliver them to any computer to quickly scale the number of contact tracers that could access EpiTrax and other applications. Use of AppStream and AWS Cloud allowed the state to quickly and securely expand its contact tracing capacity and avoid waiting weeks to months for new workstations to be acquired and provisioned.

Migrating to AWS also enabled the state to scale REDCap, a secure web application used by Utah for student athletes to schedule and manage COVID-19 testing. The onset of COVID-19 created a new use for the REDCap system: Student athletes statewide use it to log regular, state-required health checks and COVID-19 test results. This placed greater demands on the REDCap system. In December, the state migrated to AWS and the REDCap application easily scaled and continues to as it meets the ebb and flow of demand. An example of a peak time could be prior to major high school and university sports events.

Finally, UDOH leveraged Genesys Cloud, an all-in-one contact center solution, built on AWS and designed to deliver seamless customer experiences. UDOH spun up the new 1,200-seat contact center in less than 72 hours and staffed it with a number of contact tracing agents, including state employee volunteers, available to answer calls. Because it is a virtual contact center, they are able to work from any location. While UDOH was uncertain of call volume and staff required, Genesys Cloud could be deployed quickly to meet demand if more agents were needed. Prior to COVID-19, the center only required up to 200 agents. At the peak of the pandemic, it spiked to 1,000 and then eventually tapered off to its current range of 400 contact tracing agents.

Preparing for the next wave

UDOH is currently preparing to move a third critical system to the AWS Cloud: the Utah Statewide Immunization Information System (USIIS), which helps healthcare providers, schools, childcare centers, and Utah residents maintain consolidated immunization histories. Doing so will help the state prepare for the expected boom in COVID-19 immunizations over the next several months.

“Right now, we’re vaccinating about 40,000 to 50,000 people a week, which is our allotment based on our population,” says Reid. “But once we start to open that up and we’re vaccinating 100,000 or 200,000 people a week, USIIS usage is going to grow exponentially. We anticipate a million hits a day.”

UDOH will need to ramp up quickly and securely.

“I need to make sure our USIIS system has scalability and redundancy. If there is an issue, I want to know I can fail over or rapidly increase our resources to handle that demand and avoid crashes,” says Reid.

The fact that UDOH’s contact center is powered by AWS, via Genesys Cloud, will also help as vaccine rollout intensifies. As more people become eligible for the vaccine, call volume will naturally increase.

“One of the biggest concerns we have is there are a lot of different populations out there and a lot of them may not have access to email or even a cell phone. So how can they connect with us to schedule appointments and follow ups? Our contact centers are going to be a big part of our vaccine rollout,” says Reid.

UDOH also recently began working with Docket Health Inc. to launch a new app that allows state residents to search their immunization records directly through USIIS. The app, known as Docket, offers alerts for upcoming and overdue shots, immunization histories, and official proof of immunizations often required during back-to-school season. The app also allows users to text, email, or print UDOH immunization reports for all vaccine verification purposes. Organically, word has spread about the app and to date, nearly 6,250 people have registered for Docket. Its user acquisition grew over 50% between December 2020 and January 2021. Use of AWS Cloud enabled this system to scale to meet a surge in demand as well.

According to Reid, the success of UDOH’s projects thus far has generated interest in the use of cloud-based systems from other departments within the state.

“Many of our legacy state systems have some pretty big limitations,” says Reid. “If those limitations can be mitigated or reduced using the cloud, I think we’ll see more departments willing to use it.”

This piece was developed and written by the Government Technology Content Studio, with information and input from AWS.

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