Nomination for 2021 NASCIO State IT Recognition Award

New York State
Office of Information Technology Services
Emerging & Innovative Technologies
<u>**Counter Measure Data Management System (CDMS)**</u> **–**
New York State Department of Health COVID-19
Vaccination Response
Jan 2021-May 2021
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What problem or opportunity does the project address?

Preceding development of the CDMS v2 platform the existing legacy system faced enormous challenges meeting the huge demand for limited vaccination appointments. When new eligibility criteria were announced by the Governor, citizen demand overloaded the system causing availability issues which frustrated end user experience and left many residents simply unable to schedule.

As a response to COVID-19 Mr. Rajiv Rao, New York State Chief Technology Officer, led the way to rapidly develop a new cloud-based, massively scalable, mobile optimized CDMS platform that has enabled 4.7 million NYS residents to schedule their vaccination appointments. A system that previously handled dozens of registrations per day was scaled to handle tens of thousands of registrations per day for the NYS Mass Vaccination Sites as well as numerous NYS County and "Pop-Up" locations.

1. As a first step the legacy system was migrated from an aging NYS data center to the consolidated NYS Zen Data Center located in Albany, NY. Multiple virtual machines, application clusters and expanded database resources were added as on-prem capacity and application constraints allowed. This initial application migration also allowed for increased security and comprehensive BOT protection. The Governor's daily press conference drove traffic as new appointments were made available…both good and bad actors. The BOT protection was a first line of defense to allow for fair scheduling for all NY residents.
2. The legacy system however continued to fail. At peak the system was experiencing 500,000 users per day at times as much as 10,000 users per minute. The system simply couldn't handle this load.
3. Next, the addition of a "queue" or "waiting room" technology was implemented to allow a limited number of users into the system before queuing them; first in/first out. This was great for system stability, the system did not "crash" following this implementation.

However, this was still not providing the ideal NYS user experience both the residents and leadership of NYS demanded.

4. Mr. Rajiv Rao and team worked unremittingly, around the clock to develop a platform that would allow New York residents to easily search and schedule their first dose vaccination appointment
5. Within days a "SWAT" team was established to rapidly develop a version 2 (v2) system that would provide a responsive mobile user interface and simplified citizen end-user experience. With participation from all levels of State Government including the NYS

Department of Health, NYS Division of Budget, NYS Office of Information Technology Services as well as external partners such as Google and Deloitte.

How did you do it?

CDMS v2 was built by NYS on a Public Cloud platform. Kubernetes for running Angular web and backend API's as well as an upstream/downstream synchronization process to the on-premise legacy system.

Multiple language support of 9 languages inclusive of English, Spanish, Chinese, Korean, Italian, Polish, Russian, Haitian Creole, and Bengali is a first for a NYS citizen facing application.

Why does it matter?

Without the upgraded system NYS would not have been successful in the continued pursuit to vaccinate all NYS residents.

What makes it different?

The new system was to be cloud-based and massively scalable to meet demand. This not just a *simple scheduling application.* The requirement was to scale and meet demand but also integrate with the existing legacy system for vaccine reporting into the NYS Immunization Information System (NYSIIS) all the while maintaining compatibility with the legacy system for call center and administrative functions at vaccine sites.

What makes it universal?

COVID-19 vaccination is a worldwide concern. From the beginning NYS led the way to ensure the IT system was not a bottle neck in the process to enable scheduling.

What did the project make better?

"The judges finally encounter an old man worthy of the vaccine and award him his prize: The opportunity to schedule a vaccine appointment online, which the old man doesn't know how to do." -- Rolling Stone

https://www.rollingstone.com/tv/tv-news/snl-covid-19-vaccine-game-show-dr-fauci-1134448/

Vaccine scheduling was so bad that it became a *punchline* on Saturday Night Live.

However, on March 30th the NYS CDMS system saw a peak of 80K transactions per min without fail. As of today the CDMS system has also scheduled over 1.1 million 1st dose appointments without a system outage.

What Now?

New York State is proud of the simplicity it has enabled every eligible NYS residents to schedule their vaccination and are equally proud to submit this initiative for award consideration to NASCIO. Solving this was paramount to the health and economic recovery of NYS.