CASESTUDY

INFORMATION TECHNOLOGY SERVICES

TAKING QUALITY TO THE NEXT LEVEL

CHALLENGE

The First Responder Network Authority (FirstNet) is an independent federal authority within the National Telecommunications and Information Administration (NTIA) in the Department of Commerce. It was established by Congress under the Middle Class Tax Relief and Job Creation Act of 2012 in response the communications challenges brought to the forefront following the 9/11 terrorist attacks. FirstNet's mission is to develop, operate, and maintain a nationwide, high-speed, broadband wireless network dedicated to public safety that equips first responders with the communication capabilities to save lives and project U.S. communities during disasters and emergencies. Marking a major step forward in efforts to modernize communications for first responders and other public safety officials, FirstNet announced a public-private partnership with AT&T in 2017 to move from commercial networks—those used by consumers and businesses—to a dedicated, interoperable network and ecosystem managed by the telecommunications company. To meet FirstNet's larger modernization efforts required changes be made to FirstNet's web-application, specifically moving it from servers hosted by NTIA to Microsoft Azure Government Cloud in the most expeditious way possible without compromising or breaking the site.

SOLUTION

Azure provides several different options when migrating existing sites to its services. The MIL Corporation (MIL) initially considered moving the public facing site from a Drupal, LAMP-based (Linux, Apache, MySQL and PHP) open source content management framework to the Azure App Service which is based on Microsoft Internet Information Services (IIS). However, it was determined through background research that several Drupal security features are only available if you run it on an Apache Server and not IIS. To achieve the twin objectives of migrating the website as quickly as possible while ensuring no functionality gets broken or compromised, MIL decided to migrate the FirstNet site to the Azure Container Service—a relatively new service offering.

Containers are a new lightweight environment virtualization technology that abstract from the underlying operating system and can be composed of only application components and their dependencies. MIL implemented the new website in a series of containers that work together to achieve as seamless a "lift and shift" as possible. By being able to specify exactly which application, services, versions and dependencies to install into the containers it was possible to create a functionally exact environment. The solution MIL created for FirstNet consisted of three containers: one running Drupal on the LAMP stack, a second running MySQL on Linux, and a third running backup software for the entire Drupal site.

BENEFIT

The immediate benefit of a containerized solution for FirstNet was that the website was able to be migrated to Azure Government quickly and with minimal risk. This was made possible by being able to replicate the current environment exactly in containers without introducing new environmental factors or compromising existing features by moving to a new platform. Migrating quickly to Azure Government was a high priority for FirstNet and not having to rebuild the application on a new platform allowed FirstNet to save resources for other priorities.

The ongoing benefits of containerized solutions in Azure Government extend well beyond the actual migration. Containers provide a degree of abstraction from the underlying operating system to which organizations do not have to commit resources. Microsoft maintains, patches, and updates the virtual machines that support the Azure Container Service. The portability of containers also means that FirstNet now has a true "lift and shift" capability to migrate their website to any container hosting platform like Amazon, Google, or another service virtually at will.

More importantly, containers provide a superior DevOps (development/operations) model for many reasons. First, applications are installed in containers with all their dependencies which provides a way to package and isolate solutions. Second, the container images can be managed in repositories instances of which can be spun up or destroyed within minutes. If there is a problem in one of the containers, the instance can be destroyed and another instantly created. Third, this means developers can run, debug, and develop the application in an exact containerized copy on their laptop that faithfully replicates the production environment. The same exact containerized solution can be deployed to development, integration, testing and production environments without ever introducing environmental factors.