IntelliGuard Uses AWS to Securely Scale and Deploy an RFID Inventory Management System in 30 Minutes

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Staying on the Leading Edge of Supply Management for Healthcare and Life Sciences

Tracking medication throughout the entire drug supply lifecycle, providing access to distributed inventory, managing inventory stock, and enabling traceability can be daunting tasks for hospitals, distributors, and manufacturers. Through its data-driven RFID tracking management software solutions, IntelliGuard’s mission is to empower providers by providing end-to-end control and visibility over individual supplies and inventory.

IntelliGuard offers medication management systems that support a broad category of critical inventory and supplies serving four markets: the life sciences consignment market, the specialty medication market, the hospital pharmacy market, and related markets. “By staying on the leading edge of supply management through our technology, we want to enable providers to do their job to the best of their abilities to help support patient safety,” says Elise Claudepierre, vice president of marketing at IntelliGuard.

IntelliGuard's focus and broad offerings for both the life sciences and healthcare industries set it apart from other companies. Core to the company’s ability to continue differentiating is its capacity to rapidly scale, develop, and deploy new features and solutions. "We move at a rapid pace to help our customers stay ahead of trends, and we want to use technology to further our mission," says Jeff Webber, director of technology at IntelliGuard. “In our on-premises environment, we found ourselves limited in our ability to move quickly and scale as needed. We believed the cloud would enable our rapid growth while collecting, analyzing, and driving new insights from our data.”

Given IntelliGuard’s use of Microsoft SQL Server—a relational database management system—to store its RFID data, the company first chose to migrate from its on-premises environment to Microsoft Azure. After deploying on Azure, however, the company began to struggle with scalability, flexibility, and cost optimization.

The company chose to migrate from Azure to AWS and worked with Six Nines to design its platform architecture for HIPAA-compliance and enable seamless scalability, rapid development capabilities, and provide more features—such as advanced tooling in machine learning (ML) and high availability and replication features—to its teams. IntelliGuard worked with Six Nines over eight weeks to build out a multi-Availability Zone (AZ), HIPAA-compliant infrastructure for its platform on AWS.

Using AWS, IntelliGuard can deploy its entire system in 30 minutes. Since migrating from Azure to AWS, the team has been able to right-size their deployments and save costs while benefiting from a fuller feature set on Amazon RDS. Using the capabilities of AWS, IntelliGuard is taking advantage of a continuous integration/continuous delivery (CI/CD) pipeline to shorten cycle release times for its application and drive value to the business more quickly.
Migrating from Microsoft Azure to Amazon Web Services to Scale and Embrace Greater Functionality

After analyzing the company’s existent Azure infrastructure and architecture, Webber began to explore options for migrating from Azure to Amazon Web Services (AWS).

"When I first came to IntelliGuard, I saw what we had built in Azure and, knowing what I knew about AWS, felt it was only right to advocate that we move to AWS. I feel AWS is much more mature than Azure," says Webber. "It was the obvious choice. We must make it easy for our developers to deploy into an infrastructure, create solutions, and iterate. When we ran in Azure, I didn't see those capabilities for our team. For example, the Azure SQL database solution didn't have much of the functionality we wanted to take advantage of, even though SQL is a Microsoft product. Comparatively, Amazon Relational Database Service (Amazon RDS) for SQL Server provided us all of the flexibility and functionality we needed and more."

By moving to AWS, IntelliGuard sought to design its platform architecture for HIPAA-compliance and enable seamless scalability, rapid development capabilities, and provide more features—such as advanced tooling in machine learning (ML) and high availability and replication features—to its teams.

Working with a consultant, IntelliGuard quickly identified Six Nines, an AWS Partner Network (APN) Premier Consulting Partner and AWS Microsoft Competency Partner, to help the company plan for and execute a migration from Azure to AWS.

Engaging with Six Nines to Build for Scale, Speed, and Growth on AWS

Six Nines has helped hundreds of organizations migrate to AWS over the past decade with a specialized focus on Windows Workloads. The company’s reputation and proven experience with Microsoft workloads on AWS, DevOps, and HIPAA frameworks stood out to IntelliGuard.

IntelliGuard and Six Nines kicked off the engagement with an architecture review and discussion regarding IntelliGuard’s desired outcomes on AWS.

“Six Nines has prescriptive architectures available for HIPAA-specific builds,” says Matthew Brucker, senior solutions architect at Six Nines. “Part of our process is to map out what the customer has, align that with a HIPAA reference architecture, and ensure that the services we want to run are HIPAA-compliant. It’s a very methodological approach focused on building with security and compliance at the forefront.”

IntelliGuard then worked with Six Nines over eight weeks to build out a multi-Availability Zone (AZ), HIPAA-compliant infrastructure for its platform on AWS. Six Nines recommended and then helped IntelliGuard execute a multi-phase migration to AWS. Given that IntelliGuard needed to whitelist it’s front-end IPs with a large number of hospitals, some data needed to stay in Azure while Six Nines and IntelliGuard began the initial migration.
Six Nines’ highly skilled engineers started by configuring the VPC and different subnets, and then subsequently set up the company’s Amazon RDS SQL Server and configured the SQL Server enterprise instance hosting its SQL Server Reporting Services (SSRS). To assist with the secure tunnel between the two cloud providers, Six Nines leveraged VNS3, a product from Cohesive Networks – a network connectivity and security company and APN Advanced Technology Partner – to create an encrypted overlay network allowing real-time data replication from Azure to AWS. Together, Six Nines and Cohesive Networks helped IntelliGuard create a site-to-site VPN between Azure, AWS and IntelliGuard’s office. Once that was complete, Six Nines leveraged AWS Database Migration Service (DMS) to move data over to AWS into the company’s Amazon RDS cluster.

Following the initial deployment, IntelliGuard began leveraging AWS Elastic Beanstalk to deploy its applications and using Elastic Beanstalk with RDS. Today, IntelliGuard is deploying secure medical devices with its application throughout hospitals. That application sends all of the data back to AWS. "By deploying in the cloud, we believe our company can better differentiate and explore more opportunities," says Webber. "We can, for instance, collect data through Internet of Things devices, and then conduct deep analytics and use ML tooling to drive new insights and help providers make better decisions."

**Rapid Deployment and Faster Innovation with Six Nines and AWS**

Using AWS, IntelliGuard can deploy its entire system in 30 minutes. "Now that we’re deployed in the AWS cloud, we can take advantage of rolling deployments and multi-tenant deployments while delivering features to customers much more quickly," says Webber. "It drastically cut down on our deployment efforts and the time our team had to devote to deployments.” Since migrating from Azure to AWS, the team has been able to right-size their deployments and save costs while benefiting from a fuller feature set on Amazon RDS.

Using the capabilities of AWS, IntelliGuard is taking advantage of a continuous integration/continuous delivery (CI/CD) pipeline to shorten cycle release times for its application and drive value to the business more quickly. “Having the hosted database solution on RDS and the deployment pipeline offered by Elastic Beanstalk has improved our release times dramatically; we can turn around a hotfix in less than 24 hours. We used to release features quarterly, and we’re now capable of releasing at least once a month. What’s been the most impressive feature to me is the fact that I can scale at any pace and I don’t have to worry about it at all,” says Webber. "Through Amazon CloudWatch, I have great visibility into my system, and I’ve had zero downtime with our services such as Elastic Beanstalk since we went live in 2017. I can focus on my applications and taking advantage of more and more AWS services.”

IntelliGuard has felt its relationship and work with Six Nines puts the company in an optimal position to continue to develop on AWS. "Six Nines brings a lot to the table when it comes to engineering and networking. The team helped us understand what’s possible in AWS from a networking perspective, but also how we could take advantage of AWS’ application and database services. They’ve been very helpful in getting us to a position where we not only have good connectivity, but we’re also secure."
Today, IntelliGuard continues to facilitate and complete many integrations with hospital electronic health records systems and devices through AWS, given the rapid pace at which AWS services are becoming HIPAA-certified. The company is working on a progression to move application loads into Amazon Elastic Container Service (Amazon ECS) to take advantage of serverless computing. "More and more hospitals are comfortable with storing critical data in AWS, which is very exciting to me,” says Webber. “I feel the AWS Cloud is going to enable interoperability between devices and drive communication between devices ultimately. As communication improves, patient care improves."

Six Nines is a Premier Consulting Partner in the AWS Partner Network (APN) and AWS Solution Provider specializing in helping businesses migrate to the cloud responsibly. A member of the APN since its inception, Six Nines has successfully migrated hundreds of customers across all industries to the cloud and offers a combination of speed, agility, experience to deliver accelerated solutions and rapid time-to-value. The company combines old-school, on-premises IT roots together with deep expertise and a laser focus on all things AWS to provide bespoke solutions that are individually tailored to meet customers’ unique needs throughout the cloud lifecycle.

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