

## A Case Study on AWS for Life Sciences

Critical Cloud-Based Software needed continuous uptime

### Who is iSpecimen?

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iSpecimen is the marketplace for human biospecimen collections, providing researchers with the specimens they need from the patients they want. Headquartered in Lexington, Massachusetts, the privately held company uses proprietary cloud-based technology to match qualifying samples and associated data from its diverse network of hospitals, labs, biobanks, blood centers, and other clinical organizations to biomedical researchers' specimen requests. iSpecimen sources biofluids, solid tissue, and primary cells, offering clinical remnants, banked samples, and samples collected prospectively for research. Scientists gain easy access to the high-quality samples they need for their research. Partner sites gain an opportunity to further contribute to biomedical discovery as well as their bottom line. And ultimately, healthcare advances for all.



### The Challenge

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iSpecimen's business relies on the uptime and availability of their custom-developed, cloud-based software application. Doug Williams, CTO of iSpecimen explains, "We have researchers across the country that depend on our service to be available at all times. The hospitals, labs, biobanks, and other organizations across our partner network also need to securely upload data about their specimens into the platform, day and night. The infrastructure has to be available 24x7 without exception." As iSpecimen worked to scale its product post-launch, the company needed an IT partner that could manage the availability of the infrastructure, while also managing their stringent security requirements. "When you are dealing with sensitive medical information, security is a top priority," added Williams.



## The Solution

iSpecimen worked with Privo to design a Virtual Private Cloud (VPC) hosted at Amazon Web Services (AWS). Due to the type of data iSpecimen handles on a daily basis, they needed a hosting provider that would be able to meet all the security and compliance requirements dictated by HIPAA, the Health Insurance Portability and Accountability Act. They also needed a hosting provider that provided them with the tools and services to help their application scale. Privo was able to architect a secure, highly available environment using Amazon's Virtual Private Cloud (VPC), Elastic Compute Cloud (EC2), Elastic Load Balancer (ELB), Simple Storage Service (S3), and Relational Database Services (RDS). "The infrastructure has had 100% uptime since the beginning. That has been critical to earning the trust of our early customers," said Doug Williams.

By choosing AWS and Privo, iSpecimen was able to focus on the development of their application and leave the heavy lifting of managing the infrastructure and security to AWS and Privo. iSpecimen's application now resides in a secure VPC deployed across several AWS Availability Zones (AZ). The application consists of public facing ELBs that terminate SSL requests, and serve traffic to secure web servers running on Linux EC2 instances. The web servers use a highly available RDS instance that spans 2 AZs, in addition to several read replica instances. Partners in iSpecimen's network upload data to S3 where the data is stored for processing. Once the specimens have been processed, the data is then archived to AWS' Glacier service for long-term, cost effective archival storage.



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The support from Privo's AWS team has really enabled iSpecimen to continue innovating, spending more of our time on product development and less time worrying about keeping the lights on. Privo has been instrumental in helping us get the most out of AWS. Their support team has really helped us to optimize the performance, security, and availability of our application by leveraging automation, helping us eliminate any single points of failure.”

- Doug Williams, CTO iSpecimen



Privo is a Premier AWS Consulting Partner with offices located in Boston and San Francisco we help customers migrate, manage, and optimize their infrastructure in AWS. Privo delivers these services across three main practice groups: DevOps, End User Computing, and AWS Cost Optimization.



AWS allows you to have an agile, cost-effective, and scalable infrastructure to enable operational efficiency, and simplify access to applications for end users. With AWS, companies of all sizes can focus more on their core business instead of IT administration.