How Canvas Medical increased developer execution speed and delivery of EMR platform with Aptible

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Canvas Medical was founded in 2015 to create a comprehensive EMR (Electronic Medical Records system) that features a natural language user interface (UI) to generate clean, highly structured data in an intuitive, human-centered format. The care models built on Canvas support good medicine and allow patients to experience care across a variety of specialties, payment models, interaction modes, and interventions. Innovative care teams get started with Canvas easily, and developers on Canvas collaborate with clinicians to further customize, automate, and integrate data into care delivery using the Canvas SDK and APIs.

The Challenge: Infrastructure, HIPAA, and Resources

Canvas needed a solution to build a highly secure, HIPAA-compliant infrastructure that provided customers with the ability to customize and host the proprietary protocols and integrations they were building on the Canvas platform. Unlike traditional EMR vendors, Canvas provides customers with their own production and development environments to host their unique customized instance of the platform, which creates stronger protections for their patient data and the intellectual property embodied in their protocols and integrations. The biggest challenge was the number of people and cost required to build the infrastructure and manage it going forward.

Beau Gunderson, CTO of Canvas, says, "Early on I looked at the AWS HIPAA guide for Elastic container service and Elastic compute and it's a lot. It's a massive amount of infrastructure. And of course, that's a basis to offer more infrastructure and more complexity. Then they can also offer

you one of their architects to go through and review it and make sure everything is constructed correctly."

Canvas went looking for solutions that wouldn't require the organization to solve the problem from scratch so they could focus on building the capabilities of the EMR platform instead. They knew that whatever they chose had to build in security, compliance, robustness, performance, scalability, all while keeping costs under control. It also had to be a solution that their engineering team could easily work with.

HIPAA Compliant Platform to Scale Innovative Care Models

Aptible was uniquely qualified to meet these needs because it already had a HIPAA-compliant infrastructure solution that Canvas could inherit. David Jantzen, Staff Engineer at Canvas says, "The motivation for working with Aptible was to have a HIPAA compliant platform to cross the t's and dot the i's in terms of HIPAA compliance, while facilitating sales on the Canvas side by being able to point to Aptible's value propositions in scalability, security, and ease of use. Your reputation bolsters our reputation, which I think is a major strength in our partnership."

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The Canvas team integrated Aptible with the product and approach that they already had in place. Aptible controlled and contained costs for Canvas by removing the need for external consultants, and the need to build a team to create and manage the infrastructure powering the platform.

"We realized it would be a lot of work that we would not have to do, because we would be able to leverage Aptible," Gunderson remarked. "It's hard to put a number on it, but I'm sure that we would not be where we are now. We would also not be as secure as we are now, because, left to our own implementation, I don't think we would have something as cohesive as we have through Aptible. I think there would be a lot more worry on my end that we had missed a gap."

Features that Provide Benefits Now and in the Future

Canvas has been pleasantly surprised by the additional benefits they are getting from using Aptible and also Aptible's commitment to ongoing development for the future. Aptible helped Canvas achieve HITRUST and SOC2, satisfying over 100 controls via the Security and Compliance Dashboard. Jantzen says, "One benefit I would point to is the blue-green deployments, the fact that we can launch a new version of our software just by spinning up a new cluster of containers. If we were building all of this on raw EC2 or even on Fargate or ECS, I would imagine we would have a lot more tooling to maintain and a lot of state management to make sure that traffic was being redirected smoothly and the customers were not seeing outages."

He also feels that some of the newer developments have been helpful. "Container Profiles that let us choose much more appropriate resourcing, for different workloads. And so this is actually a really huge benefit to us. It makes me personally feel a lot more comfortable about Aptible as a long-term partner for us because we've got a variety of different workloads across our system to support our customers' different care models and protocols. Not everything fits cleanly into a general-purpose model. To have access to these other profiles, and to choose resourcing in a more granular way, that's really important, for our ability to manage our costs, longer term, and encourages us to stay with Aptible."

Gunderson adds, "I absolutely love the new dashboard that's being built. I have loved getting to provide feedback on it and have seen you all take into account some of the suggestions we've made. It's been a huge help."

Another area that Canvas was impressed by was metrics. Jantzen says, "the metric drains - we use the heck out of those things. We stream all these metrics that Aptible provides and some custom instrumentation that we have in our code, we'd be totally blind without it. We're running a large fleet of different customized instances of full-blown EMRs. Each one of these has at least one web container, asynchronous job processing container, the database of course, and maintaining visibility across all these different containers that are undergoing different workloads, because they're for different customers and care models, is really complex, so metric drains are really important."

Another win was Aptible's Terraform provider integration since Canvas is a Terraform power user. Jantzen says, "The fact that Aptible has the Terraform provider, the fact that Terraform is this declarative tool that lets us just say here's the world we want and then Aptible takes it from there. That reduces the tooling burden on us pretty substantially."

From HIPAA Compliance and Scalable Infrastructure to Much More

Canvas is really happy with what they are getting from Aptible. "I'm able to focus almost exclusively on cost, running containers because of the fact that Aptible maintains the DevOps staff. The 24/7 support and all the built-in tooling that we leverage. If we were just on AWS natively, we'd probably have two or three full-time people, possibly more, to ensure round-the-clock support," Jantzen says. Canvas has worked with Aptible's cost optimization specialists extensively to achieve these results.

Gunderson adds, "a lot of our security questionnaires have become much easier because I can rely on the guarantees we get from the way that Aptible sets up and manages our infrastructure."

Aptible allows Canvas to automatically apply the same level of infrastructure security and compliance automatically to its customers. Gunderson continues, "Aptible allows us to focus, instead of splitting our attention between the platform we're building and the platform we're building on top of. It allows us to focus on the customer-facing portions of our application. One of the biggest benefits of relying on Aptible, is that multiplier on execution speed. Execution speed is where Aptible provides the biggest bang for our buck. Aptible is constantly improving its own platform and product, and we see that improvement to our own execution speed as well."

"If we had to do all that ourselves, I don't know if we would ever have gotten to where we are now as quickly. So, it is a massive impact."