Partnering with Cloudticity

MiHIN Case Study

The Client

Michigan Health Information Network Shared Services (MiHIN) is the state-designated entity for health information exchange in Michigan, creating the technology and resources needed to facilitate the legal and secure sharing of patient information between authorized healthcare providers. MiHIN represents a growing network of public and private organizations working to overcome data sharing barriers, reduce costs, and ultimately advance the health of Michigan's population.

The Challenge

Each week, 18 million clinical messages flow inbound through MiHIN's statewide network. This includes nearly 60 HL7 v2 and v3 message types related to Admit, Discharge, Transfers (ADT), Order Results (ORU), Consolidated Clinical Document Architecture (C-CDA), and more. MiHIN also supports the exchange of other patient data to meet standards for Fast Healthcare Interoperability Resources (FHIR), claims, and other custom message formats. Every day, the platform monitors and routes information for more than 13 million patient-provider relationships, involving over 50,000 unique providers and 4,500 distinct care entities actively engaged in care. To keep pace with this volume of information, MiHIN needed a more scalable, secure and cost-effective solution.

Prior to the cloud, MiHIN relied entirely on legacy, on-premises servers. Every application offered ran on its own hardware, requiring ongoing maintenance and significant capital investment for upgrades. Performance was static, and scaling up meant purchasing and physically installing new equipment. During peak seasons, any hardware failure could leave clinicians without access to patient histories or medication records forcing them to use old methods. Additionally, VPN connections created security vulnerabilities.

The IT team was focused on patching servers and troubleshooting hardware, rather than driving innovation in clinical workflows. MiHIN faced a critical decision: invest heavily in hardware updates or migrate to the cloud. The cloud emerged as the clear solution for MiHIN's most salient needs: scalability, security, and cost efficiency. MiHIN partnered with Amazon Web Services (AWS) as its cloud provider and AWS Premier Consulting Partner, Cloudticity.

MiHIN Reduced Manual Oversight by 80% With Real-Time Compliance Powered by Cloudticity.



The Solution

MiHIN recognized its numerous VPN connections presented a hurdle to cloud adoption. Cloudicity's solution enabled MiHIN to leverage secure API tools available in the cloud, utilizing Transport Layer Security (TLS) certificate exchange, significantly mitigating a key barrier to cloud migration. Without this, new VPN connections would have to be created for every site that relies on them.

With the VPN issue addressed, the first step was migrating MiHIN's servers to the cloud. Cloudticity deployed Amazon Elastic Compute Cloud (EC2) instances and Amazon Elastic Block Store (EBS) volumes for EC2 storage, and Amazon Relational Database (RDS) as an initial database solution. This initial step provided a robust foundation but wasn't the end goal. MiHIN wanted to become a cloud-native organization, fully embracing serverless and PaaS (Platform as a Service) technologies and developing cloud-native applications. Today, MiHIN uses AWS Lambda with EBS, and Amazon Neptune graph database for deeper data insights.

Cloudticity helped MiHIN architect for high availability using Amazon Elastic Load Balancers (ELB) and Autoscaling Groups. Today, it always has the right size infrastructure for any given workload.

With Cloudticity Oxygen™, Cloudticity's proprietary cloud management solution, managing the environment, MiHIN's software resources are preconfigured to be secure and HIPAA compliant, ensuring that instances deployed by employees always meet organizational standards.

The Benefits

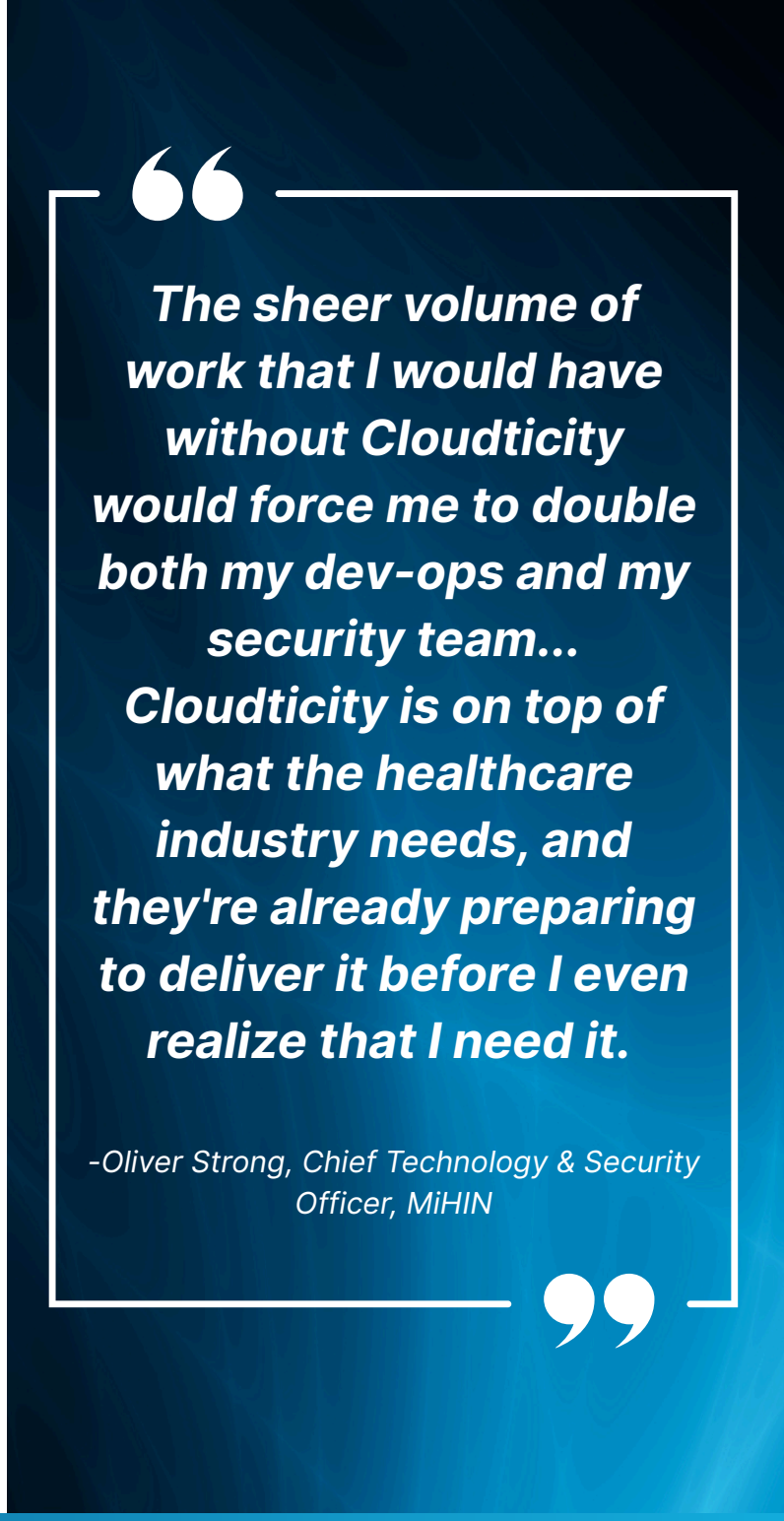
Driven by the cloud, MiHIN has shifted from merely sustaining infrastructure, to championing value-based care and community wellbeing. The organization now focuses on driving patient-centric innovation and measurable clinical impact, rather than cutting IT costs and maintaining compliance. MiHIN's teams develop new application features and functionality that improve customer and patient experience at a much larger scale and faster speed, positioning it as an innovator in the health information exchange (HIE) space.

Additionally, the cloud empowers MiHIN to leverage novel technologies like graph databases (powered by Amazon Neptune), to extract deeper insights from previously fragmented healthcare data. This has paved the way for integration with artificial intelligence (AI) and large language models (LLM), further unlocking the potential for data-driven insights.

MiHIN's cloud environment has been transformed into a fully managed, HIPAA-compliant AWS ecosystem. Cloudticity's Oxygen platform now automates almost 3,000 HIPAA and HITRUST checks (in fact, Oxygen supports 146 global compliance frameworks, and continues to grow that number), providing real-time compliance dashboards and reducing manual oversight by 80%. MiHIN has migrated all of their on-premises workloads, adopting serverless architectures and auto-scaling to optimize cost and performance. The platform also allows them to hone in on which compliance framework a reported risk is relevant to and drive communications with customers in advance.

"The sheer volume of work that I would have without Cloudticity would force me to double both my dev-ops and my security team," says Oliver Strong, Chief Technology & Security Officer, MiHIN. "Cloudticity is on top of what the healthcare industry needs, and they're already preparing to deliver it before I even realize that I need it."

With a lighter load, MiHIN's internal teams are free to ask higher level questions such as: How do we ensure that we respect the preferences and consent of all the patients? How do we really enable healthcare to be patient-centric? And how do we leverage the aggregation power of AWS to get there?



About Cloudticity

Cloudticity, based in Seattle, WA, helps healthcare organizations design, build, migrate, manage, and optimize HIPAA-compliant solutions on the public cloud. Founded in 2011, Cloudticity has helped providers, payers, and companies that sell to the healthcare industry remain secure, compliant, and highly available to patients and customers that rely on them.

For more information, visit Cloudticity.com

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Around-the-clock support has also helped MiHIN thrive. When its team received a security alert in the late hours of the night, the Cloudticity team immediately took action. “We had a team that stayed on with us until the early morning looking through the logs, making sure that we had taken the right steps to mitigate it, and ensuring that there was no further risk from the incident, " shared Strong. “They brought experts to the discussion which really helped multiply what my team was capable of doing. They were very quick at providing solutions and, after the fact, helping reduce risk in the future.”

MiHIN has experienced a significant improvement in uptime since migrating to the cloud. Its legacy system was plagued by outages, occurring every 60 days and taking three or more days to resolve. Today, its integrated technology platform performs at near-perfect uptime. This dramatic improvement ensures uninterrupted access to critical patient data, fostering better care delivery.

As a leader in a specialized field, MiHIN also cares deeply about building the next generation of healthcare IT professionals.

“Cloudticity does a great job meeting their customers where they're at,” said Strong. “MiHIN has a longstanding tradition of giving new employees an opportunity to grow a career in the field. Cloudticity also has infinite patience for these new employees. It's a really important trait for working with a company like MiHIN that wants to help build the future workforce in health IT.”

MiHIN has the Cloudticity team to thank for enabling its transformation – but its cloud migration wasn’t just about technology. Beyond technical guidance, Cloudticity facilitated a crucial cultural shift, mitigating resistance and fostering skill transfer. Their deep understanding of both healthcare and cloud environments empowered MiHIN to fully leverage AWS. This powerful partnership transformed MiHIN from a traditional HIE into a healthcare innovator, championing value-based care and community wellbeing.