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STORIES OF CUSTOMER SUCCESS

CleanSlate and AWS deliver innovative migration and modernization solutions

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Case study:

How CleanSlate and AWS helped migrate a client's on-premise legacy VMWare infrastructure to AWS

30%

increase in market share

70%

savings on non-production costs

100k

concurrent users

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Overview

A national marketer and manufacturer of student achievement products sought the help of CleanSlate to enhance their yearbook design application. Their core product was running on an outdated 14-year-old Flash-based system on VMWare that was prone to failure; unscalable, unsustainable, and nearing the end of life. Flash was also no longer supported from a security standpoint by all the schools they served.

Their data center was regularly crashing, with scalability and stability issues. This led to numerous problems, such as production issues on deadline days, technical bugs being left unresolved for months, technical debt build-up, outages that could last multiple days, and the inability to provide new features to their customers consistently. Additionally, customers were hampered by the instability of the existing application, system performance, and the long onboarding process.

As a result, product development and innovation were significantly lacking as they were continually trying to keep the system operational and were unable to launch new products without impacting users. These obstacles created an inadequate customer experience, causing the client to lag their competition, when previously they were a leader. The company needed to shift from a yearbook printing mindset to a SaaS product mindset.

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Solution

CleanSlate Technology addressed the client's technical and customer challenges by developing a multi-tenant SaaS solution on the AWS cloud that simplified deployments and reduced overhead. This multi-tenancy allowed 100,000 users to leverage the same system while ensuring tenant isolation. With tenant isolation, users could confidently log into their organization, knowing their data was secure and the system remained reliable and high performing for yearbook production. The SaaS solution also enabled multiple roles to log in simultaneously, fostering real-time collaboration on projects.

> By embracing a SaaS mindset, the client built a solution that could scale seamlessly to meet user demand while optimizing costs and ensuring reliability.

To successfully transition to SaaS, CleanSlate prioritized the customer experience and used agile development to break the transformation into small, manageable tasks. CleanSlate's solution entailed:

- **Modernized infrastructure and development:** Migrated the front end to an Angular-based application and containerized the back end on Amazon ECS, following AWS modernization pathways. Moved their on-premise VMWare platform to AWS-native services, including Amazon RDS and Amazon DynamoDB. The modernization efforts included containerizing the back end and using Terraform for automation.
- **Automated DevOps:** Integrated Terraform for infrastructure-as-code automation, automated application builds and releases with Jenkins, and embedded DevOps into the overall process. Adopted static code analysis tools to scale development from one to 12 teams, which was a huge undertaking. Previously, they didn't have enough hardware or infrastructure to be able to support parallel development.
- **Database migration and optimization:** Seamlessly migrated a 40TB Oracle database — the largest Oracle instance running in U.S. East two — using AWS Database Migration Service (DMS), without any outages. This eliminated downtime and improved maintainability. CleanSlate moved the client to managed databases for improved reliability and security.
- **Enhanced observability and monitoring:** Retrofitted existing Splunk and New Relic monitoring systems, which provided real-time analytics and performance insights to detect and resolve issues before they reached the help desk.
- **Accelerated release cycle:** Transitioned from a six-month release cycle to automatic deployments with Continuous Integration/Continuous Deployment (CI/CD). Leveraged SaaS DevOps practices, A/B testing, and real-time analytics via Amazon CloudWatch and New Relic to assess and launch new features, ensuring smooth adoption with minimal user disruption.
- **Open-source adoption and standardization:** Integrated modern open-source modules and established standardized processes for infrastructure, microservices, code, and database deployments.

The primary objective throughout the modernization process was to enhance the entire user experience — from onboarding and scalability to yearbook production efficiency — while minimizing disruption to users. CleanSlate conducted user research and identified pain points to inform design decisions. Product roadmaps helped guide feature development, allowing the client to strategically plan and coordinate new releases.

The SaaS solution improved the onboarding process and identity management system, enabling organizations to add new users while maintaining their isolated environments. AWS's scalable infrastructure enabled the client to scale vertically and horizontally through high usage periods, ensuring high availability, responsiveness, and efficiency under varying workloads. The combination of the well-defined product roadmap and scalable infrastructure fostered innovation, enabling the client to enhance its market share by accelerating product feature releases and improving the overall customer experience.

Customer outcomes

CleanSlate was able to design and build a scalable and reliable solution that created additional value, resulting in business growth, higher customer retention, and operational efficiencies. This included:

- **Increased market share by over 30%** with a defined product roadmap and scalable model
- **Ability to support over 8,000 school systems** with multiple users per school, which enabled collaboration with isolated customer information
- **Achieved 100,000 concurrent users**
- **Over 200 unique features implemented**, surpassing the competition
- **Improved customer satisfaction** and retention with agile process development and faster release cycles
- **Increased release frequency from six months to on-demand**, with the automation and scalability of AWS infrastructure
- Dramatically **reduced downtime**
- **Saved around 70% on non-production costs** with cost optimization

> "It's not hyperbole to say that without CleanSlate's involvement in our application's development, our company wouldn't have survived … Not only do we have a best-in-class application, but the revenue its earning for our company hasn't been seen in decades."
>
> – Client

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Case study:

CleanSlate overhauls an insurer’s legacy applications running on VMWare with AWS migration in just 100 days

Overview

The client, a leading insurance company, had their core infrastructure hosted in a third-party data center. This posed significant financial, operational, and security risks. Their high reliance on external vendors for critical functions like Network Operations Center (NOC), Security Operations Center (SOC), and infrastructure management, without strong oversight, resulted in multiple ransomware attacks and other security breaches. Additionally, the lease with the data center vendor was set to expire and an extension would significantly raise costs and expenses, jeopardizing the remaining fiscal year budget for technology spend, as well as the following year's budget.

Furthermore, they had underinvested in their technology for many years, accumulating a significant amount of technical debt. Their legacy infrastructure had high maintenance costs and a lack of flexibility, and they had difficulty in adapting to modern technology.

Their legacy system lacked the scalability to accommodate new portfolio companies, slowing down acquisition integration. And a lack of standardized processes across their portfolio companies led to inefficiencies and duplicated efforts. Migrating to a cloud solution became imperative, but the significant amount of rework of the infrastructure, applications, and potentially the business process itself, was daunting.

364	46	2007	100	7	1,500
applications to be moved	senior stakeholders	the year of last updated documentation	days to complete migration	infrastructures that needed migrating	users

Solution

Why CleanSlate Technology?

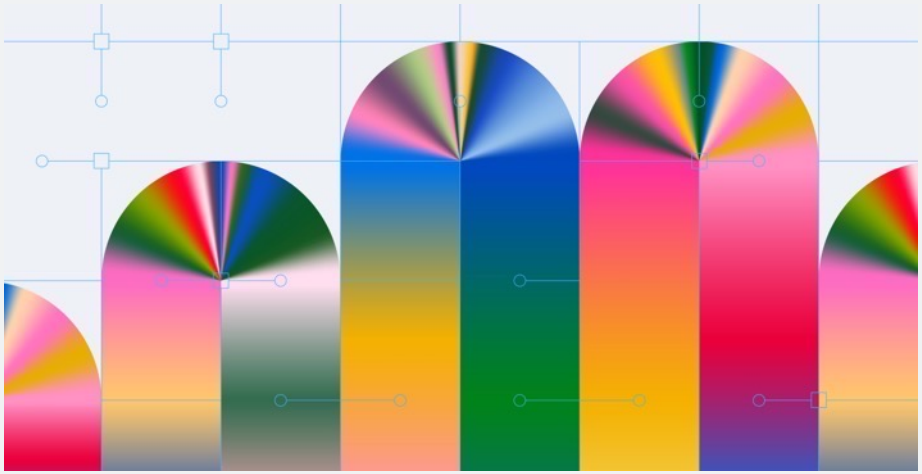
Proven cloud migration and modernization experience, including:

- Deep legacy architecture expertise, paired with modern AWS skillsets and a passion for complex problem solving and implementation
- High-performing team with experience working on AWS cloud migrations, AWS modernizations, and data center migrations
- Expertise in the AWS Migration Acceleration Program (MAP) and obtaining funding benefits for clients to help fund the migration
- Data-centric mindset, underscored by data modernization expertise, ensuring the ability to develop future phases of data lakehouse, AI/ML and generative AI skills
- Track record of true application modernization experience, with knowledge of cloud-native, complex legacy and DevOps modernization
- Strong focus on business outcomes and not just technology

Why AWS?

Best-in-class technology and partnership success, due to:

- Application Migration Service simplified and expedited block-level replication and reduced the complexity of the migration
- Provided access to key SME architecture resources, to assist as needed
- Created bespoke training for the client and CleanSlate on technology and tooling
- Offered $2 million in partner funding to offset the costs of the migration services

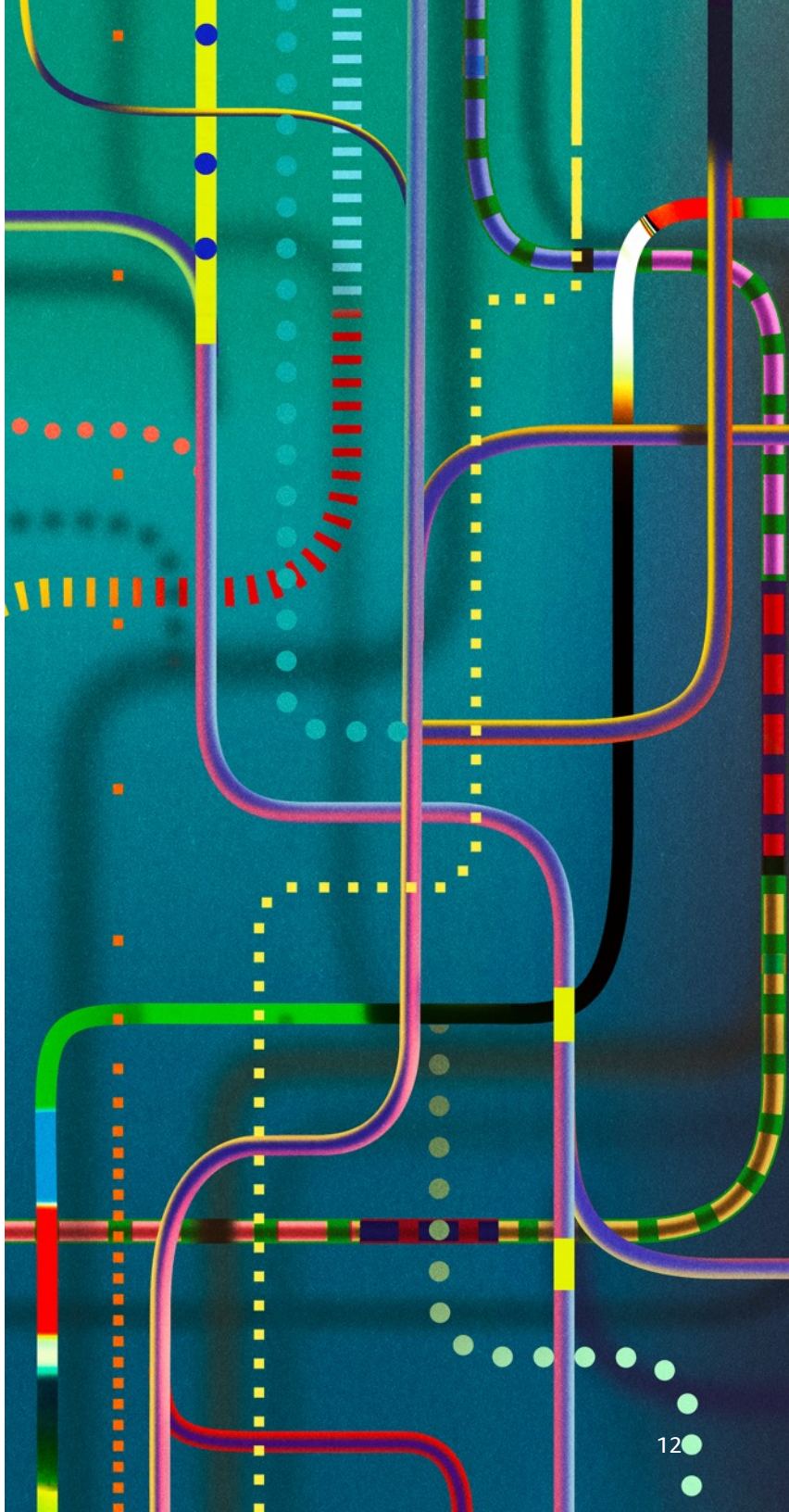


The client chose CleanSlate Technology to manage its massive migration to the AWS cloud because of CleanSlate's future-ready business solutions and track record.

From the beginning of the legacy modernization, CleanSlate established a program to "lift and shift" the application portfolio in the client's third-party data center to AWS cloud in less than 100 days. The migration strategy involved transparently copying and migrating the applications and data using proprietary AWS technology, such that the change in hosting location would be almost unnoticeable to customers.

Once the "lift and shift" migration was completed, CleanSlate transitioned into a "transform in place" phase where they focused on:

- Security improvements that included application isolation, ensuring no compromised applications could infect healthy ones
- Role-based access to limit access to specific applications and services
- Operational improvements including built-in monitoring, always up to date documentation, and self-service provisioning that enabled teams to create what they need in minutes instead of months
- Automated compliance and reporting to ensure they met and exceeded audit requirements



With their migration strategy, CleanSlate addressed each of the client's challenges.

Challenge: Legacy infrastructure and operational inefficiencies

Solution: AWS modernization pathways

- Migrated SQL databases to Amazon RDS for enhanced scalability, reliability, and performance
- Modernized DevOps using Azure DevOps (ADO) and Terraform Cloud to streamline deployments and infrastructure management
- Developed a modern zero trust security model to strengthen identity, access, and data protection
- Adopted AWS-native back up and disaster recovery tools to improve resilience and reduce recovery times
- Migrated NAS solutions on SAN to Amazon FSx, optimizing storage performance and cost efficiency
- Modernized VMware workloads by transitioning to fully managed Amazon EC2 and Amazon EKS, reducing operational overhead and improving agility

Challenge: Technical debt

Solution: Software-defined WAN (SD-WAN) and cloud-based infrastructure

- Simplified the network with SD-WAN, leveraging cost-effective ISP lines to seamlessly connect locations, transport types, and services across all deployment environments
- Migrated to AWS, replacing outdated systems with scalable, modern cloud solutions
- Leveraged the cloud and reduced the need for on-premise maintenance, lowering costs and enabling agility

Challenge: Security risk

Solution: Monitoring as code and enhanced security practices

- Adopted monitoring as code, allowing for real-time threat detection and response
- Strengthened security posture by implementing internal SOC capabilities, reducing dependency on external vendors
- Led implementation of zero trust Zscaler solution to modernize the client's security and network throughput, removing all on premise VPNs and AWS Direct Connects
- Replaced Cisco firewall stacks with advanced AWS network firewall, and utilized TerraForm for policy as code and enhanced security through micro-segmentation

Challenge: Scalability and flexibility

Solution: Standardization, reference architectures, CICD pipeline and infrastructure as code (IaC)

- Implemented a mature CICD build and test process, using Gitlabs and IaC, enabling automatic deployments across portfolio companies and facilitating rapid scaling
- Standardized processes and architectures to provide a cohesive foundation for integrating new acquisitions

> "The ability to execute such a complex and critical project without any disruption to our business is a testament to CleanSlate's professionalism, deep technical knowledge, and commitment to success. We couldn't have asked for a better partner to guide us through this transformation. CleanSlate truly is a strategic partner for us now and in all our future endeavors."
>
> — Client

Customer outcomes

With the successful migration to AWS cloud in less than 100 days, the client was able to achieve:

Reduction in annual operating costs by $1.8 million

- Depreciation of high cost MPLS lines and equipment
- High cost, low server outsourcing arrangement
- Colocation costs for servers that were no longer required
- With this foundation set by CleanSlate, the client was then able to save a total of $5 million annually in operating costs.*

*Five million dollars total was saved by the client through their own initiatives after Clean Slate's measures. $1.8 million was the cost savings as a direct result of Clean Slate's modernization efforts.

Improved efficiency

- Reduction in provisioning time for basic new servers to one hour, from six to eight weeks with IaC
- Problem detection in near-real-time, reduced from days, when users would call about issues after incidents occurred. This was achieved by implementing a new observability plan, with the insourced NOC actively managing infrastructure.

Improved resource optimization

- Adjustments in allocation of CPU, memory, or disk went from over two months to overnight with server right-sizing

The collaboration between CleanSlate and AWS helped the client achieve their migration and modernization goals in record time while reducing costs and improving efficiency. Thanks to the partnership, the client is well prepared for a digital future.

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Case study:

Modernizing finance: CleanSlate and AWS build a future-ready financial platform, boosting speed, efficiency, and cost-savings

55%

increase in time-to-market through automation and DevOps

70%

increase in operational efficiency

$1M

savings from retiring legacy licensing (IBM, Documentum, VMWare)

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Overview

A leading provider of specialized consumer finance solutions turned to CleanSlate Technology to address challenges with their decade-old legacy system running on VMware. Due to the high-volume nature of their work, this corporate lender needed help modernizing their data and systems.

The primary customer-facing website was built on multiple legacy technologies, including IBM WebSphere, IBM Portal, and IBM Message Broker, on top of an Oracle database. These systems operated within traditional on-premise data centers. While functional, they were slow and buried under licensing constraints, making releases difficult and limiting innovation.

As the technology aged, it became increasingly complex and reliant on specialized knowledge that had grown scarce. Feature development was slow and inefficient, making it difficult to adopt modern solutions in a rapidly evolving digital landscape. More time was spent maintaining and troubleshooting the platform than leveraging it for growth. The inefficiencies spanned the entire organization — onboarding new clients became a challenge, revenue suffered, and the company struggled to stay competitive; all due to outdated technologies, processes, and large amounts of technical debt with their legacy environment.

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Solution

Migration of the monolithic, legacy system to AWS

CleanSlate began by moving the on-premise VMWare workloads to AWS, which entailed migrating 13 terabytes of data. They migrated the client's front end to Angular, deploying it as a single-page application (SPA) served via Amazon CloudFront. Additionally, they replaced Documentum with an API-driven solution for improved scalability and integration.

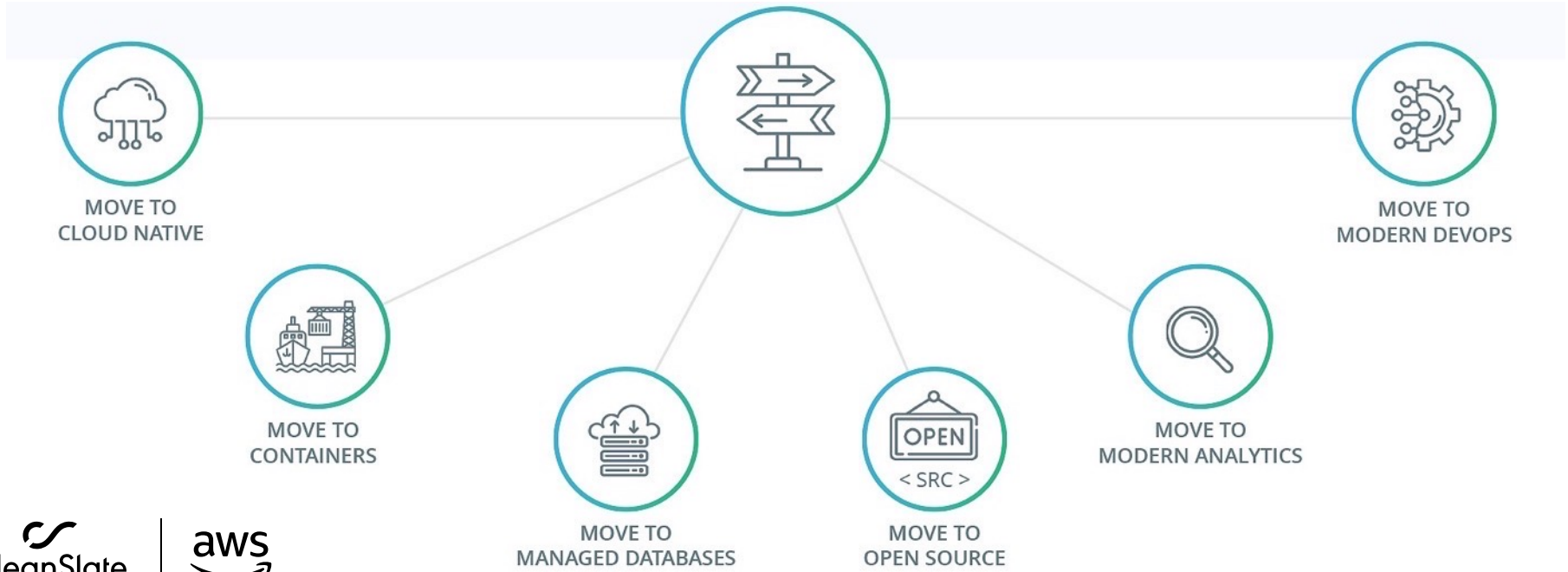
Building a cloud-based architecture: AWS modernization pathways

With the migration complete, CleanSlate focused on modernizing the AWS platform with modern DevOps, cloud architecture, cloud-native development, managed databases (Postgres, Amazon DynamoDB, Amazon RDS), OpenSource, modern analytics, and SaaS-focused solutions, using the AWS modernization pathways.

STREAMLINE WITH MODERNIZATION PATHWAYS

Once in the cloud, these pathways provide a proven and structured approach to modernization

Unlock additional MAP Funding through modernization!



Solution

CleanSlate replatformed the application and built a suite of services in AWS using Amazon API Gateway, AWS Lambda, and Amazon DynamoDB to create a scalable, secure, and compliant SaaS solution. Leveraging AWS significantly improved efficiency, accelerating application delivery by three to four times, enabling faster innovation and quicker results.

CleanSlate undertook the following as part of the modernization:

- **Modernized API architecture:** Unlike the previous service-oriented architecture (SOA), the new API needed to be fully public-facing to support a "SPA" running in end-users' browsers. Amazon API Gateway provided secure public access with robust security features, including OAuth tokens for end-user authentication and API keys for trusted system access.
- **Autoscaling:** Amazon API Gateway and AWS Lambda provided built-in scalability, automatically adjusting to meet user demand. AWS Lambda concurrency provisioning eliminated concerns over cold starts, ensuring high availability and responsiveness.
- **Microservices architecture:** A SaaS decomposition strategy was used to create a resilient, scalable infrastructure. AWS microservices architecture enabled seamless growth as new applications and customer transactions increased.
- **Compliance and security:** The solution adhered to Global Data Protection Regulation (GDPR) standards, ensuring privacy and international compliance.
- **Enterprise identity management:** Customer identities were securely managed and synchronized across all business applications, enabling a unified customer profile while maintaining compliance controls.

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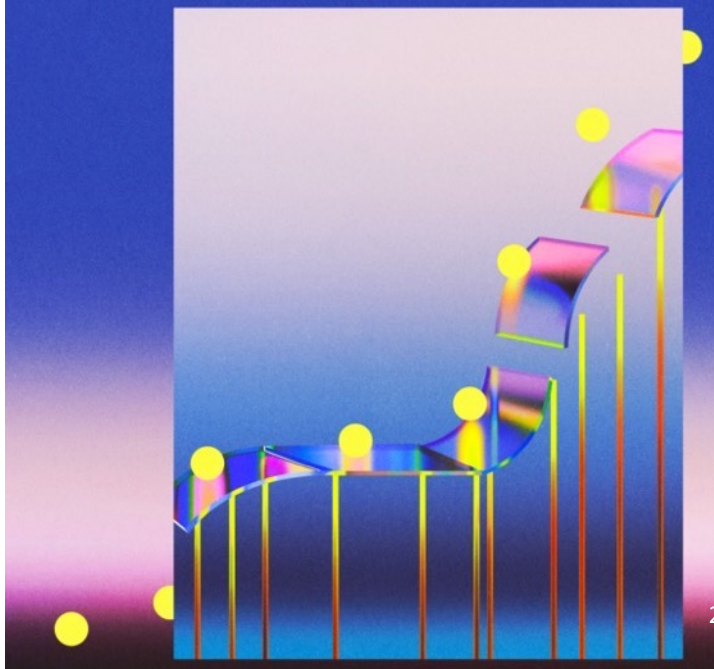
"My experience with the CleanSlate team has been outstanding. Their cloud architects are some of the most intelligent, creative, and dedicated people I have ever worked with."

– Client



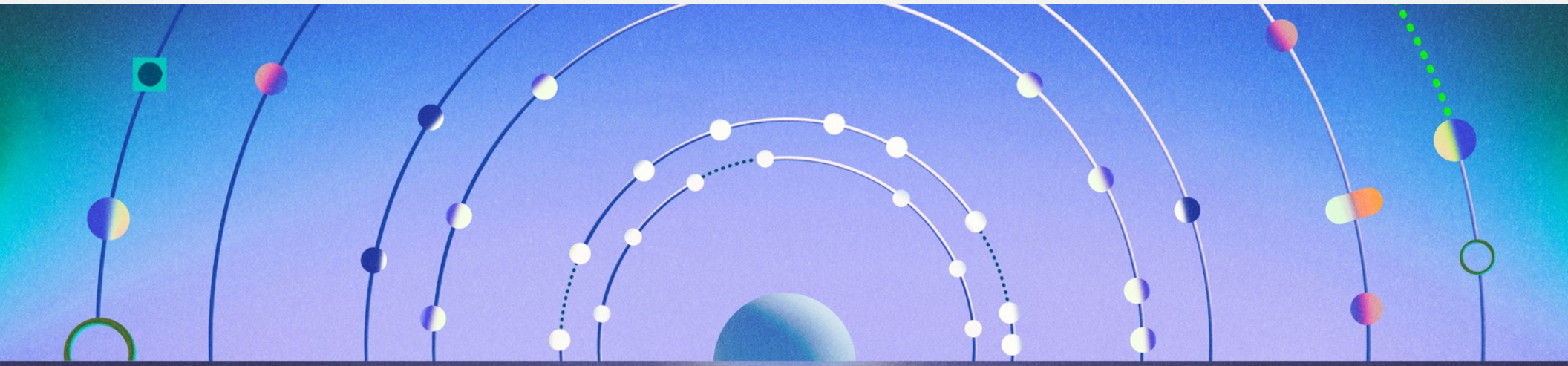
Customer outcomes

This modernization effort transformed the client's application into a highly scalable and secure SaaS platform. What's more, CleanSlate successfully delivered the first release of the application in just 12 weeks. This successful implementation led to an expanded rollout plan, introducing additional features and capabilities to enhance performance and scalability.

Overall, the migration and modernization efforts provided significant advantages:

- **Reusable security framework:** A new security framework that could be leveraged by other product teams
- **Enhanced performance:** 55% increase in time-to-market and more responsive
- **Faster feature releases:** Achieved continuous delivery, where previously they delivered once per quarter
- **Greater operational efficiency:** 70% increase in operational efficiency
- **Improved supportability:** A simplified and well-defined technology footprint
- **Cost-savings:** They saved over $1 million from retiring the legacy infrastructure; the serverless architecture operates at a fraction of the previous cost

By migrating and modernizing the platform, CleanSlate and AWS empowered the loan financing client with a scalable and cost-efficient solution that drives long-term growth and innovation.



About AWS Partner CleanSlate Technology Group

CleanSlate Technology Group is a technology consulting firm specializing in building modern applications and products that move businesses forward. From custom cloud-native application development to modernized legacy systems, CleanSlate builds and deploy solutions that deliver greater, faster speed-to-innovation and more resiliency to handle whatever the future brings. As an AWS Consulting Partner, CleanSlate leverages AWS's cutting-edge cloud technologies to drive digital transformation, ensuring scalable, secure, and high-performing solutions. At CleanSlate, CleanSlate believes that when you combine the power of technology with brilliant ideas. The sky's the limit.

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