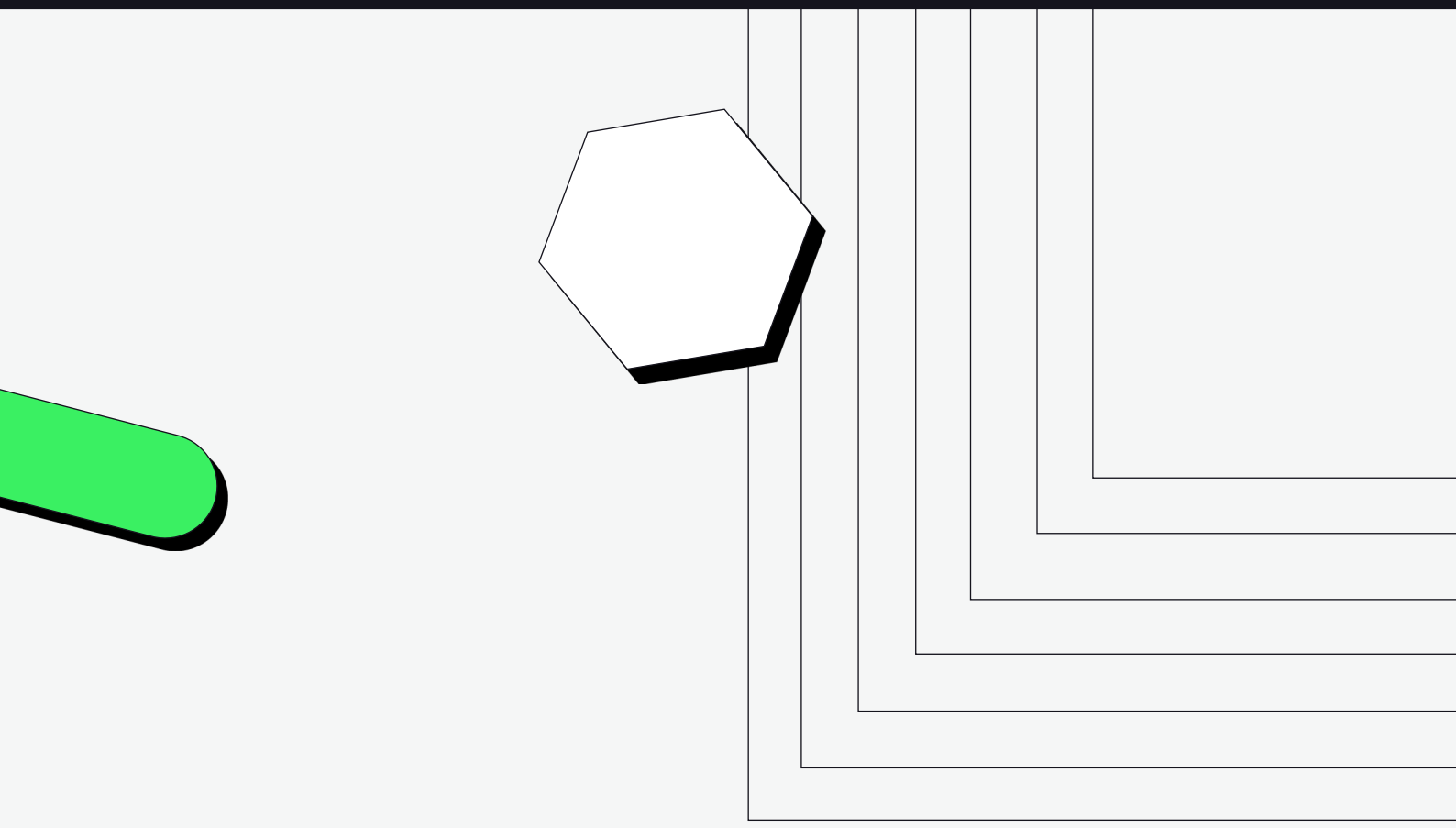
CASE STUDY

Global healthcare software provider

Global healthtech SaaS and Synthesized: modernizing healthcare QA with AI-driven test data automation



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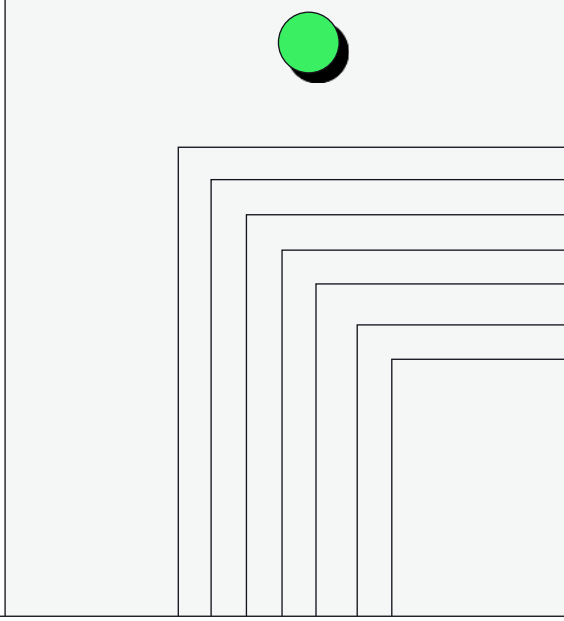
Overview

A global healthcare software provider, serving hospitals and clinics worldwide, needed to modernize test data management for its cloud-native patient management platform. Manual test data refreshes on a massive enterprise databases were slow, costly, and risked PHI exposure. By adopting Synthesized, the company automated secure, on-demand data provisioning—accelerating releases, ensuring HIPAA compliance, and empowering teams to focus on patient-centric innovation.

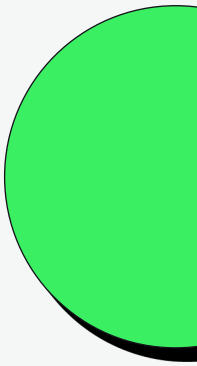
Background

The provider manages a large multi-terabyte production cloud environment, supporting millions of patient records and clinical workflows. With hundreds of interconnected tables and evolving data relationships, test data subsetting and privacy protection required significant manual effort. QA teams relied on virtualized copies of production databases, and struggled to keep up with frequent product updates and compliance demands.



Test-data and QA challenges

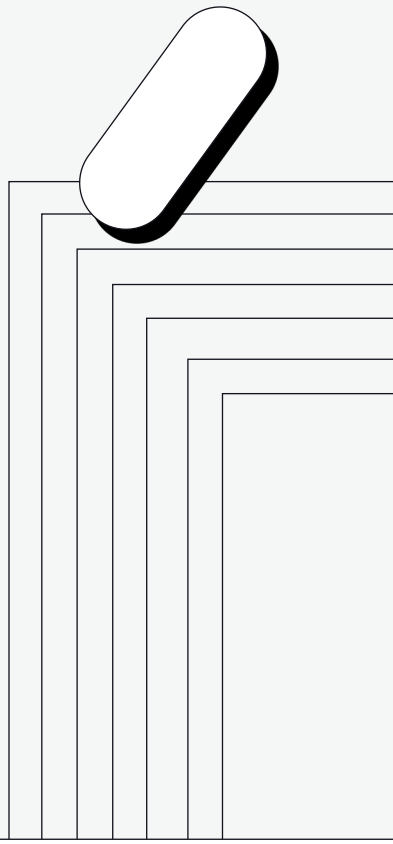
- TEST DATA REFRESHES TOOK HOURS, DELAYING RELEASES AND FEATURE ROLLOUTS
- MANUAL DATA PREP RISKED PHI EXPOSURE AND HIPAA NON-COMPLIANCE
- QA AND ENGINEERING TEAMS NEEDED TO MAINTAIN REFERENTIAL INTEGRITY FOR E2E TESTS
- LACKED MODERN 'DATA-AS-CODE' WORKFLOW INTEGRATION; DEVOPS AUTOMATION WAS DIFFICULT TO IMPLEMENT
- EXISTING VENDOR COULDN'T SCALE WITH ADDED COMPUTE OR HANDLE UNIQUE DATA AND BUSINESS RULES
- SUPPORT RESPONSE TIMES WERE SLOW, IMPACTING PRODUCTIVITY AND COMPLIANCE



Solution

Synthesized delivered an AI-powered, DevOps-native platform leveraging Governor and TDK:

- YAML-DRIVEN “DATA AS CODE” CONFIGS MANAGED IN GITHUB WITH CODE REVIEW
- AUTOMATED, ON-DEMAND SUBSETTING: REDUCING STORAGE COSTS BY OVER 95%
- SCALABLE TEST DATA INFRASTRUCTURE DESIGNED FOR AUTOMATION
- BUILT-IN HIPAA MASKING, UNIQUE EMAIL SYNTHESIS, AND JSON FIELD HANDLING
- ROLE-BASED ACCESS AND AUDIT TRAILS; E2E IDS PROTECTED BY DESIGN
- DEDICATED SOLUTIONS ARCHITECT AND ENTERPRISE SLA FOR RAPID SUPPORT



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Implementation

01 Discovery and assessment
The provider partnered with Synthesized to audit current test data workflows, identify PHI risks, and define automation goals.

02 Proof of Concept
Synthesized demonstrated rapid subsetting and masking on specific tables, preserving referential integrity and meeting HIPAA requirements.

03 Architecture planning & design
Developed a scalable, docker-based deployment with GitHub-managed YAML configs and automated access controls.

04 Deployment & training
Integrated Synthesized with CI/CD pipelines and onboarded teams via hands-on training sessions and self-service “recipes” for accelerated time to value.

05 Automation & continuous feedback
Enabled ongoing optimization with real-time metrics and automated compliance tracking.

Use cases

=> ON-DEMAND TEST DATA PROVISIONING

Engineering teams can trigger instant test data refreshes directly from GitHub workflows, accelerating CI/CD cycles and ensuring test environments stay current for every release.

=> AUDIT-READY HIPAA COMPLIANCE

Automated PHI masking and access controls deliver consistent, audit-ready compliance across all test environments, reducing manual effort and regulatory risk.

=> PERFORMANCE TESTING AT SCALE

Parallelized, synthetic data generation enables high-volume load and integration testing, allowing teams to validate performance and stability without relying on production data.

=> DEVOPS AUTOMATION & GOVERNANCE

YAML-driven data configs and role-based access empower teams to manage test data as code—streamlining code review, change management, and governance.

Results

By implementing Synthesized's AI-driven test data infrastructure, the healthcare SaaS provider transformed test data provisioning, improved PHI security, and enabled real-time compliance tracking.

- Test data refreshes—from hours to on-demand:
  Fully integrated with GitHub and CI/CD pipelines, enabling instant test environment refreshes instead of multi-hour manual updates, saving dozens of engineering hours each sprint.
- 8x faster performance testing:
  Parallelized synthetic data generation supported large scale load tests, reducing test prep time by 85% and cutting infrastructure spend by half.
- +65% reduction in manual data prep and compliance effort:
  End-to-end automation eliminated manual masking and provisioning, reducing IT overhead and ensuring consistent HIPAA alignment.
- 2x increase in release frequency:
  Automated, compliant test data enabled faster, safer software releases and improved time-to-market for new features.

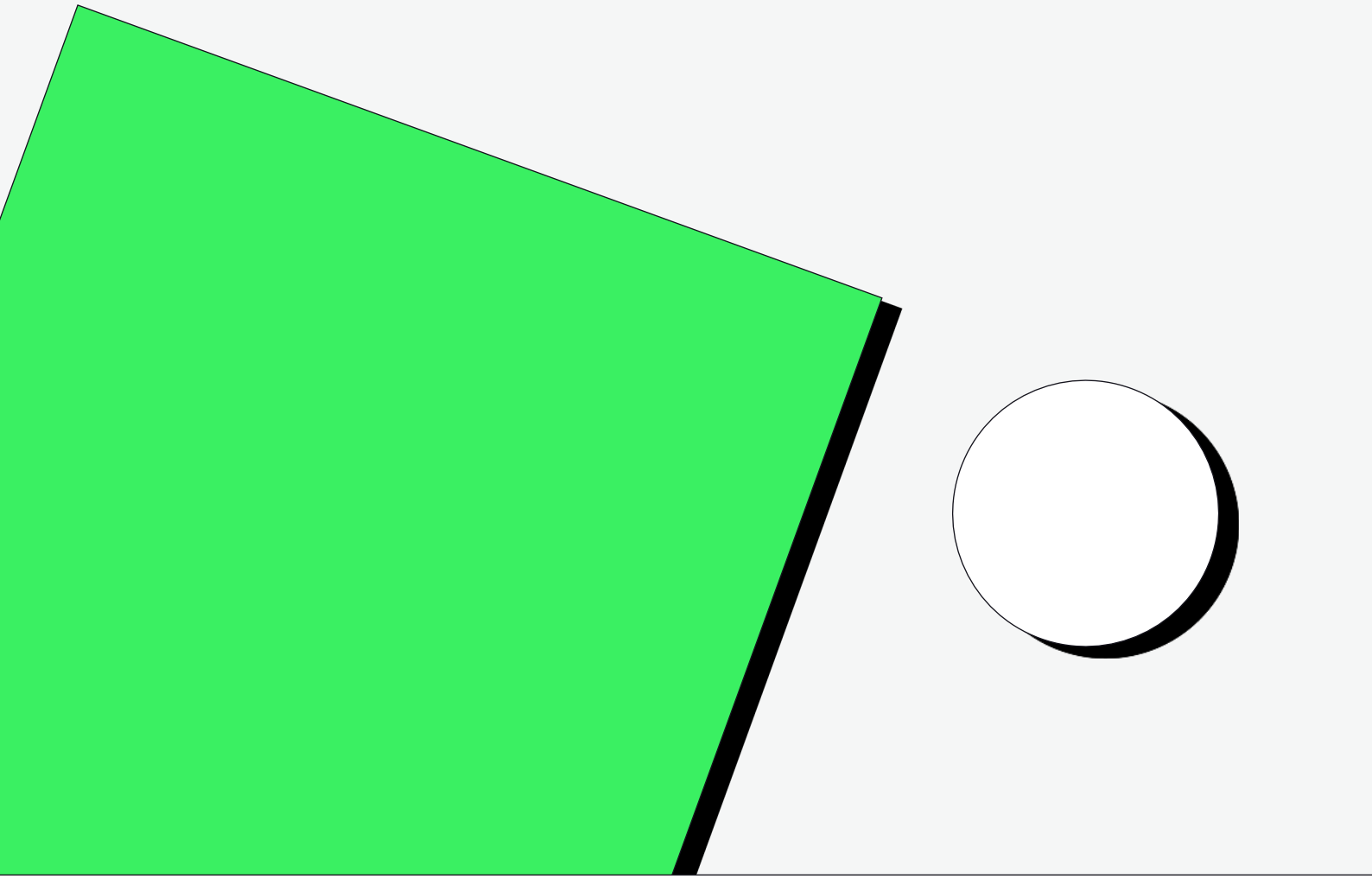
Future directions

The provider plans to expand Synthesized to further advance test data automation, PHI security, and AI-driven compliance.

- Scaling to new SaaS modules & DevOps workflows:
  Rolling out Synthesized's automation framework across additional healthcare applications, teams, and mission-critical services.
- AI-powered test data for analytics & clinical models:
  Using synthetic data to accelerate AI/ML model training, predictive analytics, and patient outcome research—all while preserving privacy.
- Continuous optimization & governance:
  Enhancing automated data refreshes, integrating advanced AI-driven optimizations, and expanding real-time compliance and performance monitoring.

Conclusion

By automating test data management and embedding compliance into DevOps, the healthcare SaaS provider has accelerated releases, reduced manual effort, and strengthened PHI security. On-demand data refreshes and parallelized performance testing have slashed prep times and infrastructure costs, while audit-ready automation ensures HIPAA alignment at every step. As Synthesized expands across more teams and workflows, the provider is building a scalable, resilient QA foundation—empowering faster innovation and better patient outcomes for years to come.



With Synthesized, teams provision test data instantly, eliminating delays and manual effort. AI-powered data generation, masking, and subsetting create scalable, production-like environments.

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