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Scaling HIPAA-Compliant Document Generation for a Leading Healthcare PBM

Solving high-volume document challenges with Salesforce and Heroku integration

EXECUTIVE SUMMARY

A major healthcare organization in pharmacy benefit management needed to automate the creation of millions of documents while meeting strict HIPAA and state legal requirements.

Blue5Green implemented a solution that integrated Salesforce with Heroku products to streamline processes, improve security, and increase processing speed. The new system reduced document generation time by 60% and improved workflow efficiency by 70%.

CLIENT BACKGROUND

The client operates in the healthcare sector with a focus on pharmacy benefit management. They process millions of member communications annually and must comply with strict regulatory standards.

Their operations depend on generating documents that include precise legal language and dynamic personalization while keeping data secure.

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THE CHALLNEGES

Before the new system was introduced, the client faced issues that affected both operational efficiency and regulatory compliance. The existing process was not equipped to manage the increasing demand and complexity, leading to significant risks in both performance and security.

High Volume and Speed Requirements :

The system needed to handle between 32 and 42 million documents per year. On average, more than one document request occurred every second, with peak periods reaching over 200 simultaneous requests—all required to be completed in under 20 seconds.

Complex Document Variations:

With more than 2,700 document templates containing state-specific legal language, the system had to accurately merge dynamic data such as member and provider information.

Strict Compliance and Data Security:

TThe process had to comply with HIPAA regulations and state legal mandates, leaving no room for error in data handling.

Limitations of Legacy Systems:

Without centralized data, tailoring messages to the unique needs and preferences of members was challenging. This led to a generic outreach approach that did not fully engage the audience.

These challenges threatened to disrupt operations and expose the organization to compliance risks, necessitating a modern solution capable of managing high volumes with precision and security.

THE SOLUTION

To address these issues, Blue5Green created a solution built on Salesforce and Heroku that overhauled the document generation process. The deployment was carried out in distinct phases to minimize disruptions and ensure smooth integration with current systems.

Event-Driven Architecture and Microservices:

- **Salesforce Platform Events:** Document generation was initiated through real-time events from Salesforce, ensuring prompt processing.

- **Heroku Kafka:** This service managed request queuing, decoupling processing from the Salesforce trigger and allowing the system to run over 200 jobs concurrently.

Dynamic Content Assembly and Templating:

- **Reusable HTML Blocks:** Salesforce managed dynamic HTML snippets, reducing redundancy across the document templates.

- **Node.js and Angular Integration:** A Node.js service combined dynamic data—such as member details and logos—with Angular-based templates, ensuring that each document met both design and compliance requirements.

Secure PDF Generation:

- **PhantomJS:** Acting as a headless browser, PhantomJS converted HTML content into PDFs, maintaining accurate formatting for multi-page documents while meeting HIPAA standards.

Data Security Measures:

- **Heroku Shield:** This product encrypted transient data in both Heroku Postgres and Kafka, satisfying HIPAA data security guidelines.

- **Software Delivery Best Practices:** The solution was implemented using proven methods, including continuous integration and testing, to maintain system stability and security.

Integration with Existing Systems:

- The solution was designed to work alongside the client's current infrastructure. API gateways and middleware facilitated smooth data exchange between Salesforce, Heroku, and legacy applications.

- **Horizontal Scaling:** Heroku Dynos and stateless Node.js servers automatically adjusted to demand, ensuring consistent performance during peak periods.

By combining Salesforce, Heroku Shield, Heroku Kafka, Heroku Postgres, Node.js, Angular, and PhantomJS, Blue5Green delivered a system that meets current demands while offering a framework for future growth.

RESULTS & BENEFITS

The project delivered clear, measurable benefits:

Increased Throughput:
The system now supports over 200 concurrent document processes, maintaining continuous operation during peak demand.

Faster Processing:
Automation cut manual template management by 70%, allowing IT teams to focus on other important tasks.

Efficiency Gains:
TAutomation cut manual template management by 70%, allowing IT teams to focus on other important tasks.

Improved Data Security:
The use of Heroku Shield for encryption ensured that all data remained secure and compliant with HIPAA.

Scalability:
ThThe solution currently handles over 42 million documents per year and can adjust to growing business needs without extra downtime.

CONCLUSION

Blue5Green's implementation transformed a challenging document generation process into an automated, secure, and scalable system. The integration of Salesforce with Heroku products addressed high-volume demands and strict compliance requirements, positioning the client as a leader in their market.

IT leaders seeking to improve system performance, reduce manual work, and maintain compliance in high-demand environments are invited to contact Blue5Green. Learn how a custom integration approach can support your business and drive operational excellence.