indium
Make Technology Work

APPLICATION PERFORMANCE ENGINEERING LEVERAGING ELASTICSEARCH FOR A GLOBAL SUPPLY CHAIN COMPANY

BUSINESS

Data Engineering

DOMAIN

Supply chain

TOOLS

AWS, Redshift, S3, Postgres, Elastic-search, Python, Dockers

KEY HIGHLIGHTS

- 80% improvement in system efficiency and data retrieval time lag owing to the Data Model enhancements
- Elasticsearch improved the search latency by 85%
- 90% faster page synchronization owing to improved architectural design

APPLICATION PERFORMANCE ENGINEERING

CLIENT STATUS QUO

With an extensive global supply chain network, the client leveraged its depth of experience, market knowledge, and technology to help retail brands adapt to changing consumer and manufacturing trends.

The primary issue the client was facing was in page synchronization and search latency, on their website. The existing system's data model was hindering the flexibility and performance.

APPLICATION OVERVIEW

To enhance the user experience in the existing website, the client required a system that could overcome slow indexing and search latency. The developed system leveraged Elasticsearch, replacing the existing Postgres database for most transactions, to overcome this issue. The product attributes were categorized into four indices and backend APIs executed in Dockers, to make the data retrieval process more efficient.

BUSINESS REQUIREMENTS

- Enhance the data model to reduce the time lag and improve efficiency.
- Improve the website data retrieval process incorporating better sync and faster search.
- Enhance the system through performance tuning.

SOLUTIONS

The legacy system utilized a parent-child architecture in Postgres, in which parent mapping contains the main product details and the child possess the attributes of the product. Indium recommended the following to improve the existing system:

- A new architecture involving multiple indices which encompasses the product attributes in 4 indices. Due to the classification of the product attributes, page refreshing could be carried out daily.
- Leverage Elasticsearch for efficient data search and retrieval.
- Transfer of most widgets from Postgres to Elasticsearch, by scraping the data attributes.
- Execution of backend APIs in a Docker.

BUSINESS IMPACT

- Nearly 80% improvement in system efficiency and data retrieval time lag owing to the Data Model enhancements.
- The implementation of Elasticsearch improved the search latency by 85%.
- 90% faster page synchronization owing to improved architectural design.
- Performance tuning enabled a better and more immersive user experience.

About Indium

Indium is a Digital Engineering Services leader and Full Spectrum Integrator that helps customers embrace and navigate the Cloud-native world with Certainty. With deep expertise across Applications, Data & Analytics, AI, DevOps, Security and Digital Assurance we "Make technology work" and accelerate business value, while adding scale and velocity to customer's digital journey on AWS.

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