CASE STUDY

Comtrade Three-Sixty

Transforming End-User Experience through **Application Modernization:**

A Case Study in Digital Transformation with Comtrade360

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Industry

Technology

Technologies

React, Salesforce Lightning, APEX, Java, Python, Ansible, Jenkins, Spring Boot, Nexus, Github Actions, Docker Swarm, Kubernetes, ELK stack, Prometheus, Grafana, HashiCorp Vault, Oracle Database, MSSQL, Coveo Search, Hadoop, ZAP, Burp, Coverity, SonarQube, DataDog, Selenium, Cucumber, FitNesse, Gluster, Apache Kafka, Apache Server, Kong Gateway, Checkmarx, PMD, Cloud Foundry UAA, OIDC, OATH2, Okta

At a Glance

This case study delves into how Comtrade360 partnered with a leading tech company to revolutionize its end-user experience while significantly reducing operational costs. Comtrade360 developed and implemented a customized application modernization plan to transform the client's support portal and streamline its technology infrastructure, enabling the client to stay ahead in a competitive market by delivering exceptional service and value to its customers.

Key Concerns:

Legacy applications and outdated infrastructure negatively impacted client's customer-facing support portal

Key Solution Elements:

- Modernized 40+ legacy Java applications
- Implemented new CI/CD pipeline
- Migrated app and data
- Ensured cloud-native compliance

Key Benefits for Client:

- Improved Customer Satisfaction
- Reduced solution complexity
- More robust applications
- Better application performance
- Lower operational costs

Project Summary

Our client, a leading organization in the tech industry, relied on a support portal within Salesforce CRM as the center of customers' post-sale engagement with the company. This portal offered customer access to vital support and service resources such as warranty details, product troubleshooting, and ongoing purchase support.

The client wanted to provide a cohesive, comprehensive experience through the portal that mitigated the need for customers to contact a support agent by phone – enhancing customer satisfaction and decreasing the need for agents. The client also wanted to ensure that, in the event that customers needed to speak to an agent, the agent was equipped with the necessary information regarding the customer's history with the company, enabling them to proactively and efficiently handle customer concerns.

However, the client was consistently experiencing performance issues, increasing maintenance and operational costs, and decreasing customer satisfaction, clearly demonstrating that the existing infrastructure and technology stack were no longer sufficient to support their evolving needs.

The goal of this project was to modernize the client's support portal into a centralized hub for post-sales interactions, providing customers with a seamless, personalized, and efficient experience.

Project Outcomes

The overarching goal of the project was to modernize the client's support portal into a centralized hub for post-sales interactions, providing customers with a seamless, personalized, and efficient experience. The client sought to empower customers to resolve issues independently while enhancing overall customer satisfaction. Key objectives included:

- **Enhanced End-User Experience:** Customers expected a seamless and intuitive support portal that reflected their entire relationship with the company. They sought personalized interactions, proactive issue resolution, and access to relevant information tailored to their interests and history.
- **Reduced Reliance on Live Agents:** The client aimed to decrease dependency on live agents by empowering customers to self-solve issues through the support portal. This involved providing comprehensive resources, tools, and functionalities to facilitate self-resolution.
- **Increased Customer Satisfaction:** By delivering best-in-class support and service experiences, the client sought to elevate customer satisfaction levels. This included improving self-resolution rates, reducing response times, and enhancing overall engagement.
- **Streamlined Operational Efficiency**: Alongside enhancing the end-user experience, the client aimed to optimize operational processes and reduce costs. This involved modernizing outdated technology stacks, migrating legacy Java applications, and implementing efficient software delivery pipelines.

Additionally, modernizing the customer support portal would serve to resolve many of the other issues the client was facing and would improve performance, security, and efficiency of the platform.

Challenges

The client's infrastructure suffered from performance bottlenecks, scalability limitations, and compatibility issues stemming from outdated software, frameworks, and infrastructure. Over 40 legacy Java applications, developed on obsolete frameworks and architectures, further exacerbated challenges in maintenance, updates, and performance optimization. This existing infrastructure was the main culprit in the client's inability to provide the seamless post-sales experience they wanted to for their customers. In addition to keeping them from achieving their business goals, this outdated infrastructure surfaced a variety of other concerns:

- **Poor Performance:** The outdated technology stack and legacy Java applications contributed to significant performance issues, impacting productivity and customer satisfaction.
- **Security Vulnerabilities:** Outdated frameworks and architectures exposed numerous security vulnerabilities, jeopardizing critical assets and reputation, necessitating immediate remediation.
- **Compatibility Problems:** Reliance on outdated technology stacks and legacy Java applications resulted in compatibility issues with modern software and hardware, hindering innovation and interoperability.
- **Complex Maintenance and High Operational Costs**: The monolithic architecture and outdated frameworks of legacy Java applications made them difficult to maintain and update, increasing operational overhead and slowing response times.

Solution

Comtrade360 proposed a comprehensive solution to address the client's challenges and achieve the project goals of enhancing end-user experience and reducing operational costs. The solution encompassed the following key components:

Application Modernization:

The legacy distributed application was migrated to a private cloud and Salesforce Cloud. This involved refactoring and containerizing backend applications, as well as implementing a new frontend UI in Salesforce Cloud.

Actions Taken:

- Migrated the distributed application to a private cloud and Salesforce Cloud.
- Redesigned and implemented the frontend UI in Salesforce Cloud.
- Refactored and containerized backend applications to improve scalability, reliability, and performance.

CI/CD Pipeline Implementation:

A new CI/CD pipeline was established to streamline the software delivery lifecycle. This pipeline integrated various tools such as Docker Swarm, GitHub, Ansible, and Jenkins, enabling automated building, testing, deployment, and monitoring of applications.

Actions Taken:

- Established a robust CI/CD pipeline using tools such as Docker Swarm, GitHub, Ansible, and Jenkins.
- Automated building, testing, deployment, and monitoring of applications.
- Enhanced efficiency, reduced manual intervention, and accelerated time-to-market.

Best Practices for Implementing CI/CD Pipelines

Introducing a new CI/CD pipeline and modifying the software delivery lifecycle can present complex challenges. Adhering to best practices as you create and implement these processes will ensure a seamless deployment that aligns with established policies and procedures. While specific best practices may differ across organizations, we can provide insight into those followed by Comtrade360 to offer guidance on key considerations.

Comtrade360 Best Practices...

Automate a Secure Release: We use tools and processes that automate the building, testing, and deploying of code, as well as scan for known vulnerabilities and enforce security policies.

Follow Approved Deployment Processes: We use tools and services that verify the integrity and authenticity of code and artifacts and prevent unauthorized or tampered deployments.

Scan for Known Vulnerabilities: Both before and after the deployment, we scan We use tools, such as SonarQube, Coverity, ZAP, Burp, Checkmarx, PMD, and services that analyze code, containers, and infrastructure for known vulnerabilities and provide recommendations and fixes.

Control Data Movement Across Perimeters: We use tools and services that encrypt, mask, or anonymize the data, and restrict access to authorized users and applications. For example, we use HashiCorp Vault to store passwords, certificates, and other sensitive data.

Build and Foster a Healthy Security Culture: Our developers are continuously educated and trained on the best practices and standards of software security. They're encouraged to collaborate and communicate with each other and to identify and challenge areas of concern.

Modern Java Spring Boot Framework:

Legacy Java applications, numbering over 40 disparate systems, underwent a transformation into modern Java Spring Boot applications. This transition facilitated faster development and deployment cycles, leveraging tools such as Maven, Gradle, and Docker.

Actions Taken:

- Transformed over 40 legacy Java applications into modern Java Spring Boot applications.
- Utilized tools such as Maven, Gradle, and Docker to facilitate seamless creation, testing, and deployment of modernized applications.

Enhanced Security and Compliance:

Security measures were enhanced through the incorporation of Spring Security into the modernized applications. This provided authentication, authorization, and protection against common attacks such as CSRF, XSS, or SQL injection, ensuring compliance with industry standards.

Actions Taken:

- Implemented robust security measures leveraging Spring Security.
- Fortified applications against common vulnerabilities such as CSRF, XSS, and SQL injection.
- Adhered to industry best practices and standards to ensure compliance with stringent security requirements.

Integration of Cloud-Based Identity Provider:

Internal applications were seamlessly migrated from a legacy Identity provider to OKTA, a modern cloud-based Identity provider. This integration ensured seamless authentication and access management, simplifying user management for administrators.

Actions Taken:

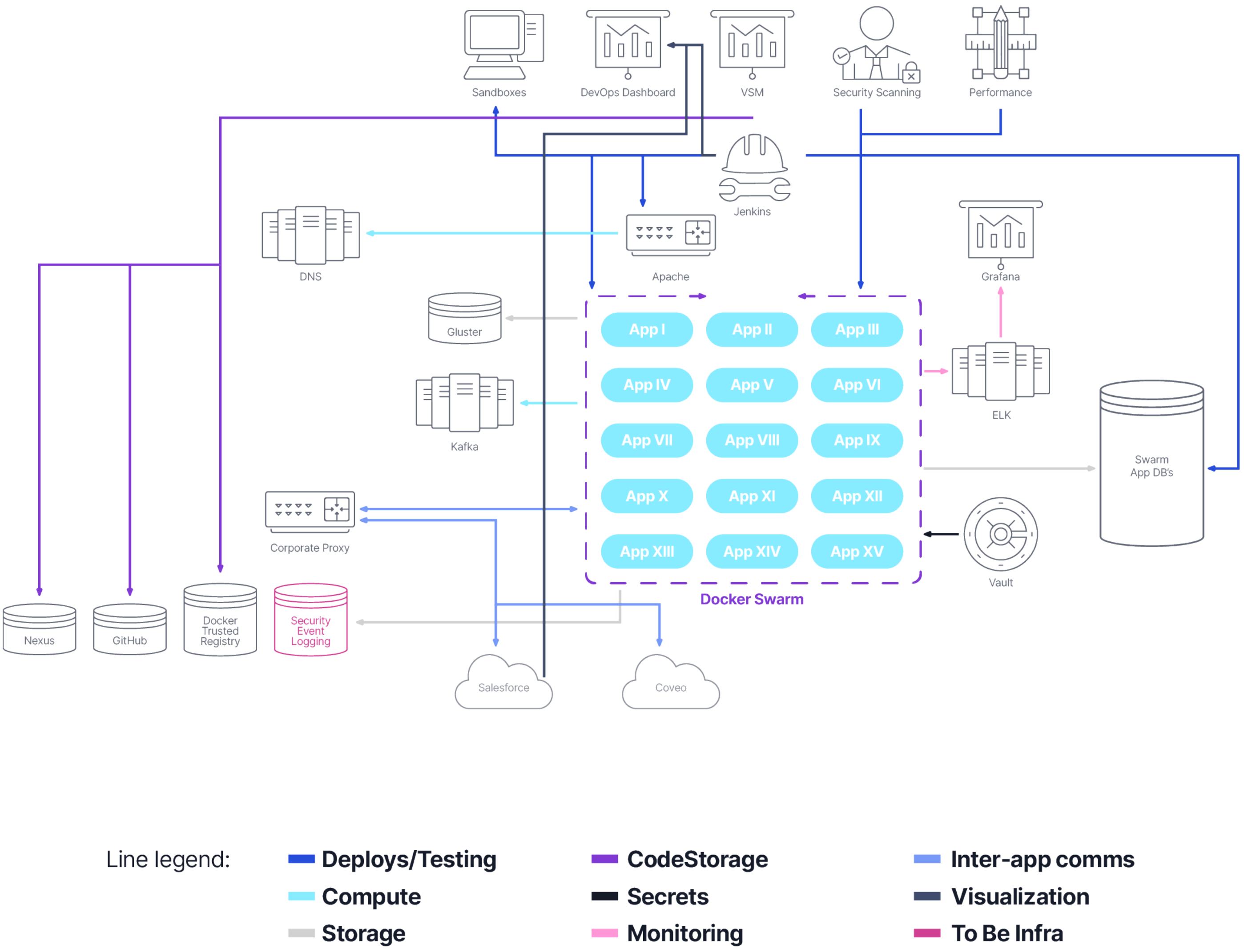
- Seamlessly migrated internal applications from a legacy Identity provider to OKTA.
- Ensured seamless authentication and access management.
- Simplified user management for administrators.

In addition to addressing the client’s immediate challenges, these changes also laid the foundation for long-term success. The modernized support portal empowered customers with a seamless and personalized experience, while optimizing operational processes and reducing costs for the client.

Results

Comtrade360's comprehensive solution successfully addressed the client's challenges, resulting in a transformative journey towards application modernization, enhanced end-user experience, and improved operational efficiency. The results included:

- **Modernized Applications:** The application modernization journey involved a meticulous process of migrating and modernizing over 40 legacy Java applications. The transformation from outdated technologies to modern Java Spring Boot applications brought about significant improvements in performance, security, and scalability.
- **Enhanced End-User Experience:** The modernized applications delivered a best-in-class end-user support and service experience, characterized by digital, data-driven, personalized, and predictive interactions. Customers now had access to a centralized support portal, enabling them to manage their post-sales experience efficiently.
- **Improved Operational Efficiency:** The implementation of a new CI/CD pipeline facilitated smoother app and data migration, streamlining development, testing, deployment, and monitoring processes. This resulted in reduced solution complexity, more robust applications, better performance, and lower operational costs for the client.



Key Takeaways

- **Faster Development and Deployment:** The adoption of modern Java Spring Boot framework enabled faster development and deployment of applications, enhancing agility and time-to-market.
- **Scalability and Reliability:** Modernized applications leveraged cloud computing and microservices architecture, enhancing scalability and reliability to meet fluctuating demands.
- **Enhanced Security and Compliance:** Integration of Spring Security and adherence to best practices ensured enhanced security and compliance with industry standards.
- **Efficient Software Delivery Pipeline:** The implementation of a new CI/CD pipeline improved the quality, speed, and efficiency of software delivery, enabling seamless collaboration and communication among stakeholders.
- **Improved End-User Experience:** The modernized applications provided customers with a seamless and personalized post-sales experience, leading to increased satisfaction and self-resolution rates.

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