

CASE

STUDY

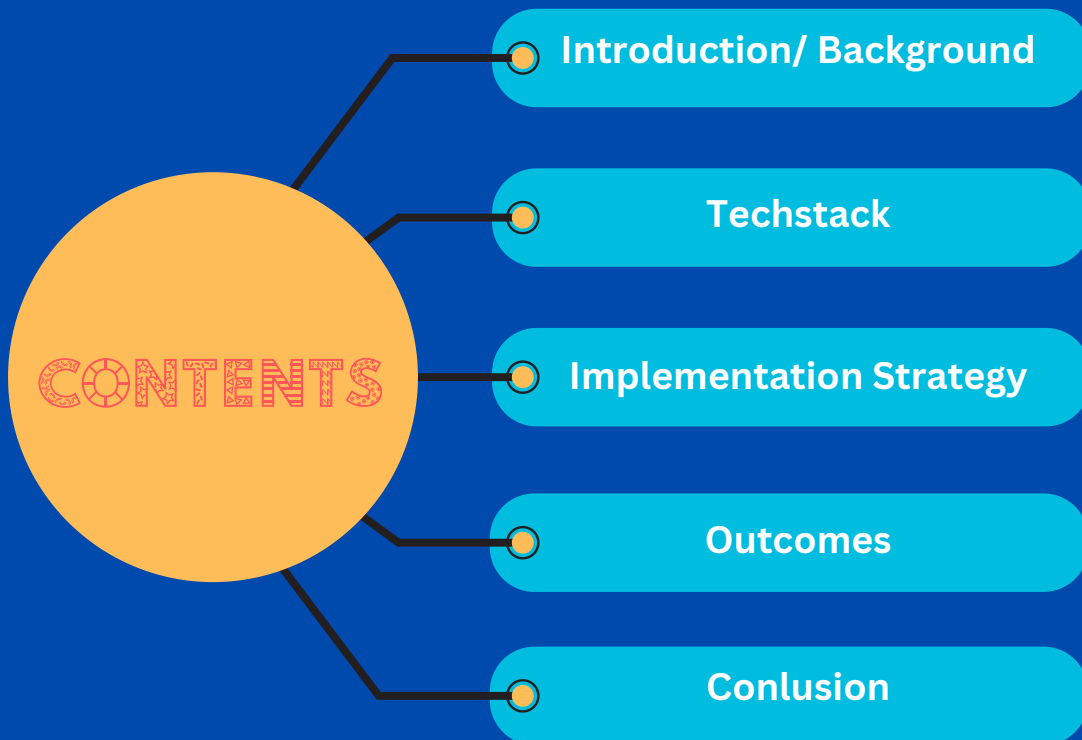


Transforming IT with DevOps





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Background

In electrical Engineering, Precise data Management is vital for reliability and efficiency. Data platforms are being developed to support electrical Product data during design specification and engineering for electrical panels and switchboards. This data includes information on circuit breakers and fuses, is essential for accurate calculation, and is used by various services including API's and direct consumer applications. These platforms enhance data integration and processing improving performance, scalability, and reliability.





Tech Stack

Azure

- Azure Static Webapp
- Service bus
- Blob Storage
- Azure Key Vaults
- Application gateway
- Graphana

CI/CD Tools

- GitHub Actions
- Sonar Qube
- Check Max

Deployment Tools

- Kubernetes and Helm Charts
- Dockers

Database

- Postgre SQL
- Cosmos DB
- Graph DB



Implementation Strategy

Artifact Management and Centralized Logging - Utilized Azure Artifacts for storing project artifacts and implement a centralized logging solution with Grafana (GUI Tools) for streamlined log access across the organisation.

CI/CD Workflow and database Deployment- Establish a QA CI/CD workflow in GitHub Actions, incorporating a branching strategy to enhance performance and monitoring, Additionally, deploy the interop, postgresSQL database using an automated pipeline to execute,SQL scripts across different environments.

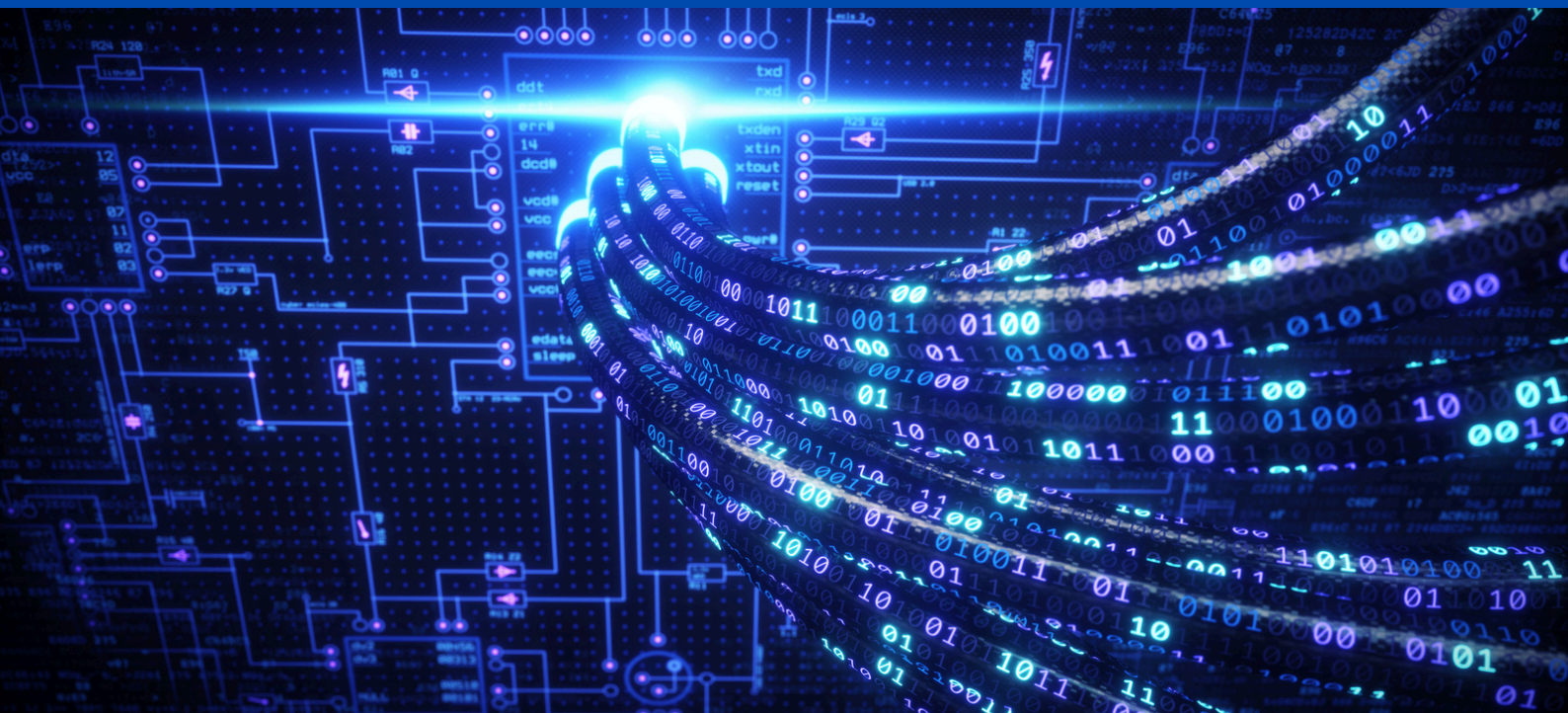
Security And Emails Services- Implement an Auth Sidecar to secure backend services in the K8's cluster and configure a send grid resource for efficient email communication within the application infrastructure.





Challenges

The first challenge involves transactions on the Graph DB INT cluster, which can be resolved by thoroughly checking the configuration to identify and resolve the issue. The second challenge is an authentication issue with checkmarx, which requires investigation and resolution. The third challenge involves CI/CD issues with GitHub actions in pipelines. The fix includes thoroughly reviewing and modifying GitHub actions in pipelines as needed, cleaning UP Dockers images using cron jobs, and setting up cron jobs to clean up old deployments on SWA. The final challenge is connection issues with the Postgres QL database. The fix involves creating a cron job to terminate in active, null, and default connections for improved Postgres SQL database performance.





Outcomes

The strategic execution of the implementation strategies resulted in significant Positive outcomes:

- Improved Data Management
- Increased performance and stability
- Enhanced Security
- Streamlined CI/CD process
- Effective Issue Resolution
- Automated Maintenance
- Better Monitoring and logging
- Improve User Satisfaction





Conclusion

By Leveraging DevOps Methodologies and modern tools the challenges related to database operations and data management can be addressed more efficiently and effectively. Implementing best industry practices ensures improved performance scalability, and reliability, ultimately enhancing operational efficiency and user satisfaction in electrical engineering applications. Additionally, the automation of processes is crucial to avoid human error same time, further contributing to the overall effectiveness of the system.



Value Delivered to the Customer



Reduction in overall operational infrastructure and maintenance cost by 40%.



Improved application scalability.



Increased availability of the application by 70% with multi-region deployment.



Robust disaster recovery strategy delivered for a dynamic workload.



Enhanced security.



Improved and efficient monitoring, logging and alerting system for the entire application.

For more information, write to us at hello@xfactor.ai

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- 1 Digital Full-stack Development
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- 3 DevOps & Cloud

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