CASE STUDY:

MASTERING THE 2016
MIGRATION OF TRAJECTORY:
A SEAMLESS SHIFT FROM
CO-LOCATED DATA CENTER
TO AWS

Shenghe Zhan

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Project Overview

In 2016, Veritas Automata's customer set out to reduce operational costs and enhance efficiency by migrating from a traditional co-located data center to a more dynamic and cost-effective infrastructure with Amazon Web Services (AWS). This strategic move was prompted by the need to address high operational costs, scalability concerns, and a crucial customer request for a hosting transfer.

The genesis of the project lay in the necessity to establish a scalable, secure, and cost-effective infrastructure. The vision involved transitioning from proprietary platforms to AWS, removing redundant infrastructure, improving disaster recovery capabilities, and building an enterprise-class architecture capable of supporting a volume ten times greater than the existing capacity. Scalability and reliability concerns further underscored the necessity for a more flexible and scalable solution. Additionally, the client requested to host the software themselves, triggering a re-evaluation of the hosting strategy and prompting the need for a comprehensive migration plan.

Strategic Solutions

To address these challenges, the team adopted a meticulous planning and execution strategy, beginning with a detailed analysis of the current infrastructure. The migration strategies included a shift from IBM Application Servers to RedHat Products, enhanced development operations automation, improved infrastructure operations support, and the implementation of AWS environments, among others.

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Technologies Used

The technology stack included the use of Amazon Web Services (AWS) for hosting, scalability, and disaster recovery. Transitioning from IBM WebSphere to RedHat Products, deploying development operations automation tools, and enhancing infrastructure operations support were pivotal in achieving the desired outcomes. The team also implemented Oracle Database to Amazon RDS and transitioned from Barracuda Load Balancer to F5 for enhanced load balancing.

aws

IBM WebSphere

ORACLE

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Team Collaboration

Phase 1
Achievements and Outcomes

A collaborative effort was led by Benjamin Savage, heading the innovation team, and Shenghe Zhan, leading the development team. The collaboration involved a small but diverse group of architects, analysts, and software engineers, totaling around 10 members, with significant input from the DevOps and Infrastructure Teams. In these roles, the team performed technology analysis, compatibility checks, and code adjustments, working concurrently with the development team.

The migration from IBM WebSphere to RedHat, with a particular emphasis on Vanilla Tomcat, resulted in an impressive over 80% reduction in middleware expenses in Q4-2015. Development operations automation, improving code deployment, was successfully implemented in Q4-2015 for co-location production and Q1-2016 for AWS production. Simultaneously, infrastructure operations support was enhanced in Q3-2015 for co-location production and Q1-2016 for AWS production. The establishment of AWS environments, with a strategy for Oracle License savings, was completed in Q3-2015, alongside the separation of shared services in Q4-2015 for co-location and Q1-2016 for AWS production.

The outcomes of Phase 1 were manifold. The migration from IBM WebSphere to RedHat products, especially Vanilla Tomcat, was seamlessly executed with minimal downtime. The move to AWS resulted in a significant reduction in middleware expenses, aligning with the goal of achieving cost-effectiveness. Furthermore, the implementation of AWS environments and automation tools significantly improved development and deployment processes, enhancing overall operational efficiency.

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Phase 2
Data Center Migrations and Achievements

The data center location move, completed in April 2016, marked the transition from a co-located data center to AWS US-East, enhancing business flexibility and nimbleness. This phase also involved the establishment of consistent web and device routes between data centers, supporting current and future state traffic with necessary security measures. Noteworthy improvements in Recovery Time Objectives (RTO) were achieved through firmware upgrades, consistent end-site configurations, and communication enhancements via URL. The phase also included incremental definition, redirection, and backup operations plans for Reporting & Analysis tools using Cast Iron Orchestrations outside of the client's cloud-based technology, aligning with a scalable, reliable foundation of industry-leading tools and AWS Jobs. The readiness for migration was ensured, successfully completed in April 2016.

The outcomes of Phase 2 were marked by a smooth transition from co-location to AWS US-East, minimizing complexity and ensuring business flexibility. Optimized routing, improved RTOs, and support for future modifications for scalability were established. Additionally, incremental definition and redirection of Reporting & Analysis tools using Cast Iron Orchestrations were successfully completed in April 2016.

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EU Cloud-Based Technology Migration

Accomplishments and Outcomes

The EU migration of the client's platform involved targeted customer communication to successfully move from co-location to AWS Germany in April 2016. Routing and RTO improvements were achieved through consistent routes between data centers and execution of firmware upgrades for scalability and resiliency in May 2016. The phase also included incremental definition and redirection of Reporting & Analysis tools using Cast Iron Orchestrations, establishing a new Simple Object Access Protocol (SOAP) server location.

The outcome of the EU migration, completed in May 2016, was characterized by optimized routing, improved RTOs, and scalability and resiliency improvements. Incremental definition, redirection of Reporting & Analysis tools, and SOAP server establishment were completed successfully.

Outcomes and Success Indicators

The project yielded successful outcomes with minimal downtime during migration, substantial cost reduction, and a notable improvement in development and deployment efficiency. The transition to AWS not only addressed the initial challenges but also positioned the organization for future scalability and operational resilience.

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Data and Reporting

Various tools were employed to collect and analyze data throughout the migration process. These included metrics on migration timelines, downtime, cost savings, and efficiency improvements. Infrastructure and Application Monitoring tools such as AppDynamics and AWS Cloudwatch played a vital role in ensuring the project's success.

Client Engagement and Future Considerations

Regular client engagement through transparent communication and updates played a key role in addressing concerns and requests. Looking forward, continuous optimization of the AWS infrastructure, further automation for development operations, and monitoring emerging technologies remain areas for improvement and consideration. The project's success has not only reduced costs but positioned the team to embrace future enhancements and evolving customer requirements.

Lessons Learned

This journey highlights the importance of thorough planning and execution, emphasizing technical adaptability for software compatibility and infrastructure optimization. Effective teamwork and clear accountability were crucial elements in the project's overall success.
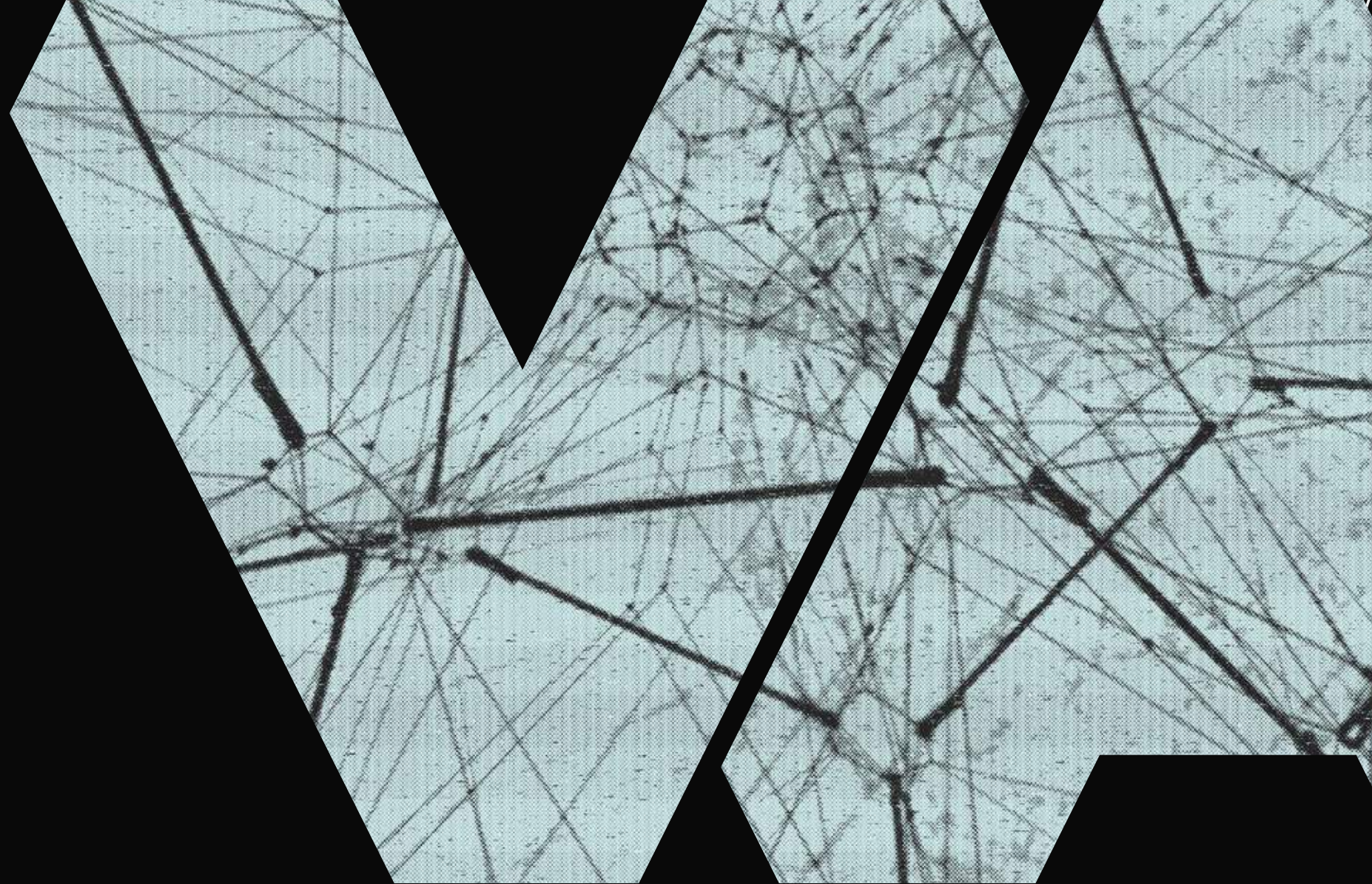
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