



Four Cases of the Database Driving Software Innovation

Enterprise Architect 2019 case file

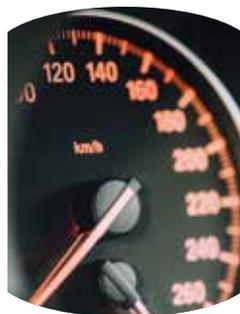
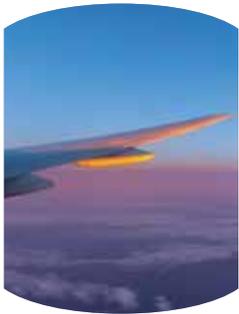
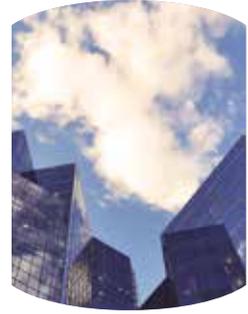
Deliver value quicker
while keeping your data safe



The role of the CIO's organization in a competitive, complex enterprise has fundamentally changed.

This crucial function of the business is under pressure to scale and evolve, but is commonly impeded by challenges arising from the very opportunities it needs to maximize.

Through an examination of four key trends that are driving change in enterprises around the world, we'll show you how the database and the teams who manage and develop it are key to accelerating delivery and unlocking innovation.



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Delivering results with an increasingly distributed workforce

A FTSE 100 wealth management business, on a rapid growth trajectory, with over £95.6bn worth of client funds under management. With an international clientele in personal and private high-net-worth markets, the firm offers a highly-personalized and diverse portfolio of advisory services, from pensions and protection to inheritance tax, retirement planning, and investing, under the scrutiny of heavy regulation and fierce competition.

The consultancy's technology teams work across all areas of the business, developing innovative solutions to clients' needs. They are focused on ensuring the face-to-face service the group's fund managers deliver is supported by real-time, data-driven insights.



The challenge

Five application development teams that were distributed across India and the UK had made huge advances in adopting DevOps practices to speed up the software delivery pipeline. But a two-speed working culture was disrupting the accelerated pipeline, as practices had not been extended across the internal value chain, and in-house operational teams managing the infrastructure estate were causing a bottleneck.

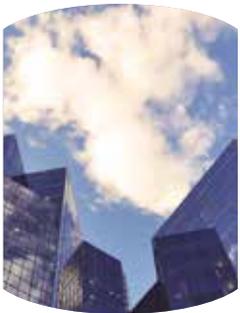
Having highlighted to the IT exec how cross-functional fragmentation was slowing down the firm's ability to deliver new products and services to customers, a senior Development Manager was tasked with increasing collaboration and driving more frequent software releases.



The solution

The solution came by introducing practices common to DevOps-enabled application teams that had not yet been extended to Operations.

- › Automation of previously manual tasks: versioning, script creation, and team-based code formatting
- › Adoption of best practices such as enabling unit-testing and including documentation with code changes for quality assurance
- › Investment in training to accelerate adoption and drive buy-in



The results

Faster releases

- › Deployment man hours reduced from twelve to two
- › Halved the length of time for the average sprint cycle
- › 30% reduction in post-deployment errors

Standardized practices

- › Company-wide coding standards agreed with development and DBA teams
- › Database releases include documentation

Cross-functional alignment

- › Greater collaboration between office-based and remote teams
- › Foundation laid for future adoption of Database DevOps



Meeting customer demands for software delivery

A European national airline, renowned for high-quality service, emerged from a period of modernizing the fleet to enhance and improve passenger experience. Focus now turned to the technical division, who were under pressure to review their innovation cycle and to drive customer-facing features and products that would cement further gains in an increasingly competitive market.



The challenge

When it came to the digital customer experience, internal processes were seriously impeding progress. A lack of alignment between development and change management processes was slowing down delivery and triggering unreliable deployments, which in turn were causing downtime that was unnecessarily disruptive to customers and risked serious reputational impact.

Avoiding failed deployments is business-critical for this sector, so the IT executive set the BI & Data Warehouse team a six-month project to:

- > Align database and application development processes
- > Standardize the approach to change management
- > Implement a dedicated development environment

Once there was visibility of the processes in place across the different functions that were responsible for the software development cycle, the project lead identified that it was database deployment that was still heavily manual and slowing down the pipeline. Application development had already adopted more efficient methods and a best practice technology stack.

While application teams had the ability to commit and push changes to source control, the database teams were stuck creating their own scripts and sharing them via a file folder. This in turn revealed a compliance vulnerability: with no version history for the database, the team could be exposed in a reputation-damaging audit, for not having watertight processes around the appropriate handling of sensitive data.

18 million
passengers each year

9,000
employees globally

90
aircraft

100
destinations



The solution

It immediately became apparent that introducing version control and automation to database development would create the sought-for alignment, reduce the risk of errors, and deliver the greatest gains in efficiencies to speed up delivery.

As customers expect not only a world-class experience, but also that their data will be secure, the opportunity to create an audit trail of what changes had been made, when, where, and by who instantly offered an opportunity to reduce the compliance risk.

The team decided to:

- › Align database development processes and adopt industry standard tooling that integrated into the existing software development stack.
- › Increase the efficiency of creating production-like datasets, with tooling that enabled rapid full copies and backups of SQL Server databases and which used minimal disk space.



The results

- › Increased speed and reliability of deployments and reduce downtime, allowing the business to deliver value at scale faster, improving the reputation of the technology organization and the brand.
- › Development time was freed up to add value, instead of being spent on manual, time-consuming, repetitive tasks
- › Visible version history for the database, to aid auditing and compliance for the business
- › Cost saving using SQL Clone to reduce the size of development databases.

Keeping pace with a shifting tech landscape

The world's leading premium automobile and motorcycle manufacturer, financier, and dealership. Headquartered in Germany, with over 130,000 employees distributed globally, 2018 revenues amounted to nearly €97.5 billion.



The challenge

As in many other businesses, the operations teams in this vast motor group were under pressure to deliver more with less resource. As the business had grown, what was originally an Oracle-dominated technical estate began to see more developers turning to SQL Server.

Ultimately, an ops team of 12 people were responsible for ensuring that the server estate (with significant, multi-terabyte loads) was able to cope with the demands of the numerous applications being developed by the business. At the same time, the team was being asked to ensure that the environment was equipped for ever-evolving security challenges. This meant reviewing and rebalancing how much time they were spending on maintaining operational performance against time invested in development. It was a classic dilemma: deliver a consistent, uniform environment with defenses that ensure maximum uptime.



The solution

The solution was to move to a proactive estate-wide monitoring approach, that could act as a planning aid to minimize downtime and service degradation. This involved being able to analyze and set baselines for each territory's estate.

Once this was established, the developers who were most frequently deploying applications to the estate were given direct access to the monitoring tool, in order to observe the impact of their code.



The results

There are several major benefits to the new solution, all of which help to minimize performance downtime and degradation as well as freeing up time for the operational team.

There has been a major change in how the development and operational teams work together. Internal developers are able to see the impact their code changes are likely to have, before they hit production, avoiding negative customer impact.

This has led to a dramatic reduction in the volume of tickets submitted to the operations team asking them to identify the root cause of issues. Developers are more empowered to pinpoint the cause and consequence, and operations are used more as a point of escalation, giving people the power to solve their own problems.

Freed up from reactive fire-fighting, the team are able to focus their time on predictive analysis, ensuring the entire estate is optimized for future growth. As apps increase in capacity and transaction volume, it is easy to see which servers are coping with the demands and are fit to scale. This greater level of insight means the team can see which servers are coping well and where services need to be moved to different machines.

Adapting to growing regulatory pressure

As the world's fastest growing online retailer - and one of its most disruptive - technology is at the core of this business and touches all the key areas of the organization. Delivering fast and frictionless customer experiences, irrespective of where customers are in the world and what type of device they are using, is integral to retaining the brand's competitive edge, and providing a more scalable, reliable, and flexible service to customers.



The challenge

As part of a platform refresh, a previously monolithic technical architecture was swapped out for a microservices approach, which offered the flexibility to swap new services in and out and to plug in new technology.

However, with this flexibility came new challenges, mainly around provisioning and storing pre-production data. An increasing number of databases that powered the microservices were carrying different datasets, specific to the service destined for end customers. This was creating a number of risks:

- Sensitive data was scattered across the complex datasets in production, increasing exposure to risk.
- Access to sensitive data internally needed restricting in order to maintain security standards, yet teams of software engineers also needed realistic datasets to test their developments in pre-production environments.
- Existing pre-production test data was a huge overhead (>28TB) in the technical estate.
- It took test teams seven days to refresh the pre-production environment, which meant business-critical delays for the many teams of software engineers.

As well as needing to ensure PCI DSS compliance to ensure consumers' valuable payment data was kept secure, they also had to comply with various data protection laws across the world, not least of which was 2018's General Data Protection Regulation, the biggest overhaul of data privacy for 20 years.



The solution

The answer lay in adopting a simple, repeatable, push-button process for masking the datasets in the pre-production environment. This meant the operational teams could quickly mimic a production-like environment, to allow development teams to baseline performance while maintaining data compliance by replacing sensitive data with realistic, anonymized test data at a scale written specifically for the target database architecture.



The results

It previously took seven days to refresh pre-production environments and ensure accurate, yet compliant datasets for software engineers to access. By adopting SQL Data Masker, they were able to do it in seven hours – a serious gain in the software development cycle for numerous teams delivering services to shoppers.

In addition to the sprint cycle gains, data vulnerabilities were significantly reduced as sensitive data was masked across test environments.

Conclusion

Whether your technical organization is faced with the challenges of a distributed workforce, the need to accelerate delivery, maintaining visibility over a complex estate, or accommodating more rigorous data protection laws, you are in a period of unprecedented cultural change. It's led to the emergence of Digital Transformation programmes, which in turn are driving mainstream adoption of new ways of working.

If your organization is on the journey to leaner, more agile technical development and operational practices, then the lesson is clear. Leaving behind the database will only serve to create a new bottleneck that risks delaying your project, or creating a two-speed working culture that makes it harder for teams to collaborate.

Businesses benefit from a DevOps approach to database development. Frequent, predictable releases with a low risk of failure ensure better compliance and minimize the risk of expensive, reputation-damaging data breaches.

Redgate's Compliant Database DevOps solution gives technology teams an end-to-end framework for extending DevOps to the database while complying with regulations and protecting valuable data.

Our customers benefit by standardizing team-based development, automating database deployments, monitoring performance and availability, and protecting and preserving data.

Facing the same challenges?

Find out how Redgate's Compliant Database DevOps solution can help your team deliver value quicker while keeping your data safe.

www.redgate.com/solutions

The industry standard

Redgate has specialized in database software since 1999. Our products are used by 804,000 IT professionals, in more than 100,000 companies, including **91% of Fortune 100 companies**.

World-class support

Redgate offers comprehensive documentation and a friendly, helpful support team. An average 87% of customers rate our support 'Excellent'.

We're here to help

Find out how Redgate's Compliant Database DevOps solution can help your team deliver value quicker while keeping your data safe.

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