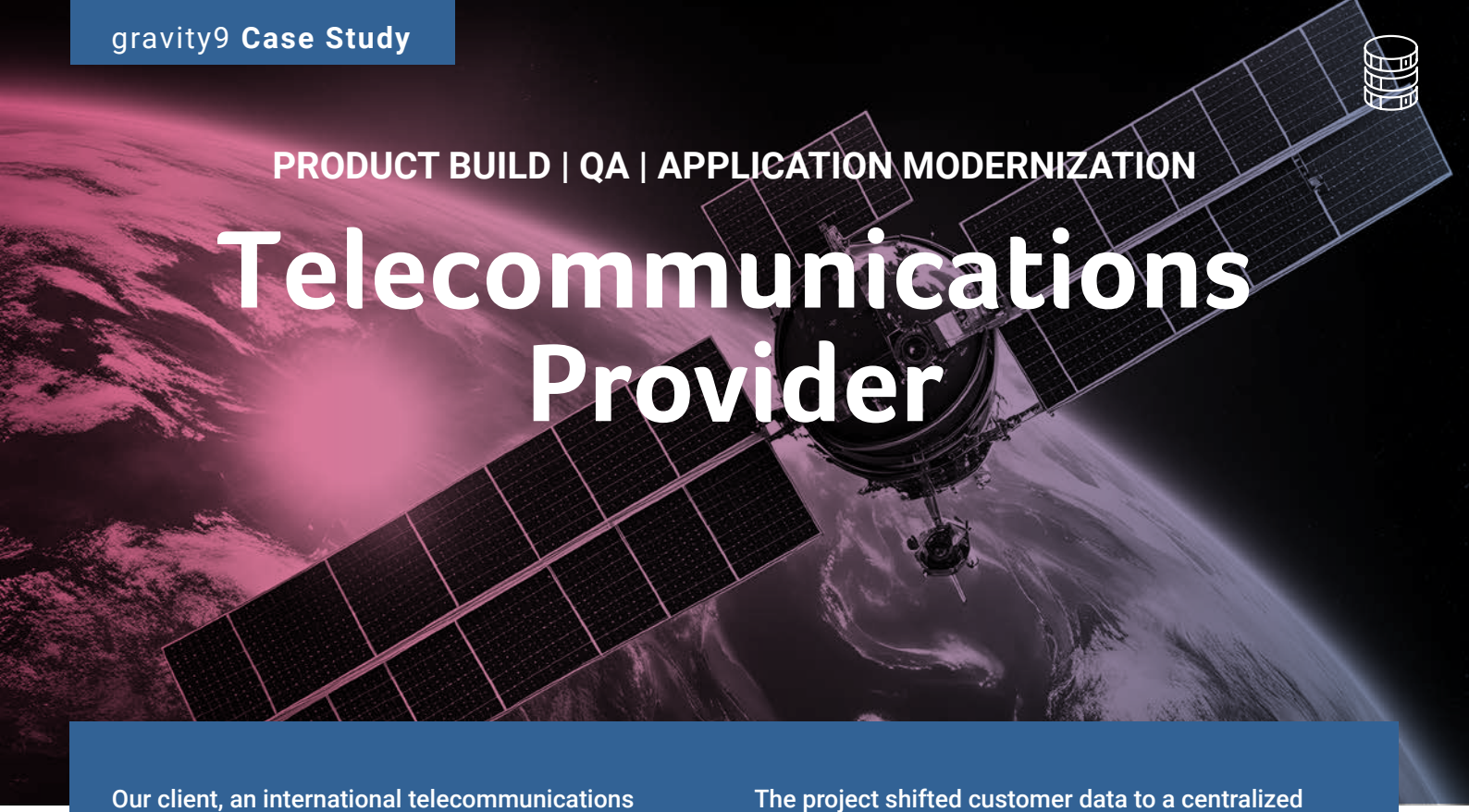
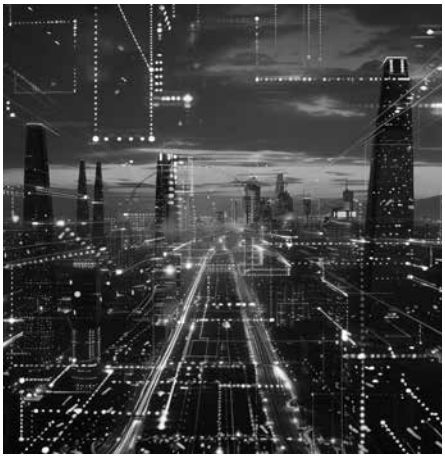


PRODUCT BUILD | QA | APPLICATION MODERNIZATION

# Telecommunications Provider

Our client, an international telecommunications provider, engaged MongoDB and gravity9 to create a single view of its customer data. The legacy systems previously stored customer data against a legacy product set, making it difficult to engage customers and bring new types of products and packages to market.

The project shifted customer data to a centralized hub, making managing customer data far more straightforward and unlocking new marketing and upselling opportunities for the business. It was completed within a twelve-week period, reduced maintenance costs, and made it simple for the group to scale product offerings while improving the customer experience.



## Utilized Technology Stack

**Cloud:** AWS

**Database:** MongoDB Atlas

**Backend:** Java Spring Boot, Apache Kafka, Amazon Simple Notification Service, Amazon Simple Queue Service

**Testing:** Spock

## Review of Challenges

Our client is a multinational telecommunications provider offering mobile, broadband, and fixed-line utilities, IT services, and streaming television. Over time, the group has expanded, adding subsidiaries that cater to governments, corporations, and end-consumers.

This type of growth has led to product-centric data and systems architecture rather than customer-centric architecture. While this was initially the least difficult to implement, as the portfolio of offerings grew, it left our client with a problem.

With customer information stored "per product," identifying customers with multiple products was impossible, especially with many customers "inherited" due to acquisitions. This led to poor customer experience and missed opportunities for customer-specific marketing and upselling, leaving the organization at risk of dissatisfied customers and missed revenue opportunities compared to its competitors.

It was completed within a twelve-week period, reduced maintenance costs, and made it simple for the group to scale product offerings while improving the customer experience.

## Our Solution

TM Forum's Open APIs are an industry standard and popular modernization choice for telecommunications providers looking to move away from legacy architecture, and gravity9 designed a reference application architecture to assist their adoption. Four APIs and a data model were implemented, consistent with TM Forum's Open API specifications, creating a better data architecture that allows upstream applications easy access to customer data.

The applications were microservice-based, using Java Spring Boot and MongoDB Atlas, and ran on Amazon Web Services (AWS). The event-driven architecture was implemented with Kafka and MongoDB change streams.

Using a live code specification and ten million records, behavior-driven testing was used to properly test the finished platform's suitability for deployment in a real-world environment. Over a thousand automated tests were carried out using the Spock framework.

## Our Approach

Our client envisioned a centralized customer data hub to solve this challenge, unifying individual customer profiles from single or multiple products and services under a single view. They approached MongoDB to build this hub, who turned to gravity9 to partner on the project, recognizing gravity9's heritage in delivering on fast-paced modernization projects as a proven Jumpstart Partner.

A prototype Customer Information Manager platform was created over five weeks, with full delivery within twelve weeks. This platform provides a single cross-channel, multi-brand identity for millions of customers under TM Forum specifications. It allows for a more efficient, comprehensive means of accessing, managing, and understanding customer information across increasingly complex service offerings. Furthermore, data starts with the customer's profile, moving on to services and products. As services are added or removed, or as the customer changes their usage of services, their profile remains a constant starting point.

Reusable modules were designed and built to accelerate further Single View use case implementations within the client using MongoDB Atlas, and gravity9 demonstrated new technologies and ways of working within a legacy environment, establishing a reference architecture pattern for new Single View applications. The initial Single View delivery leveraged the reusable modules to create an initial 5 components, which has since been expanded to over 20 components across 4 distinct Single View implementations.

**WE'RE BUILDING BETTER DIGITAL PRODUCTS**

"...recognizing gravity9's heritage in delivering on fast-paced modernization projects"

Over a thousand automated tests were carried out using the Spock framework.

## Subsequent Outcomes

The immediate goal of shifting to a customer-first data architecture was met successfully and well ahead of client expectations for a project of this type. This allowed new products and systems to be implemented and easily modified at a customer level rather than the bloat of having multiple customer records spread across siloed system records. Additionally, this modernization allows our client to shift confidently to shift confidently away from costly legacy architecture, reducing maintenance costs and human investment. With the adoption of TM Forum APIs, changing business requirements can be responded to far more rapidly.

With customer information centralized under a single view, regardless of what blend of services they're using, customers enjoy a seamless and simplified means to manage their accounts and subscriptions to services.

As our client continues to scale with new services (self-developed or through acquisitions), expansion is eased, with seamless integration and data clarity regardless of what services are added, modified, or removed. This removes significant pain for the company and provides a better customer experience.

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