Building Better
Digital Products



Microsoft Azure Application Modernisation Service

G-Cloud 14 Service Definition Document

gravity9: Building Digital Platforms, Turning Legacy Complexity into Digital Agility

gravity 9



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Introduction

It's never too early to modernise, but it can be too late!

Legacy complexity is a by-product of your success; your organization has grown and your applications and platforms have grown to keep up and support your ever-changing needs. However, many established organisations initiated their operations before modern solution architectures emerged, while today's proven patterns and practices offer efficiency and longevity.

- **74%** of organizations that experience data breaches are due to vulnerabilities in legacy systems - Ponemon Institute
- **52%** of fortune 500 in 2003 no longer exist today
- **45%** improvement in customer satisfaction for organizations that prioritize modernising applications - Forrester Consulting

Don't become a statistic!

Legacy systems often struggle with the volume of digital transactions, fail to store necessary data for insightful analysis, and face challenges in meeting regulatory compliance. This hinders innovation and agility, resulting in slower time-to-market. New organisations, unencumbered by legacy systems, possess native agility but lack your expertise, breadth of services, resources, and trusted brand. Imagine leveraging modern architecture to enhance your wealth of experience and capabilities.

gravity9 propels you beyond complex, outdated legacy solutions to a sleek AI-led, micro-service, micro-UI platform enabling continuous innovation.

Our application modernisation approach leverages cutting-edge AI technologies and microservices architecture to streamline your operations and drive continuous innovation. With our sleek micro-UI platform, we empower your business to adapt and thrive in today's dynamic market landscape, ensuring agility, scalability, and sustained competitive advantage. Say goodbye to the constraints of the past and embrace a future where innovation knows no bounds with gravity9.

Cloud Technology

For organisations not in the cloud, transitioning to a cloud-based infrastructure is fundamental for modernising as it offers unparalleled scalability, flexibility, and accessibility. By leveraging cloud technologies, businesses can streamline workflows, improve collaboration among teams, and enhance overall efficiency. Moreover, cloud-based solutions enable real-time data analytics, empowering organizations to make informed decisions swiftly. Embracing the cloud also ensures better resilience against disruptions, as data and applications are securely stored and accessible from anywhere, providing continuity even in challenging circumstances.

Don't just modernise – revolutionize!

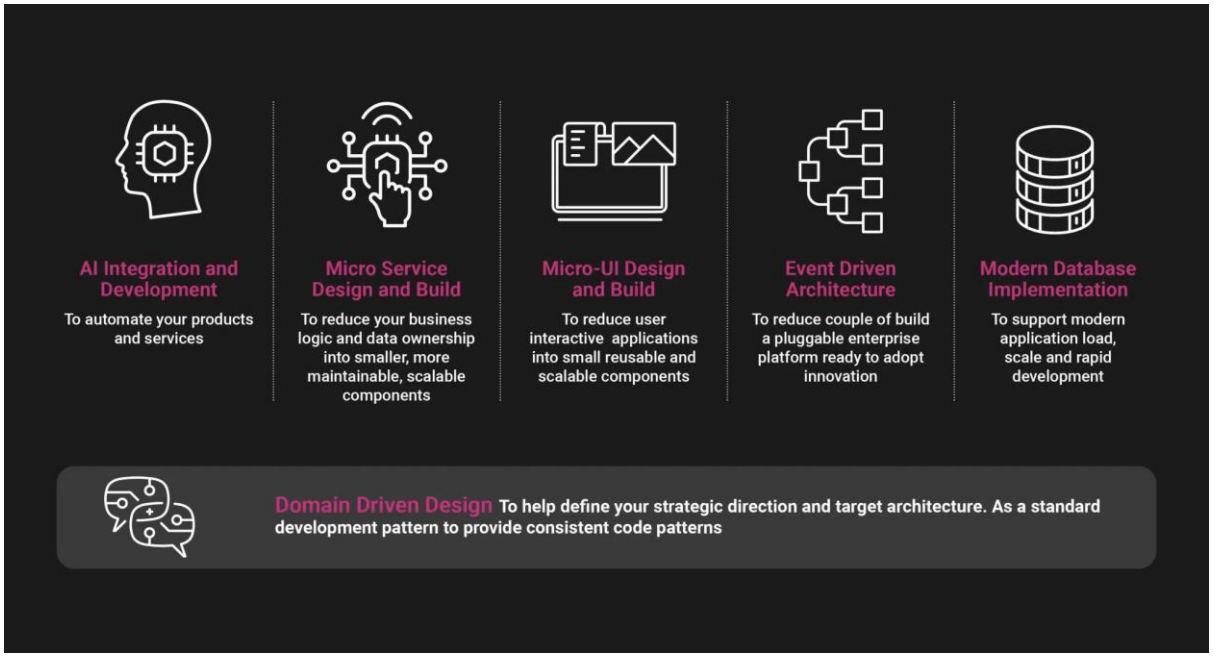
gravity9 understand the challenges of legacy systems and with our experience and expertise will, pave the way for your organization's digital revolution. We guide you through the labyrinth of legacy complexity, identifying inefficiencies, bottlenecks, and opportunities to innovate.

By strategically modernising and optimizing your systems, we streamline operations, reduce technical debt, and empower your organization to thrive in the digital age. Our approach goes beyond mere



modernisation; we prioritize future-proofing your architecture with an emphasis on AI integration and product insulation, ensuring it's scalable and adaptable to evolving technologies and market demands. Through meticulous planning and implementation, we transition your organization from legacy constraints to agile, best-practice solutions.

CORE TO OUR APPROACH



AI

Harness AI to revolutionize operational efficiency and decision-making. Our expertise in AI development empowers organizations to innovate and gain a competitive edge, optimizing performance and profitability through tailored, intelligent system integration.

Engineering

Modernise your applications with confidence and precision. Our expert team specializes in seamlessly transitioning legacy systems to agile, future-proof solutions, ensuring your business stays ahead in today's fast-paced digital landscape.

Product

We are constantly inventing new digital products, services, and revenue streams for our clients by designing, prototyping and building experiences for the next market leaders. We research and define customer journeys by thinking human first to enable technologies fullest potential and build better products.



Global Presence

Highlighting our global presence, gravity9 has teams located in multiple offices worldwide, bringing a wealth of benefits. This international footprint allows us to tap into a diverse talent pool, ensuring we have the right expertise for any challenge. It also enables us to offer round-the-clock development and support, thanks to the different time zones our teams operate in. Furthermore, our global perspective enriches our understanding of various markets and cultures, which is invaluable in crafting digital solutions that resonate worldwide. Ultimately, our widespread teams enhance our agility, foster innovation, and ensure we can meet our clients' needs with unparalleled efficiency and effectiveness.

WE ARE GLOBAL

Our Locations

UK & IRELAND

London
Birmingham
Dublin

POLAND

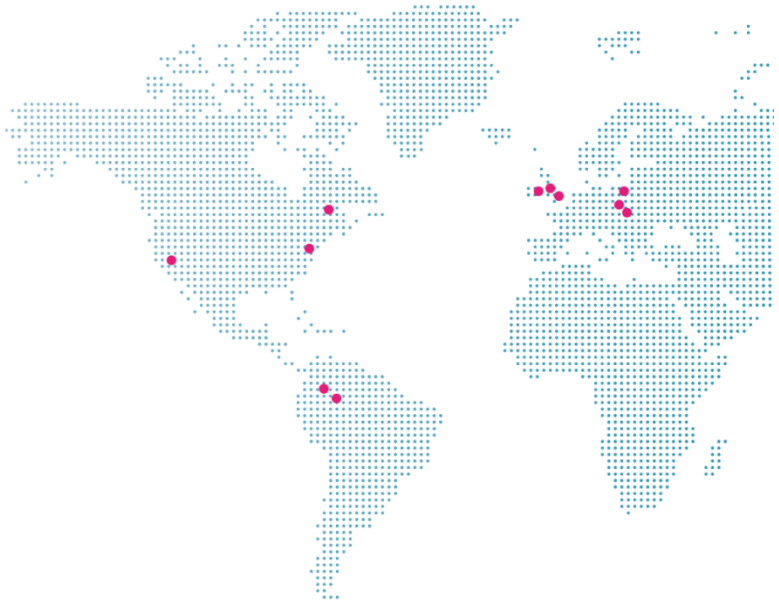
Kraków
Wroclaw
Gdansk

USA

New York City
North Carolina
California

COLOMBIA

Medellin
Bogota



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Service Overview

Our service combines two core capabilities: Domain Driven Design and deep knowledge of the Microsoft Azure cloud platform.

Our approach leverages domain driven design techniques to first understand the application landscape in scope of change. This allows us to align the new target architecture application definition closely to the host business domain, fostering clear areas of responsibility, definition and source of truth for data ownership. It further enables clean communication between technical and non-technical project stakeholders.

Beginning with domain analysis, we collaborate closely with clients to identify core business domains, subdomains, and domain entities, gaining deep insights into their business processes and requirements. Leveraging Azure's cloud services, we then architect the solution around bounded contexts, defining clear boundaries and responsibilities for each domain which promotes scalability, modularity, and maintainability. In addition, we build custom microservices to represent core domain logic alongside off-the-shelf azure services to combine the fastest delivery with tailored logic implementations.

By adopting domain-driven design patterns such as aggregates, entities, value objects, and repositories, we model the application's domain logic effectively and apply Event-Driven Architecture patterns within Azure services. This approach ensures a cohesive and well-structured architecture. Utilizing Azure's serverless offerings, such as Azure Kubernetes Services (AKS), Azure Functions and Stream Analytics, Service bus and Event hubs we provide highly scalable, low coupled solutions that are resilient and configurable for multi-region failover and disaster recovery scenarios.

By leveraging Azure’s cognitive services and Open AI API’s we bring cutting edge, tried and tested AI capabilities to new applications without the need for heavyweight AI modelling teams.

Utilizing our prebuilt (open-standards-based) accelerators, we accelerate even the custom components of a modernisation. Including common microservices such as global Id (lite mdm solution), taxonomy, permissions and a full micro-UI framework allows a composite approach to building flexible, dynamic and independently deployable UI widgets that work both together and in isolation.

Through the synergy of domain-driven design and Azure's cloud platform, we deliver a modernised application architecture that is not only technologically advanced but also closely aligned with the client's business goals and domain intricacies. Our holistic approach ensures that the modernised application not only meets current requirements but also lays a solid foundation for future growth and innovation, empowering organisations to thrive in today's dynamic digital landscape.

Benefits of the approach

- Close alignment between technical implementation and business domain
- A modular and scalable application architecture
- Rapid delivery through utilization of azure’s pre-built services
- Future proofing of your platform through clear domain driven design and event driven architecture
- Improved user experience through closer alignment between application design and business stakeholders.
- Clear understanding application and service data ownership allowing cleaner



- Acceleration for the custom elements of your solution (through gravitry9 Accelerator component)



Working with our Team

Engagement Process:

Modernisation Analyst: This role will be the client's primary point of contact for understanding the current state of their applications and systems. The analyst will conduct thorough assessments, gather requirements and work closely with the client to identify key business domains and subdomains. Through this process, they will derive a target state architecture that aligns with the client's goals and objectives.

Modernisation Architect: The architect collaborates with the client and their team to translate the derived target state into actionable modernisation strategies. They bring deep technical expertise of Microsoft Azure's cloud services and work closely with the client to select the most suitable services and integration strategies for the new solutions. The architect ensures that the architecture is scalable, secure and aligned with industry best practices.

Client Collaboration:

Modernisation Analyst: Engages with the client to gather insights, conduct workshops and validate assumptions. They work closely with stakeholders to ensure that the derived target state accurately reflects the client's business requirements and priorities.

Modernisation Architect: Collaborates with the client's technical team to understand existing systems, dependencies, and technical constraints. They lead discussions on architecture design, provide recommendations and address any technical challenges or concerns raised by the client.

Deliverables:

Modernisation Analyst: Delivers comprehensive reports, domain models and target state architectures based on the insights gathered during the analysis phase. These deliverables serve as the foundation for the modernisation efforts.

Modernisation Architect: Provides detailed architectural diagrams, integration plans and implementation guidelines tailored to the client's specific requirements and preferences. They work closely with the client's team to ensure a smooth transition to the new architecture.

Overall, clients can expect a collaborative and iterative engagement process, with the Modernisation Analyst focusing on understanding business needs and defining target architectures, while the Modernisation Architect leverages technical expertise to design and implement modernisation strategies aligned with Microsoft Azure's cloud services. Together, these roles ensure that clients receive tailored solutions that meet their current and future business objectives.

Through the Build Phase

Throughout the build phase of the project, the Modernisation Analyst and the Modernisation Architect will maintain active engagement to ensure full collaboration between Gravity9 (us) and the client. These roles serve as the bridge between our team and the client, facilitating seamless communication, knowledge sharing and alignment of objectives.



Continuous Collaboration:

The Modernisation Analyst and Architect will actively participate in regular meetings, workshops and review sessions with both Gravity9's delivery teams and the client's representatives.

They will facilitate discussions, address any questions or concerns and ensure that the project stays on track and aligned with the agreed-upon target state architecture.

Knowledge Sharing and Collaboration:

Throughout the build phase, the Modernisation Analyst and Architect will foster a culture of knowledge sharing and collaboration between Gravity9 and the client. They will organize training sessions, share best practices and provide guidance to both teams on implementing the modernisation strategies effectively.

Joint Delivery Teams:

The Modernisation Analyst and Architect will bring together delivery teams from both Gravity9 and the client, encouraging collaboration, synergy, and shared ownership of the project's success.

They will facilitate cross-functional teamwork, ensuring that everyone is aligned with the project goals and contributing their expertise towards achieving them.

Progress Monitoring and Adjustment:

The Modernisation Analyst and Architect will closely monitor the progress of the build phase, identifying any issues or deviations from the plan.

They will collaborate with both teams to address challenges, adjust strategies as needed and ensure that the project remains on track for successful delivery.

Successful Handover:

As the project nears completion, the Modernisation Analyst and Architect will oversee the handover process, ensuring that the client is fully equipped to own and manage the new architecture.

They will facilitate knowledge transfer sessions, provide documentation and training materials, in addition to ensuring that the client's team has the necessary skills and/or resources to maintain and evolve the solution independently.

By maintaining continuous engagement throughout the build phase the Modernisation Analyst and Architect ensure that collaboration remains a cornerstone of the project, leading to a successful handover and empowering the client to embrace and own their new architecture with confidence.

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Case Studies

Major Healthcare Provider

A major healthcare trust required a brand-new system designed and built to address critical issues with their existing process and better serve their needs in the medical technology space (the previous approach was inefficient, potentially inaccurate, and difficult to maintain or scale). Specifically, the client required a way for care providers to review medical technology products for suitability and to communicate with suppliers who needed an efficient way to provide up-to-date product information in relevant formats.

gravity9 won the project tender process, transforming the experience and delivering the "Technology Adoption Platform" by designing and building a highly scalable web-based solution with the potential to serve the entire healthcare provider. After initial conversations, the project began with executive team discovery meetings to map what is "truly" needed, followed by iterative event storming to ensure the product meets stakeholders' needs.

Built around MongoDB, Azure, React and Java, it reduces maintenance workloads, provides a clear communication channel, and enables storing relevant and accurate product information.

Utilised Technology Stack

- Cloud: Azure, Azure AD B2C, Terraform
- Database: MongoDB Atlas
- Backend: Java, Spring Boot
- Frontend: React, NextJS, MUI component

Employee Wellbeing Provider

Our client provides technical employee wellbeing solutions for physical, mental, and financial health. The client approached gravity9 and spoke with Founder Noel Ady to discuss a new module to their existing Mental Health solution that would enable communication between domain microservices and CRM (Customer Relationship Management) in a multicloud environment. Additionally, we would provide additional security, improve system performance, and provide domain separation.

The initial solution uncovered additional requirements, which gravity9 designed and built into the second iteration before conducting a final optimisation pass to streamline further, displaying an evolutionary architecture approach. The client was delighted with the overall result, especially gravity9's ability to adapt and implement event-driven architecture.

gravity9 achieved a remarkable outcome that met all the client's expectations, demonstrating expertise in designing and deploying event-driven architecture and delivering a solution that supports asynchronous communication and facilitates evolutionary changes in response to the dynamic business environment.

Utilised Technology Stack

- Cloud: Multi-Cloud
- QA: SpecFlow, Living Documentation
- Development: .NET Core

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National Defence Organisational

A major defence organisation sought to reform how they generate useful analytics for gauging and reacting to public opinion to NATO operations in specific geographic areas. Their previous approach was to research and generate reports manually, which was resource-intensive, delay-prone, and at risk of accuracy issues. Partnering with MongoDB, gravity9 scoped, developed, and delivered a replacement cloud-based system over a three-week period.

The delivered system can collate data from multiple sources, allowing easy, customisable generation of data-rich reports based on up-to-date information plotted against any number of data points, including GIS. Built around React.js, Node.js, MongoDB, and Microsoft Azure, this system has reduced resource overheads and enabled rapid delivery of relevant and accurate information to decision-makers within the organisation. Resource and actual costs have also been reduced as a result.

Utilised Technology Stack

- Cloud: Microsoft Azure
- Database: MongoDB
- Backend: Node.js
- Frontend: React.js

Beauty & Pharmaceutical Retailer

As part of a fast-track ideation and rapid-build development project, gravity9 partnered with MongoDB to help a popular health and beauty retailer and pharmacy build a new Beauty Concierge application to increase customer loyalty and encourage repeat business in the retail domain. Prior to gravity9's involvement, no history of customer consultations or recommendations was stored, meaning returning customers would have to "start over" be re-interviewed, providing them no advantage at this vendor versus their competitors. The client outlined the project requirements, providing a starting point for a more profound consultation process in which gravity9 challenged, revised, and reached a consensus on the form and shape of the project.

A web-based solution was created, tailoring the customer experience via an accessible in-store app. The app maintains customer profiles and preferences allowing consultants to access this information as well as sales logs and KPI's, creating a more personalised, bespoke service unique to the client. The product is built with a .NET Core backend, Angular frontend, and MongoDB database.

The solution has been delivered to the client and initial reception has been extremely positive, with scope for additional functionality, integration, and quality-of-life improvements to be added later. Customers can enjoy a more intimate shopping experience which encourages trust, brand loyalty, repeat business, and increased footfall versus competitors.

Utilised Technology Stack

- Cloud: Microsoft Azure
- Database: MongoDB
- Backend: .NET Core
- Frontend: React



Enquiries

For enquiries, please contact:

Allan Hudson

Bid Manager

+44 121 679 0842

tenders@gravity9.com