

IBM Consulting



G-Cloud 15 IBM – Mainframe Migration and Modernisation Services

Service Definition Document

Email: ukcat@uk.ibm.com

Contact: Anne-Marie Wheeler

Contact: Anne-Marie Wheeler

Service Overview.....	3
Addressing Business Needs	5
Service Definition.....	6
IBM Approach.....	7
Why IBM.....	8
Benefits of Modernising Applications on the Mainframe.....	10
Experience Counts.....	11
About IBM.....	12

IBM Mainframe Migration and Modernisation Services

Service Overview

Transforming Mainframe and Legacy Estates with Secure AI Driven Modernisation

Government departments operate a wide range of complex systems, from strategic IBM Z platforms through to older legacy mainframes that are no longer being invested in. IBM brings the experience, tools, assets and GenAI capabilities needed to modernise these estates into strategic, future ready architectures. For departments with IBM Z, we help maximise the value of the platform through API exposure, modularisation and integration into hybrid cloud environments, enabling greater operability, speed and interoperability with emerging technologies such as agentic AI.

Our offering also enables IBM Z to operate as an all-in-one Generative AI platform, bringing the full power of AI directly into a department's private and secure cloud by running the complete AI solution on the significant compute capacity of the modern IBM mainframe. This is essential for organisations where data sensitivity and strict security requirements limit the use of public cloud AI. By combining IBM's AI platform with the strengths of Z, new opportunities become available to the government departments with the highest security needs.

Where systems run on legacy mainframes that no longer have a strategic future, IBM can fully modernise and migrate them to secure and cloud ready platforms. This approach allows departments to modernise with confidence, increase agility and protect sensitive data while ensuring continuity of critical public services.

Features

- Code Understanding:

Gain a complete and accurate picture of complex mainframe and legacy applications.

Use IBM assets and Generative AI to analyse application code, break it down into clear components and deterministically extract the underlying business logic. This includes mapping business processes, identifying validation rules and using GenAI to explain how the code operates. Supported by tools such as Watson Code Assistant for Z, ADDI, ARC, Project Bob and MoJoCo this capability provides a detailed and accurate understanding of complex mainframe and legacy applications.

- Modernising on the Mainframe:

Enhance and extend value on Z through automation, AI and modern engineering.

- Migration to consistent DevSecOps and automation across mainframe and other platforms
- Modernise in place using generative AI (WCA4z, Bob, WCA, Watsonx Agentic AI)
- Cobol to Java on Z/OS using WCA4Z
- Expose APIs
- Data Integration
- Performance optimisation, analytics and machine learning

- Modernising Monolith to Modular:

Enhance and extend value on Z through automation, AI and modern engineering.

Modernise monolithic code bases into a disaggregated architecture such as microservices by building on the code understanding capabilities of this offering. This includes extracting functional specifications, mapping business logic and gaining an explicit understanding of data logic to support the creation of a modern architecture that can run either in the cloud or on Linux on Z, depending on the compute and security needs of the solution.

- Automated conversion of languages and ISV products:

Accelerate transformation through high quality automated code and platform conversion.

- COBOL conversion (CICS, IMS, TM, batch) to Java, C#, COBOL
- Automated Non-SQL database, including IDMS,IMS and ADABAS conversion to DB2, Oracle or SQL server
- Automated Software AG Natural conversion to COBOL, Java or C#
- Automated CA Gen conversion to Java or C#

- Re-platform using Automation:

Move from non-strategic legacy mainframes to modern, supported environments.

- OpenVMS to Linux, Unix, Wintel on the Cloud
- VME to Linux, Unix, Wintel on the Cloud

- AI Platform on IBM Z:

Enable secure, private GenAI at scale directly on the IBM Z platform.

Leverage IBM Consulting Advantage together with Red Hat AI to deploy an end-to-end Generative AI capability entirely on IBM Z. This approach uses the significant compute capacity of modern Z systems to run the complete AI stack within the client's secure private cloud environment. It enables departments with strict data residency and security requirements to adopt advanced AI capabilities that are often inaccessible through public cloud services, unlocking new operational opportunities for the most secure areas of government.

Benefits

- Reduced technical debt and operational risk.
- Co-created roadmap that builds commitment and accelerated transformation and benefits realisation.
- Modernisation that enables portability between all Public Cloud Platforms.
- Reduced TCO through automation and optimal use of IT resources.
- DevSecOps pipelines achieve consistent compliance with government security standards.
- Enhanced user experience with application stability, scalability, and consistent integration.
- Cost effective, flexible and scalable applications delivered on the Cloud.
- Increased agility with “on-demand” environments and faster cycle times.
- IBM Garage Method for Cloud co-creation drives culture and skills.
- Improved user experience and quality of service.
- Modernisation of Broadcom CA to modern alternatives.
- Modernisation of Software AG products to modern alternatives.
- Reduced legacy application software complexity and operational costs. Automated refactoring combined with Gen AI test case generation to significantly reduce the risk of transformation.

The ability to adopt advanced GenAI in high security environments

Maximising the value of existing IBM Z investment while enabling hybrid cloud flexibility

Key Differentiators

- Deterministic code understanding and business logic extraction powered by IBM assets and Generative AI, providing unmatched clarity and confidence in modernisation decisions
- Generative AI backed by WatsonX and Project Bob designed specifically for mainframe modernisation
- Unparalleled depth of skills, expertise, people and knowledge across the mainframe platform, supported by IBM assets and accelerators with decades of proven value
- Dedicated mainframe modernisation teams spanning hardware, software and cloud, ensuring balanced and informed options for every application and service
- IBM Modern Systems tools, automation and deep experience delivering automated modernisation and migration with increased velocity and reduced risk
- IBM Garage Method for Cloud accelerates your modernisation journey and supports innovation through co creation, improved user experiences and new business models

IBM Mainframe Migration and Modernisation Services

Addressing Business Needs

We work in partnership with you to address your business needs, leveraging our deep industry and technical expertise, tools, and approach to deliver Digital ready solutions for a range of business needs:

- Improve service, user experience and agility by modernising your mainframe applications and data.
- IBM provides the skills, methods and tooling to modernise mainframe applications, aligns IT with business requirements, reduces operating costs to free up capital for innovation and enhances the overall application security posture.

This service covers the optimisation of applications and data services on the Mainframe platform, in addition to modernise functional and data processing to other compute platforms, including other Cloud platforms.

Business Agility

Mainframe applications and data are complex and tightly coupled, making it difficult to continuously improve development quality, velocity and efficiency.

Risk Mitigation

Complexity and risk are associated with modernisation due to many mainframe applications being mission critical and integrated with distributed workloads.

Workload and Cost Optimisation

There is a need to prioritise and distribute workloads optimally and easily pinpoint inefficiencies that lead to overruns of service level agreements.



IBM Mainframe Migration and Modernisation Services

Service Definition

Mainframe applications are your strategic core, containing decades of knowledge embedded in code. Our services enable you to understand, plan and transform your mainframe applications to fit your needs today.

IBM has a long track record of modernising critical government systems and supporting the most complex technology estates. Our teams bring deep domain knowledge and practical experience across both mainframe and cloud environments, allowing us to work seamlessly within existing programmes or deliver complete transformation outcomes.

We support any cloud strategy and work effectively across AWS, Azure and private cloud, ensuring applications and data are placed where they deliver the greatest value.

What sets IBM apart is our ability to combine advanced automation, proven engineering methods and powerful AI driven tools to accelerate modernisation with confidence.

Our portfolio includes proprietary code analysis assets, automated conversion technologies and Generative AI capabilities that simplify complex estates and reduce the risk traditionally associated with large scale change. We also provide secure AI options for departments with the highest data protection requirements, including the ability to run enterprise scale GenAI directly on IBM Z for private, controlled and compliant deployment.



1. Mainframe profile assessment including:

- Costs
- Challenges
- Skills
- Relevance
- Risk & Compliance

2. Application discovery including:

- Languages
- Architecture
- Dependencies and coupling

3. Feasibility analysis including:

- Technical options
- Cost benefit
- Planning and road-mapping

4. Strategic, cloud agnostic placement

- Cloud platforms
- Hybrid solutions
- In-Place modernisation and technology refresh

5. Delivery

- Full lifecycle experience
- Tools
- Continuous innovation
- Automation at scale

IBM Mainframe Migration and Modernisation Services

IBM Approach

What we do

We identify the appropriate modernisation scenario(s) to achieve target outcomes:

Modernisation for Cloud:

- Use cloud-native features of Mainframe.
- Extend, expose and refactor appropriate apps.
- Leverage Mainframe in hybrid multicloud.

Hybrid Modernisation (across mainframe and distributed):

- Drive hybrid cloud modernisation across mainframe and distributed systems – move off.
- Enable cross-platform systems management and application orchestration.

In-place Modernisation:

- Refresh technology as required.
- Upgrade systems.
- Enhance and clean applications.
- Enable cloud-native features of Mainframe.
- Optimise and enhance legacy systems.
- Refactor and modernise, including microservices

Mainframe for Cloud Architecture

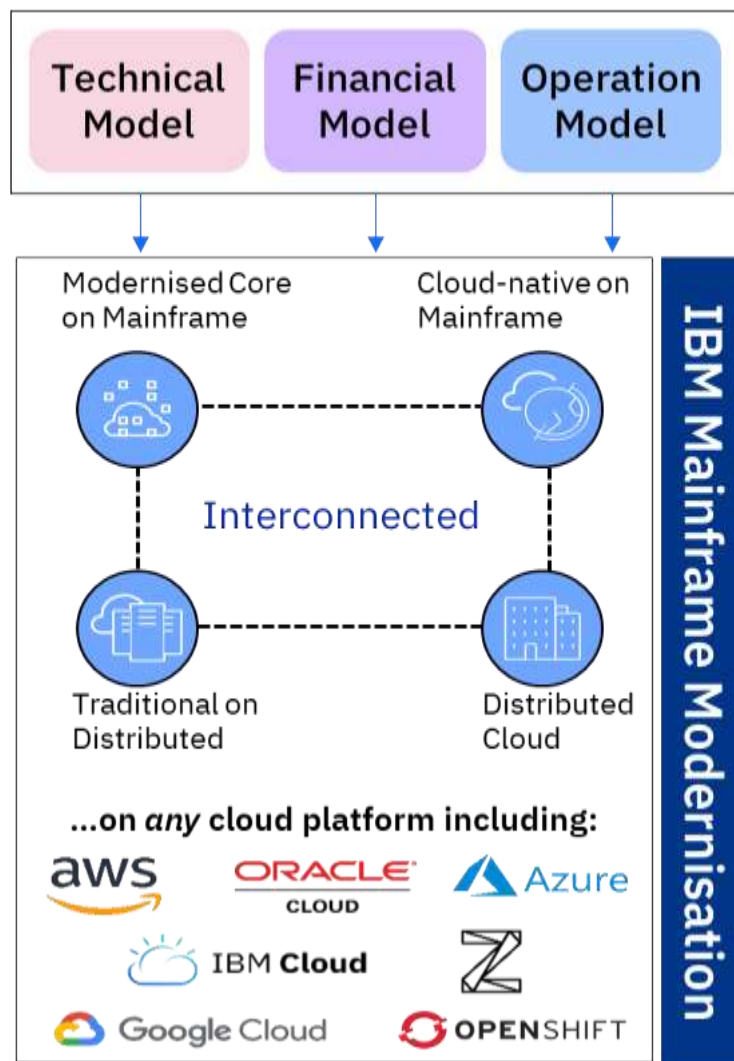


Figure 1: Our multi-cloud architecture allows us to target workloads to appropriate, cost effective, infrastructure.

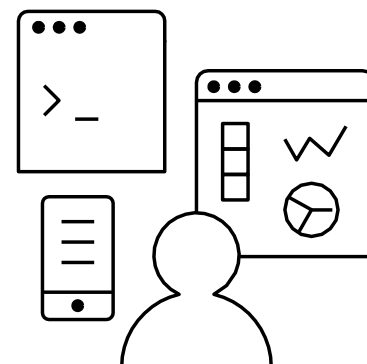
IBM Mainframe Migration and Modernisation Services

Why IBM?

What we do

We use tools and automation to accelerate modernisation, reducing risk and time to value.

IBM's discovery tools integrate advanced automation and Generative AI with the expertise of IBM Researchers, platform engineers, software developers and industry consultants, enabling rapid insight, early wins and sustainable long-term value across your modernisation journey.



Discovery Tools

- ADDI Source Code Discovery and Intelligence
- RES Ensures optimisation of the processes and systems governance
- TADDM Application dependency discovery
- ARC Rapid parser technology to discover program dependencies, data dependencies and extracting the business logic from the code.
- TOPAZ Discover, visualise and manage both mainframe and non-mainframe data
- Project Bob to modernise your application code.

Benefits

- Discover multiple technologies, HW to Middleware layers on Mainframe and distributed platforms.
- Analysis of multiple technologies, discover usage, complexity, and components for modernisation.
- Capture program flow, data elements and dependencies between programs and data.
- Identify and manage areas of code complexity and risk.
- Optimise workload platform migration in terms of disposition, benefits/costs.
- Deterministic analysis enables safe and complete requirements gathering for rearchitecting complex monolithic applications.

IBM Garage Method for Cloud™

This brings together a collection of practices and workflows that have been curated to help organisations rapidly design, build, deploy, and scale innovative solutions. The Method uses Enterprise Design Thinking, Lean Startup and agile DevOps concepts to enable continuous design and delivery of new function.

Benefits

We co-create, co-execute, and co-operate with you to embed a high-performance culture, innovate by design with speed, and scale from MVP to industrial strength to deliver:

- Up to 75% reduction in design time.
- Up to 33% improvement in time to deploy MVPs.
- Up to 2x faster delivery of new applications to market.

IBM Garage Method for Cloud™ Toolkit

This is a suite of integrated tools and assets with a scalable, flexible architecture supported by an analytics engine and automation that helps our clients accelerate their transformation journey to a multi-cloud environment.

Benefits

This toolkit supports our client's cloud transformation journey by the acceleration of cloud adoption with automation for greater efficiency and deeper analytical insights for improved decision-making ability, delivering benefits such as:

- Up to 40% reduction in time and effort to process new sources of information
- Up to 25% reduction in errors from manual activities related to migration
- Up to 25% reduction in time and effort required for migration activities



Emerging tools, technologies are paired with the best of IBM Methods and People to provide end-to-end capabilities for mainframe and cloud.



Automated Discovery enriches mainframe application knowledge which improves modernisation outcomes and reduces risks

IBM Mainframe Migration and Modernisation Services

Benefits of Modernising Applications on the Mainframe

IBM's approach enables a modern mainframe landscape, improving resilience and agility through Resilience Engineering Principles and Automation driven by the IBM Garage Method for Cloud



- | | | | | | |
|---|--|--|--|---|---|
| <ul style="list-style-type: none"> • Self-heal • Digital Workers for Stable applications • Improvement in batch scheduling & management • Cost take-out from baseline | <ul style="list-style-type: none"> • Optimised infrastructure MIPS usage with Finance Ops • Reduction in unplanned outages | <ul style="list-style-type: none"> • Improved time-to-market • Reduced risk in new deployments • Cost reduction with improved quality | <ul style="list-style-type: none"> • Improved service agility with end-to-end service management • Reduction in Infra. & App. Operations efforts | <ul style="list-style-type: none"> • Enhanced ability to shift-left & Accelerating time to market • Improved Innovation Velocity across all layers • Risk reduction in legacy talent | <ul style="list-style-type: none"> • Continuous improvement & optimisation of Mainframe estate • Technical debt reduction |
|---|--|--|--|---|---|

IBM Mainframe Migration and Modernisation Services

Experience counts

IBM is the premier leader in building, supplying and operating modern and effective mainframes. We are the de-facto industry standard.

Other companies have, and some still do, supplied mainframe. Our experts understand not only our own technology but the principles of mainframe design. We have migrated systems from many different brands of mainframe to cloud, on- premise and IBM mainframes.

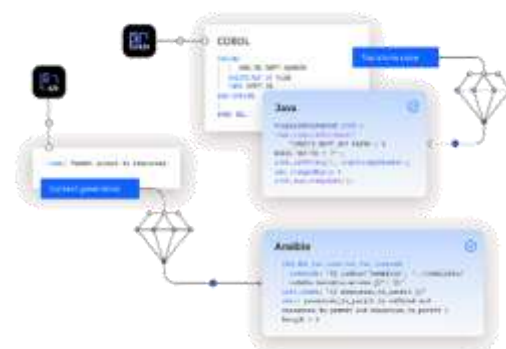
The IBM solution for modernisation is itself undergoing continuous innovation to better meet the needs of private and public-sector clients.

There is no instant, out of the box, solution to every step of modernisation, we understand every client is unique and will demand specific solutions.

Global Automotive Company

IBM partnered to modernise core application, implementing functional microservices and to move data into a modern, cloud-based architecture.

- Leveraged cloud native technology to prove that large files could be processed at speed and allow for fine- grained access to data through the use of simplified data layers.
- Integration of cloud native applications with mainframe services.
- End-to-end data encryption and data lineage, as well as metadata services.



Global Insurance Company

Combining the speed and agility of modernised mainframe applications, with increased automation through DevSecOps on the platform

- Increased efficiency and expanded pool of resources through modern approaches on the mainframe.
- Accelerated release of new digital services by increasing standardisation.
- Simplified access for business-critical applications to core systems and services.



IBM Mainframe Migration and Modernisation Services

About IBM

Supporting Government

We help government organisations in the UK and worldwide deliver and transform essential public services – our teams are passionate and proud about helping you to make a real difference to people's lives.

The problems we solve for clients are complex and cannot be satisfied with technology alone. They require a partner that can also offer deep industry expertise and a relationship of trust.

IBM combines the portfolio, people and sense of purpose necessary to meet today's enterprise demands. Every day, we support and manage complex delivery for government clients where the impact of delivery has wide-reaching impact on citizens and national services.

We bring access to the industry experience, insight and technology capability to deliver and operate secure, scalable, optimised and available services for government.

We support you by bringing:

- Industry expertise – Professionals who understand and are passionate about delivering quality public services and can bring industry insights and apply innovation to your business processes
- Trust and security capabilities – Protecting valuable data and insights and deploying new innovations responsibly
- Innovative technology – Expertise in areas such as AI, blockchain, 5G, Automation, IoT, cybersecurity and quantum, delivered in a Hybrid Cloud environment
- Experienced Services professionals to support strategy, innovation and deliver transformation and change to processes, applications, and cloud infrastructure



This is IBM in the UK

We have worked together with organisations in the UK for over 100 years, with a rich history of joint innovation and achievements, built on trusted relationships.



Cloud

Together, IBM and Red Hat are working to deliver the world's only **next-generation hybrid multicloud platform**



Economy

IBM has been **integral to the UK economy for >100 years**, and is one of its largest tech employers



R&D

In the UK alone, IBM **invests £170 million in R&D** each year



Quantum

IBM Q, the world's most advanced quantum computing **Initiative for commercial use**, is being used by CERN



Environment

IBM's **focus on sustainability** began in 1971 with our first environmental policy



Artificial Intelligence

IBM develops **watsonx based generative AI solution** for the Austrian federal armed forces to provide **fact-based evaluation and classification** for the ability to remain capable of acting in the light of risk scenarios.



Changing the world

IBM was awarded **World Changing Company of the Year 2019** by Fast Company



Royal recognition

29 UK IBMers received **honours from the Queen** for contributions to tech and society



Diversity

IBM won the **Global Diversity Award 2019** and the ENEI's **Gold Standard**



Graduates

IBM is committed to developing future talent – we are **Target Jobs' Graduate Employer of the Year 2019**



Volunteering

IBM dedicates **>20,000 volunteering hours every year** for a better society



Tech talent

IBM runs P-TECH schools in 18 countries, helping **>100,000 students build skills for careers of the future**



Inventors

IBM UK is home to many Master Inventors, with **>250 patents filed last year alone**

IBM