ISG Provider Lens™

Mainframes – Services and Solutions

A guide for clients evaluating their mainframe commitment and modernization strategy

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Introduction

Digital business transformation has been pushing companies to become more agile in adapting to market changes. The cloud provides the core agility elements, including cloud-native AI, machine learning, serverless computing, database as a service, data services, full automation and many SaaS options to improve business performance.

The more advanced enterprises are prioritizing mainframe modernization. Mainframe systems are complex and slow to change, thus pushing back against agility. These enterprises have two options. They can migrate their legacy applications to the cloud or adapt the old applications with APIs, microservices and DevOps.

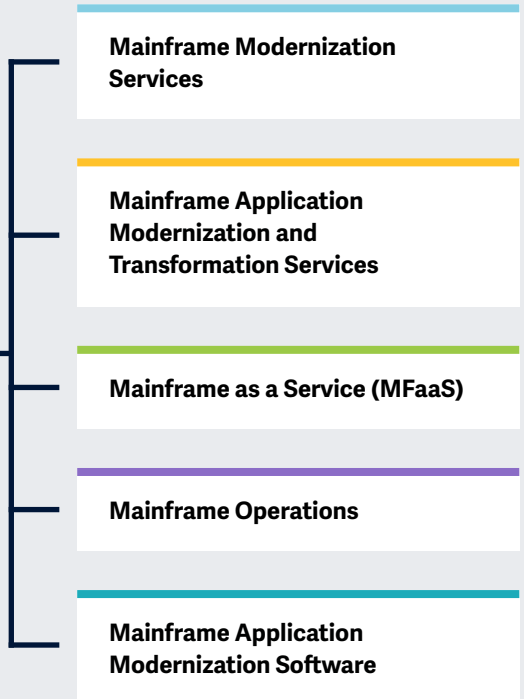
Mainframe systems combine high-performance hardware, software tools, and large, individually programmed applications that are complex to replace. Thus, modernization is not a trivial task.

The market offers automation tools to transform legacy applications, without loss in functionality, into new ones in the cloud. Such solutions enable the standardization of application languages and databases, including open source tools.

However, many enterprises are not ready for a full exit from mainframes. They may prefer outsourcing or pay-as-you-go (PAYG) models to enable mainframe-as-a-service (MFaaS) – thus running their legacy applications on cloud-like mainframe data centers.

This study assesses service providers that modernize mainframe applications or convert applications to run in the cloud, and those that offer mainframe outsourcing and MFaaS. Software vendors of automation tools for refactoring, rehosting, replatforming, rewriting and reengineering applications are also evaluated.

Key focus areas for Mainframes – Services and Solutions 2023



Simplified Illustration Source: ISG 2022

The ISG Provider Lens™ Mainframes – Services and solutions 2023 offers the following to business and IT decision makers:

- Transparency on the strengths and weaknesses of relevant providers
- A differentiated positioning of providers by segments on their competitive strengths and portfolio attractiveness
- Focus on different markets, including Europe, Americas (the U.S. and Brazil) and the U.S. public sector

The ISG studies serve as an important decision-making basis for positioning, key relationships, and go-to-market considerations. ISG advisors and enterprise clients use information from these reports to evaluate their current vendor relationships and potential new engagements.

Definition

Service providers in this quadrant offer mainframe application modernization and can introduce code repositories such as GitHub or equivalents, DevOps integration and testing automation, as well as security testing. Modernization retains the original programing language, such as COBOL, adding architecture optimization and documentation to enable agility. After the modernization is complete, clients can embrace agile methodologies for the development and maintenance of applications running on mainframe systems, including code repositories, quality assurance and DevOps.

These providers can assess a client's application portfolio to deliver a modernization plan with guidance on what applications should be retained on the mainframe platform. They also help enterprises decide on the type of applications that can be transformed and migrated to other platforms, thus enabling cost and performance optimization.

Eligibility Criteria

1. The participant should provide **case studies** around mainframe modernization of either IBM Z, IBM AS/400, IBM iSeries, HP, Cray, Fujitsu or Unisys mainframe applications.
2. Case studies must include **DevOps tools integration**, including code repository.
3. Modernization must enable legacy programming languages to build and deploy in line with modern **continuous integration** and deployment best practices (for example, implementation of COBOL CI/CD pipelines).
4. Services must include **portfolio and application assessments**.
5. Ideally, the provider can plan for phased modernization with robust testing and quality assurance.
6. The provider **can decouple applications,** develop APIs and integrate with applications outside the mainframe environment.
7. The provider offers guidance for future-state application **governance**.
8. The provider delivers services with its own employees, with adequate **expertise in COBOL** and other mainframe programming languages. It does not subcontract this core competency.

Definition

This quadrant evaluates providers of application services that use advanced application modernization methodologies to assess and rewrite legacy programming language applications. These providers partner with tool vendors to automate code writing, data conversion, database migration and cloud migration.

Typical legacy applications use COBOL, RPG, Fortran, PL/1, Natural and other languages that typically run on mainframes. The capacity of covering a large number of legacy languages contributes to the service provider rating. Thus, providers that use more vendor tools may have better appraisals.

The main target programming languages may include Java, .Net, C# and Python, among others. The number of destination languages does not impact a provider's rating because past studies show a prevalence of Java and .Net, which most providers can address. Providers may also use emulators and compilers to replatform rather than rewrite (not converting the source code), and this does not impact their rating.

The service provider can offer refactor, rehost, encapsulate, replatform, rewrite, or reengineer strategies. More options provide a better rating. A complete transformation should include user interface (UI) translation services that can eliminate green screens while introducing a modern graphic user interface (UI) for a better user experience (UX).

Eligibility Criteria

1. The service provider should be able to reverse engineer legacy applications to provide application logic **documentation.**
2. It must be able to **automate code conversion** with tools to reduce the time required to transform the applications.
3. Optionally, it may offer emulation systems to run legacy applications on other platforms without refactoring code. However, the provider should offer convincing case studies that **demonstrate the viability** of the emulation to be considered.
4. Services must include application **assessment,** application **decoupling**, system **architecture**, **API development** and future-state application governance.
5. The provider should offer phased transformation with **robust project management, testing** and quality assurance.
6. The transformation should enable the enterprise client to operate **agile development and maintenance** with CI/CD automation.
7. Legacy platforms can include IBM Z, AS/400, HP, Cray, Fujitsu and Unisys mainframes.

Definition

This quadrant assesses infrastructure service providers that offer shared IBM mainframes under a pay-per-use contract model.

The MFaaS services scope must include facilities, hardware, connectivity, mainframe network management, operating system and subsystems, licensing and tools. It must also offer all maintenance services that are required to keep workloads running to meet the expected performance metrics established upfront.

Typically, MFaaS is offered on the provider's data centers, but collocation partners are also considered as long as the MFaaS offers cloud-like experience; clients should not have to check and audit the underneath infrastructure. Thus, high availability and disaster recovery are included in the default scope.

For a cloud-like experience, the service provider offers clients a self-service portal with rich service catalogs covering approval workflows, security, compliance and automated service provisioning, enabling them to increase and decrease utilization.

Service providers typically offer application migration services to onboard clients. The migration can include application modernization and operating system upgrades to run clients' workloads on a shared mainframe environment.

Eligibility Criteria

1. The service provider should offer **robust and secure data centers** that can deliver high performance and availability as expected from mainframes.
2. Services include job scheduling automation, performance optimization, CICS, batch, backup, restore, system upgrades, security patches and other **typical mainframe operations**.
3. Provider must demonstrate proven **disaster recovery** effectiveness for its MFaaS infrastructure.
4. Hosting facilities offer **low-latency connections** to clients' locations and the public cloud such as AWS Direct Connect, Azure Route, and GCP Direct Connect. Carrier-neutral data centers are preferred.
5. The provider must demonstrate the **financial capacity** to invest in and grow its mainframe operations.
6. It should have a **hiring and training program** to ensure skills availability in the future.
7. It must ensure high performance and security as per **service-level agreements** and corresponding contractual penalties.
8. Platforms can include IBM Z and IBM Power Systems (AS/400 / iSeries).

Definition

This quadrant assesses traditional outsourcing providers with extensive experience in mainframe services. Typical participants employ experienced practitioners to cover legacy mainframe technologies and the most recent mainframe releases. They typically have skilled teams to keep clients' mainframes running.

Services can be delivered on any hosting facility (clients' data centers, provider-owned, and colocation facilities). These services, which have long been in existence, include job scheduling, performance optimization, CICS, batch, backup, restore, system upgrades, security patches and other typical mainframe operations.

Multiple options exist for hardware and software ownership, upgrades and modernization responsibilities. A typical deal structure includes clear service levels and a responsibility matrix that can be simplified as follows:

- The client owns data center, hardware and software. The provider delivers services on site.
- The client owns data center, hardware and software. The provider delivers services remotely, nearshore or offshore.
- The client owns the software. The provider owns data center and hardware.
- The client owns the data center. The provider owns hardware and software.
- Full outsourcing: The provider owns data center, hardware and software.

The owned data center can be in colocation facilities. Services delivered on-site typically include staff augmentation. All the above service scope models are considered in this quadrant.

Eligibility Criteria

1. The provider should demonstrate a strong mainframe **operation capacity** through case studies.
2. The provider should have a **hiring and training program** to ensure skills availability in the future.
3. The provider offers **management and monitoring** of CPUs, memory, databases, operating systems and tools.
4. It offers **professional services** to install and replace hardware, software and tools.
5. Professional services must include patching services for operating systems, middleware and applications, system upgrades, data center security, network configuration and system integration.
6. The provider enables clients' access to **management dashboards**, including utilization reports, performance indicators, chargeback and other **reporting functionality**.
7. Services must comply with IT service management (**ITSM**) best practices and include incident management, problem management and release management.
8. Outsourced platforms can include IBM Z, AS/400 and iSeries, HP, Cray, Fujitsu and Unisys mainframes.

Definition

This quadrant ranks vendors of software and toolsets that enable legacy application assessments and application conversion (replatform, rehost, refactor, rewrite, or reengineer).

Typical clients are enterprises and service providers that need automation tools to perform mainframe modernization and transformation. The modernization software can include reverse engineering, business logic mapping, business rules extraction, code review and inspection, documentation, emulators, compilers, frameworks and application development tools to accelerate code modernization and application modernization.

This quadrant covers vendors that supply the modernization toolset and can partner with global system integrators (GSIs) that deliver modernization services.

Mainframe modernization software outcomes include compiled code to run in the cloud, refactored code to run on emulators in the cloud, or new source code from reengineering. The intermediary products include documentation, logic flows, data architectures, automation tools, test artifacts, testing tools, serverless functions, APIs and microservices that can accelerate the mainframe modernization program.

Professional services and consulting expertise can improve the vendor rating but are not a requisite if these are offered through certified partners.

Eligibility Criteria

1. The software should be licensed or delivered as a service to enable **client autonomy**. The GSI's proprietary tools are not included, except if clients can acquire the tool without the GSI's services.
2. The vendor must have mainframe specialization and offer **mainframe-specific tools.**
3. The product must be **available and in use** by clients for longer than one year. Startup and lab tools are not included.
4. The solution must have a robust **support organization** or service partner ecosystem to ensure enterprise-grade support.
5. Assessment tools and **compilers are included**. Generic code conversion tools or wide-scope server/cloud optimization tools are not covered.

Quadrants By Region

As part of this ISG Provider Lens™ quadrant study, we are introducing the following five quadrants on **Mainframes – Services and Solutions 2023.**

Quadrant	Brazil	Europe	U.S.	U.S. Public Sector
Mainframe Modernization Services		✓	✓	✓
Mainframe Application Modernization and Transformation Services	✓	✓	✓	✓
Mainframe as a Service (MFaaS)		✓	✓	✓
Mainframe Operations		✓	✓	✓
Mainframe Application Modernization Software		✓	✓	

Schedule

The research phase falls in the period between October and December 2022, during which survey, evaluation, analysis and validation will take place. The results will be presented to the media in March 2023.

Milestones	Beginning	End
Survey Launch	October 20, 2022	
Survey Phase	October 20, 2022	November 17, 2022
Sneak Preview	January 2023	
Press Release and Publication	March 2023	

Please refer to the link to view/download the ISG Provider Lens™ 2023 research agenda.

Access to Online Portal

You can view/download the questionnaire from here using the credentials you have already created or refer to instructions provided in the invitation email to generate a new password. We look forward to your participation!

Research Production Disclaimer:

ISG collects data for the purposes of writing research and creating provider/vendor profiles. The profiles and supporting data are used by ISG advisors to make recommendations and inform their clients of the experience and qualifications of any applicable provider/vendor for outsourcing the work identified by clients. This data is collected as part of the ISG FutureSource process and the Candidate Provider Qualification (CPQ) process. ISG may choose to only utilize this collected data pertaining to certain countries or regions for the education and purposes of its advisors and not produce ISG Provider Lens™ reports. These decisions will be made based on the level and completeness of the information received directly from providers/vendors and the availability of experienced analysts for those countries or regions. Submitted information may also be used for individual research projects or for briefing notes that will be written by the lead analysts.

ISG Star of Excellence™ – Call for nominations

The Star of Excellence is an independent recognition of excellent service delivery based on the concept of "Voice of the Customer." The Star of Excellence is a program designed by ISG to collect client feedback about service providers' success in demonstrating the highest standards of client service excellence and customer centricity.

The global survey is all about services that are associated with IPL studies. In consequence, all ISG Analysts will be continuously provided with information on the customer experience of all relevant service providers. This information comes on top of existing first-hand advisor feedback that IPL leverages in context of its practitioner-led consulting approach.

Providers are invited to nominate their clients to participate. Once the nomination has been submitted, ISG sends out a mail confirmation to both sides. It is self-evident that ISG anonymizes all customer data and does not share it with third parties.

It is our vision that the Star of Excellence will be recognized as the leading industry recognition for client service excellence and serve as the benchmark for measuring client sentiments. To ensure your selected clients complete the feedback for your nominated engagement, please use the client nomination section on the Star of Excellence website.

We have set up an email where you can direct any questions or provide comments. This email will be checked daily; please allow up to 24 hours for a reply. Here is the email address: ISG.star@isg-one.com

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ISG Provider Lens™ Advisors Involvement Program

ISG Provider Lens™ offers market assessments incorporating practitioner insights, reflecting regional focus and independent research. ISG ensures advisor involvement in each study to cover the appropriate market details aligned to the respective service lines/technology trends, service provider presence and enterprise context.

In each region, ISG has expert thought leaders and respected advisors who know the provider portfolios and offerings as well as enterprise requirements and market trends. On average, three advisors participate as part of each study's quality and consistency review team (QCRT).

The QCRT ensures each study reflects ISG advisors' experience in the field, which complements the primary and secondary research the analysts conduct.

ISG advisors participate in each study as part of the QCRT group and contribute at different levels depending on their availability and expertise.

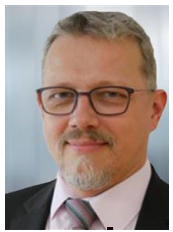
The QCRT advisors:

- Help define and validate quadrants and questionnaires
- Advise on service provider inclusion, participate in briefing calls
- Give their perspectives on service provider ratings and review report drafts

ISG Advisors to this study

John Schick

Principal Consultant



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Principal Consultant

Steven Garrant

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Invited Companies

If your company is listed on this page or you feel your company should be listed, please contact ISG to ensure we have the correct contact person(s) to actively participate in this research.

Accenture
Adaptigent (GT Software)
Advanced
Altoros
Anubex (Astadia)
ASG Technologies
Aspire Systems
Astadia
Asysco
Atos
Atruvia
AveriSource
AWS (Blu Age)
BASE100
Beta Systems
Birlasoft
Blue Hill Data Services
BRQ
Broadcom
CANCOM
Capgemini
CGI
CherryRoad Technologies
CloudFrame
Coforge
Cognizant
Comarch
Connectria
CPT Global
DataBank
DataKinetics
Datatek
DCI Software
Deloitte
Delphix
DXC
Ensono
Epam
Espire
Euristiq
EvolveWare
Expersolve (Ensono)
FNTS
FreeSoft
Freshce Solutions
Fujitsu
GFT
GigaSpaces
GlassHouse Systems
Google
HCL
Heirloom
Hexaware
Hitachi Vantara
Hostbridge
HPE
IBA Group
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Infinidat
Infinite Corporation
Informatica
Infosys
Innova Consulting
Ishir

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Jumar
Keyhole Software
Keyinfo
Kyndryl
LANSA
Levi, Ray & Shoup, Inc. (LRS)
LTI
Luminex
LzLabs
Mainline Information Systems
Maintec
MB Foster
Micro Focus
MigrationWare
Mindtree
Miratech group
mLogica
Model9
Modern Systems (Advanced)
Morphis Tech
Most Technologies
Move Solutions
Mphasis
Nous Infosystems
NTT DATA
Optica
Oracle
Persistent
PKS
Precisely
Profi AG
PSR
Qlik
Raincode
Remain Software
Royal Cyber
RSM Partners (BMC)
SCC
Sirius Computer Solutions
Software AG
Sopra Steria
Stefanini
SVA
SysperTec
TCS
Tech Mahindra
TierPoint
Tietoevry
TmaxSoft
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TSRI
T-Systems
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UST
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Vicom Infinity
V8.tech
ViON MFaaS
Virtusa
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ISG Provider Lens™

The ISG Provider Lens™ Quadrant research series is the only service provider evaluation of its kind to combine empirical, data-driven research and market analysis with the real-world experience and observations of ISG's global advisory team. Enterprises will find a wealth of detailed data and market analysis to help guide their selection of appropriate sourcing partners, while ISG advisors use the reports to validate their own market knowledge and make recommendations to ISG's enterprise clients. The research currently covers providers offering their services across multiple geographies globally.

For more information about ISG Provider Lens research, please visit this webpage.

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Founded in 2006, and based in Stamford, Conn., ISG employs more than 1,300 digital-ready professionals operating in more than 20 countries—a global team known for its innovative thinking, market influence, deep industry and technology expertise, and world-class research and analytical capabilities based on the industry's most comprehensive marketplace data. For more information, visit www.isg-one.com.

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REPORT: MAINFRAMES – SERVICES AND SOLUTIONS