*ISG Provider Lens™

Mainframes — Services and Solutions

A guide for clients evaluating their mainframe commitment and modernization strategy

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Clients consider mainframe modernization to reduce technical debt, enable AI technologies, allow data access for better business analytics and enhance compliance. New business resilience and carbon neutrality requirements push companies to rethink their data center strategies, favoring the public cloud for its resilience and carbon-neutral commitment.

Technology innovation continues to accelerate, impacting all industries and markets. Enterprises must invest in technological adaptation to eliminate technical debt and enhance business agility. Mainframe software licensing, particularly third-party software and middleware, pushes mainframe budgets. Mainframe modernization aims to optimize resources and license costs while reducing or eliminating technical debt.

Generative AI (GenAI) is on top of the expectations. It can read and document legacy applications, and clients expect GenAI to create new code to replace them. GenAI has not reached this point, but it contributes to improving the automated tools that existed in the market years before.
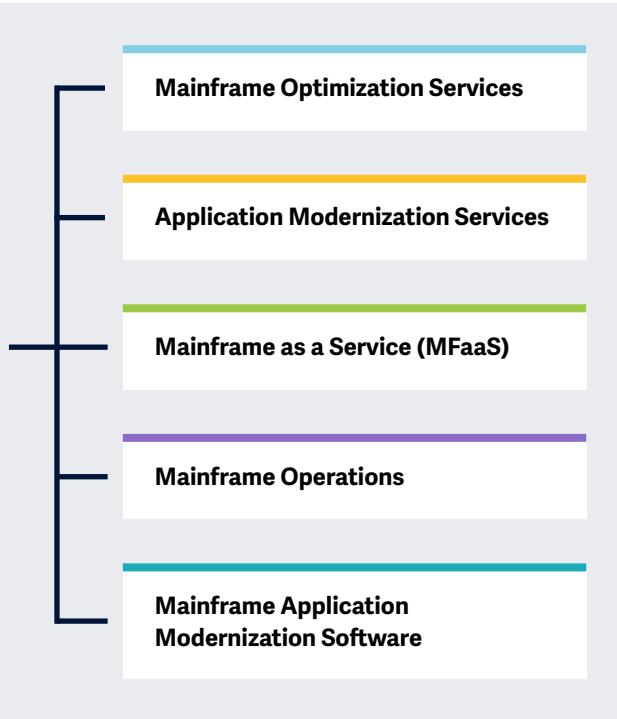
Mainframe outsourcing and mainframe-as-a-service (MFaaS) offer short-term cost savings and help clients integrate with cloud infrastructures. The market also offers automation tools to transform legacy applications for the cloud.

This study assesses service providers that modernize mainframe applications for the cloud and those that offer mainframe outsourcing and MFaaS. It also evaluates automation tool vendors for refactoring, rehosting, replatforming, rewriting and reengineering applications.

Key focus areas of the **Mainframes — Services and Solutions 2024 study**

Simplified Illustration Source: ISG 2023

Mainframe Optimization Services

Application Modernization Services

Mainframe as a Service (MFaaS)

Mainframe Operations

Mainframe Application Modernization Software

The ISG Provider Lens™ Mainframes — Services and Solutions 2024 study 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, the Americas (the U.S. and Brazil), Asia Pacific except for Japan, Korea and China* (APexJKC – this is a new region covering Asia Pacific Including ANZ, India and ASEAN-6, but excluding Japan, Sth. Korea and China/Taiwan, and the U.S. public sector).

* ASEAN = Indonesia, Malaysia, Philippines, Singapore Thailand, and Vietnam.

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

Mainframe Optimization Services

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, and security testing. Modernization retains the original programming language, such as COBOL, adding architecture optimization and documentation to enable agility. After the modernization is complete, clients can embrace agile methodologies for developing and maintaining applications running on mainframe systems, including code repositories, quality assurance and DevOps.

Clients expect to modernize and optimize their mainframe operations to control costs and avoid obsolescence. A solid modernization and optimization program ensures clients can continue to upgrade their mainframes in the future. With optimization, clients expect service providers to help replace middleware with new tools and improve configurations and application architecture to enhance mainframe performance and reduce MIPS consumption.

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 Provider has modernization case studies** around IBM Z, IBM AS/400, IBM iSeries, HP, Cray, Fujitsu or Unisys mainframe applications.

2. Case studies must include **DevOps tools integration**.

3. Modernization must enable legacy programming languages to build and deploy mainframe applications in line with modern **continuous integration** best practices (for example, COBOL CI/CD pipeline implementation).

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 offering includes for future-state application **governance**.

8. **The provider's employees have adequate COBOL expertise** and proficiency in other mainframe programming languages.

Application Modernization Services

Definition

This quadrant evaluates application services providers 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 classically run on mainframes. The capacity to cover many 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#, Python and 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 (without converting the source code), which does not impact their rating.

The service provider can offer refactoring, rehosting, encapsulating, replatforming, rewriting or reengineering strategies. Service providers with more options have a better rating. However, a provider's consulting expertise to guide clients with a neutral approach to select the best tooling can improve its position. A complete transformation should include UI translation services that can eliminate green screens while introducing a modern user interface for a better UX.

Eligibility Criteria

1. The service provider can reverse engineer legacy applications to provide application logic **documentation**.

2. **It must use automation for rewriting, reengineering, refactoring and rehosting** applications. Providers that manually write new code are excluded.

3. Services must include application **assessment**, application **decoupling**, system **architecture, API development** and future-state application governance.

4. The provider should offer phased transformation with **robust project management, testing** and quality assurance.

5. The transformation should enable the enterprise client to operate **agile development and maintenance** with CI/CD automation.

6. Legacy platforms can include IBM Z, AS/400, HP, Cray, Fujitsu and Unisys mainframes.

Mainframe as a Service (MFaaS)

Definition

This quadrant assesses infrastructure service providers that offer shared IBM mainframes under a pay-per-use contract model. The provider ensures continuous infrastructure upgrades and capacity expansion to support clients' growth and avoid infrastructure obsolescence.

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

Typically, MFaaS is offered on the provider's data center facilities. However, colocation partners are also considered as long as they provide a cloud-like experience; clients should not have to check and audit the underlying infrastructure. Thus, the default scope includes providing high availability and disaster recovery.

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 clients to increase and decrease their 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 secure data centers** with high performance and availability.

2. Services include job scheduling automation, performance optimization, customer information control system (CICS), batch processing, backup, restore, system upgrades, security patches and other typical **mainframe operations**.

3. The Provider must demonstrate proven MFaaS infrastructure **disaster recovery** effectiveness.

4. **Hosting facilities offer low-latency connections** to clients' locations and the public cloud, such as 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 future skills availability.

7. Platforms can include IBM Z and IBM Power Systems (AS/400 and iSeries).

Mainframe Operations

Definition

This quadrant assesses traditional outsourcing providers with extensive mainframe service experience. Participants usually 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, such as clients' data centers, provider-owned and colocation facilities. Managed services include job scheduling, performance optimization, CICS, batch processing, 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 the data center, hardware and software. The provider delivers services on-site.
- The client owns the data center, hardware and software. The provider delivers services remotely, onshore, nearshore or offshore.
- The client owns the software. The provider owns the data center and hardware.
- The client owns the data center. The provider owns hardware and software.
- Full outsourcing: The provider owns the data center, hardware and software.

The owned data center can be in colocation facilities. Services delivered on-site typically include staff augmentation. This quadrant considers all the above service scope models.

Eligibility Criteria

1. The provider should demonstrate a strong mainframe **operation capacity**.

2. **The provider should have a hiring and training program** to ensure future skills availability.

3. At a minimum, the provider monitors CPU, memory, database and operating system.

4. **The provider offers professional services** to install and replace hardware, software and tools.

5. **Professional services must include patching** operating systems, middleware and applications, **system upgrades**, data center **security** and network configuration.

6. **The provider enables clients' access to management dashboards**, including utilization reports, performance indicators, chargeback and other **reporting functionality**.

7. Services must comply with **ITSM** best practices.

8. Outsourced platforms can include IBM Z, AS/400 and iSeries, HP, Cray, Fujitsu and Unisys mainframes.

Mainframe Application Modernization Software

Definition

This quadrant ranks software vendors that enable legacy application assessments and application transformations, such as replatform, rehost, refactor, rewrite or reengineer.

Typical clients are enterprises and service providers that need automation tools to perform mainframe application modernization and transformation to run on x86 servers or public cloud platforms. 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 application code refactoring and modernization to cloud-native architectures.

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 offered through certified partners.

Eligibility Criteria

1. The software should be licensed or delivered as a service to enable **client autonomy**.

2. The vendor must have mainframe specialization and offer **mainframe-specific tools**. It doesn't include generic reengineering, code analysis and GenAI tools.

3. **The product must be available and in use** by clients for longer than one year. The study doesn't include startup and lab tools.

4. **The vendor 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, BPM tools or wide-scope server/cloud optimization tools are not covered.

Quadrants by Region

As a part of this ISG Provider Lens™ quadrant study, we are covering the following five quadrants on Mainframes — Services and Solutions 2024.

Quadrant	Brazil	APexCJK (ANZ, *˙ASEAN, India – ex China, HK, Japan, Korea, Taiwan)	Europe	U.S.	U.S. Public Sector
Mainframe Optimization Services		✔	✔	✔	✔
Application Modernization Services	✔	✔	✔	✔	✔
Mainframe as a Service (MFaaS)		✔	✔	✔	✔
Mainframe Operations		✔	✔	✔	✔
Mainframe Application Modernization Software		✔	✔	✔	

* ASEAN = Indonesia, Malaysia, Philippines, Singapore Thailand, and Vietnam.

Schedule

The research phase falls in the period between October and December 2023, during which survey, evaluation, analysis and validation will take place. The results will be presented to the media in April 2024.

Milestones	Beginning	End
Survey Launch	October 12, 2023	
Survey Phase	October 12, 2023	November 14, 2023
Sneak Previews	February 2024	
Press Release & Publication	April 2024	

Please refer to the link to view/download the ISG Provider Lens™ 2024 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.
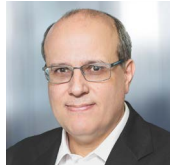
Here is the email address:
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**ISG
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ISG Provider Lens™ Advisors Involvement Program

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

Sandie Breese

Director

Thorsten Hoeltken

Principal Consultant

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.

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Adaptigent*	BMC*	CPT Global*	FreeSoft*
Advanced*	Broadcom	DataBank	Fresche Solutions
Altoros	BRQ	DataKinetics	Fujitsu*
ASG Technologies	CANCOM	Datatek	GFT*
Aspire Systems	Capgemini*	Deloitte*	Gigaspaces
Astadia*	CGI*	Delphix	GlassHouse Systems
Atos*	CherryRoad Technologies	DXC Technology*	Google*
Atruvia	CloudFrame*	Ensono*	HCLTech*
Avanade (Asysco)*	Coforge	Epam	Heirloom*
AveriSource*	Cognizant*	Euristiq	Hexaware*
AWS*	Comarch	Evolveware	Hitachi Vantara
Base100	Compass*	Expersolve (Ensono)	Hostbridge*
Beta Systems	Compass UOL	FIS	HPE*

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IKAN*	Luminex	NTT DATA*	SCC
Infinidat	LzLabs*	OpenText (Micro Focus)*	Sirius Computer Solutions
Infinite	MainLine Information Systems	Optica	SLK Software
Informatica	Maintec*	Oracle	Software AG*
Infosys*	Migrationware	Persistent Systems	Sonda*
INNOVA*	Miratech Group	PKS Software	Sopra Steria
Ishir	mLogica*	Precisely	Stefanini
Jumar	Mobilize.Net	Profi	SVA
Keyhole Software	MorphisTech	PSR*	SysperTec*
Keyinfo	MOST*	QAT Global	TCC Software Solutions
Kyndryl*	Move Solutions	Qlik	TCS*
LANSA	Mphasis*	Raincode*	Tech Mahindra*

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TierPoint

Tietoevry

TIVIT

TmaxSoft*

Tone Software

TSRI*

T-Systems

UMB

Unisys*

UST*

V8.Tech

Value-4IT

Verang*

vfunction

Vicom Infinity

VioN Mfaas

Virtusa

Wipro*

Yash Technologies

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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