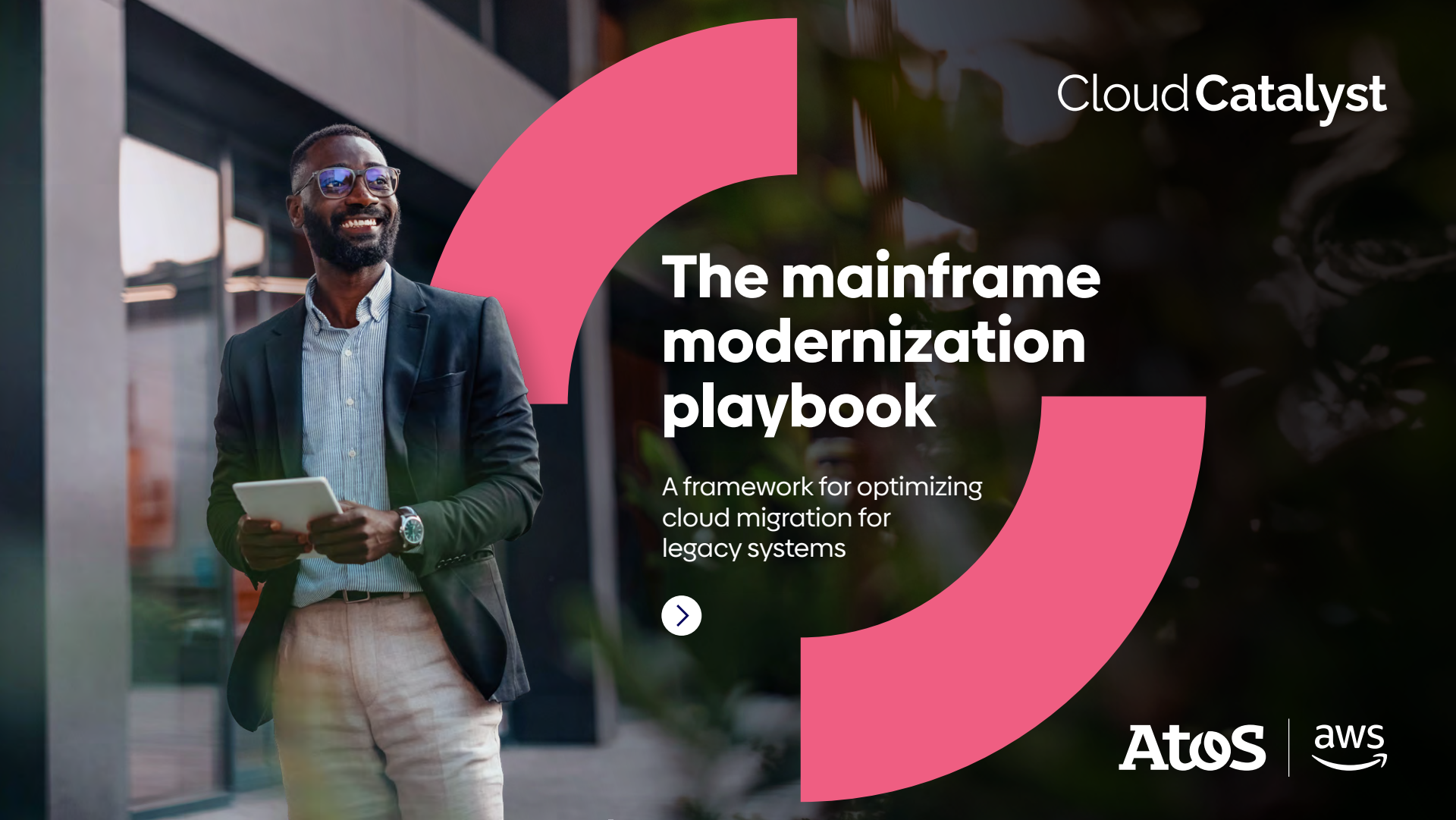

Cloud Catalyst

The mainframe modernization playbook

A framework for optimizing cloud migration for legacy systems

Atos | aws

Unlock the power of the cloud

As organizations look to modernize and move beyond legacy mainframes, the need for a structured, flexible, and scalable approach becomes critical. **The mainframe modernization framework** for cloud migration offers a roadmap that goes beyond traditional steps to provide a repeatable and adaptable strategy reference for transforming legacy infrastructure. By aligning organizational goals with technological advancements, this framework enables companies to maximize the benefits of cloud technologies, ensuring security, agility, and sustainability.

Atos with AWS, through the **CloudCatalyst** program, provide a seamless, low-risk solution for organizations looking to modernize their infrastructure.

CloudCatalyst simplifies the complex process of mainframe migration, offering tools for automated application refactoring, real-time workload optimization, and security compliance. Designed for flexibility and scalability, **CloudCatalyst** enables organizations to embrace the future of IT while reducing costs, improving operational efficiency, and aligning with sustainability goals.

This framework offers **five key phases** that guide organizations through the modernization process, transforming legacy systems with cloud migration to meet the demands of today's digital-first world.

Guiding principles of the framework

Flexibility: Adapt to different industries, business sizes, and compliance needs.

Security: Built-in security and compliance checkpoints at every stage.

Scalability: Designed to scale based on business growth and future technologies.

Sustainability: Align with long-term sustainability goals, enabling businesses to reduce carbon footprints through cloud migration.

Phase 1: Assessment and strategy

Step 1

Assess your legacy infrastructure

Evaluate current system bottlenecks, dependencies, and costs to create a baseline for migration.

Step 2

Define your cloud strategy

Develop a cloud adoption roadmap aligned with business goals, selecting between public, private, or hybrid clouds.

Phase 2: Data and application modernization

Step 3

Prioritize data management and migration

Optimize data storage through tiering and implement governance protocols for secure cloud migration.

Step 4

Refactor legacy applications

Use automated tools to refactor and modernize mainframe applications for cloud readiness with minimal disruption.

Phase 3: Implementation and security

Step 5

Implement AI-driven workload optimization

Leverage AI tools for real-time workload optimization, ensuring cost-efficiency and scalability.

Step 6

Enhance security and compliance

Ensure data security and compliance throughout the migration using encryption and identity management tools.

Phase 4: Business continuity and advanced integration

Step 7

Plan for business continuity

Deploy disaster recovery solutions like AWS Backup to minimize downtime and ensure operational continuity.

Step 8

Integrate AI and advanced analytics

Leverage cloud-based AI tools like Amazon SageMaker and Redshift for real-time insights and predictive analytics.

Phase 5: Sustainability and continuous evolution

Step 9

Focus on sustainability goals

Use cloud-based tools to reduce carbon emissions and align cloud migration with sustainability objectives.

Step 10

Prepare for continuous innovation

Continuously optimize cloud infrastructure, adopting new technologies like serverless computing to stay future-ready.

Phase 1

Assessment and strategy

Step 1: Assess your legacy infrastructure

Objective: Understand current limitations and areas where cloud can add value.

Modular component: Use pre-built assessment templates to map out existing mainframe workloads and dependencies.

The foundation of any modernization journey starts with understanding your current infrastructure. This assessment involves identifying performance bottlenecks, outdated applications, and inefficiencies that can be improved with cloud migration. It also includes evaluating the mainframe's dependencies on other systems and the overall cost of maintenance versus the potential return on investment (ROI) from migrating to the cloud.

- **Identify bottlenecks:** Highlight where your current system underperforms and where cloud migration could offer immediate gains.
- **Map dependencies:** Understand which systems and applications are tied to your mainframe and need to be factored into the migration plan.
- **Baseline performance:** Set measurable benchmarks to track improvements in cost, performance, and efficiency post-migration.

Identify bottlenecks and legacy system limitations that hinder AI implementation, setting a clear baseline for cloud migration.

Phase 1

Step 2: Define your cloud strategy

Objective: Develop a clear roadmap for cloud adoption based on business goals.

Modular component: Choose between public, private, or hybrid cloud options, with flexibility to revisit based on regulatory shifts or changes in business needs.

Once the assessment is complete, you need to develop a **cloud strategy** that aligns with your overall business objectives. Decide whether your organization will benefit most from a **public**, **private**, or **hybrid cloud** environment. Hybrid solutions offer the advantage of maintaining critical workloads on-premises while migrating less-sensitive data and applications to the cloud. Define key performance indicators (KPIs) that align with this strategy.

- **Choose cloud models:** Assess whether public, private, or hybrid cloud best suits your business needs.
- **Set KPIs:** Define measurable goals like cost savings, scalability improvements, or speed of innovation.
- **Align with business goals:** Ensure that the cloud strategy integrates with broader digital transformation and business growth initiatives.

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Align AI goals with cloud capabilities, choosing a cloud model (public, private, or hybrid) that supports scalability and performance.

Phase 2

Data and application modernization

Step 3: Prioritize data management and migration

Objective: Ensure data is organized and stored efficiently, with scalable access in the cloud.

Modular component: Implement data tiering frameworks that can adapt to changing data volumes and storage needs over time.

Data is at the heart of modernization, but managing legacy mainframe data can be complex. Establish a strategy for **data tiering**, ensuring that critical data is stored in high-performance environments while less-critical data is moved to more cost-effective storage solutions like **Amazon S3 Glacier**. You'll also need to ensure data governance protocols are in place to protect and manage this data throughout the migration process.

- **Implement data tiering:** Use cloud services to optimize storage costs and performance, storing essential data in high-performance environments and archiving less-important data.
- **Leverage Amazon S3 Glacier:** Move archived data to low-cost storage to optimize resources while ensuring access when needed.
- **Ensure data governance:** Establish strong governance protocols to manage data security, access, and compliance during migration.

Ensure data is centralized, clean, and accessible to fuel AI models, optimizing for governance and performance.

Step 4: Refactor legacy applications

Objective: Make legacy systems cloud-ready with minimal operational disruption.

Modular component: Use automation tools like CloudCatalyst's refactoring suite for efficient application modernization.

Not all mainframe applications can be lifted and shifted to the cloud. Some may require **refactoring** to optimize for cloud-native functionality. This process includes modifying code, updating architectures, and ensuring the application can run efficiently in a cloud environment. **Atos CloudCatalyst** provides automated tools to streamline this process, making application refactoring faster and less disruptive.

- **Refactor for cloud-native benefits:** Ensure applications can scale, auto-update, and interact with other cloud services efficiently.
- **Automate refactoring:** Use tools to automate parts of the process, reducing errors and speeding up the timeline.
- **Minimize disruption:** Plan refactoring with minimal impact on operations by testing and validating before deployment.

Select the most suitable cloud environment – public, private, or hybrid – based on business needs, compliance, and scalability for AI workloads.

Phase 3

Implementation and security

Step 5: Implement AI-driven workload optimization

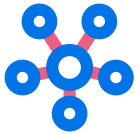
Objective: Optimize workloads for scalability and cost efficiency using AI tools.

Modular component: Adapt workload optimization based on real-time data or AI projections, ensuring flexible responses to changing demands.

After refactoring, optimize your workloads using **AI-driven tools** to dynamically allocate resources based on real-time needs. Services like **AWS Auto Scaling** allow you to scale resources automatically, ensuring efficient resource use and cost control.

AI-driven workload management ensures that your infrastructure adjusts to demand without over-provisioning, keeping cloud resources lean and cost-effective.

- **Use AI for real-time optimization:** Leverage AI tools to adjust workloads dynamically based on real-time demand.
- **Reduce over-provisioning:** Ensure you only pay for the cloud resources you use by optimizing allocations.
- **Leverage AWS Auto Scaling:** Automatically scale your resources up or down based on demand to maintain efficiency.



Deploy high-performance cloud infrastructure with scalable resources (GPUs/TPUs) to handle demanding AI workloads.

Phase 3

Step 6: Enhance security and compliance

Objective: Secure data and applications throughout migration, ensuring regulatory compliance.

Modular component: Customize security settings based on specific regulations like GDPR, HIPAA, etc.

Security is paramount in any modernization effort, especially when sensitive data and critical applications are involved. Implement advanced **encryption, identity and access management (IAM)**, and **multi-factor authentication (MFA)** to safeguard data throughout the migration process.

Use AWS's built-in security features to ensure compliance with regulatory frameworks like GDPR, HIPAA, and PCI DSS.

- **Ensure compliance:** Use AWS security frameworks to comply with regulations across multiple industries.
- **IAM::** Ensure that only authorized users can access sensitive information through advanced IAM solutions.
- **Data encryption:** Encrypt data at rest and in transit to protect it from breaches during migration.

Implement strong security measures and ensure compliance with industry regulations to protect sensitive AI data throughout its lifecycle.

Phase 4

Business continuity and advanced integration

Step 7: Plan for business continuity

Objective: Minimize downtime and ensure seamless disaster recovery.

Modular component: Deploy pre-configured disaster recovery solutions tailored to your industry and infrastructure needs.

Mitigate risks associated with downtime and data loss by creating a robust **disaster recovery** strategy. Implement **AWS Backup** to automate data protection and ensure that your systems can recover quickly in the event of failure. Consider solutions like **Pilot Light** for continuous operations, which allows you to keep a minimal version of your infrastructure running as a backup, ready to scale up when needed.

- **Disaster recovery solutions:** Use services like AWS Backup to ensure seamless recovery in the event of a failure.
- **Minimize downtime:** Plan for high availability and failover during migration.
- **Keep critical systems operational:** Leverage disaster recovery architectures like Pilot Light to keep core systems running.

Implement disaster recovery strategies and backup solutions to minimize downtime and ensure critical operations continue during and after cloud migration.

Phase 4

Step 8: Integrate AI and advanced analytics

Objective: Leverage AI and analytics post-migration to unlock new business value.

Modular component: Implement AI integration in modular stages, from basic analytics to predictive insights, allowing businesses to scale AI use over time.

Once your systems are in the cloud, unlock new capabilities by integrating **AI** and **advanced analytics**. AWS tools like **Amazon SageMaker** enable you to build, train, and deploy machine learning models, while platforms like **Amazon Redshift** provide real-time analytics to drive deeper business insights.

This step turns your modernization effort into a competitive advantage by enabling smarter decision-making.

- **Use Amazon SageMaker:** Deploy AI models to enhance automation and analytics capabilities.
- **Real-time insights with Amazon Redshift:** Use real-time data analytics to inform business decisions.
- **AI-powered innovation:** Transform your business by integrating AI tools post-migration.

Leverage cloud-based AI tools and analytics platforms to transform real-time data into actionable insights that enhance decision-making and innovation.

Phase 5

Sustainability and continuous evolution

Step 9: Focus on sustainability goals

Objective: Align cloud migration with sustainability targets, reducing environmental impact.

Modular component: Include carbon-tracking tools and sustainability reporting, ensuring ongoing alignment with eco-friendly objectives.

Cloud migration not only modernizes your infrastructure but also helps meet **sustainability goals**. By migrating to **AWS's renewable energy-powered data centers**, you can significantly reduce your carbon footprint. Leverage tools like the **AWS Customer Carbon Footprint Tool** to monitor and track your environmental impact, ensuring you meet corporate sustainability objectives.

- **Reduce carbon emissions:** Migrate to cloud data centers powered by renewable energy to cut your carbon footprint.
- **Track environmental impact:** Use tools like the AWS Customer Carbon Footprint Tool to monitor emissions.
- **Align with sustainability goals:** Achieve corporate sustainability targets by using energy-efficient cloud infrastructure.

Align cloud migration with sustainability goals by leveraging energy-efficient cloud infrastructure and tracking carbon footprint reductions.

Phase 5

Step 10: Prepare for continuous innovation

Objective: Enable ongoing optimization and growth in a scalable cloud environment.

Modular component: Create a continuous improvement loop that revisits performance and introduces innovations in real-time, using emerging technologies like serverless computing.

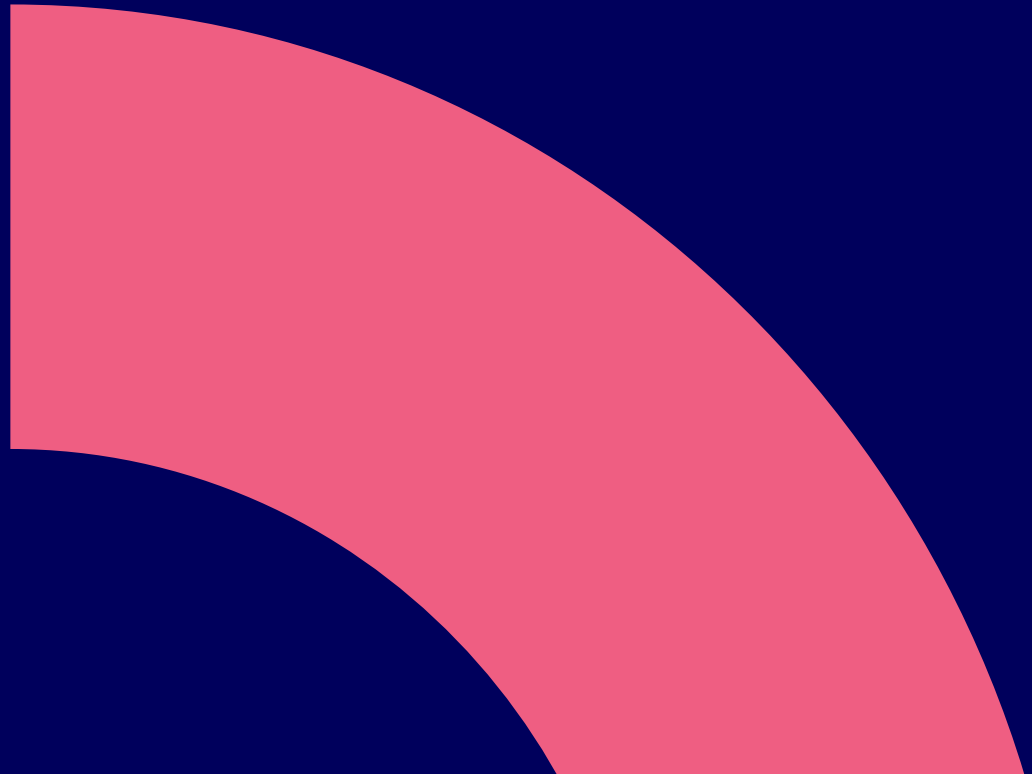
Cloud migration isn't a one-time event – it's a continuous journey of innovation. Regularly assess your infrastructure and workloads to optimize for performance and cost. Cloud environments allow you to integrate new technologies like **serverless computing, machine learning**, and **IoT** seamlessly, ensuring your business stays ahead of the curve.

- **Continuously optimize:** Regularly assess cloud infrastructure for performance improvements and cost savings.
- **Adopt new technologies:** Leverage serverless computing, AI, and IoT to drive innovation.
- **Scale for future needs:** Ensure your cloud environment is adaptable and scalable for future technological advancements.

Cloud migration is an ongoing journey that requires continuous optimization, leveraging emerging technologies like serverless computing for real-time innovation and future scalability.

Lead the way with CloudCatalyst

Legacy mainframes no longer meet the demands of today's fast-paced, digital-first environment. Migrating to the cloud with **Atos CloudCatalyst** provides a clear path to modernizing your infrastructure, improving scalability, security, and sustainability. This **mainframe modernization framework** is your roadmap to future-proofing your business with cloud migration.



Ready to transform your legacy systems?

Start your CloudCatalyst journey today and future-proof your infrastructure for the digital age.

To learn more, visit **atoscloudcatalyst.com**

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