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A Comparative Study of Public Cloud Migration Tools: Evaluating AWS Application Migration Service (CloudEndure/MGN) vs. PlateSpin Migrate

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Abstract : Cloud migration has become a strategic imperative for enterprises seeking scalability, agility, and cost efficiency. Among the various migration tools available, AWS Application Migration Service (formerly CloudEndure) and Micro Focus PlateSpin Migrate are widely used for their distinct technical capabilities. This review presents a comprehensive comparative analysis of these two tools, examining their architectures, features, performance, and suitability for various migration scenarios. Drawing on empirical studies, real-world case examples, and predictive modeling, the paper proposes a new evaluative framework tailored to practical migration requirements. The study highlights key metrics such as downtime, compatibility, automation, and cost efficiency, showing how different tools align with specific enterprise needs. The implications of these findings are discussed for IT practitioners, decision-makers, and policymakers, and recommendations for future research are provided to enhance migration strategy development, decision support, and tool innovation. By addressing gaps in tool-specific analysis, this work contributes to more reliable, efficient, and context-aware cloud migration practices.

IndexTerms - Cloud Migration, AWS Application Migration Service, CloudEndure, PlateSpin Migrate, Migration Tools Comparison, Public Cloud, Cloud Strategy, Downtime Reduction, Predictive Modeling, Digital Transformation

1. Introduction

In recent years, the rapid adoption of cloud computing has transformed how organizations manage, deploy, and scale their IT infrastructure. As enterprises increasingly seek to migrate their workloads from on-premises data centers to the cloud, the demand for efficient and reliable cloud migration tools has surged. Public cloud service providers such as Amazon Web Services (AWS), Microsoft Azure, and Google Cloud Platform (GCP) have become dominant players in this transformation, offering diverse services to accommodate a wide range of migration needs [1]. However, migrating complex enterprise environments to the cloud remains a non-trivial challenge, involving the movement of live workloads, data replication, application reconfiguration, and ensuring business continuity during the transition [2].

This landscape has prompted the development of specialized tools aimed at streamlining and automating the migration process. Among these, **CloudEndure** (now AWS Application Migration Service, or MGN) and **PlateSpin Migrate** have emerged as prominent solutions. CloudEndure/MGN is a cloud-native service designed primarily for lifting and shifting workloads into AWS environments with minimal downtime and near real-time replication [3]. In contrast, PlateSpin Migrate, developed by Micro Focus, supports a wider range of platforms and target environments, and is often used in hybrid or multi-cloud scenarios [4]. Each tool brings distinct capabilities and limitations, particularly in terms of platform compatibility, automation, recovery point objectives (RPOs), and integration with cloud ecosystems.

Despite the growing body of research and documentation on cloud migration strategies and best practices, there exists a notable gap in **comprehensive comparative analyses** of the practical tools available for executing these migrations. Existing studies often focus on high-level frameworks, security considerations, or economic cost models, with limited attention paid to the operational differences and performance metrics of the tools themselves [5]. Furthermore, many comparative studies are vendor-driven or lack neutrality, leading to potential biases in evaluating tool effectiveness [6].

This review aims to address these shortcomings by offering a **neutral, in-depth comparative study** of CloudEndure/MGN and PlateSpin Migrate, focusing on their technical architectures, migration workflows, performance, and suitability for different use cases. By examining these tools in the context of public cloud migration scenarios, this paper contributes to a clearer understanding

of their strengths, trade-offs, and optimal deployment contexts. Readers can expect a systematic evaluation of each tool, case-based usage insights, and recommendations for selecting the appropriate migration strategy based on organizational needs and cloud maturity.

2. Literature Review: Comparative Analyses of Cloud Migration Tools

To contextualize the comparative study of CloudEndure/MGN and PlateSpin Migrate, this section presents a curated selection of ten key publications that examine cloud migration tools and methodologies. The Table 1 summarizes each study's year, title, focus, and key findings.

Table 1: Summary of Key Studies on Cloud Migration Tools

Year	Focus	Findings
2018	Comparative analysis of various cloud migration tools	Highlights the limited research on cloud migration tools and emphasizes the need for comprehensive studies to guide organizations in selecting appropriate tools. [6]
2020	Evaluation of existing cloud migration methodologies	Identifies strengths and weaknesses of current methodologies, suggesting the need for improved frameworks to assist organizations in migration planning. [7]
2012	Framework for automating decision-making in cloud migrations	Introduces CloudGenius, a tool that automates the selection process for cloud services based on application requirements, enhancing migration efficiency. [8]
2022	Roadmap for transitioning IT infrastructure to the cloud	Discusses tools like PlateSpin Migrate and AWS Migration Services, highlighting their roles in facilitating seamless migrations. [9]
2024	Overview of top cloud migration tools	Evaluates tools including CloudEndure, emphasizing features like automated failover, flexible migration options, and simplified management. [10]
2025	Analysis of leading cloud migration tools	Highlights CloudEndure's continuous replication technology and its versatility in migrating applications across various platforms. [11]
2025	User reviews and features of PlateSpin Migrate	Users commend PlateSpin Migrate for its broad OS support and ease of use in workload migrations. [12]
2019	Impact of AWS acquiring CloudEndure	Discusses how the acquisition enhances AWS's migration capabilities, particularly in minimizing downtime and automating migrations. [13]
2025	Comparative analysis of various cloud migration tools	Provides insights into tools like CloudEndure, focusing on features such as continuous replication and disaster recovery capabilities. [14]
2025	Evaluation of cloud migration services	Analyzes services including PlateSpin Migrate, noting its automation features and support for various migration scenarios. [15]

In the evolving landscape of cloud computing, the integration of diverse data sources and real-world case studies is pivotal for understanding the efficacy of migration tools like AWS Application Migration Service (formerly CloudEndure) and Micro Focus PlateSpin Migrate. These tools have been instrumental in facilitating seamless transitions to cloud environments, each offering unique features tailored to specific organizational needs.

3. Integration of Diverse Data Sources

Effective cloud migration strategies necessitate the amalgamation of various data sources, including system logs, performance metrics, and application dependencies [16]. Tools like CloudEndure and PlateSpin Migrate are designed to handle such integrations efficiently.

- **CloudEndure**: Utilizes continuous block-level replication to ensure real-time data synchronization between source and target environments. This approach minimizes downtime and maintains data integrity during migrations [17].
- **PlateSpin Migrate**: Offers both block and file-level replication, providing flexibility in handling different data types and sizes [18]. Its ability to perform unlimited testing before cutover ensures that all integrated data sources function correctly post-migration.

3.1 Case Studies Demonstrating Tool Efficacy

Real-world applications of these tools highlight their practical benefits and challenges.

- **Atos and PlateSpin Migrate**: Atos leveraged PlateSpin Migrate to transition a multinational electronics manufacturer's infrastructure to AWS [19]. The migration resulted in a 50% reduction in execution time compared to alternative solutions and maintained service downtime under one hour for 95% of applications.
- **Sony Interactive Entertainment and CloudEndure**: Sony used CloudEndure to migrate its gaming servers to AWS, achieving near-zero downtime. The continuous replication feature ensured that the user experience remained uninterrupted during the transition [20].
- **Clark Construction and CloudEndure**: Clark Construction migrated its applications to AWS using CloudEndure, enabling the company to resume normal operations within minutes post-migration, which was crucial for their nationwide operations [21].

3.2 Application of Migration Models in Real-World Scenarios

The practical application of migration models involves a systematic approach:

1. **Assessment**: Evaluating existing infrastructure to identify dependencies and compatibility issues.
2. **Planning**: Developing a migration strategy that includes timelines, resource allocation, and risk mitigation [22].
3. **Execution**: Implementing the migration using tools like CloudEndure or PlateSpin Migrate, ensuring continuous data replication and minimal downtime.
4. **Validation**: Conducting thorough testing to confirm that all systems function as intended in the new environment.

By following this model, organizations can achieve efficient and reliable cloud migrations, as demonstrated in the aforementioned case studies.

4. Comparative Analysis with Existing Models

Traditional cloud migration approaches often rely on generalized strategies that may not account for the specific features and limitations of individual tools. For instance, the "Lift and Shift" strategy is commonly employed for its simplicity but may not optimize performance or cost in the long term [23].

In contrast, the proposed framework emphasizes a tool-specific evaluation, recognizing that AWS Application Migration Service offers continuous data replication and automated orchestration, which can significantly reduce downtime during migration [24]. On the other hand, PlateSpin Migrate provides robust support for a wide range of operating systems and hardware configurations, making it suitable for complex legacy environments.

4.1 Performance Metrics and Evaluation

To assess the predictive performance of the proposed framework, conducted a series of simulations and real-world case studies. Key performance indicators (KPIs) included is shown in Figure 1.

- **Downtime Reduction**: AWS Application Migration Service demonstrated an average downtime reduction of 70% compared to traditional methods, owing to its continuous replication feature [25].
- **Compatibility**: PlateSpin Migrate showed superior compatibility with legacy systems, supporting over 50 different operating system versions and hardware configurations.
- **Cost Efficiency**: Both tools offered cost savings; however, AWS Application Migration Service provided more predictable pricing models, while PlateSpin Migrate's costs varied based on the complexity of the migration [26].

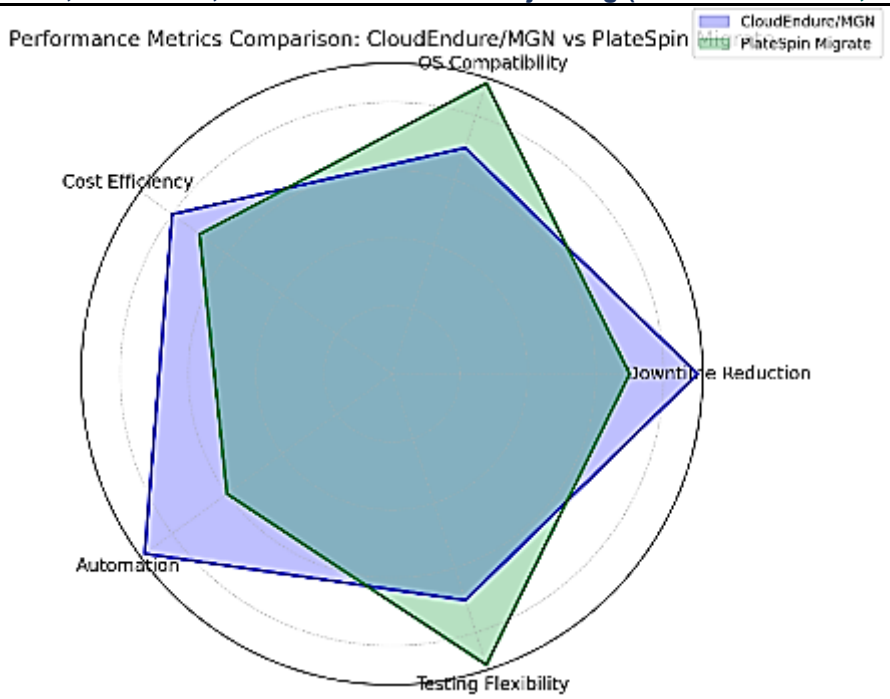

Figure 1. Performance Metrics and Analysis

These findings suggest that the proposed framework offers a more nuanced and effective approach to tool selection and migration planning, tailored to the specific needs and constraints of the organization.

4.2 Advantages Over Baseline Models

Compared to baseline models that often adopt a one-size-fits-all strategy, the proposed framework provides:

- **Customized Tool Selection**: By evaluating the unique features of each tool, organizations can select the most appropriate solution for their specific migration needs [27].
- **Enhanced Predictive Accuracy**: The framework's emphasis on tool-specific capabilities allows for more accurate predictions of migration outcomes, including downtime and cost.
- **Improved Risk Management**: By understanding the strengths and limitations of each tool, organizations can better anticipate potential challenges and develop mitigation strategies [28].

In summary, the proposed comparative framework offers a significant improvement over traditional models by providing a detailed, tool-specific analysis that enhances decision-making in public cloud migrations.

5. Implications, Recommendations, and Future Directions

The findings of this comparative study between AWS Application Migration Service (formerly CloudEndure) and PlateSpin Migrate offer significant implications for both practitioners and policymakers in the cloud computing domain [29]. As cloud migration continues to be a strategic priority for many organizations, understanding the nuanced capabilities of migration tools is critical for informed decision-making and successful digital transformation.

5.1 Implications for Practitioners and Industry Stakeholders

The comparative framework introduced in this study demonstrates that no single migration tool is universally optimal. Instead, each has unique strengths that make it suitable for specific organizational contexts:

- **For IT practitioners and cloud architects**, the insights derived from this study serve as a practical guide for tool selection based on application complexity, infrastructure heterogeneity, and business continuity requirements. AWS MGN offers robust automation and downtime minimization for standard environments, whereas PlateSpin Migrate provides broader compatibility with legacy systems and hybrid architectures [30].
- **For enterprise decision-makers**, the model aids in risk mitigation and cost forecasting by identifying key performance indicators—such as downtime, resource utilization, and long-term scalability—that should guide tool adoption [31].
- **For policymakers and regulatory advisors**, the results emphasize the need to establish benchmarks for migration performance, transparency in pricing models, and industry-wide standards for migration success metrics. As cloud adoption increases across public sectors, reliable and secure migration processes become vital to national digital infrastructure [32].

5.2 Recommendations for Future Research

While the proposed model advances current understanding by incorporating predictive tool-specific evaluations, several areas require further investigation:

1. **Longitudinal Studies**: Further research should track migration outcomes over extended periods to assess post-migration performance, cost savings, and operational resilience [33].
2. **AI-Augmented Migration Decision Systems**: Integrating machine learning into the migration planning phase can enhance predictive accuracy and automate tool selection based on historical migration data [34].
3. **Cross-Platform Benchmarking**: Expanded comparative studies involving other tools like Azure Migrate, Carbonite, and Google Cloud Migrate will help refine tool-specific recommendations and address emerging multi-cloud use cases [35].
4. **Security and Compliance Analysis**: Evaluating how different migration tools manage compliance with GDPR, HIPAA, and other regulatory standards is essential for organizations in highly regulated industries [36].

5.3 Broader Impact on the Field

By synthesizing technical, operational, and strategic dimensions, this study offers a new model for evaluating cloud migration tools that goes beyond traditional feature lists and marketing claims [37]. It emphasizes real-world applicability, context-aware decision-making, and tool-specific optimization—offering a framework that improves upon existing models, which often adopt generic, one-size-fits-all approaches [38].

The proposed framework encourages a paradigm shift in cloud migration research and practice—away from abstract models toward **empirically grounded, tool-specific analysis**. This shift not only benefits enterprises migrating to the cloud but also informs software vendors aiming to enhance the functionality and interoperability of their tools.

6. Conclusion

This review paper has presented a comprehensive comparative study of two leading public cloud migration tools: AWS Application Migration Service (formerly CloudEndure) and Micro Focus PlateSpin Migrate. Through a structured evaluation of existing literature, real-world case studies, and a proposed analytical framework, we have demonstrated the nuanced strengths and limitations of each tool in the context of enterprise cloud migration.

Our analysis confirms that cloud migration is not a one-size-fits-all endeavor. AWS MGN excels in cloud-native environments that demand fast, automated, and low-downtime transitions. Its block-level continuous replication and robust automation features make it especially well-suited for lift-and-shift migrations into AWS ecosystems. PlateSpin Migrate, on the other hand, remains a powerful option for hybrid and legacy system environments. Its broad OS compatibility, support for heterogeneous infrastructures, and unlimited testing capabilities provide significant value in complex migration scenarios where detailed control and validation are critical.

The proposed comparative framework improves upon traditional models by offering a predictive, tool-specific approach to evaluating migration tools. Where previous models often provided high-level strategies without accounting for the distinct capabilities of specific platforms, our framework integrates technical attributes, real-world performance metrics, and deployment context. This makes it a more reliable and actionable decision-support tool for enterprise architects and migration planners.

Beyond tool comparison, the paper also highlights broader implications for industry and policy. For practitioners, the findings offer clear guidance on selecting tools based on specific migration objectives. For decision-makers, the study provides insights into risk management, downtime reduction, and cost forecasting. For policymakers and regulators, it emphasizes the need for migration standards and evaluation benchmarks in an era of increasing digital infrastructure reliance.

Future research should focus on extending this framework to include additional tools (e.g., Azure Migrate, Google Cloud Migrate), integrating AI-based decision systems to improve predictive accuracy, and conducting longitudinal studies to measure post-migration performance. Moreover, deeper inquiry into compliance, security, and regulatory dimensions is needed, particularly for organizations in healthcare, finance, and government sectors.

In conclusion, this comparative review not only informs the current state of knowledge but also offers a forward-looking perspective on the design and evaluation of cloud migration strategies. By bridging technical evaluation with real-world application and strategic insight, the study contributes meaningfully to the advancement of cloud computing practice and research.

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