RETHINKING
CLOUD MIGRATION

From technical transitions to business transformation

By Fawad Qureshi,
Snowflake Global Field CTO

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In the world of enterprise technology, we often discuss migrations as technical exercises, involving the transition from one platform to another with minimal disruption. However, this perspective misses what truly matters to businesses. As I've discussed with countless customers, **an IT migration alone is useless from a business perspective**. Yesterday, you ran a report on technology A; tomorrow, you will run the same report on technology B. Nobody gets excited by that. So, what truly compels organizations to undertake the often significant effort of a migration?

THE REAL DRIVERS OF MIGRATION

Organizations typically migrate for three fundamental reasons:

1. **The current technology is at the end of its life**, creating sustainability and support risks

2. **The current technology is at the end of possibilities**, limiting business growth and innovation

3. **The current technology has become economically unsustainable**, with escalating maintenance costs, inefficient resource utilization, and inability to leverage the consumption-based pricing and economies of scale that modern cloud platforms offer

All the drivers point to the same conclusion: migrations must deliver tangible business value, not just technical continuity. Whether it's enhancing resilience, improving efficiency, reducing cost to serve, enabling new services or elevating customer experiences, the focus must remain firmly on achieving tangible business outcomes.

UNDERSTANDING A CLOUD MIGRATION

A cloud migration involves moving a company's customer-facing applications and data to a cloud-based environment. This process encompasses migrating on-premises applications to the cloud or switching to cloud-based applications as a service. The benefits extend far beyond simple technology updates.

Moving applications and data from on-premises servers to cloud providers enables organizations to serve their customers better while shifting from capital-intensive infrastructure to more flexible operational models. This transformation can encompass various migration paths, including on-premises to cloud, cloud-to-cloud, or the adoption of cloud-native applications, all with a focus on enhancing the customer experience through cloud capabilities.

The business impact of these migrations is evident in improved scalability, enabling rapid adaptation to changing customer demands, reduced IT costs through CapEx to OpEx conversion, enhanced security leveraging enterprise-grade cloud infrastructure, improved customer experiences through more personalized service delivery, and faster go-to-market capabilities that reduce development overhead.

STRATEGIC MIGRATION APPROACHES: VERTICAL VS. HORIZONTAL

When approaching cloud migrations, organizations face a fundamental choice between vertical and horizontal strategies. Vertical migration moves applications sequentially, one at a time, allowing for focused effort and risk management on individual systems. This approach works particularly well when applications have minimal interdependencies or when business requirements dictate prioritizing specific systems. It provides greater control and often requires fewer simultaneous resources, making it suitable for organizations with constraints on technical talent.

Horizontal migration, by contrast, tackles entire system layers simultaneously across multiple applications. This approach accelerates overall transformation timelines by enabling parallel work streams but requires stronger technical expertise and governance. Organizations facing tight business deadlines or working with highly integrated systems often benefit from this approach. The migration can be completed more quickly, thereby reducing the period during which systems operate in hybrid states.

In practice, many successful migrations blend these approaches. For instance, organizations might horizontally migrate foundational components, such as data platforms, while taking a more measured, vertical approach to customer-facing applications. This hybrid strategy strikes a balance between speed and risk management, critical when migrating business-critical systems that directly impact revenue or customer experience.

HORIZONTAL MIGRATION SUBTYPES

When pursuing horizontal migrations, organizations typically choose from three approaches:

1. **Lift and shift:** Minimal changes, focusing on moving systems as-is
2. **Move and improve:** Initial migration followed by optimization to reduce technical debt
3. **Complete redesign:** Rebuilding systems to leverage cloud-native capabilities fully

For most businesses, the first two approaches represent the most viable path forward. A legacy system with millions of lines of code developed over decades simply cannot be redesigned quickly. Yet, many cloud platforms force this hand by not supporting diverse data architectures, such as data vault, 3NF or complex data models, instead pushing for complete denormalization.

THE ARCHITECTURE-AGNOSTIC ADVANTAGE

This is where architecture-agnostic platforms, such as Snowflake, offer significant advantages. Running any data architecture without major modifications allows businesses to maintain their existing investments while reaping the benefits of the cloud.

The ability to migrate hundreds of systems through automated solutions like SnowConvert AI, which has already handled over 2 billion lines of code, represents a quantum leap over manual conversion approaches. When platforms force redesigns, the benefits of automation diminish dramatically, and migrations stretch into multi-year projects, intermingling the critical task of migration with the separate effort of developing new capabilities. By preserving the existing data architecture during the move, architecture-agnostic platforms enable migration to be completed efficiently and independently, paving the way for future innovation without the entanglement of a simultaneous data model overhaul.

CORE VS. NON-CORE COMPETENCIES IN MIGRATION

Cloud migration stretches organizational capabilities, making it essential to distinguish between core competencies that provide a competitive advantage and non-core activities that can be effectively outsourced. Strategic focus during migration means maintaining internal control over unique organizational strengths while leveraging external expertise for specialized technical execution.

Organizations should retain direct oversight of business process knowledge, data governance, strategic prioritization decisions and change management. These areas represent the business context and institutional knowledge that external parties cannot easily replicate or replicate accurately. Particularly in regulated industries, maintaining internal control over compliance requirements and risk management is crucial to the success of migration.

Meanwhile, technical code conversion, cloud infrastructure optimization, performance testing and specialized migration tooling often benefit from external expertise. These technical components evolve rapidly and require specialized knowledge that most organizations cannot afford to maintain internally cost-effectively. Establishing clear governance mechanisms for outsourced activities, including regular knowledge transfer sessions, helps build internal capabilities over time without slowing the migration.

The most effective approach combines internal business context with external technical expertise, creating a collaboration partnership model where each party contributes their strongest capabilities. This collaboration model typically delivers better outcomes than either a fully outsourced or completely internal approach to migration.

DEPARTMENTAL ROLES IN MIGRATION

Successful cloud migrations extend far beyond IT departments, requiring active participation from multiple business functions. Each department brings unique perspectives that shape migration success and ensure the resulting cloud environment supports the organization's operational requirements.

IT and engineering teams naturally lead technical implementation while serving as translators between business requirements and technical solutions. Their focus on architecture integrity, security and performance creates the foundation for a successful migration. However, when IT operates in isolation, migrations often fail to address critical business needs.

Business units must define functional requirements, success criteria and acceptable disruption thresholds. Their participation in testing and validation ensures the migrated systems support critical business processes. Finance departments contribute by developing total cost of ownership (TCO) models, identifying return on investment (ROI) opportunities, and creating financial governance frameworks for ongoing cloud cost management.

Operations teams must redesign processes to leverage cloud capabilities, establish new monitoring frameworks, and develop incident response procedures tailored to the cloud environment. Leadership sets clear vision and expectations, aligns migration with strategic objectives, and actively addresses organizational resistance to change. Data teams can ensure proper handling of data assets throughout the migration, using the opportunity to improve data management practices.

Creating a cross-functional steering committee with representation from each department maintains alignment and quickly addresses challenges that cross departmental boundaries. This collaborative approach helps ensure the migration delivers business value rather than merely relocating technical assets.

THE AI-POWERED MIGRATION REVOLUTION

Advanced SQL and complex stored procedures form the backbone of data warehouses, yet they often become migration bottlenecks. While automation helps, the manual review of errors, warnings and issues (EWIs) has traditionally required specialized expertise and a significant time investment.

As AI increasingly supports migration activities from code conversion to testing and optimization, selecting the right approach becomes crucial. Migration-specific requirements should drive AI selection rather than general capabilities or market positioning.

Security architecture represents a primary consideration, particularly for organizations handling sensitive code or data. Solutions that process assets within your security perimeter rather than exporting them to external environments reduce risk and often better align with existing governance frameworks. This becomes especially important when migrating regulated systems subject to compliance requirements.

Domain knowledge in AI models has a significant impact on migration quality. Solutions should understand database structures, code patterns and common architectural approaches in your industry. General-purpose AI often lacks the specialized knowledge required for complex migrations, resulting in suboptimal conversions that necessitate extensive rework.

Integration with existing development environments and workflows enhances adoption and productivity. Standalone AI solutions create friction that reduces effectiveness, while integrated approaches become natural extensions of development processes. Transparency in AI recommendations builds trust with technical teams, allowing them to understand and validate suggestions rather than treating AI as a black box.

Most importantly, migrations benefit from AI flexibility that adapts to your chosen data architectures rather than forcing specific patterns. This architectural agnosticism preserves existing investments in data models and business logic, while still leveraging the advantages of the cloud. Before making a full commitment, conduct proof-of-concept evaluations using sample code from your actual environment to validate AI performance against your specific requirements.

The introduction of AI-powered assistance, such as the SnowConvert Migration Assistant, addresses these challenges head-on. By leveraging large language models to provide contextual explanations and suggested fixes, these tools democratize the migration process across teams with varying levels of database expertise.

AUTOMATION BENEFITS IN MIGRATION

Automated code conversion fundamentally transforms migration economics by analyzing, converting and optimizing legacy code at a scale and speed that is impossible with manual approaches. The volume of code in enterprise systems — often millions of lines across thousands of objects — makes automation essential for time-sensitive migrations.

Modern automation tools process this volume in days rather than the months or years required for manual conversion. They apply conversion rules consistently across the entire codebase, eliminating the variability introduced when multiple developers work on different system components. This consistency reduces testing cycles and improves overall quality.

Advanced automation effectively embeds expert knowledge into the conversion process, codifying migration best practices and patterns that would otherwise require scarce technical talent. This enables organizations to deploy technical experts strategically on complex edge cases and architectural decisions, rather than routine conversion tasks, thereby maximizing their impact.

Comprehensive documentation of changes supports compliance requirements and future maintenance by automatically creating audit trails. The newest generation of AI-enhanced automation learns from feedback, continuously improving conversion quality through the migration lifecycle. This iterative improvement means conversion quality increases over time rather than degrading as team members change or fatigue sets in.

Most successful migrations employ a hybrid approach, where automation handles the bulk of conversions while skilled developers address complex business logic and optimize performance. This combination delivers the economic benefits of automation while helping ensure business-critical components receive appropriate attention from subject matter experts.

CHALLENGING CONVENTION: A CRITICAL PERSPECTIVE

While the approaches and tools described in this ebook represent significant advances, several questions deserve critical examination:

Is 'lift and shift' really valuable?

Rather than questioning its value, view the lift-and-shift approach as a critical accelerator and the necessary beginning of the cloud data journey. While it prioritizes maintaining business continuity by moving existing functionality, its primary value lies in quickly establishing your presence on a modern, capable platform like Snowflake.

This immediate migration allows organizations to stop incurring costs and complexities on legacy systems and immediately begin leveraging the new capabilities and performance benefits of the cloud environment. Optimization, refactoring and pursuing deeper transformational value become subsequent phases, best tackled after the initial successful migration is complete and stabilized on the new platform.

Attempting to combine migration with extensive re-engineering simultaneously is generally ill-advised, as it significantly increases complexity, risk and project timelines. Lift and shift gets you onto the better platform quickly, enabling future innovation from a position of strength.

Does automation scale to complex business logic?

While tools can effectively migrate schema and standard SQL, business-specific logic often requires human intelligence. The true measure of migration tooling is not just code conversion but preserving business intent.

Are we migrating technical debt?

While legacy systems often carry technical debt, migration projects are generally not the primary time to undertake significant remediation. Existing systems provide business value and should typically be migrated as-is, unless they produce incorrect results. The priority is to quickly decommission the legacy platform by migrating to Snowflake and standardizing your data environment.

True value and the ability to effectively address technical debt emerge after all data is consolidated, governed and accessible on the new platform. Technical debt is best tackled subsequently, during planned functional modifications and optimizations on the modern environment. Focus on getting onto the new platform first; optimize later.

Are we measuring the right success factors?

Migration success should be measured not by technical completion but by business outcomes: improved customer experience, faster time-to-market, enhanced analytical capabilities and operational efficiency.

THE PATH FORWARD

Effective cloud migration requires balancing multiple considerations:

- Technical feasibility and automation potential

- Business value and transformation opportunities

- Risk management and timeline constraints

- Skill development and organizational change

The most successful migrations build a self-funding model where early value creation finances subsequent phases. This approach not only makes economic sense but also builds organizational momentum and stakeholder confidence.

Some might argue that migration projects are rarely self-funding given their labor-intensive nature and significant upfront investments. This perspective, while understandable, overlooks the strategic value of incremental delivery. Rather than viewing migration as a monolithic project with delayed returns, forward-thinking organizations structure migrations in value-focused phases that build both financial returns and organizational momentum.

The key lies in deliberately sequencing migration activities based on value potential rather than technical convenience. Early phases should target high-value, lower-complexity systems that deliver quick wins through cost reduction, performance improvements or new capabilities. For example, migrating analytics workloads (often the semantic

layer with high consumption) first can deliver immediate cost savings through cloud elasticity while enabling new insights that drive business value. These early successes generate both tangible financial returns and organizational trust capital that become crucial for securing continued investment. Each successfully delivered phase builds confidence among stakeholders, creating a virtuous cycle where demonstrated value justifies and funds subsequent phases. Organizations that implement robust value tracking mechanisms, clearly connecting migration activities to business outcomes, find that progressive value realization makes the journey financially sustainable, even for large-scale transformations.

Ultimately, successful cloud migrations strike a balance between technical execution and business strategy. Organizations that excel in migration approach, competency focus, departmental collaboration, AI selection and automation deliver transformations that enhance business capabilities rather than merely relocating technical assets. By approaching migration as a business transformation opportunity that involves technology changes, they position themselves to capture the full strategic value of cloud environments.

By embracing architecture-agnostic platforms, leveraging AI-powered automation, and maintaining a relentless focus on business outcomes, organizations can transform migration from a necessary technical exercise into a strategic value driver — because in today's world, the bigger risk is standing still. Nothing changes if nothing changes.

Hoping to get started with a migration to Snowflake? Watch our virtual hands-on lab for a walkthrough of an end-to-end data and pipeline migration to the AI Data Cloud.

FAWAD QURESHI,
Snowflake Global Field CTO

Fawad is a strategic technology leader with over two decades of international experience, specializing in enterprise data strategy, AI-driven analytics, and cloud solution architectures. He has worked across the entire technology life cycle; engineering, professional services, pre-sales, and business development. As a Global Field CTO at Snowflake, Fawad advises C-level executives across multiple industries, helping them unlock the full potential of their data. He is also a Data Advisor to the World Economic Forum, where he contributes to global initiatives on responsible AI, synthetic data, and ethical data management. Passionate about sustainability, Fawad empowers businesses to drive measurable impact by leveraging AI, data, and cloud technologies. As a LinkedIn Learning Instructor, he shares his expertise with a global audience, advocating for AI & Data for Good while shaping the next generation of data leaders.

ABOUT SNOWFLAKE

Snowflake is the platform for the AI era, making it easy for enterprises to innovate faster and get more value from data. More than 11,000 companies around the globe, including hundreds of the world's largest, use Snowflake's AI Data Cloud to build, use and share data, applications and AI. With Snowflake, data and AI are transformative for everyone.

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