CLOUD MIGRATION ASSESSMENT

Strategic Comprehensive Frameworks for Digital Transformation

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Executive Summary

A cloud migration assessment is a rigorous, multi-dimensional evaluation designed to determine the technical feasibility, financial viability, and strategic alignment of moving digital assets to cloud-based environments.

Far from being a mere technical inventory, a robust assessment serves as the indispensable foundation for digital transformation — enabling organizations to consolidate infrastructure, eliminate functional redundancies, and enhance operational resilience while proactively mitigating the inherent risks of architectural transition.

Primary Objectives

- Establish clear migration goals: cost savings, performance improvement, or increased agility
- Identify specific success metrics (daily compute cost, network throughput, uptime SLAs)
- Facilitate decommissioning of low-value assets and modernization of mission-critical systems
- Build a comprehensive, data-driven business case for executive buy-in

Key Assessment Principle

Successful cloud migration is not measured by how quickly the on-premises data center is emptied, but by the long-term value delivered through increased agility, lower operational debt, and innovation.

Business Outcome Framework

Outcome Category	Assessment Focus Areas	Key Performance Indicators (KPIs)
Cost Reduction	Infrastructure consolidation, license optimization, elimination of idle resources	TCO, Annual Savings %, Licensing Cost Reductions
Risk Mitigation	Security posture, compliance alignment, disaster recovery readiness	MTTR, Security Compliance Score, Unplanned Downtime Reduction
Operational Efficiency	Deployment automation, right-sizing, staff productivity	VMs per admin, Developer efficiency, Deployment cycle time
Revenue Growth	Time-to-market acceleration, new segment reach, innovation agility	New product launch frequency, Customer experience metrics, Elasticity response time

The Six CAF Perspectives

Perspective	Primary Stakeholders	Key Focus Areas
Business	CEO, CFO, COO	Digital transformation alignment; cloud investment justification; business strategy integration
People	CHRO, HR Directors	Culture of continuous learning; change management; skill gap identification
Governance	CRO, CDO, Legal	Program management; risk frameworks; compliance orchestration
Platform	CTO, Cloud Architects	Enterprise-grade hybrid cloud blueprints; scalability; infrastructure design
Security	CISO, Security Teams	Data confidentiality, integrity, availability; access controls; encryption standards
Operations	IT Operations, SRE	Service delivery alignment; ITSM integration; site reliability engineering

Cloud Readiness Assessment (CRA) Process

To operationalize the CAF, organizations use the Cloud Readiness Assessment (CRA), evaluating the entity against 47 specific capabilities to generate a Cloud Adoption Readiness Tool (CART) report with actionable gap remediation recommendations.

The Four-Phase Iterative Cycle

- **Envision:** Identify and prioritize transformation opportunities linked to strategic objectives
- **Align:** Map capability gaps and cross-organizational dependencies; ensure stakeholder alignment
- **Launch:** Deliver impactful production pilots to demonstrate incremental value and build confidence
- **Scale:** Expand successful pilots to full production; sustain realized business benefits enterprise-wide

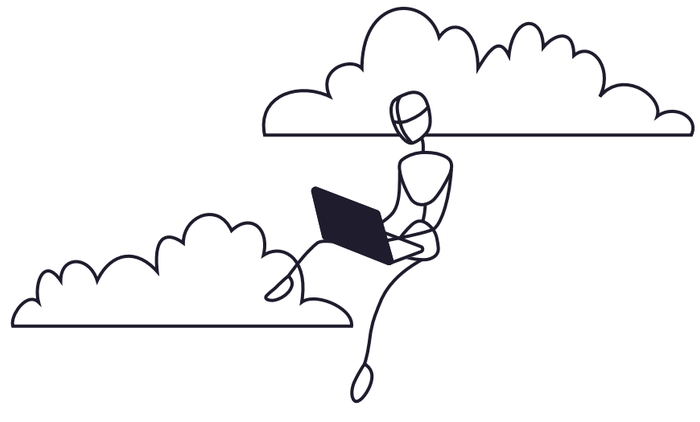
Migration Strategy: The 7 Rs Framework

Strategy	Definition	Use Case Criteria	Primary Benefit
Retire	Decommission applications no longer in use	Obsolete legacy or redundant systems identified during discovery	Immediate reduction in licensing, maintenance, and resource costs
Retain	Keep applications in current on-premises environment	Apps with strict regulatory/ latency constraints or slated for future replacement	Stability maintenance for complex or highly regulated systems
Rehost	Move applications as-is without code or architecture changes (Lift-and-Shift)	Large-scale migrations with tight deadlines or stable legacy apps	Fastest migration path with minimal business process disruption
Relocate	Move VMs at the hypervisor level without OS changes	Transitioning VMware workloads to VMware Cloud on AWS or Azure VMware Solution	No application changes required; maintains operational consistency
Replatform	Targeted optimizations to leverage cloud-managed services (Lift-and-Reshape)	Switching from self-managed DBs to Amazon RDS or Azure SQL	Reduced management overhead and improved performance with minimal code changes
Repurchase	Replace legacy applications with SaaS alternatives (Drop-and-Shop)	Moving from on-premises CRM/HR to Salesforce or Workday	Modern cloud-native features; elimination of maintenance costs
Refactor	Full architectural redesign to cloud-native patterns	Mission-critical apps requiring massive scalability or serverless features	Maximum scalability, resilience, and long-term ROI

Strategy Selection Insight

Rehosting can serve as a pragmatic first step — stabilizing applications in the cloud before undertaking complex modernization. Identify 'Quick Wins' first: apps that move easily and deliver immediate, visible benefits that build stakeholder momentum for harder migrations.

Technical Discovery & Dependency Mapping



The first functional phase of a cloud migration assessment is the creation of a comprehensive and accurate inventory of all existing IT assets, including compute resources, storage volumes, databases, and networking components.

Automated Discovery

Manual discovery is error-prone and too slow for complex enterprise environments. Automated tools should capture real-time performance baselines including CPU, memory, disk I/O, and network utilization patterns.

A critical outcome of this phase is the identification of 'Shadow IT' — unapproved or undocumented resources with potential security, compliance, or cost implications previously invisible to management.

Discovery Dimensions & Tooling

Discovery Dimension	Data Points & Metrics Collected	Recommended Tooling
Infrastructure	OS types, patch levels, hardware specifications, utilization patterns	AWS Application Discovery Service, Azure Migrate, Device42
Application	Language stack (.NET, Java, Python), runtime dependencies, configurations	AppDynamics, Datadog, Dynatrace
Interdependencies	TCP connections, database queries, API call latency	Device42, Azure Migrate Service Map, Faddom
Network Performance	Peak bandwidth, ingress/egress throughput, latency benchmarks	Prometheus, Grafana, Jaeger

Technical Discovery & Dependency Mapping

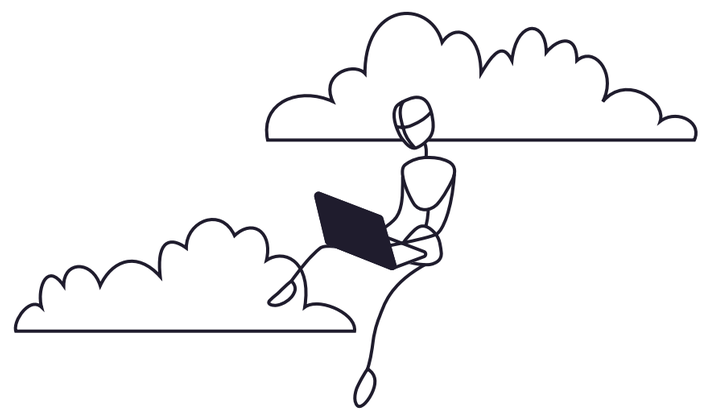
Dependency Mapping

Applications rarely function in isolation.

Dependency mapping identifies critical paths and potential single points of failure, ensuring that tightly coupled systems are migrated together in the same 'migration wave' — minimizing latency and connectivity risks during hybrid-state operations.

- Use network analysis and APM tools to visualize service-to-service communication
- Identify integration points with third-party APIs and external SaaS platforms
- Create 'move groups' based on communication patterns to prevent unexpected outages

Financial Engineering & TCO Analysis



The financial component of a cloud migration assessment is often the most critical factor for securing executive buy-in. A well-constructed business case compares the Total Cost of Ownership (TCO) of maintaining current on-premises operations with projected cloud expenditures over a 3–5 year horizon.

TCO Components

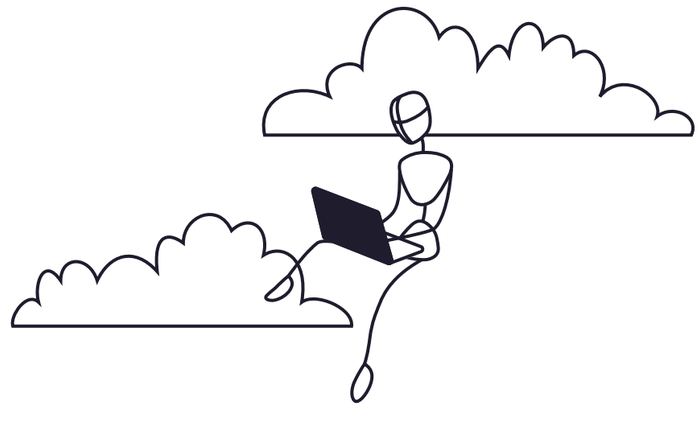
Direct Costs: Hardware procurement, software licensing, power and cooling utilities associated with traditional data centers.

Indirect Costs (often overlooked): Productivity loss during unplanned downtime, administrative overhead for aging legacy infrastructure.

Key Financial Efficiency Metrics

Metric	Analysis Goal	Projected Financial Impact
Zombie Machines	Identify idle or abandoned resources (< 5% utilization over 30 days) for decommissioning	Immediate 7–10% reduction in pre-migration compute needs
Right-sizing	Align instance types with actual CPU and RAM utilization	Annual compute savings ranging from 47% to 63%
BYOL Utility	Maximize value of existing persistent licenses	Azure Hybrid Benefit can reduce cloud licensing costs by up to 40%
Storage Optimization	Move infrequently accessed data to archival or 'cold' tiers	Potential savings of up to 67% on storage costs

Security, Compliance & Risk Assessment



The transition to cloud introduces the 'shared responsibility model,' which fundamentally alters how security is managed. An assessment must meticulously identify gaps between current on-premises controls and the required cloud security posture.

Shared Responsibility Model

Cloud Provider is responsible for: Security of the cloud — physical infrastructure, hardware, networking, and hypervisor layers.

Organization is responsible for: Security in the cloud — application code, access management, data protection, and operating system configuration.

Zero Trust Security Model

Modern assessments advocate for a Zero Trust security model from day one — assuming every network connection is a potential threat. This requires deep evaluation of Identity and Access Management (IAM) policies to ensure that excessive permissions are not granted during transition.

- Eliminate perimeter-based security models not suited to cloud environments
- Enforce least-privilege access principles across all services and APIs
- Implement continuous monitoring and behavioral analytics from migration day one

Security, Compliance & Risk Assessment

Common Security Vulnerabilities During Transition

- Misconfigured cloud settings (open storage repositories, improper firewall rules) — leading cause of cloud data breaches
- Data exposure during transit between on-premises and cloud environments
- Insider threats arising from excessive IAM permissions during migration
- Regulatory compliance gaps for geographically sensitive data residency requirements

Regulatory Alignment

For highly regulated sectors, verify that the target Cloud Service Provider (CSP) supports specific geographic data residency requirements and meets standards such as:

- Cloud Computing Security Requirements Guide (CC SRG) — Impact Level 4 (IL4) or higher
- SOC 2 Type II, ISO 27001, PCI DSS, HIPAA, GDPR as applicable to your industry

Sustainability & Green Cloud Assessment

In the contemporary business environment, sustainability has emerged as a critical non-functional requirement. Organizations are increasingly evaluated on ESG performance, making IT carbon footprint a high-priority metric for stakeholders and investors.

Energy Efficiency of Public Cloud

Migrating workloads to public cloud environments can significantly reduce an organization's environmental footprint. Public cloud infrastructure is often up to 4.1x more energy-efficient than traditional on-premises data centers, driven by higher server utilization rates, advanced cooling technologies, and purpose-built silicon (AWS Graviton, Google TPUs).

Carbon Assessment Methodology

The Software Carbon Intensity (SCI) standard from the Green Software Foundation provides a methodology for calculating the rate of carbon emissions for a software system per functional unit. Assessments should:

- Establish a baseline of current carbon emissions from on-premises infrastructure
- Project savings achievable through cloud migration and workload modernization
- Identify 'carbon hotspots' — specific workloads consuming excessive energy
- Prioritize migration to cloud regions with carbon-free energy (CFE) investments

Common Pitfalls & Mitigation Strategies

Despite the maturity of frameworks and tools, a high percentage of migration projects fail to meet initial timelines or budgets. These failures are rarely the result of a single technical glitch but are typically the culmination of systemic planning errors.

Pitfall	Operational Impact	Mitigation Strategy
Bubble Cost Neglect	Initial migration budget overruns of 15–20%	Explicitly model the cost of parallel operations during the transition phase in the financial plan
Analysis Paralysis	Missed innovation opportunities; months in discovery with no workloads migrated	Use the CAF 4-phase iterative cycle; identify Quick Win workloads to build momentum early
Perimeter-Security Bias	Vulnerabilities to insider threats and data leaks in cloud environment	Implement identity-centric Zero Trust models from Day 1 of the assessment process
Skill Gap Denial	Low user adoption and decreased post-migration productivity	Establish a CoE and mandate cloud training for all stakeholders early in the project
License Mismanagement	Unplanned licensing fees and legal compliance risks post-migration	Conduct a detailed Licensing Health Check (LHC) before finalizing the cloud architecture
Incomplete Discovery Windows	Dangerously inaccurate right-sizing; performance degradation under peak load	Scan for 30+ days capturing end-of-month processing and seasonal usage spikes
Underestimating Data Transfer	Major timeline overruns; business continuity risks during cutover	Test bandwidth ahead of time; consider hybrid approaches moving data gradually

Synthesizing the Assessment for Digital Value

The cloud migration assessment is the single most important phase of the digital transformation journey. It is a business decision framework that determines which workloads to migrate, which to modernize, which to retain, and how to reduce risk while protecting the organization's return on investment. The transition requires:

- A commitment to data-driven decision-making at every stage of the assessment
- A culture of continuous learning and organizational change readiness
- A relentless focus on aligning technical architectures with strategic business ambitions
- Rigorous financial modeling that accounts for all direct, indirect, and bubble costs
- Zero Trust security architecture implemented from day one of the migration journey

Final Principle

The success of a cloud migration is not measured by the speed with which the on-premises data center is emptied, but by the long-term value delivered through increased agility, lower operational debt, and enhanced capacity for innovation.

Ready to build your data-driven business case?

Whether you need to map complex technical dependencies, optimize your cloud TCO, or align your migration with strategic business outcomes, our team provides the frameworks and tooling expertise to ensure your transition is a success.

Contact Gart Solutions today to start your comprehensive Cloud Migration Assessment and realize the full promise of the cloud.

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