



Your journey to the cloud

Your guide to a successful and cost-effective
cloud migration.

Google Cloud

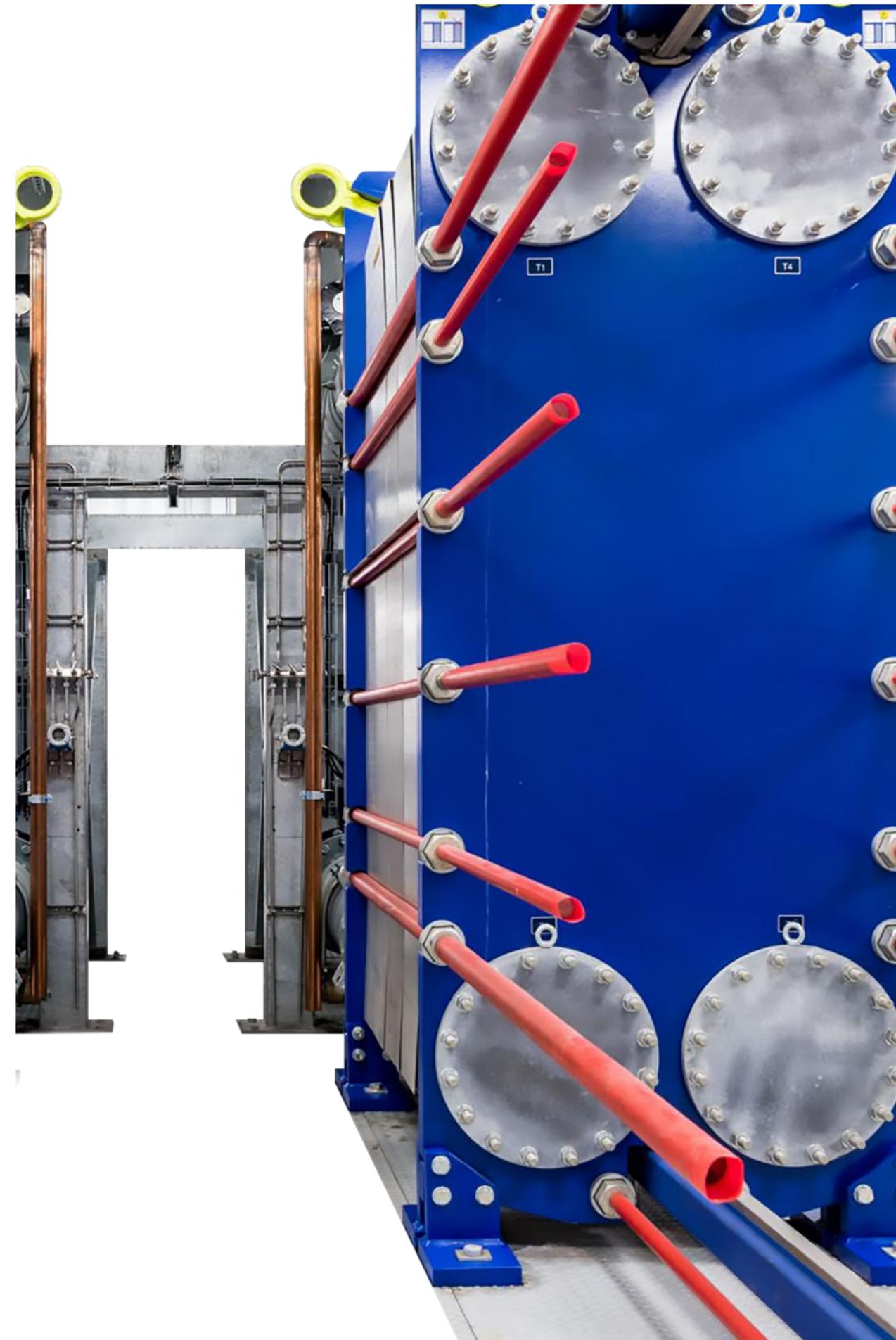
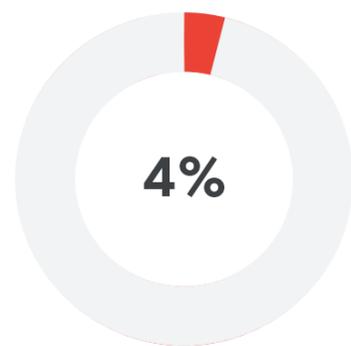


Table of contents

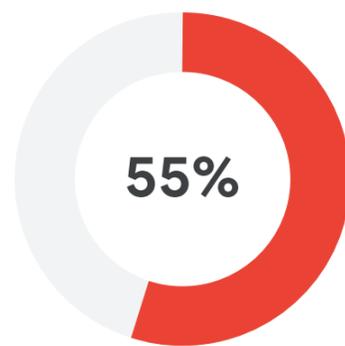
Critical considerations for a successful cloud migration	4
Phase 1: Assess	7
Phase 2: Plan	9
Phase 3: Migrate	14
Phase 4: Optimize	18
Case studies	20

The cloud adoption challenge – it’s not about the cloud.



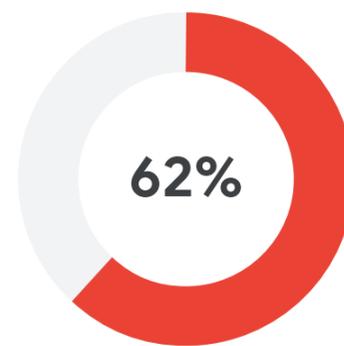
Migrating

Surge in cloud migration with 96% migrating but only 4% completion



Over budget

More than half of migrations are delayed and over budget



Difficult/failed

Almost 2/3 of projects are considered very difficult or failing

“Where cloud projects fail is not so much about the cloud selection but about picking the wrong workloads to migrate and not paying attention to security, governance, and other core services.”

David Linthicum, InfoWorld, Feb. 2018

Critical considerations for a successful cloud migration

The customer focus on digital transformation centers on the need to balance between flexibility, security, cost, and speed. Public cloud is increasingly integral to that business imperative, spanning choices ranging from hybrid cloud to “all-in” single cloud and even multi-cloud optimizations. IDC forecasts public cloud services spending to total \$277 billion in 2021, yet despite this growth, enterprises struggle with basic cloud migration questions.*

*IDC, [Worldwide Public Cloud Services Spending Forecast to Reach \\$160 Billion This Year, According to IDC](#), Jan 2018



Common cloud migration questions

- Where do I begin: what apps, workloads, and databases do I migrate?
- Can I start in smaller, achievable sprints with verifiable wins or do I have to go all in?
- Will application interdependencies affect my migration sequence and success?
- Should I “lift and shift” legacy applications into the cloud or modify them for cloud operation?
- How do I eliminate complexity and ensure the performance integrity of multi-tier and stateful applications?
- How will large datasets affect my migration complexity, timeline, and cost both during migration and in-cloud?
- How do I de-risk my migration to maintain stringent application SLAs and business continuity?
- Does my IT team have the expertise, time, and tools to perform start-to-finish cloud migration?
- How does this impact my budget? Can I cost-effectively scale the migration across part or all of my applications?
- What cloud model makes sense for me?

These decisions have a profound and long-term impact on business agility, efficiency, level of risk, and TCO. Check out how our customers navigated through various conditions into a streamlined cloud migration experience.

Navigating the journey to the cloud

Logical steps

1

Assess

- Understand the cloud and migration
- Organize information
- Discover what needs to migrate

2

Plan

- Sort applications by migration effort
- Model discovery information
- Pre-validate each migration

3

Migrate

- Run applications in the cloud
- Transfer and synchronize data with the cloud

4

Optimize

- Rightsize for performance rather than defaulting to one-to-one mapping from on-prem to cloud

Phase 1

Assess



Discover your IT landscape

To be successful, a cloud migration first requires a clear awareness of your existing environment. Answering the following questions is an essential part of the discovery exercise.

- What applications do I have?
- How are my applications integrated?
- What is my resource utilization?
- What is my most important application?
- Where are devices and applications located?
- What are my bandwidth requirements?
- What problems exist in my environment?
- How should I migrate to the cloud?
- What's low-hanging fruit for optimization?
- What should I consider for business continuity?
- What is the business case for change?
- What devices exist in my environment?

Phase 2

Plan



Organize the chaos, rationalize your migration

Planning and assessment solutions intelligently rationalize any enterprise's migration portfolio and save significant time and effort prior to the migration through fully automated application portfolio discovery and rationalization. This helps customers understand what applications they have, how they are integrated, what issues they have, and how they can be optimized, as well as providing ongoing performance monitoring and analysis against business objectives and industry benchmarks.

Application dependency and integration mapping is a foundational value proposition and core to the analytics an enterprise should be looking for.



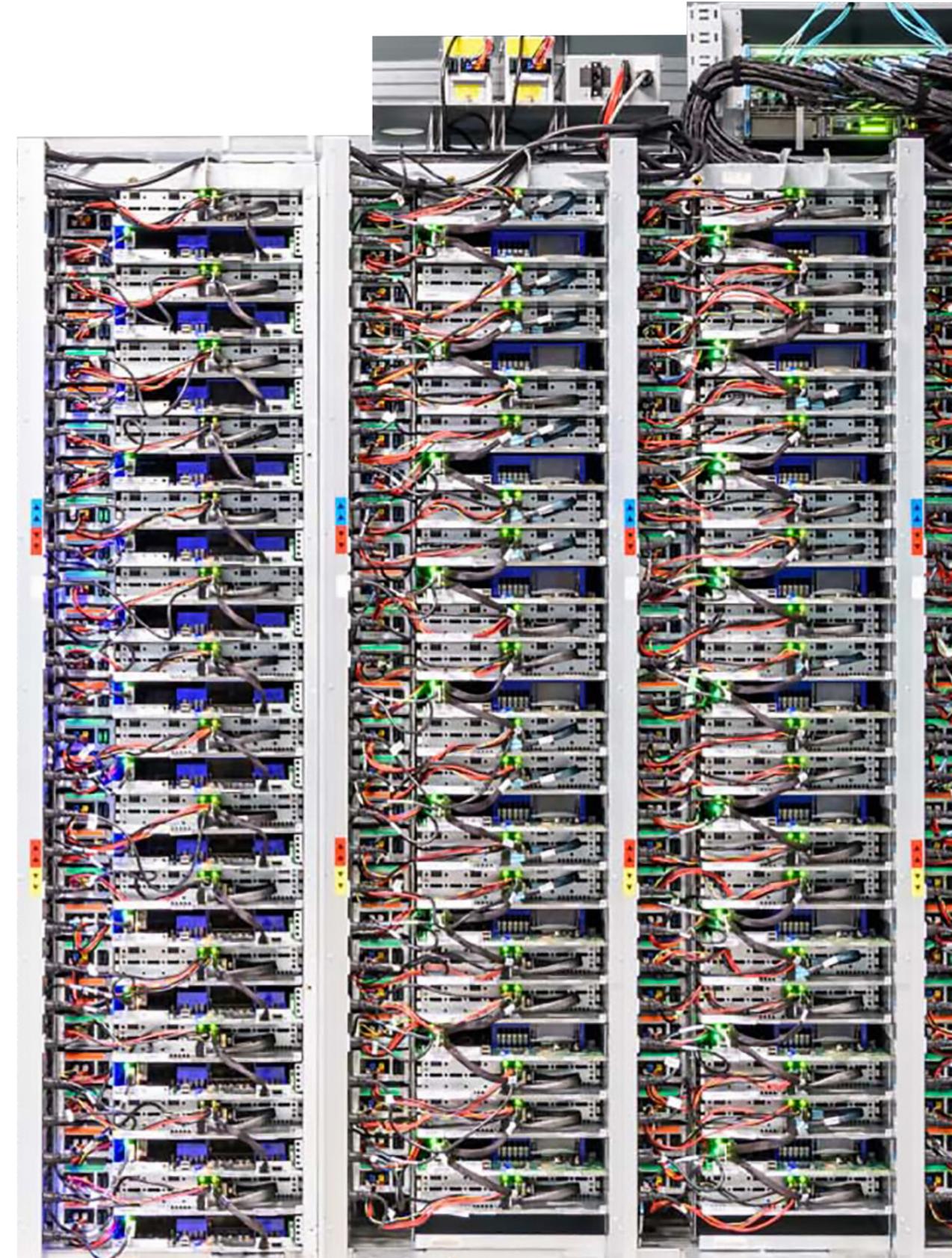
Prioritize and rank apps prior to migration

When migrating to the public cloud, picking the right order to migrate your workloads is critical. It's paramount to a successful migration to understand which workloads are the best candidates to migrate first, and which workloads will require longer preparation.



Plan the TCO and ROI for your move to the cloud

Many on-premises data centers are overprovisioned because there was no large budgetary penalty for doing so. Simply mapping on-prem resources to cloud instances will likely lead to overrun of cloud budgets. It's critical to properly rightsize your cloud instances based on actual usage, and then model what your cloud costs will be, as well as compare those modeled costs across cloud providers to see which offers the most value.



Accelerate cloud adoption with stakeholder buy-in

Pre-migration TCO justification and cloud performance validation

Having an integrated cloud migration journey that encompasses planning, assessment, migration, and optimization is key to helping you enable stakeholder buy-in and de-risk the journey for application owners prior to cloud migration.

- 1 Identify best opportunities to migrate and rationalize your application migration portfolio against actual usage, cost, and performance variables, eliminating waste
- 2 Discover application interdependencies to accurately sequence and set up migration, and eliminate related in-cloud performance issues
- 3 Increase migration speed by up to 10x – accelerate cloud cutover times, and eliminate TCO associated with redundant workloads on-premises and in-cloud; improve utilization from hybrid cloud or optimize cost, performance and functionality across multiple clouds
- 4 Reduce manual labor per server with agentless architecture, freeing staff and budget for other projects
- 5 De-risk application owners by pre-validating in-cloud application performance SLAs, regardless of dataset size with cloud “test-clone” capability and short proof of concepts
- 6 Realize a faster path to the cloud, opening the door for additional transformation and modernization projects



Phase 3

Migrate



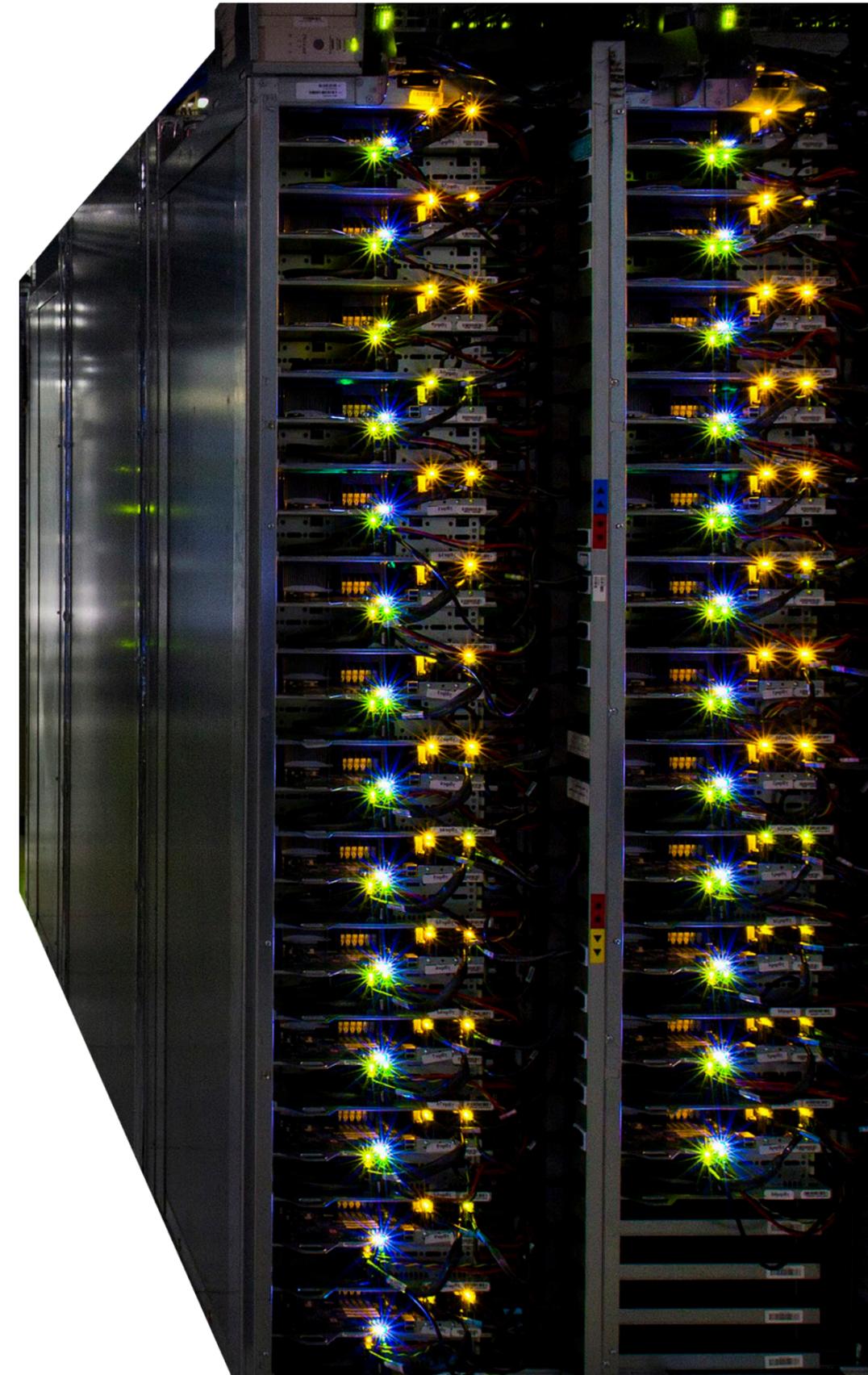
Challenges increase with bigger enterprises

Scale: Large scale on-prem landscape that includes thousands of workloads

Complexity: Complex multi-tier applications and data stores that have many interdependencies

Risk: Risk of making sure application uptimes and SLAs are met and downtime is minimal

Hybrid & multi-cloud: Avoiding lock-in and single points of failure by having rollback, hybrid cloud, or multi-cloud options



Delivering seamless cloud migration

Google Cloud's migration solutions are purpose built and enterprise grade. They deliver to enterprises a cloud migration journey that both accelerates and de-risks their migration, enabling customers to honor stringent application SLAs regardless of application complexity, statefulness requirements, or size of datasets.

Rapid migration: Minimizing disruption when you migrate is crucial to every stakeholder, so having workloads running quickly – sometimes in as little as 10 minutes – is hugely beneficial.

Maximum uptime: Short, predictable downtimes that occur up front ensure maximum application uptime for continuous operations and SLA targets.

Minimizing disruption when you migrate is crucial to every stakeholder, so having workloads running quickly – sometimes in as little as 10 minutes – is hugely beneficial.

De-risk migration: To minimize risk and ensure immediate operability, mission-critical applications are pre-validated in the cloud prior to actual migration. Plus, the safety net of a fast, stateful rollback to on-prem when needed provides full peace of mind.

Complex apps with ease: Easily migrate any application landscape – physical or virtual, legacy or modern, stateless or stateful, large database or small – and use analytics-based rightsizing and post-migration cost controls to keep cloud budgets in line.

Non-invasive cutover: By avoiding agents and final replication procedures altogether, our cutover technology is fast and seamless, and requires no additional processes or labor. All of your data is synced and maintained during migration, making the process smooth and seamless.

Maintain IT focus: Google's migration solutions can shave several hours of IT labor per server when migrating. With that, IT can perform more migrations in less time, or focus on other IT priorities in parallel.

Google's migration solutions can shave 3-5 hours of IT labor per server when migrating. With that, IT can perform more migrations in less time, or focus on other IT priorities in parallel.



Phase 4

Optimize



Better ROI with cloud cost management

Optimize customers' systems and operations, help them save on costs.

- Pre- and post-migration rightsizing
- [GCE custom machine types](#)
- Built-in reporting: [cost trends & forecasting](#)
- Automatic sustained-use discounts
- Intelligent insights for smart spending
- Financial governance cost controls



Case study

Twitter

Industry: Technology

Country: United States

Challenge: Every day, millions of people come to Twitter to find out what's happening in the world and talk about it. With hundreds of millions of tweets sent every day, it's critical that the infrastructure and data platforms are scalable.

Migration: Keeping up with the conversation: GCP provides a platform and infrastructure that could support Hadoop file systems that host more than 300 PB of data across tens of thousands of servers.

- **Enables faster capacity** provisioning and increased flexibility
- **Improves security** and disaster-recovery capabilities
- Separates compute and storage for Hadoop workloads, **increasing efficiencies**

“Twitter runs on a Hadoop compute system as the core of our data platform with multiple large clusters that are among the biggest in the world. GCP provides the infrastructure that can support this and the advanced security that well serves not just our company but also our users.”

Parag Agrawal, CTO, Twitter

Case study

Schlumberger

Industry: Technology

Country: United States

Challenge: Schlumberger, the world's largest oilfield services company, wanted to leverage the strengths offered by cloud computation stacks to bring its data processing to the next level. They needed powerful processing capabilities and better collaboration between locations.

IoT: Running advanced algorithms in the cloud: Cloud IoT Core helps enable fast, reliable, economical deployment of oil and gas applications with TensorFlow for complex petrotechnical interpretation of seismic and wellbore data and automation of well-log quality control.

- Deploys compute capacity of **35 petaflops+** and **10PB of storage**
- **Automates 3D seismic interpretation** that helped launch the DELFI cognitive E&P environment
- **Deploys E&P Data Lake** with **100M+ data items** comprised of 30TB+ of petrotechnical data

“Google Cloud IoT Core has helped us focus our efforts on building oil and gas applications that leverage existing IoT services to enable fast, reliable, economical deployment.”

**Chetan Desai, VP,
Schlumberger Limited**

Case study

Lush

Industry: Retail & Consumer Goods

Country: United Kingdom

Challenge: To keep up with seasonal demand and its growing popularity, **the £700M cosmetics retailer** looked to migrate its ecommerce platform to a high-performance infrastructure that could effectively scale and address traffic spikes.

E-commerce: Keeping up with customer demand: Lush migrated its entire global infrastructure, including ecommerce systems, mobile apps, and retail systems onto Google Cloud. It uses Compute Engine for rapid VM deployment and Cloud SQL to control infrastructure and optimize for scaling.

- Only **22 days to migrate** a full, global ecommerce site
- **50% reduction** in IT costs, from 120K to 60K
- **50% reduction** in energy consumption, with 35% now from renewable sources

“The migration to Google Cloud Platform was surprisingly swift. In 22 days, we were up and running.”

**Jack Constantine,
Chief Digital Officer, LUSH**

Case study

Cardinal Health

Industry: Healthcare & Life Sciences

Country: United States

Challenge: This \$130B Fortune 500 healthcare company believes that the healthcare system should help providers be effective in serving patients and do so affordably. It needed technology and innovation to drive down healthcare costs.

Migration: Driving down the cost of care: Cardinal Health migrated existing systems to GCP to enhance security and data protection and leverage speed, cost savings, flexibility, and agility that enables business-enhancing risk taking.

- Allows teams to **tap exceptional engineering talent** and technical support
- **Gains technical speed** and capabilities that far exceed expectations
- **Plans to transform** many aspects of the business with AI

“Google Cloud has been exemplary in the ‘how can we help you’ approach and with understanding what we want to do and how to make what we want to happen.”

**Jon Latshaw,
VP, Cloud Services,
Cardinal Health**

For more information about migration, visit:
<https://cloud.google.com/solutions/migration-center/>





Google Cloud