Microsoft Azure
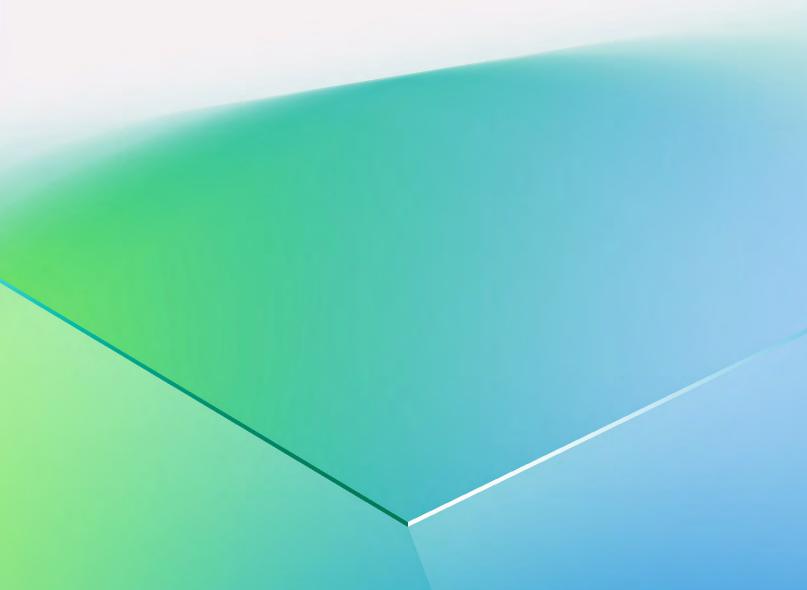
Case Studies in Cloud Modernization

How five businesses used the cloud to adapt and innovate

Contents

Introduction:
A new era of cloud adoption

Organizations are increasingly looking to modernize their critical workloads and data storage to drive business growth. With this goal in mind, many turn to cloud migration to address their most significant concerns when it comes to infrastructure modernization, including:

> Preparing operations for new generations of AI applications

> Maximizing ROI on cloud infrastructure

> Maintaining security and compliance across workloads and data

> Improving efficiency at scale

Migrating to the cloud establishes a secure and flexible foundation for meeting these objectives and enabling cutting-edge innovation. According to Gartner, by 2027 more than 70% of enterprises will use industry cloud platforms to accelerate their business initiatives, up from less than 15% in 2023.[1] It's clear that for many organizations, it's no longer a question of "should we migrate," it's a question of "how should we migrate?" Many organizations have already adopted Microsoft Azure solutions to help them take full advantage of the flexibility, scalability, and efficiency of cloud infrastructure.

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> Generative AI can add 75 to 110 percentage points of incremental ROI to cloud programs through three key benefits: unlocking new business use cases; reducing the time and cost of application remediation and migration... and increasing the productivity of application development and infrastructure teams on cloud."[2]

Migrate to innovate

When allocating digital transformation budgets, leaders need to form a cohesive cloud strategy that allows them to:

> Prepare for integrating AI

> Recover growth trajectory and reimagine IT for the future

> Ensure remote workforce productivity

> Meet changing customer needs and preferences

> Understand how the cloud can enhance IT security and help organizations adapt to an ever-changing cybersecurity landscape

> Meet surges in demand efficiently

> Maintain cash flows during uncertain times

> Staff and reskill their IT teams to take advantage of newer cloud technologies

Whether you're planning a full migration or a hybrid approach, this e-book's stories will inspire your journey. We'll share how five of our customers have innovated, optimized, and future-proofed their infrastructure with the help of Microsoft Azure.

Maximize security in the cloud: <u>Avianca</u>

Travel and transportation

The company

Avianca is a leading South American carrier and part of the international Star Alliance of airlines, boasting a fleet of Boeing 767 aircraft, Bell helicopters, and other aircraft, offering more than 6,000 weekly connecting flights.

An extensive IT landscape supports the company's public presence. When Avianca IT took to the cloud, it turned to Microsoft Azure VMware Solution, migrating more than 200 servers in less than four months and bolstering security across its IT and database infrastructure.

The challenge

Managing a complex landscape in a challenging space

Like other airlines, Avianca faces a complex range of challenges. The industry is held to a high compliance standard, and airlines are subject to varying regulations in all the countries where they fly. While they already had a set of legacy apps serving critical functions within their business, they weren't flexible enough to support any significant scalability, elasticity, or ROI optimization to provide them with real competitive advantages.

"As a company in the airline industry, we face a complex regulatory landscape," says Claudia Marcela Novoa Hidalgo, IT Architecture Manager at Avianca. "That means we constantly need to adjust our applications to comply with changing regulations, complicating our efforts to keep up with the latest technologies. In our competitive industry, we must be agile. Every minute—every second—counts."

The migration

Embracing resilient cloud-ready technologies

The company runs its SAP enterprise resource planning (ERP) system on Azure. It also uses a wide range of Azure services, including the Azure Resource Optimization (ARO) toolkit—an open, extensible container platform for Kubernetes and Docker containers—Azure Virtual Machines, Azure Red Hat OpenShift, and Azure API Management. In addition, Avianca relies on several other Azure services, including Azure Firewall and Azure AI.

"Microsoft is our best option, not only because of the broad range of solutions it offers—the superior cloud ROI with Azure, for example—but also because of the capabilities within Azure itself and the trust we've developed over a long relationship," says Sanchez Gandur. "We're cloud-agnostic. We've explored other clouds, but we always come back to Azure."

> Azure VMware

> Azure Virtual Machines

> Azure API Management

Outcomes

On-premises solutions, reduced costs, and compelling migration speed

Using Azure VMware Solution to run its VMware estate on top of Azure infrastructure, Avianca gains significant operational improvements over its legacy solutions, including improved security and the ability to grow into the future with its new, scalable cloud systems.

For example, Avianca chose Azure VMware Solution partly for its parity with the VMware NSX zero-trust security feature that protects data on virtual machines. VMware's new cloud-based version, NSX-T, runs under Azure VMware Solution on Azure. Avianca IT uses familiar Azure security features to monitor and protect the applications running on VMware virtual machines. The role-based access control and regular upgrades to Azure VMware Solution amplify the security and stability of those migrated applications.

"Microsoft solutions are driving our digital transformation," says Sanchez Gandur. "Maximizing security and lowering operating costs for existing applications is a critical part of the journey, and with Azure VMware Solution, we were able to migrate these to Azure cost-effectively, easily, and quickly."

Operational gains

> More than 200 servers were migrated in less than four months

> Infrastructure maintenance offloaded to Microsoft, freeing up time to concentrate on workloads

> Avianca achieved cost savings by retiring six on-premises servers

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Security is what sets Avianca apart. Azure VMware Solution protects even our oldest applications with Azure security policies, panic buttons, and other security features."

Juan Pablo Sanchez Gandur
Cloud Platform Manager
Avianca

Accelerate innovation: Enerjisa Üretim and Senkron.Energy Digital Services

Energy production and data services

The company

Enerjisa Üretim is the leading player in Türkiye's energy sector, with 57% of its energy portfolio comprising domestic and renewable resources. Operating 27 power plants that cover coal, gas, solar, and wind production, Enerjisa Üretim has a diversified generation capacity of 3.7 GW—enough to power approximately 2.5 to 3.6 million homes.

In 2019, Enerjisa Üretim decided that they would embark on a transformative journey into the cloud to support their optimization mission. Ali Inal, Deputy General Manager of IT and Digital Business at Enerjisa Üretim, said, "The stakes are high. Increasing a power plant's efficiency by one-third of a percentage can yield massive financial gains."

To follow through with its cloud strategy, the company partnered with Microsoft. It started using cloud-based tools to enable secure, scalable, and AI-ready technology across its extensive network of power plants.

The challenge

Finding savings and optimizations in the smallest of places

The energy sector requires constant innovation and vigilance. Optimizing any complex system to such a fine granularity is challenging, even under the best circumstances. The team needed an infrastructure that could support advanced decision-making using intelligent tech, all while supporting the flexibility needed for secure, remote work at scale.

What did this mean for the company? Having an infrastructure that could support their core energy management requirements serves as the foundation for remote monitoring operations and prepares them to adopt AI solutions across their technology stacks.

The migration

Establishing a centralized source for computing, storage, and analytics

Enerjisa Üretim decided not to use a 'lift-and-shift' approach. Instead, the team developed new, cloud-native applications integral to its core business in-house, maximizing Microsoft Azure's computing, storage, and analytics capabilities. Enerjisa Üretim's data was consolidated in Azure Data Lake—a centralized platform for robust analytics and reporting.

The next move was to standardize workflows with Microsoft 365 E5, replacing disparate collaboration and security tools. Additionally, the company switched its business intelligence to Power BI for reporting and analytics, resulting in greater system synergy. Today, the migration is almost complete, with 90% of the company's workload successfully moving to the cloud.

Using cloud technologies such as Azure IoT Hub, Digital Twin, and Machine Learning, Senkron delivers real-time monitoring and data analytics on power plant performance—all from one secure, centralized location. Finally, using Azure OpenAI services, they developed Onepact AI to unlock their Internet of Things (IoT) data—a staggering collection of information from roughly 40,000 data points.

Senkron ROC also uses Microsoft HoloLens to enhance remote operations and knowledge transfer. Inal says, "During COVID-19 travel restrictions, maintenance experts couldn't visit our sites, but with HoloLens, we could transfer knowledge from one plant to another, enabling us to conduct maintenance, perform remote asset counts, and consult with external maintenance parties."

Furthermore, Enerjisa Üretim's experts can view 3D models of power plants through HoloLens, enabling them to assess turbines and heat pumps in real-time. "Correctly identifying a fault helps us prevent losses ranging from US$20,000 to hundreds of thousands of dollars," says Inal.

Outcomes

Streamlining massive IoT data and increasing efficiency

Enerjisa Üretim embraced the cloud, and specifically the power of AI, to redefine how they use their data and optimize their operational efficiencies. These 40,000 data points from IoT systems have been combined and correlated with operational information, allowing the company to increase efficiency across more than 20 power plants.

The results are a responsive, AI-driven, and secure energy and data infrastructure that can meet the demands of their exacting business model. "We simply input a prompt and get an immediate insight," Says Inal. "Generating this kind of data manually could take hours. With Onepact AI, it's done in seconds."

Operational gains

> Developed a new AI model based on Azure AI Services

> Reduced time to insight for operation-spanning data from hours or days to seconds

> Optimized internal SOC to process up to 3.3 million security events per day

> Now using a purpose-built Remote Operations Center, Senkron ROC, to oversee 20 power plants and their 24/7 operations

> "

We can predict average daily turbine production for the next two months. The prediction isn't a simple extrapolation of our current production values... If you were to do this periodically, you'd need a team with at least one energy expert, a market expert, and a meteorological expert. It would take a week to compile this team. With Generative AI, we get an answer in seconds."

Ali Inal
Deputy General Manager of IT
and Digital Business
Enerjisa Üretim

Simplify and connect cloud environments: DICK'S Sporting Goods

Retail

The company

DICK'S Sporting Goods creates confidence and excitement by inspiring, supporting, and personally equipping all athletes to achieve their dreams. Founded in 1948 and headquartered in Pittsburgh, the leading omnichannel retailer serves athletes and outdoor enthusiasts in more than 850 DICK'S Sporting Goods, Golf Galaxy, Public Lands, Moosejaw, Going Gone! and Warehouse Sale stores, as well as online and through the DICK'S mobile app.

A key objective for the company is creating an engaging and rewarding customer (or "athlete") experience through personalization and brand consistency across all their stores and online retail spaces.

The challenge

Creating a "one store" vision across hundreds of locations

Central to this new emphasis on athlete experiences is the vision of a "one store" technology strategy allowing the company to write, deploy, manage, and monitor its own software across all locations nationwide—and reflect those same experiences through its eCommerce site. DICK'S needed a new level of modularity, integration, and simplicity to seamlessly connect its public cloud environment with its computing systems at the edge.

To make this happen, DICK'S Sporting Goods knew it needed to migrate its on-premises technology infrastructure to the cloud. With the help of Microsoft, DICK's Sporting Goods is migrating to Microsoft Azure and Windows Server, creating an adaptive cloud environment comprised of Azure Arc and Azure Kubernetes Service (AKS).

DICK'S also wanted to create an environment that would support ongoing innovation and application development to drive mass personalization. This meant creating applications that provide personalized guidance to athletes both in store and online, pointing them to the products and services that best suit their needs. Following this vision, DICK'S decided that it needed to bridge the gap between workloads running in the cloud and applications serving stores across the country using advanced migration and development tools and AI.

The migration

Unlocking online data services and preparing for AI

To start, the DICK'S technology team did a massive audit to understand the best way to achieve its goals, testing many solutions from different companies before choosing to work with Microsoft and migrate to Azure.

"We brought together a cross section of engineers to work on the Azure migration, and we had incredible help from Microsoft Industry Solutions and product teams in the process," says Jon Hathaway, Senior Technical Lead. "Microsoft was the only company that could help us do the full end-to-end modernization of applications into things like Kubernetes."

With Microsoft technologies like Windows Server, AKS hybrid, Azure Arc, Azure Update Manager, and GitHub, DICK'S technology team realized it could do all the data processing and data workloads it needed by running in the cloud with tools like Windows Server and SQL Server. "Together with Microsoft, we created an adaptive, hybrid, and edge environment with all stores using Azure Arc and AKS," says Hathaway. "Using Azure Arc, we could create a bridge from the cloud where our teams build new applications to all retail stores for easier deployment." In addition to these technologies, DICK'S Sporting Goods is also using Microsoft Azure AI services and Azure PostgreSQL."

Additionally, DICK'S Sporting Goods unified its toolset for patching and preventing server drift with Azure Update Manager. "Azure Update Manager is going to be, quite honestly, a significant revolution for us. We have Windows Server Update Services servers in our environment. Now, when we must patch and remediate vulnerabilities, Azure Update Manager will allow us to have that in one view," says Crowe.

Finally, DICK'S continues to emphasize its focus on growing its customer base by working with Microsoft to use adaptive cloud technology and AI. These tools will allow DICK'S to deliver personalization at scale and across stores without sacrificing responsiveness or security, all while dynamically provisioning apps and resources across these stores to maximize performance.

Outcomes

Using Azure to unify operations and open the door for AI

DICK'S full plan to migrate to innovate is underway, with the company moving their previous workloads from edge and IoT solutions to Windows Server and Azure SQL Server. The result is a company that has positioned themselves to innovate across a diverse range of services and locations—both physical and digital—to better serve customers where they are. This innovation includes the ability to build and launch apps wherever needed, to do so securely, and to provide a highly personalized customer service experience via data-driven technology and AI.

Operational gains

> Unified a toolset for patching and preventing server drift via Azure Update Manager

> Moved data processing workload entirely to the cloud through Windows Server and Azure Arc

> Streamlined the retail experience using Azure app development

> Prepared for personalized customer experience at scale with Azure AI Services

> "

We can manage the implementation of new apps from the stores' technology teams more effectively, from provisioning to security. We can manage the system with greater capabilities; the system can heal itself, reprovision, and we can deploy to all the stores at once. With Azure AI and our ongoing relationship with Microsoft, we're excited about the possibilities for extending innovation even further across our omnichannel retail experience."

John Hathaway
Senior Technical Leader
DICK'S Sporting Goods

Unlock hybrid and multicloud capabilities: Carnival Corporation

Luxury cruise operations

The company

Carnival Corporation's diverse brand portfolio combines some of the most recognized cruise lines in North America, Europe, and Australia, along with a tour company providing exciting onshore excursions.

While its grand presence allows it to reach a broad target market, each brand comes with a unique technological estate, adding complexity to Carnival Corporation's innovation and operations management efforts.

The challenge

Managing compliance, services, and customer experience

The corporation's small but mighty maritime and environmental compliance team is tasked with critical fleet and crew management services, including ship construction, maintenance, routing, technical procurement, and crew member training.
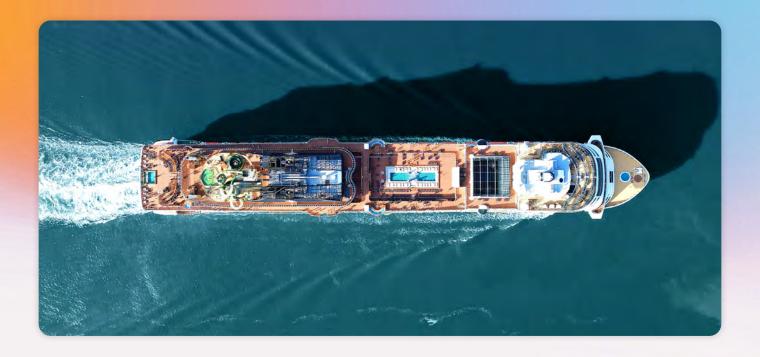
The maritime and environmental compliance team wanted a hybrid or multicloud solution that could bring cloud-native capabilities on-premises to ships, using a platform that can manage workloads both in the cloud and at the edge.

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> As part of our evolving maritime system strategy, we own a suite of applications that collect data from each vessel, bring it to the cloud in real time, and represent it on nautical charts… We needed to be able to fully manage these services from ashore in the cloud, but also onboard our vessels."

Franco Caraffi
IT Director of Global Maritime and Environmental Compliance
Carnival Corporation

The migration

Resilience and scalability over land and sea

The team selected a pilot vessel from the company's Costa Cruises brand out of Italy to run Azure Stack HCI as the onboard hardware and software and assess whether it was the right solution from a functional and operational perspective. Quickly realizing positive results on Costa Toscana, the team extended the rollout to another vessel from a second brand, the Seabourn Venture.

One of the maritime and environmental compliance team's top priorities for containerization was its Neptune application, which tracks the company's ships and their vital signs as they traverse the world. It previously ran on virtual machines, but the team wanted the same platform on its ships as in the cloud. Upgrading Neptune and its data collector component using the latest Azure IoT Edge tools marks its first foray into modernizing the collection of IoT signals.

Additionally, Carnival Corporation has migrated its Windows Server and SQL Server workloads to Azure and started working with a microservice, containerized architecture with AKS.

The team considers this move a game changer due to the highly available applications with on-demand scaling options. They can also automate end-to-end CI/CD through Azure DevOps and Azure pipelines and support their sustainability efforts via Azure Digital Twins technology—all integrated into their hybrid cloud solutions and at the edge of their fleet at sea.

Carnival Corporation also sought resilient, cloud-connected hardware for its ships. Thanks to Azure Stack HCI and its unified hybrid cloud platform, the corporation's maritime and environmental compliance team can deploy the same code on shore and sea using AKS containers. As a result, it has the potential to reduce technology sprawl and spending while still supporting all its applications, which is especially critical to serve the company's scale.

"Digital agility affects safety now, and we believe that Azure Stack HCI can support that with IoT and IoT Edge, which we're using on ships to transmit data in real time from shipside cloud to the Azure cloud platform," says Caraffi.

Outcomes

Hybrid and multicloud solutions for a unified fleet

Carnival can use hybrid and multicloud Azure infrastructure and services to deploy their fleet sustainably, efficiently, and rapidly regardless of the situation. This has positively affected the company's ability to deliver better experiences for customers and crew members on their ships. Schedules are better maintained, there are fewer travel disruptions, and the company's overall mission is better supported.

Operational gains

> Found new ways to streamline development across their fleet of ships

> Gained the ability to deploy consistent code changes on ships and shore-bound systems via Azure Stacks HCI and unified hybrid cloud

> Adopted technology to support better integration with key communication networks, including control plans and Starlink

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Demonstrating to our colleagues that services like Azure Stack HCI and Azure Arc provide real value not only in maritime activities but in further transforming our guests' onboard experiences has been very gratifying. When our guests have a wonderful experience on a Carnival Corporation ship, it's the result of enormous behind-the-scenes management that Azure is helping to make happen."

Roberto Caraffi
IT Director, Global Maritime
and Environmental Compliance
Carnival Corporation

Enhance cost control: ABN AMRO

Banking and financial services

The company

ABN AMRO was founded in 1991 during the merger of its two namesake banks, Algemene Bank Nederland (ABN) and Amsterdamsche en Rotterdamsche Bank (AMRO). Currently based in Amsterdam, ABN AMRO is the third-largest Dutch bank.

They are also at the forefront of using cloud migration to innovate internal operations and customer experience. With its cloud migration, ABN AMRO sought to create a more agile infrastructure, moving its workloads off on-premises data centers and onto Microsoft Azure.

The challenge

Using the cloud to drive growth, savings, and intelligence

To help drive its growth strategies, the Dutch bank needed a more agile digital infrastructure to handle cloud-based workloads efficiently and securely. This prompted ABN AMRO to embark on a strategic, digitally driven initiative to migrate its workloads from on-premises data centers to one of the bank's four strategic platforms based on the Microsoft Azure public cloud platform, VMware-based private cloud, mainframe, and hosted software solutions.

This optimized platform strategy is expected to support decreased time to market, drive innovation, and offer high dynamic scalability alongside advanced cost control. The bank also implemented a range of cost management measures that enable it to fully control the consumption cost of every platform, including Azure.

The migration

Optimizing costs across the entire organization

ABN AMRO has undertaken a series of innovative and leading cost management practices with Azure to ensure development teams have the agility they need while keeping costs low. The business case used extended office hours for the development and test environments, while the acceptance and production environments used reserved instance pricing to support cost optimization.

ABN AMRO committed Azure Reserved Virtual Machine Instances to optimize system utilization while also using Power BI for a consolidated view of unused instances per flexibility group. The bank added reservations for families, including Azure SQL Database, Azure Storage, and Azure App Service plans, so these products could adhere to the same monitoring and exchange discipline from Power BI.

Following this, ABN AMRO used Azure Hybrid Benefit to integrate cost-saving initiatives. This included using the Hybrid Benefit Program with SQL Server, which saved the company from worrying about overspending or overprovisioning. The program also streamlined the company's license management across production VMs to minimize operational overhead.

For even more savings, ABN AMRO found additional opportunities with Azure savings plans, which provided new, cost-effective ways to use cloud tools like Azure Databricks and Azure Virtual Machines. This, along with tools like Azure Monitor and Microsoft Sentinel, allowed ABN to streamline data analysis across all aspects of their operation to evaluate efficiencies (or lack thereof) and discover more areas for cost savings.

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> **We want to unburden the DevOps teams using Azure by offering cost-efficient solutions, including Azure Reserved Virtual Machine Instances, dev/test subscriptions, Azure Hybrid Benefit, and commitment tiers. Through Azure Reservations, we've optimized our Azure spend over €1 million a month."**
>
> **Hans De Kruif**
> Platform Engineer and Azure Cost Manager
> ABN AMRO

Outcomes

Cost-effective cloud migration across the organization

ABN AMRO was able to take responsible, cost-effective steps towards moving their workloads to the cloud. With Microsoft Azure services and programs, they could utilize cutting-edge tools and applications as needed and at cost without overcommitting themselves.

The bank is now further optimizing costs using Azure Hybrid Benefit and better utilization of resources through an informed and educated DevOps team. It's all part of the FinOps journey the bank is taking to make the organization more cost aware.

Operational gains

> Increased transparency across all operations to determine opportunities for cost optimization

> Used Azure Hybrid Benefits to ease into the platform and pursue their cloud migration in a cost-aware fashion

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On Azure, we can make costs transparent to share consumption information with teams, applying the Azure optimization levers and reservations for multiple product families."

Hans De Kruif
Platform Engineer and Azure Cost Manager
ABN AMRO

Conclusion: Migrate on your terms

Whether you're looking for a complete migration or a hybrid solution, Azure provides a tailored migration journey that meets you where you are. Azure migration services include assessment tools to evaluate readiness, migration tools to move workloads, and management tools to optimize resources post-migration. With robust security and compliance offerings to ensure data protection, Azure helps make the transition to the cloud seamless and secure.

Get expert support and unlock funding for your migration.

Azure Migrate and Modernize ›

Contact Sales ›

[1] Gartner Press Release, Gartner Forecasts Worldwide Public Cloud End-User Spending to Reach $679 Billion in 2024, November 13, 2023. https://www.gartner.com/en/newsroom/press-releases/11-13-2023-gartner-forecasts-worldwide-public-cloud-end-user-spending-to-reach-679-billion-in-20240

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[2] McKinsey, In Search of Cloud Value, Can Generative AI Transform Cloud ROI?