Hitachi Vantara and AWS: Optimizing the Value of Cloud Services for Enterprises

Sponsored by: Hitachi Vantara

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EXECUTIVE SUMMARY

Enterprises are migrating to the cloud to leverage the benefits of agility and speed to help create new revenue-generating products and services. They are also looking to utilize cloud to help simplify their IT environments while implementing a new approach to management of IT. As part of making this journey to the cloud, customers are utilizing service providers (SPs) to support them across a wide array of needs. These span from helping enterprises migrate and modernize client IT to cloud environments, whether private, public, or hybrid, while utilizing new capabilities such as DevOps, continuous integration/continuous delivery (CI/CD), and innovative technologies (e.g., cognitive/artificial intelligence [AI], IoT, big data/analytics, open source), to providing ongoing management of these environments.

Hitachi Vantara has built a portfolio of an end-to-end set of capabilities on Amazon Web Services (AWS) and resources that are specifically designed to help firms make the journey to using the AWS cloud with the ability to support any type of cloud from private and public to hybrid while transforming client business models, processes, and operations. These services cross the spectrum from cloud migration and application modernization to cloud operations that involve the use of new consumption models involving IaaS, platform as a service (PaaS), storage as a service (STaaS), and Hitachi Flex Consumption, which can support tier 1 applications and also incorporate a DataOps methodology for extracting value from customer data assets to optimize performance of cloud resources. Further, Hitachi Vantara complements the capabilities it delivers via the AWS cloud with its unique Hitachi IP and digital solutions including its line of Lumada and Pentaho products. Finally, to reflect its proficiencies in ensuring that clients achieve optimal performance in using AWS capabilities, Hitachi Vantara has established itself as an APN Premier Consulting and AWS Global Managed Service Provider in the AWS Partner Network (APN). This is further enhanced by a portfolio of AWS qualifications that Hitachi Vantara holds spanning AWS competencies, services, and certifications, all supported by 300 AWS certified personnel.

Hitachi Vantara invests heavily in automation across the life cycle of services, which includes the Hitachi Cloud Accelerator Platform and Hitachi Enterprise Cloud (HEC); offers an end-to-end portfolio of cloud capabilities that incorporates Hitachi IP and digital solutions; supports complex, aggressive services-level requirements and highly regulated environments; and utilizes predesigned, pre-engineered, and ready-to-use hybrid cloud PaaS and IaaS capabilities. Finally, together, Hitachi Vantara and AWS support client need in using any type of cloud (private, public, and hybrid) that spans from edge to core to cloud, across any application type, while utilizing unique IP, automation, expertise, talent, and certifications to meet the client's business and IT needs.
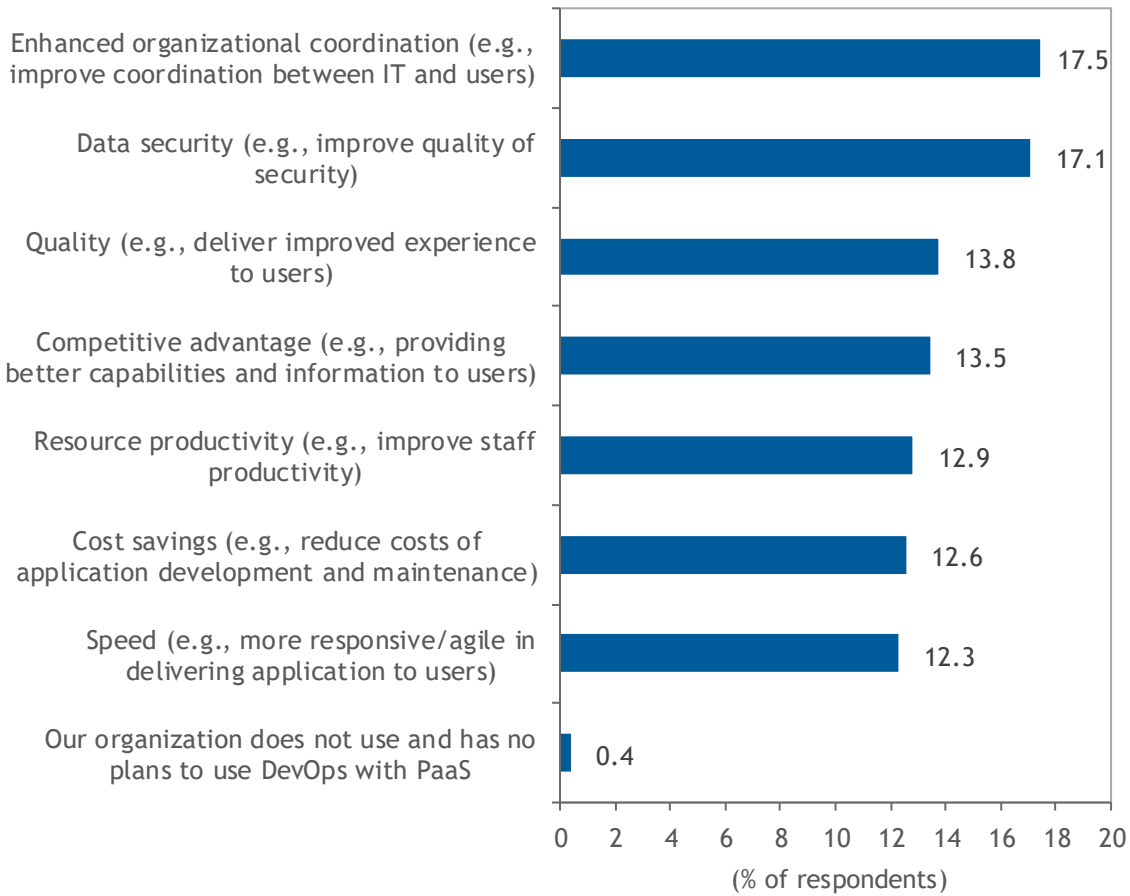
Market Overview

The move to the cloud for enterprises is driven primarily by businesses demanding more agility and/or speed from IT and the need to increase revenue by enabling firms to build new revenue-generating products and services faster. Firms are also looking to simplify and standardize IT infrastructure and applications platforms and incorporate a new and fundamentally different approach to the management and use of IT. Ultimately, this requires getting access to a collective set of cloud capabilities and innovative technologies and processes such as DevOps, CI/CD, containers, serverless computing, cognitive/AI analytics, storage and recovery, as well as access to resources for scaling applications and infrastructure through new operating models (IaaS and PaaS) across all cloud types (private, public, and hybrid). Enterprises also expect to be able to tailor cloud services to their specific industry and user requirements in order to meet the dynamic needs of their business operations.

However, optimizing the value of cloud requires creating a highly agile and orchestrated means of developing, deploying, and managing applications on clouds to meet more rapid provisioning times and diversity of business requirements. This translates into enterprise need to embrace a DevOps model, which can enhance organizational coordination between IT and users, as Figure 1 highlights, a fundamental building block to achieving these goals. Ultimately, DevOps, along with CI/CD, can support modernizing and migrating enterprise IT to cloud-native applications and infrastructure that enable greater agility while accelerating development and deployment of cloud applications. Firms are also looking to extract greater value through mining of data resources across the application life cycle, which can help provide more effective real-time analytics with the goal of enabling faster time to market, supporting a more rapid innovation process, driving improved business decisions, and improving customer experience.

FIGURE 1

Value of DevOps for PaaS

Q.   *Whether or not your company/organization is using DevOps for PaaS, which of the following value categories best describes the primary reason why your company utilizes (or why it would utilize) DevOps with PaaS?*

Category	% of respondents
Enhanced organizational coordination (e.g., improve coordination between IT and users)	17.5
Data security (e.g., improve quality of security)	17.1
Quality (e.g., deliver improved experience to users)	13.8
Competitive advantage (e.g., providing better capabilities and information to users)	13.5
Resource productivity (e.g., improve staff productivity)	12.9
Cost savings (e.g., reduce costs of application development and maintenance)	12.6
Speed (e.g., more responsive/agile in delivering application to users)	12.3
Our organization does not use and has no plans to use DevOps with PaaS	0.4

(% of respondents)

n = 1,501

Source: IDC's *Worldwide Managed CloudView Survey,* 2019

While DevOps and CI/CD are core to helping enterprises migrate to the cloud, enterprises are also faced with the daunting task of defining a road map of transformation to align their portfolio of applications and workloads, and associated infrastructure, not only with the optimal cloud type (private, public, and hybrid) but also with the right technologies (e.g., open source, containers). As Figure 2 highlights, while there are similar patterns in types of workloads that enterprises want to deploy on clouds using innovative processes and technologies, from DevOps to open source and containers, there is diversity of workloads from front office (CRM) to back office (SCM) and IT operations (systems management). IDC research shows that by 2024, approximately 50% of enterprises will rely on third-party service providers for help with containers, open source, and cloud-native application development for a broad set of workloads and applications (see *Managed CloudView 2019: Executive Summary,* IDC #US45601719, October 2019).

FIGURE 2

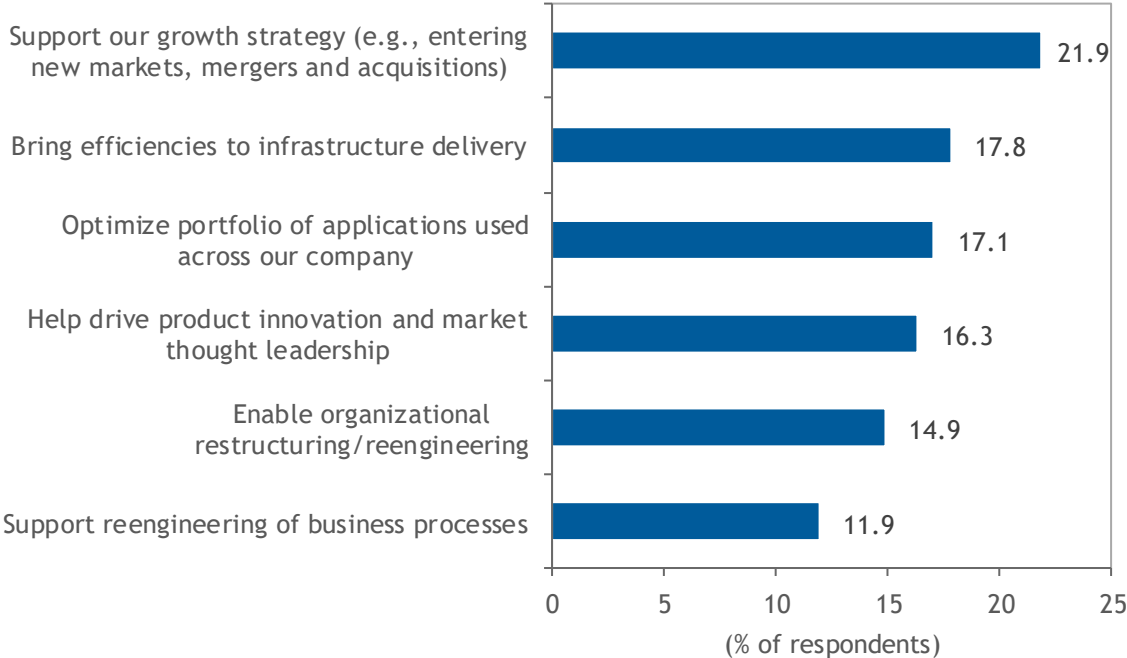## Applications and Workloads for Innovation with Managed Cloud Services
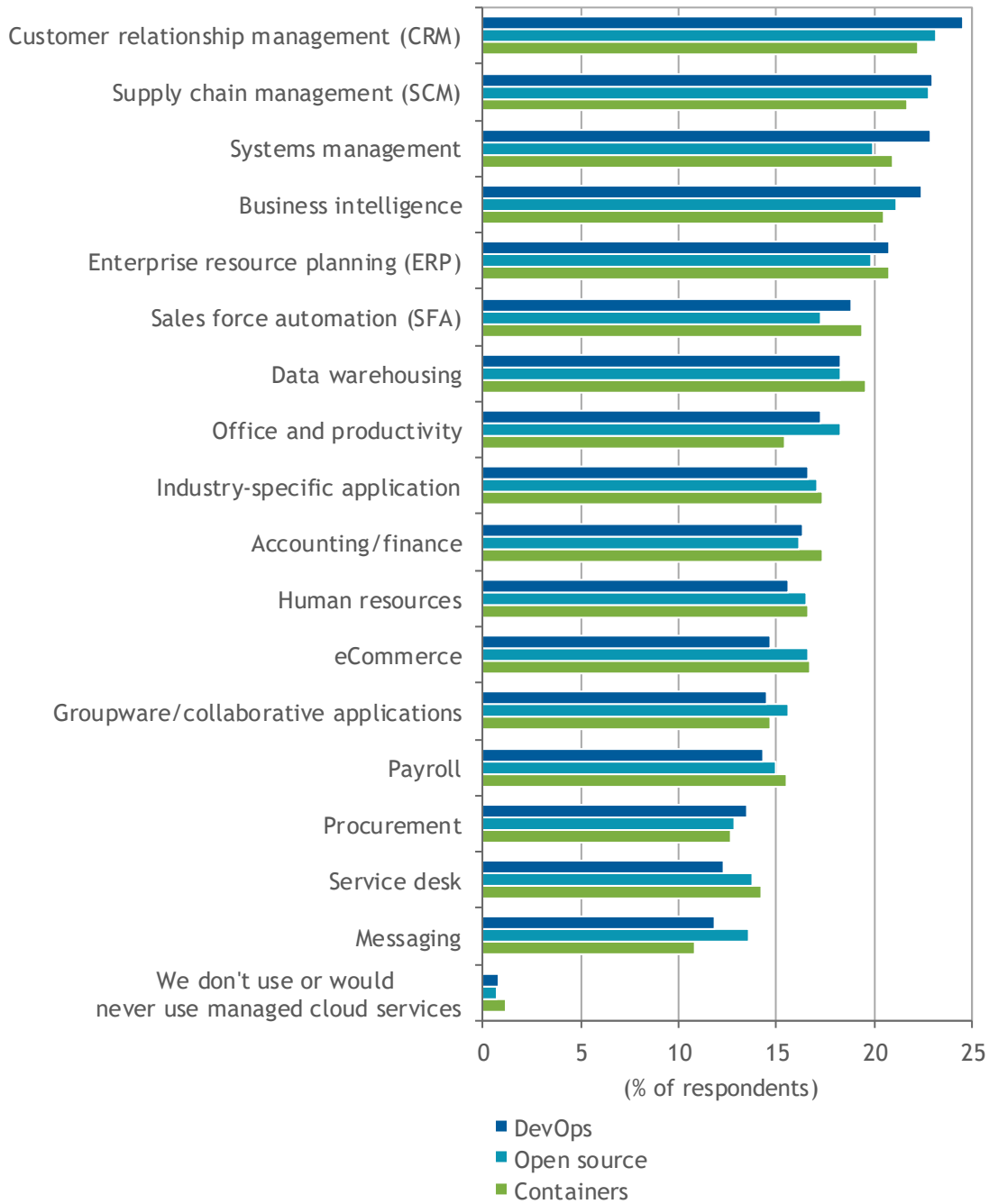
n = 1,501

Finally, enterprises look to managed SPs in using managed services for cloud to support the business requirements of growth and efficiencies, for delivering efficient infrastructure services, and for optimizing application portfolios, as Figure 3 highlights. When it comes to utilizing managed SPs to support the use of public clouds, enterprises expect these service providers to support integration and management across public clouds (IaaS, PaaS, and SaaS) and provide services that complement the public cloud provider (see *Managed CloudView 2019: Executive Summary,* IDC #US45601719, October 2019).

FIGURE 3

Strategic Role of Managed Service Providers

Support our growth strategy (e.g., entering new markets, mergers and acquisitions) — 21.9
Bring efficiencies to infrastructure delivery — 17.8
Optimize portfolio of applications used across our company — 17.1
Help drive product innovation and market thought leadership — 16.3
Enable organizational restructuring/reengineering — 14.9
Support reengineering of business processes — 11.9

(% of respondents)

n = 1,501

Source: IDC's *Worldwide Managed CloudView Survey,* 2019

Key Challenges in Moving to Cloud

Though enterprises continue to expand their use of all types of clouds, they do find that moving to the cloud is not without its challenges. Critical areas that are of concern for customers span how to migrate to cloud effectively, change critical business structures to support new business and operational models, and ensure meeting critical security and regulatory requirements. Further:

- **Defining the application road map.** In migrating and modernizing IT to work in the cloud, enterprises are faced with some considerable hurdles involving applications. This starts with the complexity of determining which applications from their portfolio of software assets should move to the cloud. As applications are the heartbeat in supporting business processes, each application has unique specifications and complexities involving factors such as meeting

regulatory requirements, requiring different security protocols, the degree of interdependencies and integration with adjacent applications, and need for unique SLAs. This is further complicated by the wide variety of application architectures ranging from legacy custom-coded environments to packaged and increasingly cloud-native applications. Collectively, this requires rationalizing portfolios and establishing which applications should be deemed most appropriate to move to a cloud, whether private, public, or hybrid, based on business and technology requirements.

- **Driving change in culture, organization, and process.** Moving to the cloud also requires embracing DevOps as a means of ensuring effective use of cloud capabilities, particularly with the need to provision cloud capabilities more quickly using new technologies such as containers and serverless computing. This necessitates making fundamental changes to enterprise culture, roles, organizational structures, and processes. Traditional cultural values as driven by siloed organizational structures can impede enterprises in shifting to more agile, transparent, and iterative processes to support developing and deploying cloud-native applications. Further, with more than 30% of enterprises looking to be able to provision applications on a cloud within one week, the inability to innovative more quickly can undermine enterprises in driving competitive advantage and meeting buyer needs (see *Managed CloudView 2018: Executive Summary,* IDC #US44367318, October 2018).

- **Ensuring security and performance.** Enterprises indicate that they continue to have concerns in using service providers for cloud services that involve lack of effective security and inability of cloud to support the operational/performance requirements of critical applications. Mitigating these issues will require utilizing new approaches to security involving DevSecOps and integrating robust management platforms and dashboards that can monitor, assess, and remediate issues according to policy-based requirements, which can ensure performance of applications and compliance with regulations.

Implementing an Effective Modernization and Migration Strategy

IDC has observed that organizations are pursuing a variety of tactics to modernize their applications. Tactics range from modernizing and migrating underlying application infrastructure (i.e., moving from dedicated servers to cloud environments) and upgrading packaged applications to refactoring code from legacy applications (such as mainframe COBOL and FORTRAN) into newer technologies (such as Java, .NET, and cloud-native formats). In addition, organizations are also combining a variety of those tactics together to accomplish modernization objectives. Critical factors and primary building blocks in implementing an effective modernization and migration strategy center on:

- **Defining business and financial objectives as well as key performance indicators (KPIs).** Business and financial objectives, such as improving employee productivity, improving supply chain optimization, achieving cost reduction goals, driving product innovation and market thought leadership, and ROI, should buttress initiatives for cloud migration and application modernization. The value of an initiative is defined by the cash flows that it generates, and establishing and using metrics that monitor correct performance and service levels for areas like application availability, response times of systems and applications, and time for provisioning of applications can aid organizations with zeroing in on and managing the value that cloud migration and modernization bring.

- **Assessing application portfolio priorities and linking those priorities to business impacts.** In needing to link outcomes to defined business objectives and KPIs, organizations must wrestle with determining which workloads, such as ERP, SCM, and CRM, and application brands, such as SAP, Oracle, and Microsoft, to migrate, as well as to which type of cloud to migrate applications, such as public, private, or hybrid cloud. In addition, decisions also include

aligning which migration strategy is most appropriate, such as upgrading legacy applications to private cloud using existing tools and assets, re-hosting/re-platforming legacy applications, moving packaged applications onto private and/or private clouds, or refactoring/recoding to cloud-native capabilities.

▪ **Establishing a scalable data and technical architecture built on portability and reuse.** Key principles of modern architecture and application life-cycle management center on automation, asset reusability, and transportability. While modern technologies enable organizations to tap into new functionality, organizations must craft migration and modernization strategies with data, automation, and componentization at the core. Building flexible data and technical architectures using Kubernetes and containers as primary cornerstones enables organizations to transfer IP and technical solutions and assets more easily across a variety of technologies. In addition, embedding capabilities such as cognitive, machine learning (ML), and artificial intelligence as part of data lakes, analytics, and management (i.e., DataOps) can not only aid organizations with enhancing and driving application delivery speed for life-cycle management activities like provisioning, testing, and deployment but also augment environment and application monitoring and performance management to more effectively utilize and optimize resources in higher value-added activities.

▪ **Embedding security and compliance within the architecture and modernization fabric.** The acceleration of data breaches, concern over systems vulnerabilities, and distribution of malware are creating significant challenges for firms in securing data, business processes and, ultimately, business performance. Given this, security and compliance cannot be an add-on to the modernization and migration solution. They need to be woven into the technical architecture, right down to the data management layer, that incorporates security and compliance from the initial stages of architecting and optimizing the portfolio of applications to be deployed on clouds using a DevSecOps approach with emphasis on industry requirements. However, ensuring performance also requires instituting a comprehensive set of security testing protocols and procedures covering all aspects such as testing for compliance, interoperability, and cyber vulnerability, along with provisioning of dashboards and controls that utilize AI and ML capabilities.

▪ **Evolving talent, culture, and application delivery methodologies.** Top lessons learned that IDC discovered through 23 interviews it conducted on application modernization centered on embedding modernization strategies with change management, training and skilling, and culture building and cultural transformation. Beyond devising sound technical solutions for modernization and migration, organizations shared that successes from their transformations centered on establishing constant communication to team members, focusing training and skills more on test-driven development, and building communities of practice to foster change and transform traditional culture. Focusing on culture change and evolution enabled organizations to more easily embrace modern delivery methodologies, such as using low-code techniques, which in turn aided the organizations to speed up delivery through high levels of standardization and automated deployments as well as set the foundation to move to continuous integration and continuous deployment.

Hitachi Vantara Cloud Services Designed for AWS

Overview of Cloud Services Offerings

Hitachi Vantara provides cloud services for AWS with an end-to-end set of services capabilities from consulting and advisory services, cloud migration, and application modernization services to managed services, which support any type of cloud (private, public, and hybrid) and are designed to assist customers in accelerating their journey to the cloud. The objective is to offer customers choice, from edge to core to cloud, when looking to determine the optimal deployment for data and workloads and to support firms in their need to utilize cloud in order to adapt to new business models and operations requirements.

Value Proposition and Differentiation

Hitachi Vantara, along with AWS, helps enterprises migrate to and utilize any type of cloud capability and resource, whether for private, public, or hybrid environments, with the goal of helping firms drive business agility and modernization through guaranteed business outcomes and SLAs, speed and efficiency, and robust security, all of which utilize extensive automation and technologies from Hitachi Vantara's portfolio of IP and platforms and the AWS cloud. Hitachi Vantara also provides firms with a single point of contact for delivery of services and billing to help simplify both the journey to the cloud and the ongoing consumption of these resources including those deployed on the AWS cloud.

By combining their resources, Hitachi Vantara and AWS provide clients with the following differentiated set of capabilities that allow for customer choice:

- **Automation.** Automation is infused across the entire life cycle of services delivered by both Hitachi Vantara and AWS, which includes the use of Hitachi Cloud Accelerator Platform. This is an end-to-end cloud automation platform that helps customers migrate applications to the cloud with the ability to refactor applications, modernize operations, and deliver managed cloud services. This platform also supports deployment of a broad array of technologies, such as IoT and ML.

- **Critical expertise and knowledge.** In creating IP, Hitachi Vantara embeds the expertise used for business and technical processes into software in the form of automation and platforms via which enterprises can dynamically and continuously migrate, modernize, and optimize services while always allowing the enterprise to retain these critical sources of intellectual capital. When it comes to knowledge of AWS, this is reflected by the portfolio of 11 major AWS Competencies Hitachi Vantara has and more than 300 AWS Certified Professionals.

- **End-to-end portfolio.** Hitachi Vantara provides an end-to-end set of cloud services capabilities that range from cloud consulting and advisory services to application migration and modernization to cloud operations. This is supported by Hitachi software services IP that includes Lumada and Pentaho technologies, which Hitachi Vantara blends with AWS cloud capabilities to deliver innovative solutions, such as IoT and analytics, from the edge to core to cloud.

- **Predesigned, pre-engineered, and ready-to-use solutions.** Hybrid cloud PaaS and IaaS solutions are delivered with a complete ready-to-use service catalog and are fully managed and backed by Hitachi Vantara. These "as a service" offerings accelerate the deployment of hybrid infrastructure for cloud and are provided on a flexible pay-per-use consumption model. The fully managed service provides complete transparency to the automation and AI utilized in managing cloud environments to provide users with extensive details on operational characteristics and trends of infrastructure use.

Hitachi Vantara's Cloud Consulting and Advisory Services for AWS

Cloud Consulting and Advisory Services from Hitachi Vantara can help enterprises design cost-effective cloud solutions in which workloads meet regulatory compliance (e.g., NIST, ISO 27001, PCI, HIPAA, FedRAMP) and security requirements to be used on AWS. These services span cloud readiness, application assessment, security, compliance and governance, IoT, application portfolio analysis, application design and placement, operational efficiency, and organizational change management.

Hitachi Vantara utilizes these consulting and advisory capabilities to support an extensive array of AWS services. These AWS services are centered around applications (Cloud DevOps Pipeline, Consulting Services for Microsoft Workloads, Amazon API Gateway Practice), infrastructure (AWS Server Migration Service Practice, AWS Systems Manager, AWS Lambda Practice, Amazon EC2 for

Windows Server Practice), database and content (Amazon Aurora MySQL Edition Practice, AWS Database Migration Service Practice, Amazon CloudFront Practice), and security (Secure and Automated Cloud Storage Solutions, Amazon WAF Practice). This also includes supporting key industry practices on AWS including education, government, healthcare, and life sciences.

Modernization and Migration Services for AWS

When it comes to migrating and modernizing applications to work in the AWS cloud, Hitachi Vantara utilizes its own end-to-end cloud automation platform referred to as the Hitachi Cloud Accelerator Platform. By combining the capabilities of this platform with the AWS cloud, Hitachi Vantara and AWS can accelerate application migration and modernization, streamline DevOps, optimize the entire application life cycle, and help enterprises achieve agility, governance, and cost savings.

To ensure performance for applications that Hitachi Vantara helps migrate and modernize, Hitachi Vantara has validated AWS cloud competencies for critical capabilities. These include having an AWS DevOps Competency, which demonstrates the ability of Hitachi Vantara to help customers transform their businesses in becoming more efficient and agile. Hitachi Vantara does this by leveraging AWS DevOps principles, particularly around continuous integration, continuous delivery, and configuration management. In addition, Hitachi Vantara combines DevOps with CloudOps (automated operation rollouts) and SecOps (secure operations), backed up by its audited AWS managed service capabilities, to provide customers of all sizes with an end-to-end innovation delivery pipeline for software development. Finally, Hitachi Vantara also holds the AWS Migration Competency, verifying that Hitachi Vantara has the ability to provide solutions with demonstrated expertise in helping businesses move successfully to AWS through all phases of complex migration projects including discovery, planning, migration, and operations.

In helping organizations move to the AWS cloud, Hitachi Vantara offers an array of methodologies that span migration and modernization approaches:

- **Migration services.** Migration focuses on rehosting and re-platforming legacy applications to be used on cloud infrastructure (private, public, and hybrid). This also involves automating infrastructure creation and deployment, combining a data lake with advanced microservices, optimizing enterprise applications without rewriting, accelerating cloud adoption, using build artifacts to adapt cloud applications, and automating code life cycle with the Hitachi Cloud Accelerator Platform.
- **Modernization services.** These services help enterprises modernize applications to new cloud architectures involving containers/microservices with the goal of creating agile and cloud-aware capabilities using a CI/CD DevOps approach and innovations including AI/ML, big data, and IoT. Hitachi Vantara incorporates critical accelerators into its portfolio of modernization offerings to help speed delivery of services that involve automating migration, new code delivery, code testing and assurance, and ops for workloads and batch processes.

Used in conjunction with AWS services, and as Figure 4 highlights, Hitachi Cloud Accelerator Platform supports migrating and modernizing applications while also delivering managed cloud services, which utilize critical capabilities (e.g., DevOps, CI/CD, DevSecOps, test-driven deployments, automated deployments, continuous compliance) across any type of cloud (private, public, and hybrid). The platform's orchestrated and coordinated automation development routines and engines help streamline the tasks of managing cloud-native applications over their life cycles, accelerating DevOps, and creating business agility through a suite of accelerators. This platform also has customizable out-of-the-box capabilities to address the specific requirements of each customer. Further, the platform enables

adoption of DevSecOps principals in a CI/CD environment for rapid innovation and reliability of delivery. Ultimately, Hitachi Cloud Accelerator Platform is designed to generate differentiated business capabilities in weeks rather than months on the AWS cloud.

FIGURE 4

Hitachi Cloud Accelerator Platform for AWS
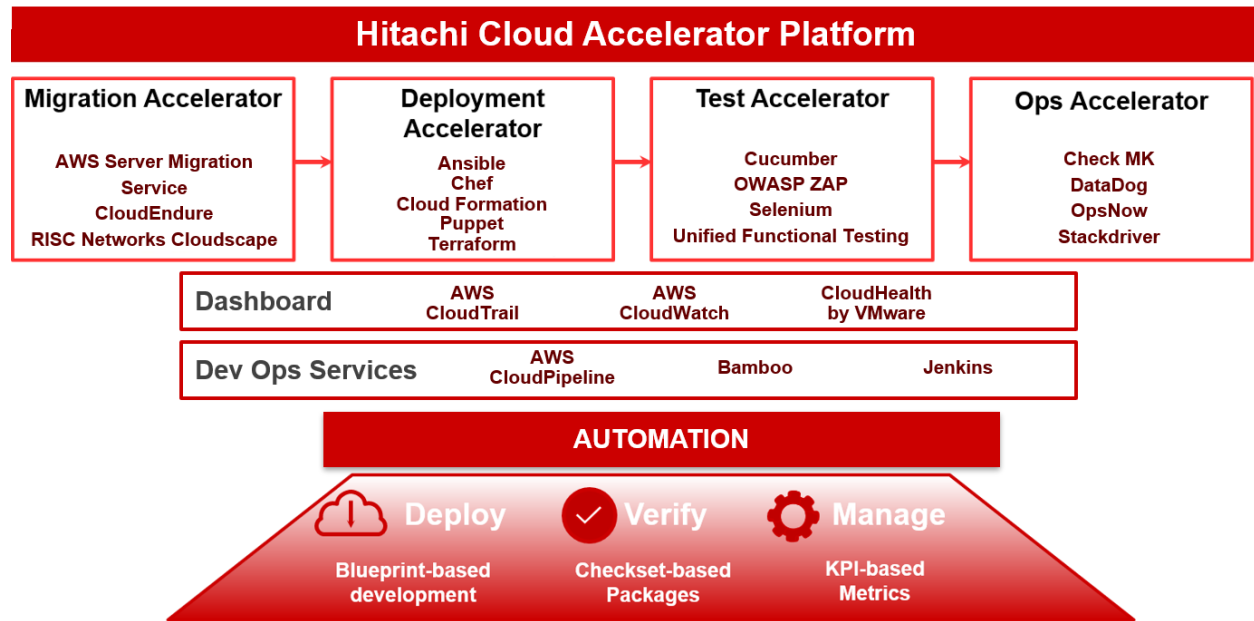
Source: IDC, 2020

Managed Services for Ongoing Operations of Clouds with AWS

As enterprises are looking to managed SPs to help provide ongoing management of their clouds (private, public, and hybrid), Hitachi Vantara has developed an extensive set of managed services capabilities to support enterprise use of AWS cloud capabilities. These managed services support not just operational management of applications and infrastructure utilizing AWS but also incorporate governance structures needed for meeting critical compliance, security, and SLA requirements:

- **Cloud operations.** Hitachi Vantara cloud operations for AWS span DevOps-based managed services, application and infrastructure management, security, and DataOps management. With DevOps, managed services help organizations identify vulnerable process areas to rectify and improve code and provide feedback for continuous improvement. Hitachi Vantara complements operations for AWS using Hitachi Cloud Accelerator Platform for cloud-based applications as well as extends AWS public cloud to support hybrid cloud needs with the HEC platform. HEC is a flexible managed private cloud service that automates the provisioning and management of cloud infrastructure and applications in private or public cloud environments, whether virtualized or container based. Ultimately, Cloud Operations Services from Hitachi Vantara are designed to include every aspect of the customer's environment from edge to core to cloud.

- **Governance.** Ensuring cloud operations using AWS requires meeting critical regulatory and security requirements. Hitachi Vantara has designed its cloud operations services with a governance structure to meet these business expectations by implementing the following:

  - **Compliance.** To help enterprises ensure compliance of AWS cloud environments, Hitachi Vantara incorporates a range of critical capabilities. This begins with continuous scanning of technical guardrails and compliance using defined policies and procedures. Complementing this is provisioning of data protection as a service (DPaaS), which provides a public cloud capability for business continuity and disaster recovery with guaranteed SLAs, advanced reporting and analytics, and elastic consumption for as-needed availability on a pay-as-you-go basis. In addition, Hitachi Vantara offers storage as a service, which is a fully managed end-to-end storage infrastructure that is flexible and agile to provide a means of maintaining all data and information used to support provisioning of cloud services with AWS.

  - **Security and DevSecOps.** To ensure that all Hitachi Vantara and AWS cloud assets and services are protected, Hitachi Vantara provides a full suite of security capabilities that includes the use of DevSecOps as part of migrating and modernizing applications along with ongoing security operations that are proactive and intelligent. Critical security capabilities used to ensure that data in the cloud remains secure include vulnerability assessment and management, network intrusion protection, firewall protection, antivirus and malware protection, incident response, and proactive monitoring. Hitachi Vantara also supports critical regulations, such as FedRAMP compliance.

  - **DataOps.** Using its DataOps methodology, coupled with its Lumada software IP and data services, Hitachi Vantara can aggregate all data generated from automated processes across the life cycle of services from deployment and testing to operations. This consolidation of all operational data can be used to support monitoring key efficiency metrics that matter to the organization, to ensure compliance, and to continuously improve efficiency utilizing advanced analytics involving AI, across all Hitachi Vantara and AWS cloud services and resources.

Hitachi Vantara Technologies and IP for AWS

Hitachi Vantara extends the value of its cloud services with AWS by incorporating Hitachi Digital Solutions IP. These solutions are part of Hitachi's Lumada-branded IP involving the company's data management-oriented software portfolio. These technologies are positioned as Hitachi Vantara's cross-industry platform for solutions and services that help turn data into insights and outcomes that can help drive improved cloud performance and achieve critical business outcomes. Hitachi Vantara incorporates these technology solutions to help enterprises extend the AWS cloud into IoT-based edge environments:

- **Lumada Data Services.** These software services can help customers manage increasingly complex data ecosystems with intelligent data capabilities while cost effectively governing and managing all their data assets across datacenter, cloud, and edge locations. Policy-based automation tools help orchestrate enterprise data flows to deliver on cost savings, compliance, and business growth demands.

- **Lumada Data Lake.** This "smart" data lake set of capabilities is self-optimizing and can intelligently place data sets in an optimal location and continuously curate to avoid data swamps while readily ensuring accessibility to analytics anywhere on the AWS cloud, at the core or edge.

- **Lumada Edge Intelligence.** This solution extends cloud capabilities by combining software and edge hardware devices to help organizations manage data and analytics at the network edge. This is critical when looking to support strategic areas such as IoT, connected products, immersive customer experiences, remote and disconnected sites, and branch offices. Lumada Edge Intelligence ties in with Lumada Data Services central control plane and Lumada Data Lake to support companies looking to establish an end-to-end DataOps practice across distributed architectures.

- **Vertical-specific IoT solutions.** Hitachi Vantara helps enterprises with industry-specific technology solutions to extend the capabilities of the cloud services they utilize on AWS. As part of the Lumada family of technologies, these solutions support manufacturing environments and factory floors to drive efficient operations through its Lumada Manufacturing Insights solution, help manage and optimize the value of physical assets through its Maintenance Insights offering, and utilize insights via video from its Lumada Video Insights solution, which can help gain comprehensive intelligence of a firm's operations.

Hitachi Vantara with AWS

Hitachi Vantara has been working with AWS for eight years. While acting as the single point of contact for services and billing in helping simplify the customer's journey to and use of the AWS cloud, Hitachi brings together a holistic set of cloud services, technologies, and capabilities to help customers meet critical business and technology needs while maximizing the value of public cloud capabilities. Further, Hitachi Vantara holds status as an APN Premier Consulting Partner and Global Managed Service Provider in the AWS Partner Network and has garnered a broad set of AWS qualifications that collectively include 11 AWS Competencies, 10 AWS Services, and 8 categories of AWS Certifications. This is supported by more than 300 AWS certified Hitachi Vantara personnel.

AWS Programs

Through participation in three of AWS' major partner programs, Hitachi Vantara delivers cloud capabilities with AWS that span the full breadth of cloud services and technology solutions needed to support enterprise transformation to the AWS cloud. These partner programs are designed to support the unique business models of APN partners by providing them with increased prominence and additional support from AWS:

- **Global APN Premier Consulting Partner.** As a Global APN Premier Consulting Partner, Hitachi Vantara provides customers with professional services that help develop the right cloud strategy for a client's business as well as migrate and modernize applications to the AWS cloud and then manage them. Services used with the AWS cloud to help customers through this journey to AWS include Hitachi Cloud Accelerator Platform and Cloud Migration Services, Application Modernization Services, and Cloud Consulting and Cloud Advisory Services from Hitachi Vantara. Hitachi complements these cloud services with its digital solutions IP such as Lumada for IoT and the Pentaho platform.

- **Global AWS Managed Service Provider (AWS MSP).** When it comes to the ongoing operations of cloud resources with AWS, Hitachi Vantara, as a Global AWS MSP Partner, provides customers with capabilities offered through a portfolio of services including Hitachi Cloud Accelerator Platform, Cloud Operation Services from Hitachi Vantara, hybrid cloud, and Hitachi Enterprise Cloud. In addition, where needed, Hitachi Vantara incorporates critical technologies and IP such as converged and hyperconverged infrastructure, Lumada Data Services, cocreation services/IoT, and big data analytics with Pentaho.

- **Global AWS Professional Services Master Services Agreement (AWS ProServe MSA).** As a Global Professional Services delivery partner, Hitachi Vantara provides consulting services directly to the AWS ProServe Global Organization supporting AWS Account Teams around the globe. This includes the complete portfolio of AWS Cloud Migration Services, Application Modernization Services, and Cloud Consulting and Cloud Advisory Services.

AWS Competencies, Services, and Certifications

Hitachi Vantara participates in a range of AWS-defined competencies and has garnered a broad set of AWS certifications to support customers using the AWS cloud. The AWS Competency Program is designed to highlight APN Partners that have demonstrated technical proficiency and proven customer success in specialized solution areas as well as enable partners to differentiate themselves to customers. Hitachi Vantara has established itself across a broad set of 11 AWS competencies ranging from functional areas involving DevOps, migration, storage, security, and Microsoft Workloads to industry areas of specialization that include financial services, healthcare, life sciences, education, nonprofit, and government sectors.

AWS' Service Delivery Program highlights APN Partners with a track record of delivering specific AWS services to customers. As part of this program, Hitachi Vantara supports an extensive portfolio of 10 AWS services that span applications (Cloud DevOps Pipeline, Consulting Services for Microsoft Workloads, Amazon API Gateway), infrastructure (AWS Server Migration Service, AWS EC2 Systems Manager, AWS Lambda, Amazon EC2 for Windows Server), database and content (Amazon Aurora MySQL Compatible Edition, AWS Database Migration Service, Amazon CloudFront), and security (Amazon WAF). This also includes supporting key industry practices on AWS including AWS GovCloud (US).

When it comes to Hitachi Vantara personnel who support customers using AWS resources and capabilities, Hitachi Vantara has more than 300 certified specialists involving a wide array of credentialed categories that span eight major AWS areas of expertise from architects and developers to systems operations personnel. These include certifications for Cloud Practitioner, Professional Solutions Architect, Associate SysOps Administrator, Associate Developer, and Associate Solutions Architect. In addition, Hitachi Vantara holds certifications for specialized areas involving advanced networking, DevOps, and security.

Hitachi Vantara Case Study

Background

Roughly seven years ago, an energy pricing company began to strategically think about a journey to transform its datacenter. As part of a larger conglomerate, the company utilized its parent company's datacenter to host its applications but was at risk to occasional IT outages when the datacenter performed equipment maintenance and upgrades. Though the outages were not frequent, they disrupted the company's business. Because the company's infrastructure was unique and required 24 x 7 support, it needed an alternative environment from its parent and sister companies.

As four years passed, the company was eventually sold to a global market information services company. The acquisition provided an opportunity for the energy pricing company to move toward an updated datacenter that could uphold its unique infrastructure and meet 24 x 7 operational support requirements. A key challenge to this opportunity, however, was an aggressive timeline mandate to complete the datacenter migration within six months.

Solution Approach

The six-month time frame limited the options that the company could explore. After six months, the former parent company was shutting down, and with it, its datacenter was being decommissioned. With these constraints, the company evaluated a few different public cloud options, recognizing that speed of availability and setup was critical for a successful transition. The company ultimately selected AWS because of its reputation and leadership position in the public cloud space.

Owing to the company's distinctive migration and operational requirements, AWS positioned Hitachi Vantara as the service provider best equipped to help the pricing company move to cloud. The highly compressed migration timeline led the company and Hitachi Vantara to pursue a lift-and-shift strategy to transform as much of its IT datacenter footprint as possible within six months. The company consisted of seven divisions — five of them were industry vertical centric, with the other two being IT and governance. The company tapped a tech lead from each vertical to collaborate with Hitachi architects to develop the solution. The migration started out with 120 virtual machines and ended up having 400 EC2 instances. Each team had two to three SQL servers. The teams initially shared web farms, but they evolved and templatized each environment to enable the divisions to master their own domain.

Results and Lessons Learned

Key results that the company has been able to achieve center on speed of information exchange. The company provides pricing transparency for the energy industry, and the company sends the reports daily. Now the company can get reports out nearly four times faster than it had before by leveraging AWS. It used to take the company 48 minutes to make reports, but once it migrated to AWS, reports now take 12 minutes — that was with simple lift and shift and no-code refactoring. An additional benefit from this move to AWS has been increased customer satisfaction. Because of the speed and frequency at which the company generates and disseminates information to its clients, customers have grown more attached to using its services, and the increased satisfaction has led to enhanced brand reputation. These benefits were achieved through the following four best practices and lessons learned that the company applied along the way:

- **Leadership.** The first best practice and lesson learned was getting a project leader that evangelized optimism throughout the initiative and made everyone excited about the future state.
- **Governance.** The second best practice and lesson learned was removing friction through the migration process by trimming down management layers and bureaucracy to minimize political roadblocks.
- **Work prioritization.** The third best practice and lesson learned was to prioritize work that focused on generating the biggest impact, and not building a plan that addressed any and all potential immaterial issues.
- **Ownership and accountability.** The fourth best practice and lesson learned was for the organization going through the migration to be completely engaged throughout the entire process. Ultimately, it's the responsibility of the brand to take ownership of its migration to AWS and oversee it.

Next Steps

Being able to quickly stand up multiple websites that supported the various divisions was a key benefit of the strategy and approach that the company and Hitachi Vantara took. The trade-off with the strategy, however, was that the rapid deployment to AWS didn't enable the company sufficient time to plan and develop optimized levels of standardization across its digital properties. That's where Hitachi Vantara and

the energy pricing company are focused on making adjustments. They are working on driving more standardization across the properties to elevate scalability, and as part of this effort, the company is utilizing Kubernetes to increase standardization and automation more deeply into its solution. An added benefit of driving more standardization on Kubernetes that the company aims to achieve is not only building flexibility and versatility to run its digital properties on any cloud but also optimizing costs and productivity for the IT organization moving forward.

Challenges and Opportunities

As enterprises continue their journey to the cloud as a means of achieving their business and technology goals, buyers indicate that there are some critical requirements and concerns that all service providers, including both Hitachi Vantara and AWS, need to address, beyond the paramount need to provide prospective clients with proof points including client referrals. These include the following:

- **Meeting key business and IT requirements.** Top buyer expectations in using cloud capabilities require ensuring that firms can reach their business objectives of achieving greater agility and driving revenue as measured by factors such as ROI, employee productivity, supply chain optimization, cost reduction goals, and rate of product innovation and market thought leadership. This will require service providers to invest in a wide array of advanced technologies (e.g., cognitive/AI, containers, and serverless computing), delivery options (e.g., public and private clouds), and innovative processes (e.g., DevOps).

- **Defining road map in transforming to the cloud.** Achieving business objectives requires building a road map of transformation for enterprises, changing the approach to developing and deploying applications to using DevOps, defining the most appropriate transformational approach (e.g., rehost, refactor, and rewrite), and optimizing different cloud options (private, public, and hybrid) with the right workload (e.g., ERP, CRM, SCM, and productivity) and most effective architecture (e.g., containers and serverless computing). Ultimately, this road map needs to link the process of moving to the cloud with critical end-user requirements such as financial management (e.g., cost savings, ROI) and critical SLAs (e.g., availability and provisioning times).

- **Enabling optimal management of a diverse and extensive set of assets.** Enterprises continue to show concern in losing control of their IT environments when moving to the cloud. While management tools and platforms can offer visibility to mitigate these concerns, ensuring control in today's environment extends to utilizing more advanced analytics capabilities involving cognitive/AI and ML. These technologies can provide more real-time insight into the health of cloud resources, drive faster remediation and, ultimately, enable predictive capabilities for enterprises to shift to a more preventative approach in managing their cloud resources.

- **Ensuring compliance and robust security.** With continued buyer concern of security and SLAs (e.g., availability, time to provisioning, and RTO/RPO) when using clouds, providers need to offer a full array of capabilities that span having a robust portfolio of security capabilities and recovery services. These services also need to incorporate more advanced capabilities utilizing AI/ML to help enterprises gain insight into potential vulnerabilities in more real time while also enabling them to drive more predictability.

Summary and Conclusions

As enterprises continue to embrace cloud, they are increasingly looking to third-party service providers to help them make the journey to cloud and support them in optimizing the value of cloud resources across public, private, and hybrid options to achieve critical business objectives, such as agility and innovation, while staying competitive. This will require firms to consider the following:

- **Ensure robust governance structure.** Meeting the extensive set of requirements in supporting enterprise cloud needs requires a strong governance structure. This involves not just having a project management office (PMO) but also having access to critical management systems that can be used across the full life cycle of services from developing and deploying applications to ongoing management of all cloud environments. Further, this should include access to robust analytics capabilities using cognitive/AI and ML to help optimize the performance of cloud resources and ensure compliance with critical security and regulatory factors. Finally, a critical aspect of good governance involves having a streamlined relationship between clients and their service providers that involves a strong and transparent set of communications processes with support of executive management.

- **Demand a strategic plan for moving to the cloud.** To ensure a smooth transition to and use of cloud services, there needs to be a strategic plan and road map of how to support an enterprise's journey to the cloud and the subsequent need for ongoing management of its cloud portfolio. Critical aspects of these plans and road maps must involve defining the business case driving consumption of cloud, aligning the client's IT strategy with deployment of cloud capabilities, and detailing the methodologies in migrating technologies, particularly applications, to the cloud. This also needs to include a road map of how to transition to a DevOps environment including the right tools, processes, and talent.

- **Design a risk management approach to service portfolio management.** Optimizing the value of cloud services requires developing a risk management approach in aligning which enterprise applications should move to the cloud, what type of migration and modernization process should be assigned to those applications moving to the cloud (e.g., rehost, replatform, refactor, and recode), what type of cloud (private, public, and hybrid) works best with each application, and which service provider should be assigned ownership of the cloud service to be provisioned. This approach in managing IT assets on clouds will allow for control and ensure optimal performance based on business and technology requirements.

- **Ensure provider has AWS certifications and competencies.** In working with a service provider that has an alliance with AWS, it is imperative that the provider has all the requisite AWS certifications and competencies to ensure that any IT environment, application, and/or infrastructure will be designed properly for use with the AWS cloud. Having an AWS MSP Partner Competency provides verification that a service provider has incorporated best practices in the delivery of services for the AWS cloud, which can only be achieved through an extensive auditing process validating that a managed SP partner meets AWS standards. Further, AWS certifications ensure that a managed SP has the specific knowledge and skills needed in developing, deploying, and managing any IT asset on the AWS cloud.

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