

IDC MarketScape

IDC MarketScape: Worldwide Managed Multicloud Services 2021 Vendor Assessment

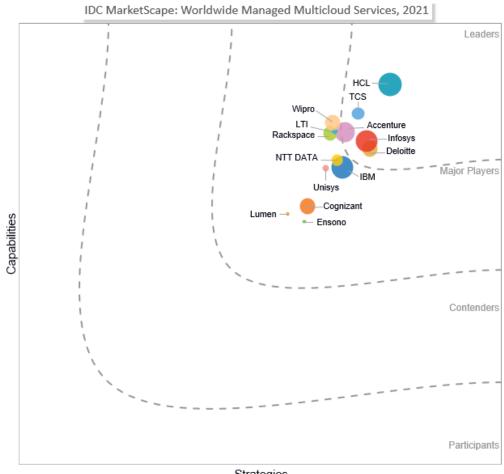
David Tapper Peter Marston

THIS IDC MARKETSCAPE EXCERPT FEATURES: TCS

IDC MARKETSCAPE FIGURE

FIGURE 1

IDC MarketScape Worldwide Managed Multicloud Services Vendor Assessment



Strategies

Source: IDC, 2021

Please see the Appendix for detailed methodology, market definition, and scoring criteria.

IN THIS EXCERPT

The content for this excerpt was taken directly from IDC MarketScape: Worldwide Managed Multicloud Services 2021 Vendor Assessment (Doc #US45977020e). All or parts of the following sections are included in this excerpt: IDC Opinion, IDC MarketScape Vendor Inclusion Criteria, Essential Guidance, Vendor Summary Profile, Appendix and Learn More. Also included is Figure 1.

IDC OPINION

Using the IDC MarketScape model, IDC compared 14 service providers (SPs) that provide managed multicloud services (MMS). IDC research highlights that when it comes to utilizing managed multicloud services, enterprises are seeking to use these services to become more agile, drive revenue, and standardize the IT environment. However, as firms expand their use of cloud, they are confronting the complexity of managing across a vast set of IT resources spanning cloud operating models (private, public, hybrid), cloud platforms (infrastructure as a service [laaS], platform as a service [PaaS], software as a service [SaaS]), and cloud service providers (e.g., AWS, Azure, Google, IBM, ServiceNow, Alibaba, Oracle, SAP, salesforce.com, Workday). Complicating the management of all these resources is knowing how to optimize where to place workloads and application types (e.g., ERP, SCM, CRM), critical software brands (SAP, Oracle, Microsoft), and competencies (e.g., analytics, blockchain, cognitive/artificial intelligence [Al], hybrid cloud, IoT), to name a few. This is where managed SPs can help enterprises orchestrate and manage across a constantly expanding and shifting landscape of assets, providers, processes, and people to support client multicloud needs.

IDC used more than 100 criteria and 27 in-depth customer interviews spanning 10 countries and 11 industries to compare managed SPs that provide managed multicloud services, for which there are an array of players competing in this market. IDC's findings revealed that while each of these managed SPs exhibited many similarities in their capabilities supporting a broad portfolio of managed multicloud services, players do differentiate and are differentiated by key factors involving applications and infrastructure; financial variables and measurements; platforms spanning laaS, PaaS, and SaaS; innovative technologies and capabilities; operational management; and ecosystem of partners. IDC's findings also highlight client feedback that reflects client experience in utilizing managed SPs for managed multicloud services to execute these capabilities. If your organization is focused on using managed multicloud services, leverage this IDC MarketScape as a companion tool to compare and contrast providers your organization is considering or shortlisting to support your use of these services.

IDC MARKETSCAPE VENDOR INCLUSION CRITERIA

IDC collected and analyzed data on 14 service providers within its 2021 IDC MarketScape for managed multicloud services assessment. Vendor options for managed multicloud services are extensive and cover a broad set of different types of players. In determining the group of vendors for analysis in this IDC MarketScape, IDC utilized the following set of inclusion criteria:

- Revenue. Minimum of \$100 million worldwide generated by managed multicloud services
- Delivery locations. Geographic presence (i.e., feet on the ground, delivery capability across major regions) in a minimum of two regions (e.g., Americas, EMEA, APAC)

- Managed multicloud services coverage. Must support either or both of the following for clients: two or more public cloud providers and/or hybrid clouds used by a client (combining private and public)
- **Technology coverage.** Applications (e.g., ERP, productivity, SCM, CRM) for cloud and noncloud technologies and/or cloud infrastructure (e.g., compute, storage, network)
- Number of public cloud partners (laaS, PaaS, and SaaS providers). Minimum of two public cloud providers spanning laaS, PaaS, and SaaS
- Life cycle of services (end-to-end services). From modernizing (e.g., architecting, developing/migrating) to ongoing management

ADVICE FOR TECHNOLOGY BUYERS

The combination of COVID-19, climate change, shifting societal norms, and buyer behavior has dramatically elevated the business and IT requirements that firms needs to meet in order to maintain competitiveness. These requirements involve factors such as faster time to market, meeting new compliance and regulations, personalizing goods and services, creating sustainable operations and products, as well as adapting much more quickly to rapid changes. The impact of these pressures is that firms need to make a fundamental shift in the underlying IT resources and assets by creating a cloud centric set of capabilities. However, as firms expand the use of cloud resources, they are facing an increasingly daunting task of ensuring that they not just can maintain control but also can orchestrate the development, deployment, and management of these resources effectively. Consequently, many managed SPs are positioning themselves as having the right balance of resources and capabilities to help firms meet these challenges. Though enterprises expect managed SPs to have a broad set of capabilities, through detailed client interviews and extensive demand-side research, IDC has identified the following critical areas that buyer organizations should consider in their process of selecting the optimal vendor to meet their needs for managed multicloud services:

- Ensure access to the right talent. The breadth of talent and skill to support a multicloud environment is both constantly expanding and changing. The types of talent span from technical expertise involving a wide array existing and new technologies (hardware and software) and delivery platforms (laaS, PaaS, SaaS) to talent needed to support new processes (DevOps, continuous integration/continuous delivery [CI/CD], site reliability engineering [SRE]), use of new types of service providers (e.g., AWS, Azure, Google, Alibaba, ServiceNow, salesforce.com, Workday), and implement operational excellence that includes the use of advanced automation (cognitive/AI) in orchestrating across all these resources. When it comes to buyers of managed multicloud services, they expect that managed SPs be able to provide them with the right resource at the right time in the right location with highly skilled talent across any of the aforementioned areas. In addition, firms expect that a managed SP be able to find resources outside its organization, such as with partners or potentially crowdsourcing, to fill any gaps that the managed SP might have. Further, enterprises are increasingly expecting that the managed SP helps train the client's employees on how to utilize these new types of cloud capabilities. Essentially, enterprises are looking for a managed SP that creates a team environment in which the client is part of the team and can learn with the managed SP.
- Understand approach to multicloud management (MCM). Enterprises are learning through the implementation of cloud capabilities (private, public, hybrid) and the use of cloud service providers that becoming fluent in utilizing cloud resources requires a new approach to IT and new sets of tools and technologies. Four key areas in which managed SPs need to invest to

create this new approach to managing IT using cloud capabilities first involves taking a long-term approach to making critical investments at the beginning of an engagement to avoid potentially costly mistakes down the road. While this may seem counterintuitive in a world that moves faster, better strategic planning will likely yield creating the standards, frameworks, and blueprints that will both minimize or eliminate defects in a process or technology solution and help streamline operations. The second area on which managed SPs should focus in supporting multicloud management involves embedding processes that can enable continuous and rapid change (e.g., DevOps, CI/CD, SRE), which ultimately requires both creation of standards and integration of the life cycle of services from architecting and developing to deploying and managing cloud resources. The third key factor involves the need for managed SPs to support any cloud technology solution and resource that increasingly involves an expanding universe of cloud service providers across laaS, PaaS, and SaaS. Finally, enterprises are looking for managed SPs to implement robust governance for meeting compliance, costs, quality of service, and utilization of resources with the aid of a managed multicloud set of tools and platforms (e.g., single pane of glass).

- Assure collaboration and communication are core to the relationship. While COVID-19 has forced both enterprises and service providers to adapt to new ways of working with one another, clients indicate that key to a successful engagement with managed SPs in using managed multicloud services is having a robust means of collaborating and communicating. Key elements of an effective relationship require that the managed SP is proactive, provides details including quick feedback, is vigilant to ensure that all gaps are covered, enables continuous learning, and ensures that there is constant communication. Clients also highlight the need for workshops where ideas can be flushed out and for ensuring joint definition of objectives. Finally, ensuring that the collaborative process is streamlined, both stakeholders, customers and managed SPs, need to manage expectations.
- Establish rules of partnership. Ultimately, clients are looking for a managed SP to be a partner but not the "over the wall" partner. Firms expect that managed SPs treat the client as a partner, which requires having open and transparent relationships, difficult conversations, and the ability to keep and attract talent. Further, clients are looking for a partnership that is focused on being a "business" partner, not just a partner that can operate cloud environments. To this issue of being a business partner, it will require managed SPs to invest in talent that has the process knowledge and skills required to work in the world of line-of-business (LOB) executives. As more of cloud becomes automated, more emphasis will need to be placed on the business side of a firm's operations. Essentially, this will require much more "street talk" and much less tech talk.

VENDOR SUMMARY PROFILES

IDC evaluated 14 service providers against more than 100 criteria as part of its 2021 IDC MarketScape for worldwide managed multicloud services analysis. IDC also interviewed 27 buyer organizations to learn more about how the organizations were able to navigate cultural change and generate business results from using managed multicloud services. Companies that IDC interviewed came from a wide range of industries including computer, education, energy, financial services, government, healthcare, manufacturing, retail, telecommunications, and transportation. IDC interviewed managed cloud services buyers that are located in Australia, Bahrain, Brazil, Finland, India, Ireland, Japan, Netherlands, the United Kingdom, and the United States. This section briefly explains IDC's key observations resulting in a vendor's position in the IDC MarketScape. While every vendor is evaluated against each of the criteria outlined in the Appendix, the description here provides a summary of each vendor's strengths and challenges.

TCS

TCS is positioned in the Leaders category in the 2021 IDC MarketScape for worldwide managed multicloud services.

TCS' strategy for cloud is anchored to TCS Business 4.0, which is focused on helping clients transform their businesses to a borderless enterprise. To support enterprises along the journey to the cloud, TCS provides an end-to-end set of cloud capabilities with its consulting-led approach. This starts with its Cloud Strategy & Transformation strategic offering that includes providing a strategy and vision, multicloud advisory, data and analytics advisory, and a cloud transformation office for which TCS can support migration and modernization across all technology environments (e.g., mainframe, ERP, containers). TCS also supports next-generation technologies (e.g., loT, blockchain, AR/VR) as well as business solutions including industry clouds. Finally, TCS offers clients a full suite of operational capabilities supported by TCS Cloud Exponence, which is TCS' multicloud management platform.

TCS utilizes an extensive ecosystem of alliances and partners to support its managed multicloud services business for which it has created dedicated business units for AWS, Google, and Microsoft Azure. Across these three business units, TCS now has more than 30,000 certified and trained professionals. TCS also has built an extensive set of partnerships with cloud vendors (e.g., ServiceNow, Nutanix, Cloudscape) and technology vendors (e.g., VMware, NetApp), which, along with TCS' COIN (Co-Innovation Network) partnerships, it utilizes to support cloud requirements.

In addition, TCS has built its own proprietary TCS Enterprise Cloud, which provides full-stack services from cloud strategy, implementation, migration, and modernization to cloud operations for workloads. As a key differentiator of TCS' cloud capabilities, the TCS Enterprise Cloud has 21 TCS Cloud Availability Zones located in the United States, the United Kingdom, Germany, Sweden Finland, Japan, Australia, Singapore, and India; is supported by more than 3,500 experienced practitioners; utilizes a broad array of partnership (e.g., IBM, SAP, Google, AWS, Azure); and incorporates extensive automation via ignio, which is TCS' autonomous AlOps software platform that combines context, insights, and intelligent automation to resolve and prevent issues in IT and business operations. The TCS Enterprise Cloud looks to provide clients with the ability to innovate and achieve operational excellence for the cloud resources required to support their businesses.

Strengths

TCS exceeded industry standards for upgrading legacy infrastructure to private cloud laaS infrastructure as part of managed multicloud services as well as for supporting legacy custom-coded applications (e.g., COBOL) and any type of Microsoft, SAP, and Oracle applications (e.g., legacy/noncloud application architectures, applications architected for the cloud including SaaS). TCS also exceeded industry standards in the usage of Docker technologies for containers, Alibaba for PaaS, Microsoft for SaaS, and innovative capabilities including analytics technologies, IoT, and serverless computing/function as a service on public clouds (spanning laaS, PaaS, and/or SaaS) as part of managed multicloud services. Further, TCS had a higher percentage of engagements using managed multicloud services for edge computing from public cloud providers (e.g., AWS Outpost, Azure Stack, Google Anthos) than what was observed in the industry. Finally, TCS' total centers of excellence/labs (physical locations) to support managed multicloud services exceeded the market average.

Operationally, TCS provided clients with lower RTO for managed multicloud services than the market standard while incorporating multicloud management platform capabilities (e.g., management

platforms, tools, technologies) at a higher utilization rate of client engagements than what was observed in the industry. TCS' footprint of physical security operations centers (SOCs) also exceeded the market standard. Finally, clients rated TCS highly for client feedback effectiveness.

On the financial side, the rate of usage of payment for just capacity used (e.g., gigabytes of compute, storage), fixed fee payment (fixed amount of money) for a given period of time (e.g., one month, one year, three years), and payments based on business outcomes (e.g., number of transaction processes, achieving a target cost savings) all exceed market standards. TCS also showcased a higher rate of business generated from working with partners (e.g., public cloud providers, technology vendors) and a higher average "premium/uplift" involving clients using managed multicloud services for systems software technologies (e.g., VMs, containers) hosted on public laaS clouds as compared with market averages.

Challenges

To grow its opportunities in the market for managed multicloud services, TCS should look to invest in strategic areas including migrating existing applications (e.g., custom coded, packaged applications) for use on private and/or public cloud infrastructures (laaS) and incorporating the use of both public laaS and public PaaS as part of managed multicloud services, where it trailed industry averages.

On the operational side, TCS was below the market average for the number of completed cloud engagements it uses to automate capabilities (e.g., architecting, developing, provisioning) in multicloud management platforms. In addition, TCS' largest engagement involving containers for managed multicloud services based on number of CPU cores lagged the market standard.

When it came to client feedback, customers found issues in getting access to cloud providers. In addition, in a 2020 IDC worldwide demand-side survey of enterprises regarding managed cloud services across six countries, buyers indicated TCS trailing the market group average when it comes to respondents indicating their preference to switch to a different managed service provider when procuring managed services for cloud (see *Managed CloudView 2020: Executive Summary*, IDC #US46875120, September 2020).

APPENDIX

Reading an IDC MarketScape Graph

For the purposes of this analysis, IDC divided potential key measures for success into two primary categories: capabilities and strategies.

Positioning on the y-axis reflects the vendor's current capabilities and menu of services and how well aligned the vendor is to customer needs. The capabilities category focuses on the capabilities of the company and its services today, here and now. Under this category, IDC analysts look at how well a vendor is building/delivering capabilities that enable it to execute its chosen strategy in the market.

Positioning on the x-axis, or strategies axis, indicates how well the vendor's future strategy aligns with what customers will require in three to five years. The strategies category focuses on high-level decisions and underlying assumptions about offerings, customer segments, and business and go-to-market plans for the next three to five years.

The size of the individual vendor markers in the IDC MarketScape represents the market share of each individual vendor within the specific market segment being assessed.

IDC MarketScape Methodology

IDC MarketScape criteria selection, weightings, and vendor scores represent well-researched IDC judgment about the market and specific vendors. IDC analysts tailor the range of standard characteristics by which vendors are measured through structured discussions, surveys, and interviews with market leaders, participants, and end users. Market weightings are based on user interviews, buyer surveys, and the input of IDC experts in each market. IDC analysts base individual vendor scores, and ultimately vendor positions on the IDC MarketScape, on detailed surveys and interviews with the vendors, publicly available information, and end-user experiences in an effort to provide an accurate and consistent assessment of each vendor's characteristics, behavior, and capability.

Completing this IDC MarketScape involved participants completing seven distinct steps. During the final step, Cognizant was not able to provide feedback for its final results.

Scoring Process

IDC follows a rigorous process in developing vendor ratings and weightings that involved utilizing IDC's full range of scoring options (1-5). To determine scores, IDC utilized the empirical information that vendors provided via a comprehensive RFI from which IDC rated more than 100 scoring elements across the scope of a vendor's business for managed multicloud services as well as feedback from client interviews. The types of information provided for these scoring elements involved the degree of maturity in adoption of a vendor's capabilities by their clients along with degree of vendor investments and financial results as well as client feedback. IDC rated scoring elements with quantitative information across both strategies and capabilities categories using a one-step approach. Scoring elements from the strategies segment involving qualitative insights utilized a multistep approach that involved identifying a common set of variables across participants to ensure an objective assessment and then aligning these with the appropriate quantified scoring elements by which to create an overall rating. In assessing client feedback via interviews with vendor customers, IDC utilized a series of client rankings of vendors to determine IDC ratings.

Scoring Criteria and Definitions

While IDC's *Worldwide Managed Cloud Services Survey*, conducted in both 3Q20 and 3Q21 and involving 1,500 respondents across six countries and three regions, helped shape many of the scoring criteria and definitions in the 2021 IDC MarketScape for worldwide managed multicloud services, IDC utilized an array of other IDC buyer studies on managed cloud services. These buyer studies probed buyers on maturity levels, interests, and preferences for managed cloud services, which included use of multiclouds. IDC utilized all this data in addition to buyer interviews to establish the right scoring elements reviewed in the evaluation.

Weightings

Criteria weightings used in this IDC MarketScape were sourced and derived using IDC survey data, IDC forecasts, vendor market shares, and customer interviews. Customer interviews helped reveal multiple criteria that buyer organizations cited as critical in their service provider selection and retention processes. IDC distilled and consolidated the criteria customers shared into several major categories and weighted criteria based on volume of responses within the categories across the IDC

MarketScape model. IDC also utilized survey data based on 1,500 respondents across six countries to assign weightings across the criteria used in assessing vendors.

Service Provider Customer Interviews

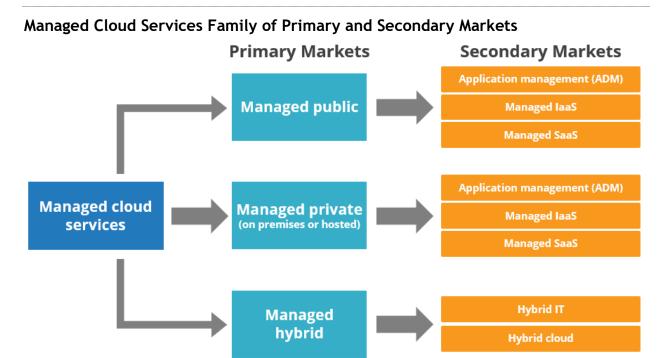
As part of this IDC MarketScape, IDC conducted interviews with vendor-provided client references. IDC utilized these customer interviews to learn about six areas: the customers' project backgrounds, how customers approached the service provider selection process and what critical criteria they used to select their vendor, what sort of results customers were able to generate from managed multicloud services, next steps for their managed cloud services evolution, key lessons learned, and what customers felt were the differentiating and key strengths that their chosen managed SP possessed. The results of these interviews contributed to the ratings and weighting scales used in assessing the vendors participating in this analysis.

The IDC MarketScape for managed multicloud services assessment is designed to evaluate the characteristics of each vendor and each vendor's global presence, measured by vendor revenue and scope of capabilities. Many managed SPs compete in various aspects of managed multicloud services. As such, this evaluation is not an exhaustive list of all the players to consider for managed multicloud services. Instead, this evaluation reviews the primary players that offer capabilities spanning the life cycle of services across designing, building, and managing cloud environments for the full stack of IT from infrastructure to applications and across the full array of cloud types (e.g., public, private, hybrid) and across different cloud platforms (e.g., laaS, PaaS, SaaS, containers). Client factors like business and information technology (IT) objectives and requirements along with culture of both vendor and client organizations play integral roles in determining which vendors should be considered as potential candidates for a managed multicloud services engagement.

Market Definition

Managed Multicloud Services

Managed multicloud services (MMS) is a subset of managed cloud services (MCS). Essentially, managed cloud services provide a holistic view of managing all types of cloud environments as highlighted in Figure 2. This IDC MarketScape *excludes supporting customers in which managed SPs are managing just a "single" cloud* (just private or just public) for a client (see *IDC's Worldwide Managed Cloud Services Taxonomy, 2020*, IDC #US46987120, November 2020).



Source: IDC, 2021

The focus of this 2021 IDC MarketScape for worldwide managed multicloud services is on managed SPs that support managing multiple clouds that can include the following:

- Hybrid cloud: This involves the managed SP managing (on behalf of a client) a combination of an enterprise's private cloud needs (which could include one or more private clouds) along with one or more public clouds across laaS, PaaS, and/or SaaS, which could involve one or more public cloud providers.
- Multiple public clouds: This involves the managed SP managing (on behalf of a client) multiple public cloud environments across laaS, PaaS, and/or SaaS involving the use of two or more (multiple) and "different" public cloud providers.

The following are some additional factors that IDC included as part of its definition on managed multicloud services:

- Perspective from a customer view, not a contract view: IDC views managed multicloud services from a customer/client perspective. Meaning that while a client might sign individual contracts for each cloud that the managed SP manages for the client, IDC is interested in how many clouds the managed SP manages for a client, even if there are multiple contracts involved.
- Life cycle of services: This IDC MarketScape included "embedded" professional services (e.g., business consulting, technology consulting, migration, application development) to support "migration (modernization) to the cloud," which are standard capabilities included as part of any managed service.

Role of multicloud platforms and technologies: In terms of the use of multicloud platforms and technologies, IDC views this as an "input" to supporting delivery of cloud capabilities to support multiple clouds. This study did not require that customers use a multicloud management platform from the managed SP, just that the managed SP provisions managed cloud services to support multiple public clouds and/or hybrid clouds that clients use to support their businesses. However, IDC included assessment criteria regarding the use of multicloud management platforms and technologies as part of supporting the provisioning of managed multicloud services.

Exceptions and Exclusions

While managed cloud services involve the full life cycle of services that include "embedded" professional services, such as strategy, assessment, migration, modernization, and implementation services, for professional services that are procured as a set of discrete capabilities not included as part of the managed services engagement, IDC excludes these "discrete" engagements.

IDC also excluded client use of managed cloud services to support the following types of single cloud environments:

- Single private cloud: This involves the managed SP supporting clients in managing their
 enterprise private cloud needs. This can encompass a single private cloud or support for
 multiple private clouds that are utilized by a *single* client. Private clouds can also be located
 anywhere (e.g., on premises, hosted/colocation).
- Single public cloud: This involves the managed SP supporting clients in using a single public cloud provider. This can encompass managed SPs supporting clients using a single cloud service (e.g., laaS) or multiple cloud services from a single public cloud provider (e.g., using Microsoft Azure for both laaS and Microsoft Dynamics).

LEARN MORE

Related Research

- Worldwide Managed Cloud Services Deal Penetration for the IT Outsourcing Services Market, 2016-2020 (IDC #US47083521, September 2021)
- Market Analysis Perspective: Worldwide Managed Cloud Services, 2021 (IDC #US47084321, August 2021)
- Managed Cloud Services: The Role of Edge Computing (IDC #US47674121, May 2021)
- Managed Cloud Services: Optimizing a Cloud Ecosystem Matrix (IDC #US47083321, May 2021)
- Managed Cloud Services: The Value of Multicloud Management (IDC #US47424321, February 2021)
- Air Traffic Control: The Managed SP Role in a Changing Service Provider Industry (IDC #US44650419, February 2021)
- Managed Service Providers and Cloud Service Providers: The Changing Dynamics of Collaborating, Competing, and Controlling (IDC #US45926420, November 2020)
- Managed CloudView 2020: Executive Summary (IDC #US46875120, September 2020)

Synopsis

This IDC study represents a vendor assessment of providers offering managed multicloud services through the IDC MarketScape model. The assessment reviews both quantitative and qualitative characteristics that define current market demands and expected buyer needs for managed multicloud services. The evaluation is based on a comprehensive and rigorous framework that assesses how each vendor stacks up, and the framework highlights the key factors that are expected to be the most significant for achieving success in the managed multicloud services market over the short term and the long term.

"Buyers need to manage a complex set of IT and cloud resources that involves different cloud operating models (private, public, hybrid), cloud platforms (laaS, PaaS, SaaS), and cloud service providers is creating increased complexity for enterprises, which is challenging their ability to ensure the performance of all their IT resources. Ensuring successful use of managed multicloud services from managed SPs to deliver optimal performance of client cloud needs requires buyers to ensure access to the right talent, understand approach to multicloud management, assure collaboration and communication are core to the relationship, and establish rules of partnership." — David Tapper, VP, Outsourcing and Managed Cloud Services

About IDC

International Data Corporation (IDC) is the premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications and consumer technology markets. IDC helps IT professionals, business executives, and the investment community make fact-based decisions on technology purchases and business strategy. More than 1,100 IDC analysts provide global, regional, and local expertise on technology and industry opportunities and trends in over 110 countries worldwide. For 50 years, IDC has provided strategic insights to help our clients achieve their key business objectives. IDC is a subsidiary of IDG, the world's leading technology media, research, and events company.

Global Headquarters

140 Kendrick Street Building B Needham, MA 02494 USA 508.872.8200 Twitter: @IDC blogs.idc.com www.idc.com

Copyright and Trademark Notice

This IDC research document was published as part of an IDC continuous intelligence service, providing written research, analyst interactions, telebriefings, and conferences. Visit www.idc.com to learn more about IDC subscription and consulting services. To view a list of IDC offices worldwide, visit www.idc.com/offices. Please contact the IDC Hotline at 800.343.4952, ext. 7988 (or +1.508.988.7988) or sales@idc.com for information on applying the price of this document toward the purchase of an IDC service or for information on additional copies or web rights. IDC and IDC MarketScape are trademarks of International Data Group, Inc.

Copyright 2021 IDC. Reproduction is forbidden unless authorized. All rights reserved.

