**Cloud IaaS solutions are essential to modern digital enterprises as they manage infrastructure deployments across hybrid cloud and edge environments.**

# *How the Cloud Rush Is Driving IaaS Market Growth for Managed Service Providers and Managed Hosting Service Providers*

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## *Introduction*

Cloud infrastructure-as-a-service (IaaS) solutions are critical to modern digital enterprises. Cloud compute and storage services are quickly becoming the backbone of many enterprise IT infrastructures and, in many cases, are seen as essential to digital business transformation. This demand for cloud IaaS resources has resulted in sustained, double-digit market growth over the past five years.

Over the next three to five years, we expect edge use cases and hybrid cloud deployments to be the next battlegrounds for cloud services and IaaS providers determined to shape the market. These are nascent, fast-growing opportunity areas that are not yet well defined by the market or fully understood by enterprises. New use cases, workloads, and best practices are still being developed, and with them come a host of technical challenges to meet unique accessibility, scalability, and security requirements.

This IDC Vendor Spotlight serves as an introduction to the cloud IaaS market, providing data points and context regarding key market trends and growth segments. Additionally, the paper describes the importance of high-growth IaaS services and use cases to managed service provider (SP) partners and managed hosting service providers, highlighting their unique and emerging role within the cloud IaaS ecosystem.

## AT A GLANCE

### *KEY TAKEAWAYS*

» Cloud IaaS solutions are essential to modern digital enterprises. Growing enterprise reliance on these services will result in double-digit market growth to over $200 billion in 2025.

» Significant opportunity exists to help enterprises deploy and optimize their usage of IaaS resources for emerging use cases within edge and hybrid cloud environments.

» Edge and hybrid cloud environments and use cases will require a host of tailored solutions and services, presenting a long-term opportunity for IaaS suppliers and service provider partners.

## *Definitions*

Detailed definitions for terms used in this paper are as follows:

» **Cloud IaaS:** IaaS is the aggregate of compute, raw ephemeral and persistent storage capacity, and the associated network capability, delivered through a public cloud deployment model. A public cloud services deployment model has multitenant, shared resources among unrelated enterprises and/or consumers, is open to a largely unrestricted universe of potential users, and is designed for a market (rather than a single enterprise).

» **Edge:** The "edge" is the vast space or intermediary between endpoint devices and the core datacenter that supports all key business decision support systems. Depending on the usage, an edge can have a different meaning for each business. However, a common characteristic across all edge environments is the need for compute and data services to be colocated at a single location. Typically, this is required for the type of data processed in edge locations as well as performance requirements. An edge device is typically connected to multiple endpoints to aggregate or process data. An edge is also usually distributed (i.e., it has a multilocation footprint), generally based on the use case or architecture.

» **Core (central datacenter):** Core could be located on the firm's own physical premises, off premises in a colocation facility, or off premises at a virtual location such as a public cloud. From an infrastructure perspective, the core is an epicenter for storage and compute or an information aggregation and dissemination facility. Core computing therefore describes computing processes that occur inside the firm's "datacenter." A core is usually distributed (i.e., it has a multilocation footprint, including some of it in one or more public clouds).

» **Hybrid cloud:** Hybrid cloud services are characterized by any combination of private cloud, public cloud, and noncloud resources. Hybrid cloud services can include "public-public," "public-private," and "private-private" combinations. Cloud and noncloud combinations (sometimes referred to as hybrid IT) where the noncloud applications are front ended with cloud services interfaces (e.g., RESTful APIs) are also included.

## *Market Overview: Cloud IaaS Market Size and Forecast*

IDC estimates that cloud IaaS market revenue grew 33.8% in 2020 to $65.5 billion compared with 38% in 2019. Due to the macroeconomic impact of COVID-19 and the impact of unknown/unplanned for variables, 2020 was a year of significant uncertainty for the IaaS market. Overall, the pandemic and economic conditions presented a slight headwind to growth in 2020 but did not significantly impact the IaaS market, which continued to experience double-digit annual growth.

Research conducted by IDC throughout the year to gauge the economic impact of COVID-19 consistently showed that enterprises planned to increase or accelerate their spending and/or adoption plans for cloud infrastructure because of the pandemic. Survey data indicated that 55% of enterprises expected to increase their spending on public cloud in 2021 compared with 2020. This buyer sentiment, combined with resilient growth of the market in 2021, results in a positive long-term outlook for cloud IaaS, which is projected to expand at a 28.1% compound annual growth rate (CAGR) over the 2021–2025 forecast period, reaching $225 billion.

*Market Context: Cloud IaaS Revenue Compared with Spending on Traditional Infrastructure*

Comparing the size and growth of the cloud IaaS market with the size and growth of the traditional and private cloud infrastructure market provides important context (see Figure 1). We forecast that cloud IaaS revenue will exceed spending on traditional and private cloud infrastructure in 2021 and that growth of cloud IaaS revenue will far exceed that of the traditional infrastructure market, which will remain relatively flat. This revenue comparison is an important illustration of how indispensable cloud IaaS solutions have become over the past several years. However, while many enterprise applications and a significant amount of data may move to the cloud, it is important to remember that the applications and the data may not reside there permanently. Many enterprises will develop an IT infrastructure strategy, which encompasses both dedicated and multitenant resources deployed across a range of locations.

FIGURE 1: *Cloud IaaS Revenue Compared with Spending on Traditional (Dedicated) and Private Cloud Infrastructure*
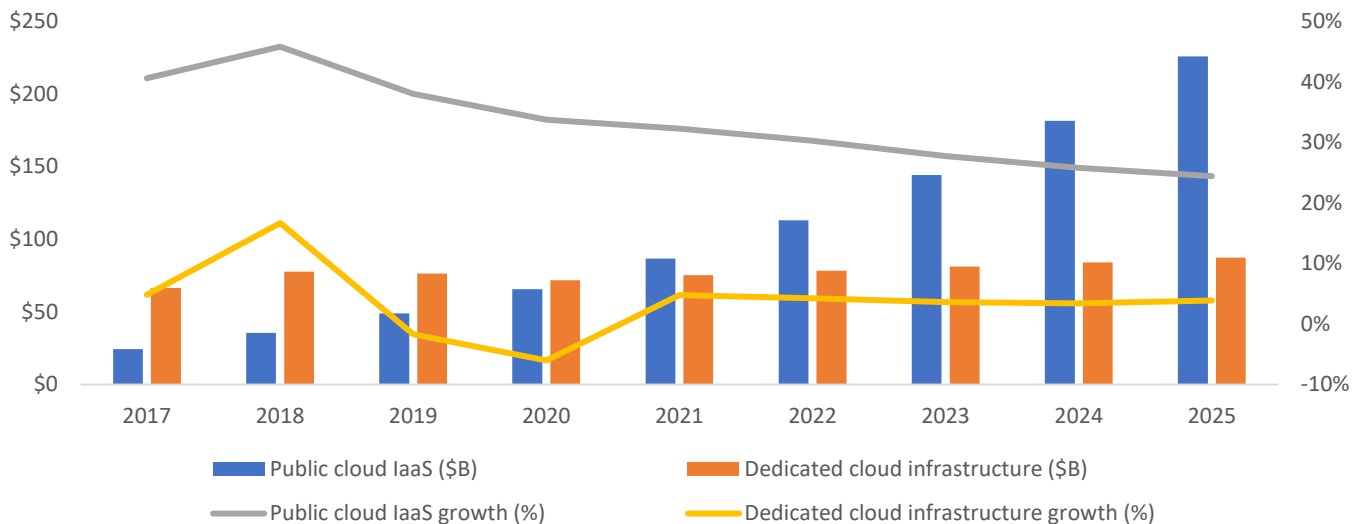


*Source: IDC Trackers*

## Trends Driving IaaS Growth: Edge, Hybrid Cloud, and Enterprise Data Growth

Public cloud IaaS providers are quickly expanding their physical and technological capabilities to meet customer demand for data growth and application deployment in both *edge* locations and *hybrid* cloud environments. These emerging deployment scenarios and use cases are redefining how enterprises think about data management, accessibility, scalability, and security across distributed and local cloud environments. This section provides additional statistics and context regarding three key trends: edge, hybrid cloud, and data growth:
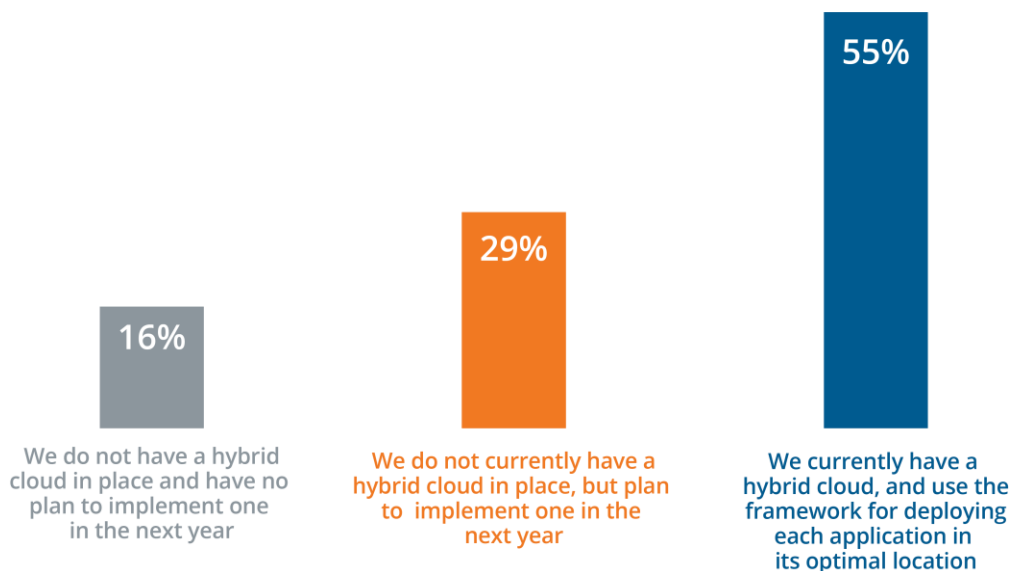
» **The edge has become synonymous with opportunity.** Edge infrastructure can be complex, and the problems that need to be solved at a geographically distributed edge are sometimes vastly different from the problems that needed to be solved during the cloud infrastructure development years of the past decade. This presents both challenges and opportunities for suppliers to create innovative edge infrastructure solutions and services that help facilitate enterprise adoption of edge use cases. These services might be industry or application specific in nature (e.g., smart meters, videocameras with built-in analytics, drones, and robotics), which presents a wide swath of

opportunity for vendors and partners to address. One way to conceptualize the growth of this market is using IDC's *Worldwide Edge Infrastructure Software Forecast, 2020–2024*, which includes edge compute, storage, and related automation/configuration software. This market is forecast to grow at a five-year CAGR of 11.5%, reaching $5 billion in 2024, and should be considered a significant, adjacent market opportunity for cloud IaaS providers.

» **Relentless enterprise data growth.** Enterprises have indicated to IDC that they expect their stored data to grow an average of 30% annually. Using this growth rate as a general guide, we can assume that an organization managing 10PB of data today will store upwards of 13PB of data the following year. The challenge with this data growth trajectory is that spending on IT infrastructure is expected to grow only in the single digits and may even remain flat for many enterprises. This juxtaposition — data growth significantly outpacing IT infrastructure spend — puts many organizations in a precarious position. Increasingly, they must strike a balance between the promise of generating value from data and the reality of running their business applications cost effectively and securely. In many cases, enterprises that adopt cloud infrastructure services can expand infrastructure capacity without incurring capex on additional hardware and without worrying about the cost of underutilized capacity as well as the risk associated with adding other physical systems, which may be sources of future technical debt.

» **Hybrid cloud continues to emerge as a "best of both worlds" deployment strategy.** 2020 was the year that cloud providers fully embraced the concept of hybrid cloud (i.e., not everything will be delivered on a shared, multitenant public cloud platform). Local and dedicated cloud infrastructure solutions will continue to grow in importance as complementary assets that help enterprises build and mature their hybrid cloud strategy. As compute and storage resources are distributed across core, edge, and cloud locations, and as enterprise workloads are moved across cloud and on-premises environments in search of the ideal balance of cost and performance, hybrid cloud emerges as the de facto standard that allows enterprises to achieve these goals. Today, 55% of enterprises have a hybrid cloud and use the framework for deploying applications in their optimal location (see Figure 2).

FIGURE 2: *Prevalence of Hybrid Cloud Strategy Within Enterprises*
**Q** *What best describes your organization's use of hybrid cloud?*



16%
We do not have a hybrid cloud in place and have no plan to implement one in the next year

29%
We do not currently have a hybrid cloud in place, but plan to implement one in the next year

55%
We currently have a hybrid cloud, and use the framework for deploying each application in its optimal location

Source: IDC's IaaSView, 2020

## *Additional Business Benefits of IaaS Solutions*

We anticipate that by 2022, almost half of an enterprise's products and services will be digital or digitally delivered, increasing a business' reliance on infrastructure (compute, storage, networking) to support more than traditional business applications. Timely access to innovative infrastructure resources — both shared and dedicated — will be imperative to sustain the adaptive, resilient, secure, and compliant digital business models of the future. This means enterprises will rely more on access to resilient and trusted infrastructure at the physical and logical levels, regardless of operational locations. Cloud IaaS is positioned as a critical component for the future of digital infrastructure, enabling several important business benefits:

» **Automation of infrastructure tasks.** The lines between previously discrete IT activities are slowly eroding. This condition challenges organizations to develop an infrastructure strategy that converges storage, networking, and compute-related disciplines and that can be managed by as few full-time employees as possible. These resource pools are now more often managed by an IT generalist who has experience across all parts of enterprise IT infrastructure (e.g., virtualization, networking, compute, storage) and relies on automation and analytics to manage a wide swath of resources. This evolution toward IT generalists, and the subsequent demands placed on IT managers and administrators, makes the adoption of IaaS necessary to perform all tasks in an efficient, timely manner.

» **Scalability of infrastructure resources.** The scalability of IaaS resources is important from two perspectives. First, customers can take advantage of consumption-based cost models and billing to meet capex/opex restrictions. Short-term budget and economic uncertainty will only increase enterprise appetite for consumption-based and pay-as-you-go infrastructure pricing, which are hallmarks of the cloud IaaS model. Enterprises can experience growing pains with the complexity of this billing model and the need to accurately track and forecast usage as well as planned/unplanned spikes in utilization. However, the flexibility of this model, combined with minimal capital outlay needed to adopt and deploy services quickly, often outweighs these challenges.

  Second, and of key importance to enterprises dealing with data growth and digital transformation, is the scalability of compute and storage. The ability to "grow" capacity automatically as required is extremely valuable. This allows a business or service provider to focus on outcomes, such as application development and deployment, and customer satisfaction, knowing that the underlying resources will always be available.

» **Workload migration.** A recent IDC survey found that only 50% of applications are expected to stay in a single deployment location over the next year. Leading IaaS solutions have sophisticated tools and services that make application and data migration onto — and off of — their platform a seamless experience. This sounds counterintuitive. Why would IaaS providers make it easy for resources to exit their ecosystem? The reality is that workload placement and migration is a complex, iterative process for many enterprises that are often suspicious of "lock-in" within cloud environments. Enabling workload migration off of cloud may not be an appealing business proposition to most cloud providers, but this flexibility is a growing demand from enterprises, and the expanding list of dedicated and local cloud offerings from leading IaaS providers is proof that they are working to meet customer demands for workload portability rather than impede it.

### *How Partners and Service Providers Factor into the Cloud IaaS Equation*

IDC believes that from a buyer perspective, managed cloud services — which are part of the family of managed digital services (e.g., cloud, analytics, mobile, social, and IoT) — will make up a growing share of a buyer's portfolio of outsourced managed services as the buyer evolves from the first stage of adoption for these services (ad hoc) to the fully mature stage (optimized), in which all the managed services that the buyer utilizes are cloud and digitally based (see Figure 3). From a market perspective, the increased buyer adoption of managed cloud services will result in a "substitution effect," where managed cloud services displace traditional outsourced managed services that use legacy (noncloud) technologies.

FIGURE 3: *The Managed Cloud Services "Substitution Effect": Managed Digital Services Will Displace Traditional Outsourced Services Based on Legacy Technologies*
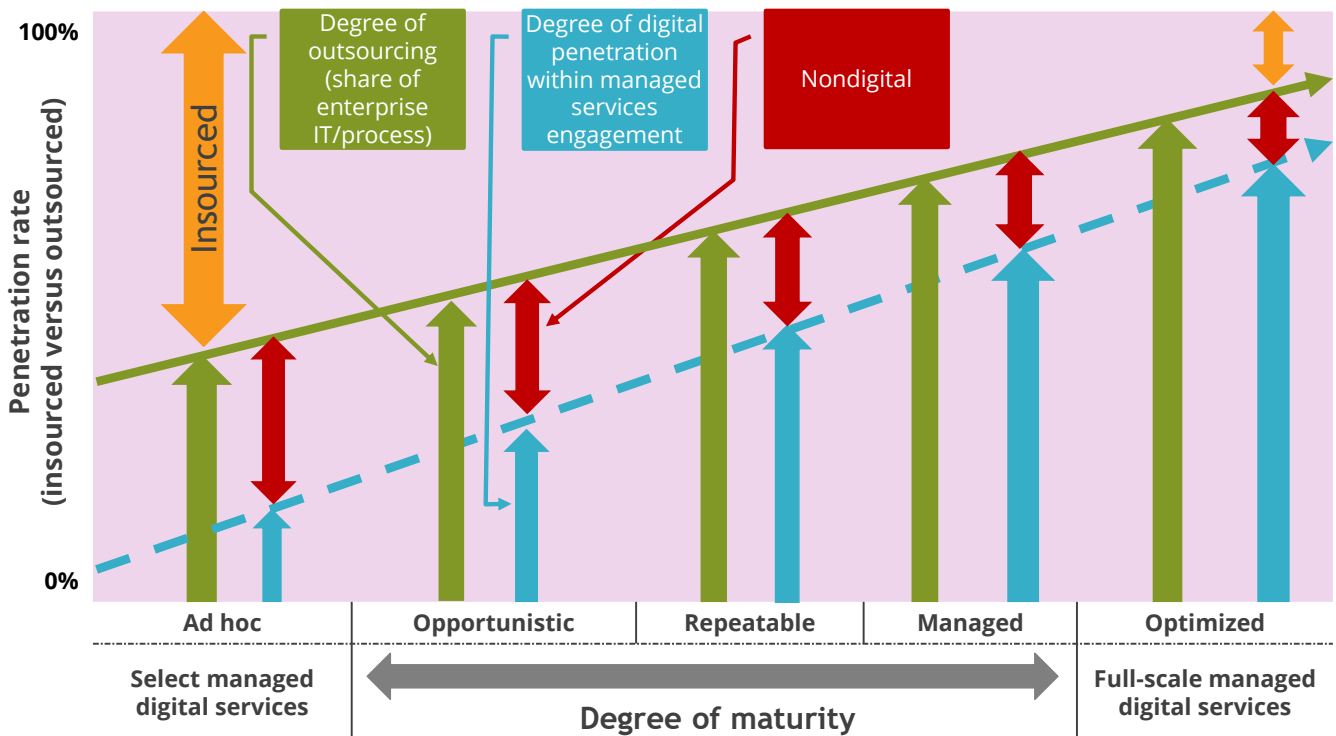


Note: Digital includes cloud, analytics, social, mobile, and IoT.

Source: IDC's Worldwide Managed Cloud Services Forecast, 2020–2024: An Extraction View of Technology Outsourcing Services Markets

Managed SPs have strong value in delivery of IaaS solutions, particularly when it comes to helping enterprises address skills gaps associated with cloud and hybrid cloud adoption. They also add value from a security and trust perspective, providing an additional layer of shared responsibility to the services equation and supplementing baseline guarantees and service-level agreements (SLAs) offered by IaaS providers.

Managed SPs and managed hosting SPs also can extend their expertise throughout the entire services stack (e.g., platform as a service/software as a service), helping enterprises develop a holistic strategy that goes well beyond infrastructure resources. For many service providers, opportunities may begin with infrastructure delivery and, over the long term, extend to application optimization, multicloud management and orchestration, provisioning of DevOps and QA testing, and automation of the entire enterprise IT infrastructure life cycle (from architecture, development, and testing to deployment and continuous improvement).

## *Considering Zadara's IaaS Solutions*

Zadara has developed an extensive IaaS platform that is well positioned to serve enterprise compute and storage requirements in both hybrid cloud and edge environments. Established in 2011, Zadara's **Edge Cloud Services** are architected to be enterprise grade, scalable, agile, and cost efficient. Zadara's **zStorage** service supports file-, block-, and object-based protocols and offers integration with a range of public cloud environments (e.g., AWS, Azure, GCP) as well as more traditional service provider clouds (e.g., Equinix, Cyxtera). On the compute side, Zadara **zCompute** delivers virtual compute and networking resources accessible over a worldwide network of colocation, private, and public cloud datacenters. zCompute is compatible with EC2 and EBS. Pricing for compute and storage is determined by the deployment type (e.g., storage protocol or vCPU configuration), capacity (TB), and term (hourly to multiannual).

### *Go-to-Market Strategy and Differentiation*

Zadara's model is focused on providing end-to-end, fully managed IaaS for a host of deployment environments. IaaS offerings in the market today span a continuum of service delivery — from "white glove" services to bare-bones provisioning of storage capacity and virtual machines. Zadara goes to market with a model that is focused on providing full-service IaaS solutions that extend all the way to the application layer. This high level of service manageability offered by Zadara helps set it apart from some of the other providers in the market focused more on IaaS resource provisioning.

Zadara's portfolio of infrastructure services also positions the company as an enabler of managed cloud service providers. zCompute and zStorage should be seen as essential, enabling components for service provider partners building a portfolio of managed cloud services spanning infrastructure-as-a-service, platform-as-a-service, and software-as-a-service layers. Zadara's ability to deliver storage solutions for any protocol, along with customizable virtual machines (VMs) within dedicated private cloud environments and multitenant shared public cloud environments, is a unique differentiator in the IaaS market and one that managed SPs and managed hosting SPs should be keen to leverage.

A final note of differentiation related to Zadara's managed SP/managed hosting SP focus is the company's **Federated Edge partner program**. Zadara Federated Edge, announced in April 2021, is a managed SP program designed to give partners access to compute and storage resources located in other member hosting provider and colocation datacenters. These IaaS resources for the edge, or "Federated Edge Zones," are purpose built to meet customer requirements for edge use cases. The program allows managed SPs to act as either a "provider" selling edge services or an "operator" responsible for hosting and operating edge infrastructure nodes. Zadara provisions and manages the hardware and software needed to stand up Federated Edge Zones. The program is important because it provides member managed SPs with access to infrastructure resources designed for edge operation. One of the major roadblocks for deploying IaaS resources at the edge is the need for highly localized physical locations that can potentially serve only a small number of end users (as opposed to massive datacenters serving thousands of end users). Zadara's Federated Edge program is designed to help alleviate this challenge for managed SPs, democratizing access to localized IaaS resources through a shared ecosystem.

### *Challenges*

Important challenges that Zadara contends with are customer expectations and education around the cost of cloud infrastructure services. IaaS buyers have been conditioned to expect levels of service and capability that are equal to or greater than those provided by traditional solutions — all at a lower cost. Further exacerbating these challenges is the fact that leading public cloud IaaS providers have consistently reduced the list price of compute and storage services while releasing free and low-cost tools and services designed for cost management and resource optimization to further reduce and optimize resource usage. This steady reduction in IaaS resource base pricing presents a headwind to growth for all IaaS providers, particularly those focused on quality and end-to-end service delivery as opposed to mass quantity.

As a result, many IaaS providers must drive adoption of adjacent services (e.g., gateways, containers, data transfer, analytics) to offset baseline resource cost reduction. Zadara's focus on managed service delivery means the company is well positioned to address this challenge. However, adopting adjacent services takes more time and is more complex than simply adding cloud storage or compute capacity.

Some infrastructure buyers will take a "build" approach, adopting low-cost, bare-bones platforms upon which they can develop their own services. This may be due to security, compliance, or unique application requirements that are out of the control of the IaaS provider. Others will take a "buy" approach, preferring fully managed, white-glove services. Many customers will sit in the wide range between these two extremes. Zadara's challenge is to continue to attract and educate customers at the "buy" end of the spectrum by conveying how the benefits of managed cloud services exceed those of readily available "do it yourself" alternatives.

### *Conclusion*

Cloud IaaS solutions are critical to modern digital enterprises, and this criticality is reinforced by the continued, double-digit growth of the market. However, as the IaaS market becomes more competitive and customer use cases and expectations mature, many cloud service providers are expanding their physical and technological capabilities to serve customers in hybrid environments as well as edge use cases. We expect that these environments will be a significant proving ground for enterprises as they look to develop modern and "cloud-native" workloads in these environments, which have typically been dominated by traditional, dedicated infrastructure systems. In many cases, this transition will require support from both cloud IaaS providers and cloud managed service providers as enterprises seek help developing the skills, people, and expertise needed to deploy infrastructure supporting new applications and services.

# About the Analyst

### *Andrew Smith, Research Manager, Cloud Infrastructure Services*

Andrew Smith is a Research Manager within IDC's Enterprise Infrastructure Practice. Andrew's research focuses on public cloud infrastructure-as-a-service platforms and solutions, with specific focus on storage services. Andrew contributes to market sizing and forecast efforts across IDC's public cloud IaaS segments, as well as adjacent markets like multicloud data management, data protection as a service, and public cloud cold storage.

## MESSAGE FROM THE SPONSOR

**About Zadara**

Since 2011, Zadara's Cloud Platform (ZCP) simplifies operational complexity through automated end-to-end infrastructure provisioning of compute, storage and network resources. Backed by an industry-best NPS rating of 71, Zadara Edge Cloud users are supported by Zadara's team of battle-tested cloud experts and backed by our 100% SLA guarantee. With solutions available on-premises and through cloud and colocation providers, Zadara's turnkey hardware/software, combined with its pay-only-for-what-you-use model, helps companies gain agility without sacrificing the features and functionality that enterprise IT teams demand. Zadara operates worldwide, including clouds in hundreds of data centers at public- and private-cloud partners, with an expert team that provides follow-the-sun services and support and is the official cloud supplier of Alfa Romeo Racing ORLEN in the Formula One world championship. Zadara is headquartered in Irvine, California with locations in Cirencester (UK), Tokyo, Tel Aviv, Yokneam (Israel), Bangalore and Brazil.

To learn how fully-managed IaaS solutions are being used by MSP, hosting providers and enterprises visit: https://www.zadara.com/

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