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Magic Quadrant for Distributed Hybrid Infrastructure

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I&O leaders seek infrastructure platforms that offer unified control across diverse deployment scenarios. The distributed hybrid infrastructure market addresses this need by offering standardized full-stack infrastructure deployments in public cloud, on-premises and edge locations.

Strategic Planning Assumption

By 2026, 50% of enterprises will initiate proofs of concept for alternative distributed hybrid infrastructure (DHI) products to replace their VMware-based deployments and embrace hybrid cloud infrastructure delivery, up from 10% in 2024.

Market Definition/Description

Gartner defines distributed hybrid infrastructure as offerings that deliver cloud-native attributes, which can be deployed and operated where the customer prefers. This is a key distinction to public cloud IaaS, which is based on a centralized approach. Offerings are software and/or integrated hardware with a unified control plane.

Distributed hybrid infrastructure provides the foundation for the deployment of applications in a distributed manner that retains a cloud or cloud-inspired approach. In doing so, it improves agility and flexibility for the workloads outside of public cloud infrastructure.

Mandatory Features

The mandatory features for distributed hybrid infrastructure include:

- Integrated vendor-engineered solution comprising virtual compute, storage and networking services.

- Vendor-developed infrastructure resource management control plane.

Common Features

The common features for distributed hybrid infrastructure include:

- Management portal that provides a secure, automated full stack solution for operating and supporting the distributed infrastructure.

- Ability to deploy the infrastructure in multiple locations that must include on-premises customer data center and a public cloud.

- Complete programmable API access enabling "infrastructure as code."

- Ability to deliver the distributed hybrid infrastructure solution as a service.

- Vendor supplied facilities or other deployment options like colocation, edge and remote locations.

- Integrated hardware (either supported by the same vendor that offers the software; or certified for the integrated software, but managed by the enterprise, the vendor that provides the software or a third-party partner).

- Additional platform services (e.g., as-a-service add-on offerings like DBaaS, DRaaS).

- Product integration with traditional enterprise infrastructure systems (e.g., Directory Services, ITSM, etc.).

- Metered consumption based services where the customer is charged only for what they consume.

- Scalable and elastic where the offering will provision and deprovision resources to fit the customer continuous requirements (e.g., bursting to the public cloud or dynamic preemptive ordering).

- Ability to orchestrate bare metal servers.

- Ability to orchestrate containers or integrate with third-party kubernetes distribution.

Magic Quadrant

Figure 1: Magic Quadrant for Distributed Hybrid Infrastructure

Vendor Strengths and Cautions

Alibaba Cloud

Alibaba Cloud is a Niche Player in this Magic Quadrant. This evaluation focuses on its international DHI solutions, which it offers through its international subsidiary. Alibaba Cloud's DHI offerings are available worldwide, although the vendor generates the majority of its revenue from China and Southeast Asia. It serves government, finance and public-sector customers of all sizes. Alibaba Cloud's DHI solutions are based on its Apsara architecture to create an integrated, consistent user experience across central, regional and edge locations; the architecture includes Apsara Stack and Edge Node Service (ENS). Since 2023, the vendor has launched AI-related features, including chips and modeling services. Apsara Stack uses public cloud architecture to provide a flexible hybrid cloud solution, but some DHI services are available only in China. Alibaba Cloud performs best for use cases that require container capabilities and those with stringent application SLAs.

Strengths

- **Long-term commitment to DHI solutions:** Alibaba Cloud launched its Apsara Stack in 2015. It has continuously invested in private cloud and hybrid cloud solutions, enabling it to support use

cases for hybrid cloud solutions, especially in China.

- **Public cloud infrastructure:** Alibaba Cloud's IaaS and PaaS portfolios in the public cloud enhance its Apsara architecture as a core component of DHI solutions. It stands out as the most comprehensive among Chinese cloud providers, providing the flexibility to adopt architecture similar to that of on-premises deployments for customers.

- **Support for Chinese enterprises' global strategy:** Alibaba Cloud appeals to the growing number of Chinese enterprises expanding outside China, particularly those that want a similar solution architecture for their domestic and global markets.

Cautions
- **Apsara Stack deployment:** Some Gartner clients cited that deploying, customizing and operating the Apsara stack solution requires significant effort and allocation of resources, and sufficient time for deployment.

- **Customer support:** Alibaba Cloud's services have a limited local sales and service presence in the U.S. and Europe, and international customers may receive live technical support in only English and Mandarin languages.

- **International operations and ecosystem change:** Alibaba Cloud revised its global infrastructure strategy, ceasing data center operations in Australia and India, which impacts the international partner ecosystem accordingly.

Amazon Web Services

Amazon Web Services (AWS) is a Leader in this Magic Quadrant. AWS Local Zones extend AWS Regions services closer to customers. AWS Outposts provides fully managed solutions that extend AWS services to customers' on-premises locations. AWS Snow Family provides systems as a service for edge computing. AWS also offers AWS Wavelength, which is built on the same underlying infrastructure as AWS Outposts in partnership with communications service providers. AWS serves customers of all sizes worldwide across all verticals. Over the past year, the vendor has expanded Local Zones to nine new geographies and has delivered Dedicated Local Zones built for exclusive use by a customer or community, and placed in customer-specified locations or data centers to comply with regulatory requirements. AWS Local Zones now offer new Elastic Compute Cloud (EC2) instances to support generative AI workloads. AWS Elastic Disaster Recovery (AWS DRS) can now set data replication and recovery destinations to AWS Outposts. AWS DHI offerings are best suited for customers wanting to deploy latency-sensitive and data-sensitive traditional workloads in distributed locations.

Strengths
- **Leading public cloud provider:** AWS DHI solutions appeal to AWS public cloud customers that want to extend their infrastructure to their data center and edge locations, while also migrating from their remaining private cloud infrastructure.

- **As-a-service delivery:** The fully managed infrastructure delivery of AWS Outposts simplifies operations and enables a hands-off, single-vendor approach to infrastructure management,

including integration with some on-premises technologies.

- **AWS support:** In Gartner client inquiries, customers report high satisfaction with the AWS worldwide support and services team.

Cautions

- **Customer awareness:** Non-AWS customers seeking alternatives to private cloud deployments are rarely shortlisting AWS DHI solutions, due to limited awareness among potential customers.

- **Operations:** AWS Outposts lack support for disconnected operations. This means that customers need to use AWS Snow Family products for edge environments with limited or intermittent cloud connectivity. These products provide a limited subset of AWS capabilities, services and scale.

- **Deployment:** In Gartner client inquiries, some customers report challenges in planning, rightsizing and demonstrating the total cost of ownership for AWS Outposts deployments, resulting in a longer and more complex onboarding process.

Broadcom (VMware)

Broadcom (VMware) is a Leader in this Magic Quadrant. This evaluation focuses on its VMware DHI offering, VMware Cloud Foundation (VCF). Broadcom is a global provider that closed its acquisition of VMware in November 2023. It has continued to enhance VCF since then. These enhancements include Private AI Foundation with NVIDIA, disaggregated compute and storage within the DHI platform (vSAN Max), as well as the NSX- and Aria-enabled Virtual Private Cloud. The vendor serves customers of all sizes across all geographies with VCF. Its key DHI vertical markets include banking, finance, insurance, government, healthcare and life sciences. VCF is a competitive offering for hybrid infrastructure management, edge computing and container deployment use cases.

Strengths

- **Skills prevalence:** VMware-based offerings have a large global installed base. These existing VMware users have a natural pathway to apply their existing VMware knowledge and skills to VCF.

- **Single DHI product:** Broadcom's focus on VCF as a single, flagship DHI offering with license entitlement portability makes it easy for clients to evaluate and recognize VCF's DHI features and functionality.

- **Partner integration:** VCF can be purchased as an integrated appliance or delivered as a service through a variety of hardware partners, including Dell Technologies, Hewlett Packard Enterprise and Lenovo, as well as hyperscale cloud providers such as Amazon Web Services, Google, Microsoft, IBM, Oracle and hundreds of cloud service providers globally.

Cautions

- **License changes:** The vendor's shift from perpetual licenses to subscriptions, and its product restructuring, has raised costs among many existing users of VMware solutions. This is

causing numerous Gartner clients to create longer-term plans to avoid VCF or move away from it.

- **Broadcom brand:** Broadcom's history of acquisitions and its business practices have negatively impacted VMware's brand. This brand image is deterring some potential DHI customers from evaluating and selecting VCF.

- **Solution support:** As Broadcom has transitioned from VMware support systems to Broadcom support, many Gartner clients have expressed negative experiences in sales and solution support.

Huawei

Huawei is a Niche Player in this Magic Quadrant. This evaluation focuses on HUAWEI CLOUD Stack Online, an extension of Huawei Cloud that uses the same architecture, cloud services and APIs. Most of Huawei's DHI revenue comes from China, but with some deployments in Southeast Asia, the Middle East and Latin America. The customers of Huawei's DHI solutions tend to be midsize to large enterprises, government agencies and telecommunications carriers that gain consistent use experience on cloud and on-premises deployments through Huawei Cloud Stack. In April 2024, Huawei made CloudPond, which was renamed from IES, generally available. It focuses on locally deployed Huawei Cloud infrastructure with low latency, scalable up to 16 racks. Huawei's DHI solutions are suited to those seeking a centralized control plane and large-scale hybrid solution that spans on-premises and edge locations.

Strengths

- **Fast growth in China:** Huawei's cloud revenue has been growing quickly, giving it a strong position in the public cloud market on the Chinese mainland. This makes Huawei a serious DHI contender for organizations in this region.

- **Telecommunications expertise:** Huawei is one of the world's leading providers of carrier solutions for the telecommunications sector. Its telecom and network expertise helps it support hybrid cloud customers, enhancing the quality of connectivity across different environments.

- **End-to-end life cycle solution:** Huawei builds, deploys and supports the entire DHI solution stack, from hardware such as network devices, servers and storage to software such as the operating system and modeling.

Cautions

- **Geopolitical situation:** The U.S. sanctions on Huawei continue to impact the vendor's supply chain and product planning globally, which has raised concern among potential customers.

- **AI capabilities:** Huawei's DHI solutions extend its public cloud solution to hybrid cloud within edge applications. However, the vendor lacks an NVIDIA-based solution to enable most popular AI platforms and capabilities. In addition, its proprietary AI infrastructure, based on its Ascend series of AI processors, Pangu 5.0 and industrial modeling, is not widely available outside of China, with the exception of Singapore.

- **Ecosystem support**: Huawei's DHI solutions face challenges in gaining traction among partners outside of China, thereby limiting customer options for implementation assistance outside of China.

IBM

IBM is a Visionary in this Magic Quadrant. This evaluation focuses on its IBM Cloud Satellite hybrid cloud management solution, IBM Fusion HCI System, Watson AIOps with IBM Turbonomic and Ansible Automation Platform, OpenShift cluster management, and Red Hat OpenShift, which provides a container environment. IBM also provides the Power Virtual Server and Power Private Cloud deployment options. The vendor is a global provider, and its clients tend to be large and midsize enterprises in all verticals. Since last year, IBM has added enhanced PowerVC/OpenStack interfaces for monitoring cloud resource utilization. It has also added IBM Cloud Pak for AIOps to improve cloud optimization of application resource use and help control costs, and has enhanced IBM Power Private Cloud for business continuity and cloud resilience. IBM's DHI solution is well-suited for hybrid, cloud-native and assured workloads.

Strengths

- **Cloud-native infrastructure**: IBM ensures a unified platform experience across various public clouds, including its own, by leveraging OpenShift and IBM Cloud Satellite, thereby facilitating the deployment of modernized applications in a hybrid multicloud environment.

- **Expansive infrastructure offerings**: IBM has a comprehensive suite of offerings such as Fusion HCI System, OpenShift, Cloud Satellite, IBM Power Private Cloud, and IBM Power Virtual Server. This gives it a distinctive advantage in assisting customers to seamlessly integrate business-critical applications across platforms such as IBM Power Systems and x86 into a distributed hybrid solution.

- **Vertical support**: IBM has directed its focus toward delivering cloud solutions tailored for regulated industries such as financial services and retail, equipped with specialized capabilities to meet industry-specific requirements.

Cautions

- **Deployment complexity:** In the IBM DHI portfolio, there are still complexities in virtual machine deployment selection (e.g., PowerVM versus OpenShift virtualization), and challenges around container management, configurations and cluster life cycles, which may result in inconsistencies between cloud and on-premises deployments.

- **Product integrations:** IBM's DHI product offerings continue to leverage Red Hat OpenShift Virtualization to support management of virtual machines. It is still a relatively new technology and is not as proven for running large-scale production workloads and implementations.

- **Business continuity configuration limitations:** For IBM Cloud Satellite, IBM requires configuration of control plane nodes for high availability. It also does not allow changes in the number of master instances or how high availability is configured, since the Cloud Satellite

management plane is managed by IBM. This can lead to complex management of SLAs for IBM Cloud Satellite products.

Microsoft

Microsoft is a Leader in this Magic Quadrant. This evaluation focuses on Azure Stack HCI, Azure Arc and Azure Kubernetes Service (AKS) enabled by Azure Arc. Azure Arc extends the Azure platform control plane to data centers and edge. Azure Stack HCI is a hyperconverged solution that can be deployed at customer locations using the Azure Arc framework. AKS is a managed Kubernetes service that can provision and maintain a Kubernetes cluster on-premises. Microsoft's DHI offering focuses on the worldwide retail and industrial sectors of all sizes. Recent releases include AKS enabled by Azure Arc as a default installation, Azure Virtual Desktop on Azure Stack HCI (for host pool installation), Azure Arc-enabled VMware vSphere and updates for AKS. Microsoft DHI is best-suited for the edge, assured and hybrid infrastructure workloads.

Strengths

- **Brand recognition:** With a proven track record and a deep understanding of the requirements of this market, Microsoft stands out as a reputable DHI provider that offers a range of public cloud services and on-premises data center solutions.

- **Single DHI offering:** Microsoft DHI customers value the convenience of a single DHI offering that simplifies their selection process and allows for unified management for multiple infrastructure services. The solution is deployed through OEM partners including Dell Technologies, Hewlett Packard Enterprise, Lenovo and DataON.

- **Unified management capabilities:** Services enabled by Azure Arc extend Azure controls and processes to other public cloud, private cloud and edge deployments. Users can conduct monitoring and security posture management through the Azure control plane with Azure Update Manager, Microsoft Defender for Cloud, and Azure Monitor for fleet orchestration, updates, monitoring and alerting.

Cautions

- **Complexity of offering:** Some Gartner clients find it challenging to manage the entire hardware and software solution stack seamlessly because it requires the use of multiple administration tools, including different generations of Microsoft solutions, potentially necessitating the acquisition of new skills.

- **Scalability:** Azure Stack HCI is rarely considered for scenarios beyond edge computing, due to its limited traction for large single-site deployments and private cloud migrations.

- **Security management:** Despite Microsoft's ongoing efforts to enhance the security of Entra ID integrations within its products, there is still room to improve its DHI security capabilities.

Nutanix

Nutanix is a Leader in this Magic Quadrant. This evaluation focuses on Nutanix Cloud Platform (NCP), which includes Nutanix Cloud Infrastructure, Nutanix Cloud Clusters (NC2), Nutanix Cloud Manager and Nutanix Unified Storage. Nutanix is a global provider and its clients tend to be enterprises of all sizes. The vendor focuses on the public sector, financial services and healthcare verticals. Over the past 12 months, Nutanix has continued to enhance its offering with features including its GPT-in-a-Box AI-ready platform, Nutanix Kubernetes Platform (NKP) and Nutanix Data Services for Kubernetes (NDK). NCP is suited to hybrid infrastructure management, assured workloads and edge computing use cases.

Strengths

- **Capability improvements:** Numerous customers use HCI software as a stepping stone to hybrid cloud. Based on its hyperconverged software market leadership, Nutanix has been able to invest significantly in R&D to improve NCP's capabilities.

- **Migration simplicity:** Nutanix customers often cite the offering's ease of use, including the ability to manage multiple hypervisors, which can streamline management and VMware vSphere migration.

- **Licensing portability:** Gartner clients have emphasized the benefits of Nutanix's licensing portability, which allows customers to seamlessly use multiple server hardware solutions, as well as AWS and Azure cloud providers. This enables customers to easily expand their hybrid cloud capabilities.

Cautions

- **Company scale:** In comparison to the larger providers in the Leaders quadrant, Nutanix is relatively smaller in terms of company scale.

- **Public cloud deployment:** Many customers are considering Nutanix tactically to shift away from VMware. Nutanix is not a public cloud-native offering, so it may not appeal to organizations seeking a longer-term strategic public cloud-based option.

- **Licensing heterogeneity:** Customers may face challenges when seeking as-a-service consumption-based models with Nutanix, as these models are not consistently available across its entire product portfolio, potentially leading to a complex purchase process.

Oracle

Oracle is a Leader in this Magic Quadrant. This evaluation focuses on Oracle Cloud Infrastructure (OCI) Dedicated Region, Oracle Compute Cloud@Customer and Oracle's multicloud services, which enables Oracle services on dedicated infrastructure within multiple clouds as well as direct connectivity between clouds. Oracle is a global provider and its DHI customers tend to be large enterprises with significant investments in other Oracle products. Oracle's DHI solutions serve a broad range of industries, including government, financial services and telecom providers. Over the past year, Oracle has added Oracle Database@Azure to its multicloud capability. It now has sovereign AI capabilities that enable AI workloads to be run on OCI Dedicated Region if they are in a region with data sovereignty requirements. Oracle's DHI solution is suitable for users with data

sovereignty or local deployment requirements and users who need access to Oracle Database services in a multicloud environment.

Strengths

- **Operations**: Oracle consistently manages its full range of deployments. Its ability to deploy up to a full OCI Dedicated Region on customer sites delivers full parity of services and consistent pricing in the cloud and on-premises.

- **Flexible, assured workloads model:** Oracle DHI can be delivered as a fully managed service, as a cloud region or on customers' premises. Alternatively, it can support a fully air-gapped, customer-managed solution for high-security or sovereign clouds.

- **Multicloud**: Oracle offers high-performance interconnects to Microsoft Azure and AWS (connections to Google Cloud Platform were announced after the evaluation cutoff date for this Magic Quadrant and were not evaluated). It also provides Oracle services in both clouds, enabling integration between OCI and other public clouds.

Cautions

- **Traction**: Oracle's DHI compute solution, Oracle Compute Cloud@Customer, is rarely shortlisted by DHI prospects unless they are already invested in Oracle Exadata implementations.

- **Generative AI capability:** OCI's generative AI strategy is less mature than that of other public clouds, and its messaging is not as strong. OCI's AI infrastructure is not yet well-differentiated in the market, although it has some unique capabilities for sovereign cloud and GPU clustering.

- **Legacy perceptions**: Many enterprises hesitate to commit to an OCI platform, due to concerns (raised by Gartner clients) regarding Oracle's typical behavior regarding traditional on-premises software sales.

Tencent Cloud

Tencent Cloud is a Niche Player in this Magic Quadrant. Its Cloud Dedicated Zone and Cloud Dedicated Cluster focus on providing a distributed public cloud solution targeting the edge. It also offers a private cloud or hosted option using Tencent Cloud Enterprise. In addition, it offers a cloud-native solution through Tencent Cloud-native Suite, along with Tencent Kubernetes Engine (TKE) Anywhere and TKE registered nodes. The vendor's DHI solution also enables industrial deployment on AI and IoT capabilities. Tencent Cloud DHI serves large traditional enterprises in China that need private cloud or hybrid cloud solutions, as well as Chinese enterprises expanding overseas. The vendor has strengthened its DHI product line to improve cloud-native solutions and the TKE families, and for industrial solution deployment. Tencent Cloud's DHI solution is suitable mainly for media, gaming and e-commerce customers, and also for manufacturing organizations and government agencies.

Strengths

- **Committed investment:** In the past several years, Tencent Cloud has invested in private cloud solutions and TKE with its public cloud services, and has extended its DHI product line from

private cloud to hybrid cloud, distributed cloud and edge. It offers customer-dedicated cloud solutions, as well as local hosting cloud capacity with cloud-dedicated zones.

- **Infrastructure-neutral:** The vendor's private cloud solution can use customers' existing infrastructure if it meets the minimal configuration requirement. It is a logical choice for hybrid cloud customers in China that prefer to use existing infrastructure platforms.

- **Open-source engagement:** Tencent Cloud deeply engages with Kubernetes technologies as the control plane in its DHI solutions. It uses industry-leading open-source technologies that can support customization to meet business expectations.

Cautions

- **Limited international availability:** Tencent Cloud derives much of its revenue from the Chinese market, and some of its key distributed cloud products, such as Tencent Cloud Edge Zones and TKE register nodes, are not available internationally. Few of the vendor's customers have deployed both public and private cloud solutions outside China. Not all of its DHI product portfolio has support documentation in English.

- **Marketing visibility/strategy:** Despite investment in global DHI products, it is hard to identify Tencent Cloud's target customer persona. Its historical strengths in gaming and social networking are evident in its PaaS services, but not in any of the DHI solutions tailored for these markets.

- **Product segmentation:** Tencent Cloud's DHI has developed a range of products that cater to various scenarios, including private, hybrid cloud and edge solutions. However, the presence of overlapping features within the product offerings can potentially complicate the decision-making process for DHI customers.

Inclusion and Exclusion Criteria

To assist Gartner clients in vendor selection, Magic Quadrant research identifies and then analyzes the most relevant providers and their products in a market. Gartner uses by default an upper limit of 20 providers to support the identification of the most relevant providers in a market. On some specific occasions, the upper limit may be extended by Gartner Methodologies where the intended research value to our clients might otherwise be diminished. The inclusion criteria represent the specific attributes that analysts believe are necessary for inclusion in this research.

Inclusion Criteria

To qualify for inclusion, providers:

- Must sell DHI offering aligning to the DHI market definition. All mandatory features must be generally available as of 1 April 2024.

- Must show evidence of 60 enterprise customers deploying products in distributed hybrid infrastructure scenarios or must have reported over $50 million in ARR contract value as of 1 May 2024.

- Must show evidence that all DHI production customer deployments are across on-premises and at least one hyperscale strategic public cloud environment (see Magic Quadrant for Strategic Cloud Platform Services). For hyperscale cloud providers, there should be evidence of on-premises or edge DHI deployment and software providers or full-stack HCI vendors, as well as evidence of the deployment of a DHI offering in the hyperscale strategic public cloud.

- Customer Interest Indicator (CII): Rank among the top 15 organizations in the CII as defined by Gartner for this market. Data inputs used to calculate the last 12 months of DHI customer interest include a balanced set of measures, such as:

  - Customer searches on g.com, inquiry volume and trend data

  - Volume of job listings specifying experience with the DHI offering as a job requirement on job placement boards (e.g., LinkedIn, Indeed) and/or on a range of employment websites in the U.S., Europe and China

  - Frequency of mentions as a competitor of other DHI vendors within reviews on Gartner Peer Insights between April 2023 and May 2024

  - Social media presence and engagements

  - Customer wins

- Regions: All DHI offerings must have at least 10 production customers per region in on-premises data centers in at least four out of seven global regions (North America, Europe, Asia/Pacific [excluding China], Latin America, China, Middle East and Africa).

- Business capabilities:

  - Must be the primary developer and IP owner of the software components of DHI (control plane and hypervisor), with an exception of open-source-based products. If any part of the technology is based on open source, the vendor should be one of the top 10 open-source project contributors.

  - Must have 24/7 DHI customer support (including phone support). There must be an English-language localization of the contract, service portal, documentation and support.

  - A managed service minimum DHI availability of not lower than 99.9%.

- Technical capabilities relevant to Gartner clients:

  - Must offer the ability to deploy and operate the DHI where the customer prefers, including on-premises, at the edge or colocated.

  - Must offer the ability to deploy and operate the DHI in one or more hyperscale public clouds.

- Integrated vendor-engineered solution comprising compute, storage and networking services.

- Vendor-developed DHI control plane that provides a secure, automated and integrated capability for onboarding, operating, life cycle management of infrastructure, and supporting the distributed infrastructure on-premises and in the public cloud

- Ability to address four out of six use cases defined in the companion Critical Capabilities research.

Exclusion Criteria

Offerings are excluded from this Magic Quadrant if they are exclusively marketed and sold as container management infrastructure products and can't accommodate virtual machine infrastructure. In addition, offerings are excluded that do not have an ability to deploy full DHI services in the hyperscale public cloud.

Honorable Mentions

Gartner tracks more than 20 vendors in this market. Nine vendors met the inclusion criteria for this Magic Quadrant, but the exclusion of a vendor does not mean that the vendor and its products lack viability. Following are several noteworthy vendors that did not meet all the inclusion criteria for distributed hybrid capabilities, customer numbers and regional requirements, but could still be suitable for clients depending on their specific deployment patterns.

Google Cloud Platform: Google Distributed Cloud (GDC) serves customers with specific data residency, security or privacy needs. It is a portfolio of hardware and software solutions that extend Google Cloud Platform infrastructure to the edge and on-premises data centers for both connected and air-gapped deployment scenarios.

Red Hat: Red Hat OpenShift, in conjunction with OpenShift Virtualization, forms a cohesive solution that merges the capabilities of containers and virtual machines within a unified platform. This software-defined solution offers deployment flexibility, extending its reach to various customer-preferred locations, such as the edge, public cloud or data center environments.

SUSE: Harvester is SUSE's HCI solution based on Kubernetes and KVM technologies, integrating Rancher's enterprise container management platform with virtualization management. Harvester operates on bare metal and offers integrated virtualization and storage, supporting both virtual machines and containerized environments. When used together, Rancher and Harvester streamline Kubernetes cluster management with multicluster control and flexible infrastructure support in the data center that can also extend to edge locations for practical application modernization.

Evaluation Criteria

The Ability to Execute criteria for this Magic Quadrant are as follows:

Product or service: This criterion covers the assessment of vendor capabilities to deliver and differentiate features and functionality supporting most market use cases, diversification of customer use across the vendor's portfolio and the scope of issues impacting customer experience.

Overall viability: This criterion covers the assessment of a vendor's key financial, staffing and customer base growth metrics.

Sales execution/pricing: This criterion covers the assessment of a vendor's success in the market. Considerations include results of new versus repeat business, growth of new DHI customers and changes in customer investments. Adaptations to sales and presales efforts and levels of pricing transparency are also considered.

Market responsiveness/record: This criterion evaluates the vendor's ability to deliver DHI products and capabilities that are first-to-market and differentiating compared to the competition, while also continuing to meet market demands and gaps in their portfolio.

Marketing execution: This criterion evaluates the vendor's ability to create mind share, expand to new markets and build sales pipeline in the DHI market.

Customer experience: This criterion evaluates the vendor's ability to demonstrate continued client satisfaction and its improvements, and provide distinct customer support capabilities.This also focuses on how the vendor is perceived in the market, and how well its marketing programs are recognized. The evaluation focuses on how well the vendor is able to influence and shape perception in the market through marketing activities and thought leadership that drives awareness. An additional indicator for this criterion is how often Gartner clients inquire about a specific vendor in terms of capabilities/reputation or in a shortlist evaluation process.

Operations: This criterion looks at the ability of the vendor to meet goals and commitments. Factors include quality of the organizational structure, skills and relationships, and the vendor's ability to meet SLAs. Considerations include partnerships with other technology providers, outages that affect customers and SLA-adherence

Ability to Execute

Table 1: Ability to Execute Evaluation Criteria

Evaluation Criteria ↓	Weighting ↓
Product or Service	High
Overall Viability	High

Evaluation Criteria ↓	Weighting ↓
Sales Execution/Pricing	High
Market Responsiveness/Record	Medium
Marketing Execution	Low
Customer Experience	High
Operations	Low

Source: Gartner (October 2024)

Completeness of Vision

The Completeness of Vision criteria for this Magic Quadrant are as follows:

Market understanding: This criterion evaluates the ability of the vendor to understand customer requirements, align those requirements to its products and services, and evolve its product vision, based on its own established perspectives of the market's direction.

Marketing strategy: This criterion evaluates the clarity of the vendor's marketing vision that highlights competitive differentiation and an understanding of personas engaged in solution selection.

Sales strategy: This criterion evaluates the vendor's ability to establish and update a sales strategy that aligns with company goals and customer interest. Factors also include the vendor's ability to reach customers directly and expand coverage through its network of partners.

Offering (product) strategy: This criterion evaluates the vendor's product planning, emphasizing its alignment to shortcomings, commitment to differentiation and improvement of existing capabilities.

Business model: This criterion evaluates the vendor's strategies to sustain its business in the market.

Vertical/industry strategy: This criterion evaluates the vendor's strategy to direct its product offerings, its alignment with industry-specific technology providers and its resources to meet

specific vertical market requirements.

Innovation: This evaluates the plans to bring future differentiated capabilities to market that will enhance the vendor's ability to interact with customers and drive business. This criterion evaluates the vendor's strategy for reinvestment and its differentiating innovations in product design and capabilities, introduction of new technologies, third-party partner relationships, integration, and overall differentiation in the DHI market.

Geographic strategy: This criterion evaluates the vendor's strategy to direct resources, skills and product offerings to meet needs across the most major geographies.

<p style="text-align:center">**Table 2: Completeness of Vision Evaluation Criteria**</p>

Evaluation Criteria ↓	Weighting ↓
Market Understanding	High
Marketing Strategy	Medium
Sales Strategy	Medium
Offering (Product) Strategy	High
Business Model	Medium
Vertical/Industry Strategy	Low
Innovation	High
Geographic Strategy	Medium

Source: Gartner (October 2024)

Quadrant Descriptions

Leaders

Leaders distinguish themselves by offering a service suitable for strategic adoption and having an ambitious roadmap. They can serve a broad range of use cases. However, they do not excel in all areas, may not necessarily be the best providers for a specific need and may not serve some use cases at all. Leaders in this market have appreciable market share and many referenceable customers supporting multiple geographies, verticals and deployment models.

Challengers

Challengers are well-positioned to serve some current market needs. They deliver a good service that is targeted at a particular set of use cases, and they have a track record of successful delivery. However, they might not adapt to market challenges quickly enough or do not have a broad scope of ambition. These vendors have the potential to establish themselves across the broader global market, but have not yet done so.

Visionaries

Visionaries are typically vendors that focus on strong innovation and product differentiation, with the potential to significantly disrupt the market if execution improves. Their services are still emerging, and they have many capabilities in development that are not yet generally available. Although they may have many customers, they might not yet serve a broad range of use cases well or may have a limited geographic scope.

Niche Players

Niche Players in the DHI market may be excellent providers for particular use cases or in regions where they operate, but they should ultimately be viewed as specialist providers. They often do not serve a broad range of use cases, deployment models or customer segments, or have a broadly ambitious roadmap. Some may have solid leadership positions in markets adjacent to this market, but have developed only limited global DHI capabilities.

Context

I&O leaders aspire to modernize their IT infrastructure through the integration of innovative technologies, while embracing the principles of cloud-native platform engineering. I&O leaders embarking on the journey of DHI that spans on-premises, cloud and edge domains should consider the following recommendations:

- **Strategic direction:** Craft a comprehensive hybrid platform strategy that aligns with their organization's long-term objectives, integrating on-premises, cloud and edge components cohesively.

- **Use case, workload analysis and prioritization:** Conduct an in-depth analysis of their workloads and applications. Review their needs and applicability for a DHI platform, and analyze performance, capacity metrics, SLAs and data requirements specific to each environment.

- **Strategic vendor collaborations:** Forge partnerships with DHI vendors offering unified solutions across the spectrum of on-premises, cloud and edge, ensuring full-stack infrastructure alignment and DHI solution applicability for the majority of use cases.

- **Security and regulatory compliance:** Implement robust security evaluation for DHI solutions, taking into account their unique requirements for data sovereignty, compliance and access controls to ensure both agility and security.

- **Leveraging edge advantages:** Harness the capabilities of DHI edge solutions to streamline latency-sensitive tasks, elevating performance and delivering enhanced user experiences at the source by enabling centralized management and standardized solution delivery.

- **Resource management:** Evaluate DHI control plane resource management and orchestration tools that enable hybrid cloud management across all deployment domains. Pay special attention to integration with existing systems and the capability to create infrastructure as code by leveraging available DHI management APIs.

- **Comprehensive testing and validation:** Prioritize comprehensive testing and validation of their distributed hybrid setup, identifying and addressing potential performance bottlenecks, integration and operational intricacies. Pay special attention to the ability for the DHI solution to function disconnected from the cloud control plane.

By embracing these recommendations, I&O leaders can confidently steer their organizations through the intricacies of distributed hybrid infrastructure, seamlessly integrating on-premises, cloud and edge environments to drive operational excellence and strategic success.

Market Overview

The market for distributed hybrid infrastructure was formed to address the need of I&O leaders to deploy standardized infrastructure platforms for any deployment scenario. Distributed hybrid infrastructure solutions attract customers that want a cloud IaaS solution (including compute, whether based on virtual machines, bare metal or containers; storage; and network services) without PaaS. DHI can be deployed where the customer prefers, whether on-premises, in the public cloud or on the edge.

The DHI market has emerged at the convergence of two trends: the adoption of distributed cloud solutions, extending public cloud services to noncloud environments, and the deployment of full-stack software-defined platforms or hyperconverged solutions in public cloud environments.

In this evolving market scenario, organizations are strategically recalibrating their approach, considering a diverse range of options at their disposal. Cloud-inspired on-premises solutions, championed by providers like VMware and Nutanix, offer a compelling distributed hybrid infrastructure avenue. Currently, these software solutions that facilitate smooth integration with existing infrastructures are being deployed on public clouds, contributing to the development of robust hybrid cloud architectures. This hybrid framework facilitates centralized control across an array of environments, encompassing on-premises, public cloud and edge infrastructure. The inherent orchestration and management capabilities of these solutions address the intricate operational needs of modern businesses.

Simultaneously, the assessment extends to the realm of distributed public cloud IaaS. Innovative solutions like AWS Outposts, Oracle Compute Cloud@Customer, Google Distributed Cloud, Alibaba Apsara and Microsoft Azure Stack are redefining boundaries, extending the reach of public cloud services. By venturing beyond conventional limits, these solutions empower organizations to deploy public cloud services in diverse, noncloud locations. This decentralized approach aligns with the escalating demand for computing resources that are both decentralized and centrally controlled.

As the concept of "pure IaaS" continues its evolution, the market dynamics are shaped by this convergence of on-premises, cloud-inspired solutions and the expansive reach of public cloud capabilities into distributed environments. I&O leaders navigating this landscape face a nuanced decision-making process. Their considerations span a spectrum of factors, including control, flexibility, scalability and the strategic alignment of infrastructure with overarching business objectives. Evaluating DHI solutions is challenging in the face of increasingly innovative on-premises infrastructure platforms versus the advance of distributed cloud solutions.

The market's defining attributes revolve around the distribution of the entire infrastructure stack, highlighting a paramount emphasis on centralized control and comprehensive management across an array of diverse infrastructure environments. This landscape also encompasses pivotal hybrid functionality, facilitating seamless deployment across on-premises, public cloud and edge infrastructure domains.

Acronym Key and Glossary Terms

Assured workloads	This represents the organizations that require a high security environment for the operation of regulated or legislated workloads where sensitive and/or confidential data will be processed.

Evidence

Vendor placement on the Magic Quadrant for Distributed Hybrid Infrastructure is based on Gartner's view of a vendor's performance against the criteria noted in this research. In addition, placement is heavily influenced by more than 1,300 Gartner client inquiries and one-on-one meetings regarding distributed hybrid cloud solutions, end-user surveys, Gartner conference kiosk surveys, Gartner conference session polling data, Gartner Research Circle polls and Gartner Peer Insights.

The included vendors submitted comprehensive responses to Gartner's Magic Quadrant survey on this topic, which were used as the basis for subsequent vendor briefings and follow-up meetings, product demonstrations and correspondence.

Additionally, this research drew input from other Gartner analysts, industry contacts and public sources, such as U.S. Securities and Exchange Commission filings, articles, speeches, published papers and public domain videos.

Evaluation Criteria Definitions

Ability to Execute

Product/Service: Core goods and services offered by the vendor for the defined market. This includes current product/service capabilities, quality, feature sets, skills and so on, whether offered natively or through OEM agreements/partnerships as defined in the market definition and detailed in the subcriteria.

Overall Viability: Viability includes an assessment of the overall organization's financial health, the financial and practical success of the business unit, and the likelihood that the individual business unit will continue investing in the product, will continue offering the product and will advance the state of the art within the organization's portfolio of products.

Sales Execution/Pricing: The vendor's capabilities in all presales activities and the structure that supports them. This includes deal management, pricing and negotiation, presales support, and the overall effectiveness of the sales channel.

Market Responsiveness/Record: Ability to respond, change direction, be flexible and achieve competitive success as opportunities develop, competitors act, customer needs evolve and market dynamics change. This criterion also considers the vendor's history of responsiveness.

Marketing Execution: The clarity, quality, creativity and efficacy of programs designed to deliver the organization's message to influence the market, promote the brand and business, increase awareness of the products, and establish a positive identification with the product/brand and organization in the minds of buyers. This "mind share" can be driven by a combination of publicity, promotional initiatives, thought leadership, word of mouth and sales activities.

Customer Experience: Relationships, products and services/programs that enable clients to be successful with the products evaluated. Specifically, this includes the ways customers receive technical support or account support. This can also include ancillary tools, customer support programs (and the quality thereof), availability of user groups, service-level agreements and so on.

Operations: The ability of the organization to meet its goals and commitments. Factors include the quality of the organizational structure, including skills, experiences, programs, systems and other vehicles that enable the organization to operate effectively and efficiently on an ongoing basis.

Completeness of Vision

Market Understanding: Ability of the vendor to understand buyers' wants and needs and to translate those into products and services. Vendors that show the highest degree of vision listen to and understand buyers' wants and needs, and can shape or enhance those with their added vision.

Marketing Strategy: A clear, differentiated set of messages consistently communicated throughout the organization and externalized through the website, advertising, customer programs and positioning statements.

Sales Strategy: The strategy for selling products that uses the appropriate network of direct and indirect sales, marketing, service, and communication affiliates that extend the scope and depth of market reach, skills, expertise, technologies, services and the customer base.

Offering (Product) Strategy: The vendor's approach to product development and delivery that emphasizes differentiation, functionality, methodology and feature sets as they map to current and future requirements.

Business Model: The soundness and logic of the vendor's underlying business proposition.

Vertical/Industry Strategy: The vendor's strategy to direct resources, skills and offerings to meet the specific needs of individual market segments, including vertical markets.

Innovation: Direct, related, complementary and synergistic layouts of resources, expertise or capital for investment, consolidation, defensive or pre-emptive purposes.

Geographic Strategy: The vendor's strategy to direct resources, skills and offerings to meet the specific needs of geographies outside the "home" or native geography, either directly or through partners, channels and subsidiaries as appropriate for that geography and market.

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