

Digital Infrastructure Strategy to Power a Data-Defined Future Enterprise



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As AI becomes an integral part of enterprise business strategy and operations, it is critically important for enterprises to plan their digital infrastructure journey in a manner that optimally meets their data and AI needs.

Introduction

We are at the threshold of a new phase of high-speed business growth powered by rapid advances in artificial intelligence (AI). IDC predicts that **“by 2025, 10% of A1000¹ companies will exploit innovative business models to double their monetization potential of generative AI”**, highlighting just how much of an impact the technology is going to have in the immediate future².

While AI has quickly become the technology of choice in the battle for competitive differentiation, digital infrastructure is the foundation necessary to effectively compete in this battle. And enterprises recognize this fact. Data from the *IDC Future Enterprise Resiliency and Spending Survey, Wave 5 (May 2024)* reveals that Asia/Pacific enterprises expect digital infrastructure-related spend (both capex and

AT A GLANCE

KEY STATS

- ▶ IDC predicts that by 2025, 10% of A1000 companies will exploit innovative business models to double their monetization potential of generative AI.
- ▶ Emphasis on “dedicated DataOps” is now the top consideration in the digital infrastructure strategy of Asia/Pacific enterprises, suggesting a pivot to data-led infrastructure decisioning.
- ▶ 72% of Asia/Pacific enterprises acknowledge having one or more workloads deployed in a true hybrid cloud setting.

WHAT'S IMPORTANT

Modern AI-ready, edge-optimized, autonomously managed, hybrid-cloud based digital infrastructure is a critical foundational requirement for enterprises to realize the full promise of the AI revolution. A capable digital infrastructure transformation vendor with the requisite assets, expertise, experience, and partnerships is vital to realize this vision.

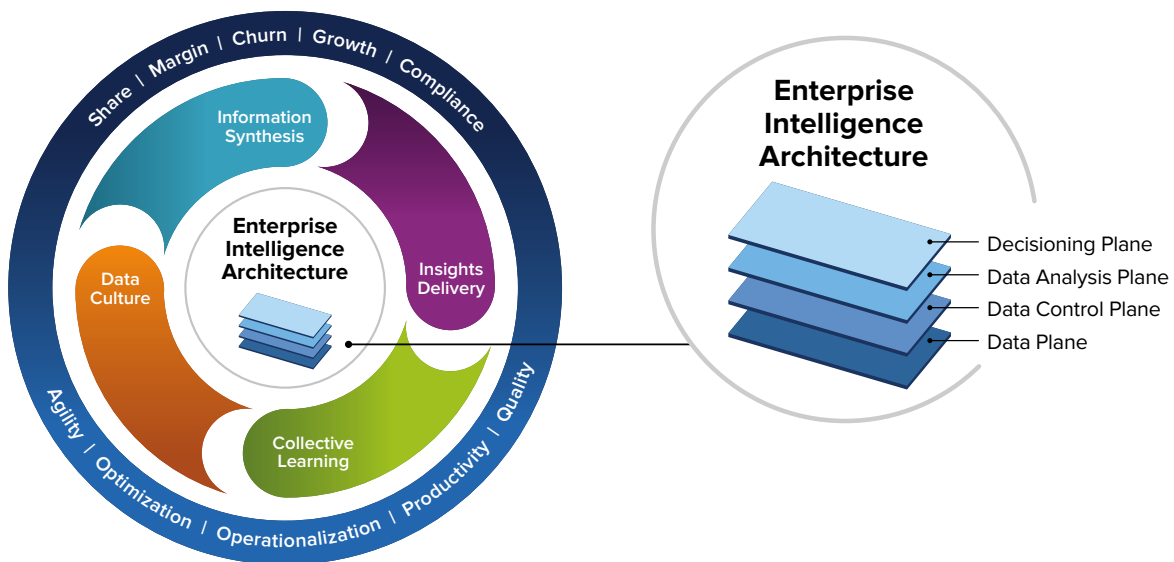
consumption-based-spending) to be the tech spending area that benefits most from the increasing investment in generative AI (GenAI) over the next 18 months. This is indicative of just how important setting up the right digital infrastructure foundation is for enterprise AI initiatives.

IDC’s research further indicates that the global AI infrastructure market (server and storage) is forecast to grow from \$28 billion at the end of 2022 to \$57 billion in 2027, at a CAGR of almost 50% higher than the broader enterprise infrastructure market. And GenAI is the killer app of our AI age, driving the growth of the AI infrastructure market. The share of GenAI in the overall AI server market is expected to increase from 20% in 2023 to 36% by 2027, and the numbers for the storage market are not too different. While GenAI is the vehicle that will transport us into the future, data is the fuel that powers this incredible machine.

The Role of Data in Enterprise Intelligence Architecture

Enterprises today consume a diversity of data from multiple sources (both internal and external), but it is often siloed and fragmented. This creates significant challenges for enterprises looking to leverage data quickly and effectively to generate meaningful business value through their analytics, automation, and AI initiatives. In fact, findings from IDC’s *Future Enterprise Resiliency and Spending Survey, Wave 1 (Q1 2024)* suggest that 50% of enterprises identify data (volume, storage, transport, and management) as the number 1 digital infrastructure challenge to successfully implement the highest priority GenAI use cases over the next 18 months. With CEOs and management board members placing emphasis on return on investment (ROI) as a measure of effectiveness of their technology investments, there is a temptation to go for the quick wins, by implementing point AI solutions that rely on very specific data. But rushing to implement AI use cases without getting the data architecture and management structure right will lead to suboptimal long-term outcomes.

FIGURE 1
The Enterprise Intelligence Architecture



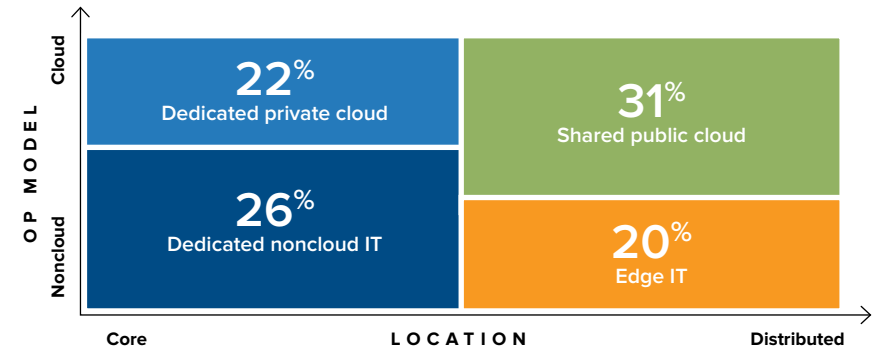
Source: IDC, 2024

The quality of outcomes from an enterprise’s intelligence and decisioning layers (Figure 1) depends on how effectively it builds on top of the enterprise data stores and data control plane. Disconnected intelligence and data architectures can result in implementation of great data management solutions that ultimately do not improve decision quality and velocity. So, how do enterprises make sure they put in place the right data architecture that feeds their intelligence engine? The answer lies in placing data at the heart of your enterprise architecture.

Allow Data Strategy to Inform Your Digital Infrastructure Choices

IDC’s research of end-user organizations reveals that enterprise AI deployments are in diverse environments — public clouds, private non-cloud IT, dedicated private clouds, and edge environments (Figure 2). As usage of AI within enterprises expands, future AI infrastructure environments will increasingly be multi and hybrid cloud in nature.

FIGURE 2
Hybrid Infrastructure Choices Expected for GenAI Workloads



Source: IDC, *The Future of Digital Infrastructure, 2024: AI-Ready Platforms, Operating Models, and Governance*, #US50614724

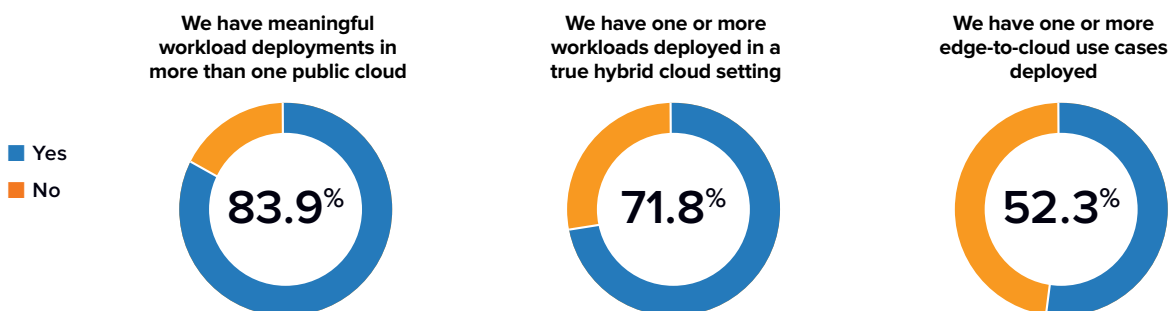
With future enterprise environments expected to feature a cocktail of models that will drive business value, enterprise decision-making relating to digital infrastructure choices will be heavily informed by the infrastructure’s ability to support the desired DataOps and ModelOps processes and practices. In fact, findings from IDC’s *Future of Digital Infrastructure Survey (2H 2023)* reveal that “emphasis on dedicated DataOps” has overtaken “workload placement (in the optimal infrastructure environment)” as the number 1 consideration in the digital infrastructure strategy of Asia/Pacific enterprises. This finding suggests a significant pivot from focusing on workload deployment (depending on where the infrastructure resources are at) to data-led infrastructure decisioning (building/deploying digital infrastructure closest to where the data is). In summary, the nature of the enterprise hybrid cloud will need to be determined by the requirements of the enterprise’s data location and intelligence architecture to optimally support the enterprise AI strategy.

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The Inexorable Shift Toward Hybrid and Multicloud Architectures

The enterprise prioritization of data and AI requirements in their IT choices and decision-making is beginning to reflect in the changing nature and characteristics of enterprise IT architectures. As enterprises contend with evolving requirements for data privacy, security, sovereignty, and regulatory compliance, in addition to considerations around manageability, performance and cost optimization, they are increasingly turning to hybrid and multicloud architectures (see Figure 3).

FIGURE 3
Enterprises Choose Hybrid and Multicloud Architectures



Source: IDC Asia/Pacific Enterprises Services Sourcing Survey, 2024; n = 1,000

However, while enterprise momentum toward hybrid and multicloud architectures is strong, there are numerous and diverse challenges enterprises face on their cloud journey. These include lack of necessary cloud skills, poor execution, operational/performance issues, budget overruns, vendor lock-ins, and multivendor management complexity, among others. These challenges not only trap enterprises into poor implementations and suboptimal outcomes, but also prevent them from establishing a robust foundation that is crucial for their enterprise AI journey. What is needed is a unified Digital Infrastructure framework that spans the breadth of the enterprise IT estate and facilitates highly automated and optimized modern operations to overcome these challenges.

A Digital Infrastructure Framework for the AI Age

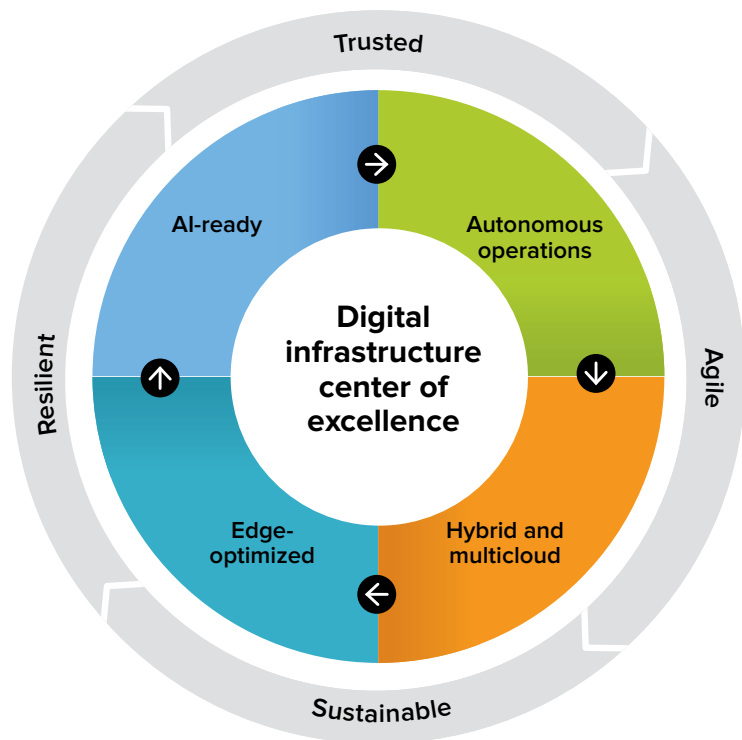
IDC defines Digital Infrastructure as providing “mission-critical underpinnings for agile digital business, including emerging workloads and use cases powered by high-performance, data-intensive AI technologies and automated DevOps and data science tools chains”. The IDC Future of Digital Infrastructure framework 2024 (see Figure 4) is intended to help enterprise IT decision-makers leverage emerging technological innovations, innovative operating models, diversified sourcing strategies and robust governance processes to prepare an agile, secure, resilient, and scalable digital infrastructure foundation to support their digital ambitions in an AI-first world.

The framework is built on the following key pillars:

- Autonomous operations** refers to infrastructure operations that are intelligent and automated. This is achieved by combining AI-powered analytics, software-defined programmable operations and policy as code options across interoperable and hybrid digital infrastructure environments. Key building blocks necessary for effective AI-enabled autonomous operations include predictive observability powered by AI, intelligent and adaptive hybrid and multicloud infrastructure automation, and GenAI for DevOps and DevSecOps toolchain integrations.

- Hybrid and multicloud interoperability** supports seamless portability and interconnectivity required by application workloads and data repositories that are distributed across diverse physical locations and infrastructure environments across the organization, in a secure, resilient, and compliant manner. To manage increasingly complex hybrid and multicloud environments, enterprises will need to adopt open standards and APIs, containerized application architectures, policy-driven workload deployment, automated data logistics and sovereign clouds and trusted infrastructure.

FIGURE 4
Future of Digital Infrastructure Framework



Source: IDC, 2024

- **Edge-optimized architectures** are crucial to anticipate and accommodate the increasingly distributed nature of enterprise compute and data management needs as the demand for intelligence manifests in every corner of the enterprise. Enterprise investments in edge-optimized infrastructure will need to include innovations such as edge-native, location-agnostic applications (which balance agility and performance with the physical realities of edge environments), smart edge systems (that support IT/OT convergence and software-defined OT) and hardened edge infrastructure.
- **AI-ready infrastructure** supports high-performance, large-scale needs of emerging data and computationally intensive workloads, including AI applications. As technological innovation pushes the boundaries of what is possible and opens new opportunities, enterprises need to stay prepared to rapidly identify and incorporate new infrastructure building blocks such as fit-for-purpose advanced coprocessors and accelerators, next-gen storage, quantum and confidential computing, and high-performance network fabrics into their IT landscape.
- **Digital infrastructure center of excellence (COE)** provides the governance and coordination that guides the evolution and advancement along all the other pillars. As the custodian of the enterprise Digital Infrastructure strategy, the COE is responsible for establishing the architectural policies and guardrails, data governance mechanisms, compliance frameworks, FinOps oversight, sustainable operations policies, and continuous modernization to eliminate technical debt build-up.

Benefits

The Future of Digital Infrastructure framework guides enterprises toward building a modern AI-ready, edge-optimized, hybrid enterprise digital infrastructure platform powered by intelligent, autonomous operations, and offers significant benefits:

- Automated multi and cross-cloud orchestration and management capabilities can help deliver seamless and optimized IT operations even as enterprises contend with a lack of critical cloud skills.
- Fully integrated and aligned digital infrastructure, and data and intelligence architectures significantly improve the quality and velocity of AI-driven decisioning.
- Dedicated digital infrastructure within an enterprise's hybrid cloud architecture can effectively support increasingly stringent regulatory and compliance requirements around digital sovereignty considerations for data and AI while continuing to derive value from cloud.
- Improved instrumentation and observability across the breadth and depth of an enterprise's hybrid IT estate, coupled with advanced usage analytics will help drive proactive performance management and cost optimization across complex and expensive resource-intensive use cases.

Considerations

As enterprises look to deploy future-ready digital infrastructure toward achieving their business goals and objectives from AI investments, they need to work through the following considerations to ensure that their digital infrastructure adequately supports their data strategy:

1. Work with business and function leaders to identify if current data sources and management models are fit for purpose. Identify gaps in internal and external data sources that can accelerate value. Eliminate accessibility barriers and break data silos.
2. Implement an end-to-end data strategy underpinned by an intelligent data fabric that automates data discovery, cataloging, access, updates, and usage policies consistently.

3. Embrace fit-for-purpose hybrid IT architectures that provide cost-effective, scalable, secure, and sustainable means to store, process, and service data at the most optimal location.
4. Ensure that the technology selection process incorporates considerations for seamless integration and interoperability not just across technology solutions, but also across the data and intelligence layers.

Conclusion

The age of AI promises to open limitless possibilities for innovative business models and ideas, richer experiential engagement and hyper-optimized operations. However, all these outcomes are premised on enterprises having established the right Digital Infrastructure foundation that enables them to amplify the value they derive from their data and AI initiatives.

The Future of Digital Infrastructure framework provides a pathway to enterprises looking to build a modern AI-ready, edge-optimized, hybrid-cloud enterprise digital infrastructure platform that is powered by intelligent autonomous operations. However, the journey to such a future-ready state of digital infrastructure is often complex and replete with challenges.

A capable digital infrastructure transformation vendor with the requisite assets (physical infrastructure, platforms, solutions, frameworks/methodologies), expertise (trained and certified manpower), experience (track record of successful digital infrastructure transformation engagements) and partnerships (ecosystem partnerships across hyperscale cloud providers, infrastructure OEMs, global systems integrators, ISVs etc.) is vital to realize a well-crafted, future-ready digital infrastructure strategy.

¹ Asia Top 1000 Companies

² Source: IDC FutureScape: Worldwide AI and Automation 2024 Predictions — Asia/Pacific (Excluding Japan) Implications

About the IDC Analyst



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Pushkaraksh Shanbhag is with the Asia/Pacific Cloud and IT Services Research group and leads the Asia/Pacific Analytics and Intelligent Automation Services research. Pushkar's domain expertise and research interests span Managed Cloud Services, Robotic and Intelligent Automation services (RPA/IA), Digital Workplace Services and Next-generation Infrastructure Services (hybrid infrastructure and management).

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