Everest Group® RESEARCH

Exploring Private Cloud for the Digital Age

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Private cloud is here to stay

Enterprise adoption of cloud is accelerating rapidly because it is the bedrock of digitalization. As digital journeys become more sophisticated – driven largely by rapidly changing business models – enterprise decisions around cloud models are increasingly focused on comprehensive business value rather than on cost reduction.

Despite the hype around public cloud being the key to digital success, private cloud continues to be an important component of enterprises' overall digital transformation plans as it continues to evolve to align to their transformation requirements. Private cloud for the digital age is being driven by software-defined stacks, containers, maturing cloud management platforms, and enterprise requirements for flexible performance and low latency for next-generation application architectures such as IoT and edge.

Consequently, current private cloud offerings are moving beyond addressing traditional concerns of latency, security, and control to providing a public cloud-like experience, agility, return on investment, and services breadth in private environments. Investments in private cloud stacks further by leading public cloud vendors amplify the importance of private cloud for the enterprise of the future.

The emergence of this evolved form of private cloud has expanded enterprises' cloud deployment options. However, to achieve sustainable business value from private cloud, enterprise focus needs to shift from a cost-/risk-based approach to a comprehensive value-based approach with an architecture that enables easy integration of innovation, centralized control, industry-specific value, flexibility of choice, and assured value.

In this report, we

- Examine the relevance and adoption of private cloud in the digital age
- Identify the key enterprise drivers of private cloud adoption
- Explore private cloud adoption across workloads based on top enterprise considerations
- Establish the private cloud blueprint for a digitalization framework underpinned by a value-driven framework for private cloud adoption
- Identify key features of the private/hybrid cloud architecture based on the framework
- Provide a service provider checklist to enable enterprise outsourcing decisions for private cloud

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Private cloud: a key strategic component of enterprise transformation

Everest Group take:

Enterprises are gravitating toward a cloud adoption strategy that takes a business value-driven approach across private and public cloud deployment models. The evolution of private cloud to include containers and software-defined stacks, coupled with public cloud vendors' investments in private cloud stacks validate the relevance of private cloud for the enterprise of the future.

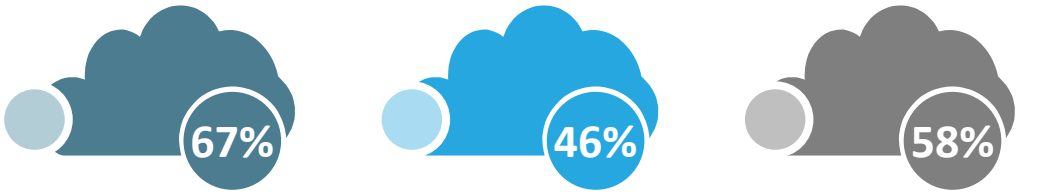
Private cloud adoption is on the rise

Enterprises have realized that public cloud alone is not the panacea for digital success. A vast majority of enterprises are moving toward a hybrid approach, understanding that public and private cloud models need to co-exist to maximize business value. Leading public cloud vendors, too, have acknowledged the demand for private cloud by ramping up investments in hybrid stacks to provide a public cloud feel on private environments.

EXHIBIT 1

Enterprise cloud strategy outlook[1]

Source: Everest Group (2019)



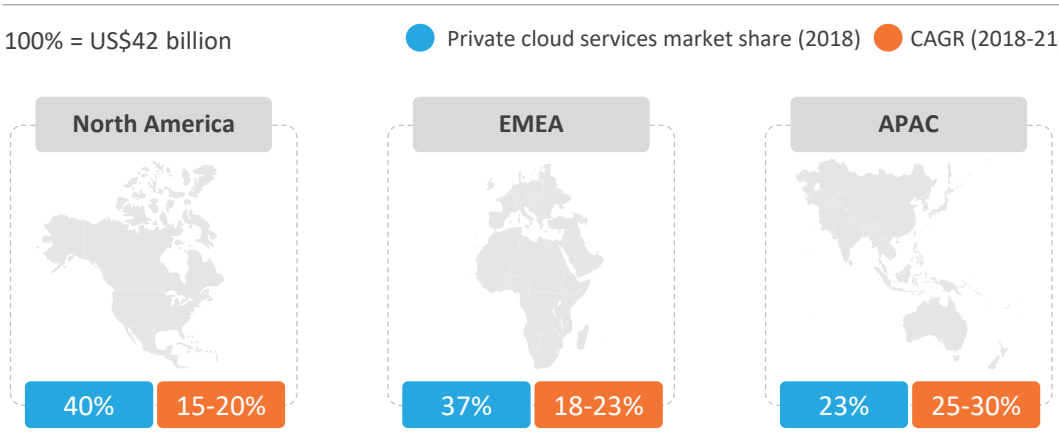
Within the US$96 billion global cloud services, the approximately US$42 billion private cloud services market has a healthy outlook propelled by:

- Advances in the private cloud stack driven by software-defined approaches offered by vendors such as HPE and Cisco to make consumption flexible and secure
- Increasing adoption of containerization to enable agile, flexible, and efficient operations
- Maturation of multi-cloud management platforms
- Enterprise requirements for high performance and low latency in the wake of data-driven application architectures such as edge, IoT, and AI

EXHIBIT 2

Market outlook by geography for private cloud services (Everest Group estimates)

Source: Everest Group (2019)



1 Everest Group survey with 200 CXOs from large enterprises (more than US$1 billion in revenues)

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Private cloud: decoding the why and where

Everest Group take:
Identification and prioritization of workloads for private cloud deployment need to be anchored to four key dimensions – workload requirements, control and governance, security and privacy, and return on investment (RoI) – to maximize value beyond cost savings. Furthermore, enterprise cloud journeys need to be highly contextualized to organization-specific constraints and culture.

Enterprise drivers of private cloud adoption

The explosion of data, digital innovation, and enhanced regulatory pressures are causing a shift in enterprises' expectations from private cloud. Enterprises increasingly expect the private cloud value proposition to move beyond latency, security, and control to include benefits such as cost efficiency, agility, future readiness, and service experience and breadth. As the use of containers ease adoption of PaaS, DevOps, and next-generation as-a-service offerings (for example, workplace-as-a-service and big data-as-a-service) on private cloud, enterprises have started to see this shift.

Despite the hype surrounding public cloud, enterprises now realize that there are on-the-ground challenges that accompany public cloud adoption which include hidden costs such as data transfer charges and unused instances, lack of proper governance mechanisms can cause cloud sprawl, management complexities involved in scaled public cloud migration and implementation initiatives, and lock-in challenges leading to enterprise concerns around flexibility to adapt to digital of tomorrow

Four key considerations underpin organizational drivers of private or hybrid cloud adoption:

- **Workload requirements**: Private cloud is highly relevant across many scenarios involving capacity and performance requirements, including:
  - Static workloads with predictable capacity needs
  - Traditional workloads that require low latency
  - Next-generation and data-driven workloads such as AI/ML, Virtual Desktop Infrastructure (VDI), and IoT which require high performance and low latency – the core underlying principle for these use cases is to bring the compute closer to data rather than the other way around
- **Control and governance**: Enterprises are adopting private cloud to ensure control of:
  - Data: Industries such as banking and healthcare operate within strict mandates around data governance. The introduction of IoT aggravates the problem of ensuring secure data access and usage. Consequently, enterprises are turning to private cloud, as part of a broader hybrid IT strategy, to ensure control and visibility of infrastructure, applications, and the underlying data
  - Architecture: Private cloud enables ease of customization such as enhanced network/storage performance and flexibility to make changes to the technology stack, in an agile manner, based on business and IT requirements
- **Security and privacy**: Due to increasing regulatory and privacy concerns, enterprises view private cloud as the de-facto model for data-sensitive workloads (e.g., customer or financial data). Furthermore, many mission-critical legacy applications continue to be strong candidates for private cloud to ensure availability, security, and agility
- **RoI**: Another key driver of private cloud adoption is enterprise focus on achieving RoI from existing investments in facilities and hardware. Additionally, enterprises have realized that private cloud can deliver higher RoI over public cloud in the long-term across consistent enterprise workloads

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Workload adoption characteristics for private cloud

The emergence of managed private cloud and containerization is broadening choice of cloud across workloads as organizations are starting to view private cloud as a viable option to transform and ensure digital readiness of their existing workloads.

Although workload demand, security, control, and RoI continue to be key considerations, enterprise cloud choice also depends on contextualized factors such as internal capabilities and company culture.

EXHIBIT 3

Current enterprise workload adoption for private cloud[1]

Source: Everest Group (2019)

Low ■■■□□□□ *High*

Workload	Propensity to adopt private cloud	Top enterprise considerations in choosing the cloud model
Traditional/complex transactional workloads	■■■■■■■	Cost efficiency and control
Testing / Quality Assurance	■■■■■□□	Cost efficiency
ERP / core business apps	■■■■■□□	Security and control
Analytics	■■■■■□□	Data privacy and performance
DevOps environments	■■■■■□□	Cost efficiency and control
Archival	■■■■■□□	Compliance and cost efficiency
Backup and DR	■■■■■□□	Security and control
Custom business apps	■■■■■□□	Performance and control
AI and ML (production)	■■■■□□□	Data privacy, performance, and internal capabilities
IoT applications	■■■■□□□	Performance, data privacy, and internal capabilities
AI and ML (training)	■■■□□□□	Performance, cost efficiency, and internal capabilities
Web applications	■■■□□□□	Scalability and cost efficiency
Collaboration	■■■□□□□	Cost efficiency
Mobile apps & CRM	■■■□□□□	Cost efficiency

1 Everest Group survey with 200 CIOs / IT heads of large enterprises (>US$ 1 billion revenue)

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The private cloud blueprint for digitalization

Everest Group take:

Enterprises need to have a well-defined adoption roadmap for private cloud. The private cloud of the future should ease the integration of innovation, address industry-specific nuances, provide unified control, avoid lock-in, and provide assured value through embedded automation and security.

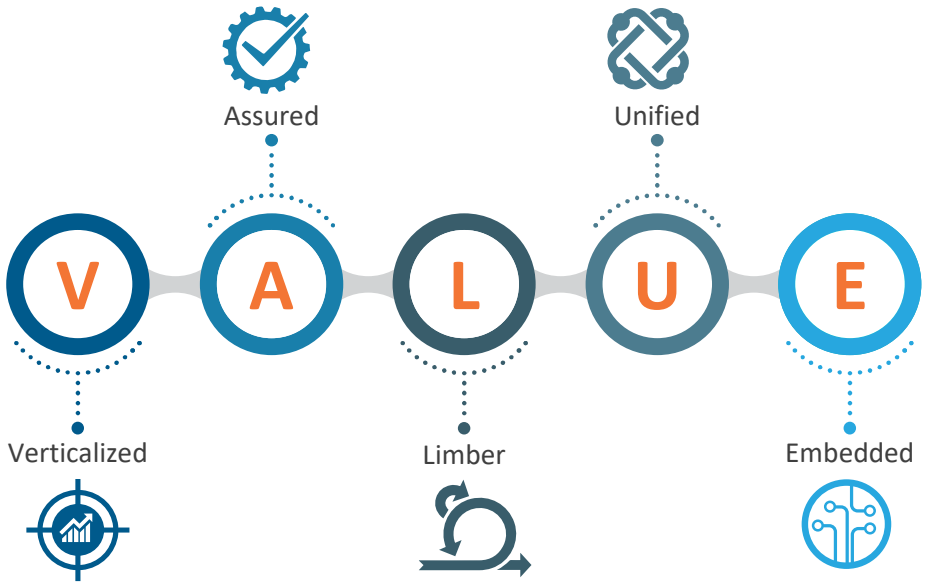
The VALUE framework for private cloud adoption takes a comprehensive and long-term view to drive sustainable business value.

As enterprises move forward in their private/hybrid cloud adoption journey, the focus needs to shift from a cost-/risk-based approach to a comprehensive value-based approach.

EXHIBIT 4

The VALUE framework for private cloud adoption

Source: Everest Group (2019)



Although hybrid stacks from leading public cloud vendors are gaining mindshare, **lock-in challenges with vendor architecture, integration challenges, and bloated costs due to investments in new/proprietary hardware and software** remain key challenges.

- **Verticalized:** Enterprises should strongly consider vertical-specific cloud blueprints to drive value contextualized to their specific industry. This can be achieved by mapping different elements / processes within an industry value chain with their suitability for public, private, or hybrid environment and as-a-service models. In addition to blueprints, cloud SLAs and KPIs need to be aligned to industry-specific business outcomes
- **Assured**: Enterprises need to derive value beyond infrastructure-specific SLAs – including business, application, and experience-level SLAs through intelligent operations aligned to workload-specific requirements. Examples of such metrics include number of late clinical trial submissions, percentage availability of business process application, or percentage of incidents remediated through self-heal
- **Limber**: Enterprise cloud architecture should be open and hybrid with built-in business- and app-centricity to enable flexibility of choice and future readiness, and avoid lock-in
- **Unified**: Enterprises need to have a unified view across the physical and virtual environments to provide enhanced visibility and control across infrastructure, applications, platform, and data. This view enables the creation of an intelligent, contextual, and cost-effective cloud

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- **Embedded:** Automation, security, and as-a-service offerings need to be embedded within the cloud architecture to achieve the triple mandate of cost-effectiveness, agility, and enhanced privacy and compliance

Application of the VALUE framework to enterprise cloud transformation gives rise to key features and functionalities of an ideal hybrid/private cloud architecture, as described in Exhibit 5

EXHIBIT 5

A VALUE-driven approach to hybrid/private cloud architecture

Source: Everest Group (2019)

VALUE dimensions	Key features
Verticalized	• Industry-specific blueprints for discovery, assessment, and roadmapping • Service offerings to include industry solutions/accelerators on cloud
Assured	• Business assurance by moving beyond cost savings and infrastructure-level SLAs to include application and experience-level SLAs • Performance and capacity assurance across workloads • Service management assurance; billing and chargeback capabilities
Limber	• Open standards to ensure flexibility of the platform to ease integration of innovation and interoperability with existing systems • Application-centric architecture to enable workload customization • Embedded DevOps to drive flexibility for digital innovation • Software-defined approach to enhance agility
Unified	• Multi-cloud management and orchestration capabilities • Single framework for managing the entire environment • Group-based policy across the stack
Embedded	• Automation tools and processes for discovery and assessment, application analysis, migration, and build and manage • Multi-cloud analytics capabilities; self-service for end user • Built-in security driven by security analytics and automation • As-a-service breadth to include disaster recovery, storage, archival, containers, big data, AI, workplace, database, middleware, etc.

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Platform-driven thinking is the way forward

Everest Group take:

As enterprises progress in their hybrid cloud journey, there is an increasing need to centralize and orchestrate cloud operations across multiple clouds within the organization, to enable greater visibility, control, and – consequently – business value. As a result, a platform-driven model for cloud management and orchestration, which provides a comprehensive view and control of multiple clouds, is key to a successful cloud strategy

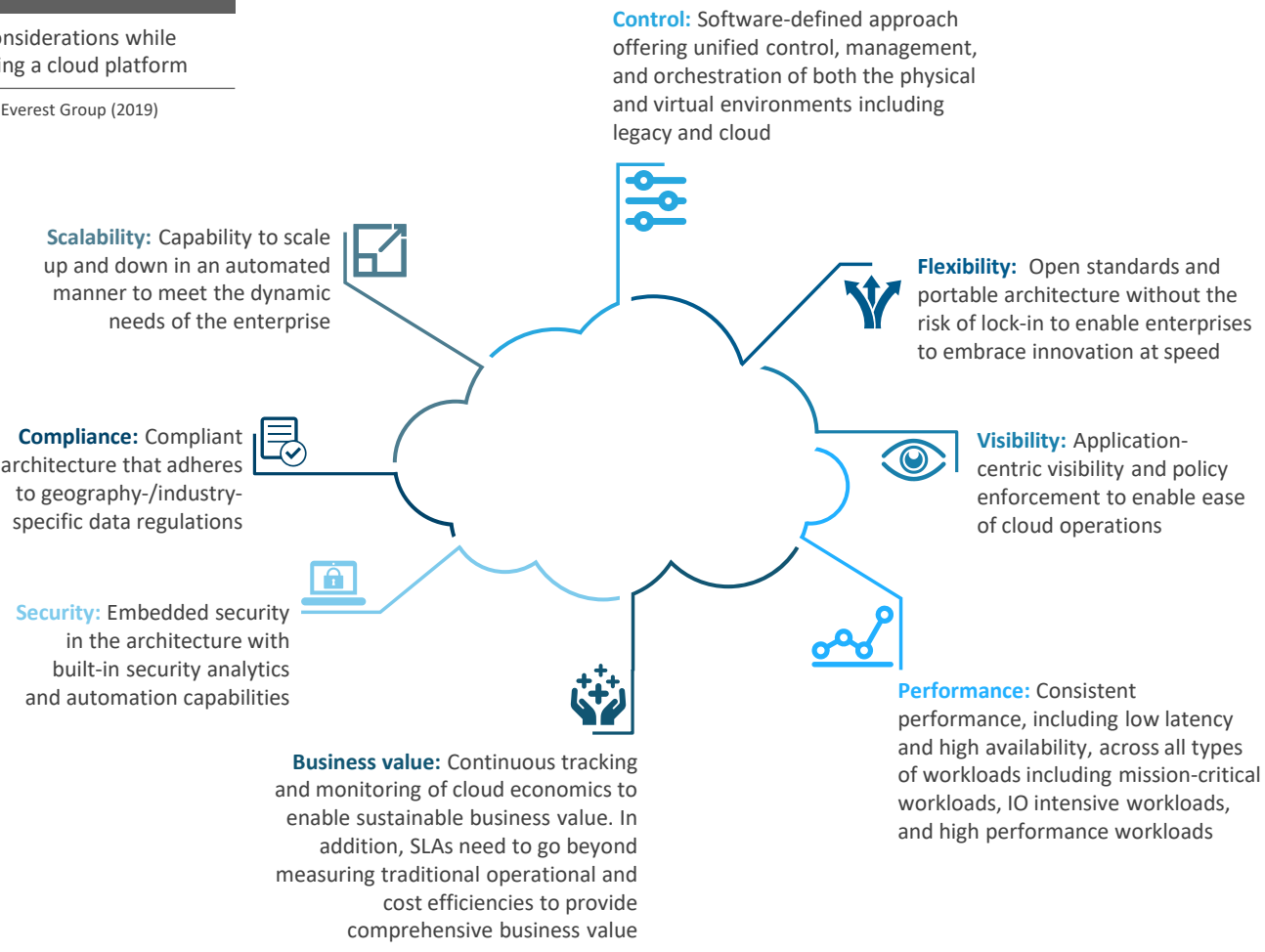
Enterprises are struggling to maximize value from hybrid/private cloud adoption due to siloed initiatives, which is leading to limited visibility and lack of unified control across multiple clouds. A centralized cloud platform can enable organizations to overcome this challenge, enhancing return on cloud investments.

However, to achieve the full potential of a cloud platform, it is imperative to have a robust platform architecture, underpinned by the VALUE framework, that provides the flexibility to assimilate future innovation without compromising on the enterprises' current needs. Choice of cloud platform needs to be driven by a key set of considerations as given below:

EXHIBIT 6

Key considerations while choosing a cloud platform

Source: Everest Group (2019)



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An enterprise checklist for private cloud sourcing

IT service providers can offer significant value to enterprise cloud transformation initiatives given their experience in driving large scale, complex transformations and private cloud adoption. It is intuitive that the enterprise cloud transformation journey will be critically dependent upon the capabilities of its cloud services provider.

Exhibit 6 offers a checklist to guide enterprises in their assessment of service providers' private cloud enablement capabilities.

EXHIBIT 7

Sourcing checklist for private cloud services for the digital age

Source: Everest Group (2019)

Enterprise imperatives	What to check for
Capability development/roadmap	• Does the provider have the right talent pool / tools and platform investments to drive private cloud transformation? • What is the provider's development roadmap for in-house solutions/frameworks to ease private cloud adoption? • Does the provider have industry-specific cloud blueprints and solutions/accelerators?
Business value	• Does the provider have well-defined value metrics aligned to business goals (e.g., agility, future readiness, and cloud cost optimization)? • Is the provider ready to contractually commit to delivering business outcomes?
Experience	• Does the provider have credible proof points of executing private cloud transformation at scale? • Does the provider showcase learnings from previous engagements to ensure seamless transition?
Flexibility	• Does the provider offer flexible commercial constructs to meet enterprise-specific requirements? • Does the provider offer open/flexible solutions to ensure ease of adoption/integration of new innovation and avoid lock-in?
Innovation and breadth	• Does the provider's as-a-service offerings for private cloud cut across IaaS, PaaS, and SaaS? • Does the provider's as-a-service portfolio include offerings for next-generation concepts such as AI, big data, and containers? • Does the provider offer pre-defined automation templates, analytics, cloud-native support, and built-in security within its private cloud offering/solution?

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This study was funded, in part, by TCS

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