

Infrastructure-as-a-Service

On-demand Cloud-based processing and storage power

Knowingly or not, most people use cloud computing every day. From online shopping to social networking to web searching, many of the world's most successful web businesses are built on cloud-based platforms. In fact, most businesses are considering cloud computing and how they can exploit the cost and flexibility benefits it offers.

and flexible infrastructure capacity, offering rapid provisioning, high availability and the potential to reduce carbon footprint, combined with full end-to-end management of your IT estate.

IaaS Delivers Value

Capgemini's IaaS platform delivers real business value quickly and cost effectively.

Speed to Value

On-demand pre-established infrastructure means, project teams can focus immediately on value creation and not on foundation tasks, such as establishing reliable and scalable infrastructure.

“Although many organizations first look at cloud IaaS because they're interested in cost savings, agility and flexibility, rather than cost, tend to be the eventual primary drivers.”

Gartner, Inc.: “Cloud Infrastructure as a Service: An Essential Overview”, Lydia Leong, 8 September 2010.

However, in order to derive optimum benefit from the cloud, it is necessary to understand and address the challenges associated with cloud security, migration and implementation.

Capgemini's Infrastructure-as-a-Service (IaaS) offering, bridges the gap between the traditional on-premise physical architectures and the public cloud, combining the operational, 'pay-as-you-go' cost model with the security of a direct connection to your network. IaaS provides scalable

A single integrated user experience

Enterprise network configurations can be extended into the IaaS cloud, providing connectivity to re-use and integrate into one seamless platform. The Capgemini IaaS provides low-impact migration to and integration with your existing infrastructure and applications, ensuring that a common look and feel is maintained between the existing platforms and the cloud-based services.

Business Agility

Infrastructure is available on demand and with minimal integration impact. There is no ICT procurement lead times or any prolonged development and test environment provisioning.

While public cloud service providers offer basic platform management, Capgemini addresses the requirement for new infrastructure capacity while continuing to maintain and support legacy platforms and, if contractually appropriate, client assets.

Cost Reduction

- CapEx is eliminated and like-for-like OpEx is greatly reduced.
- Programmatic automation and end-to-end control of the cloud infrastructure leads to dramatic service cost reductions.
- Cloud multi-tenancy provides shared allocations of management and operational overheads for lower operating costs.

Greener IT

Most organizations overprovision their infrastructure by at least 100%. Cloud can reduce the environmental impact of ICT mostly due to its flexibility and scalability, which make it far more resource-efficient. Capgemini's cloud services are provided from our and the world's most sustainable data centers with highly virtualized infrastructure and high-energy efficiency.

Reliability, Privacy and Governance

- Capgemini's cloud is deployed on highly available, resilient and redundant infrastructure for 24x7 operations. Our cloud model provides service levels that compensate the client for

unscheduled downtime, demonstrating our confidence in the service.

- Capgemini's cloud is a well-managed service with dedicated and multi-tenancy options.
- Capgemini's cloud multi-tenanted services are highly secure, with strict terms of service and acceptable usage policies to govern acceptable behavior.
- Capgemini's cloud services are backed by the knowledge and experience accumulated through our Cloud Center of Excellence since 2008.

Data protection and privacy laws vary from country to country. Capgemini supports clients' data protection initiatives by providing cloud-hosting facilities aligned to key data protection legislation in major North American and European markets.

Cloud and the Compute Continuum

Today, most ICT estates can include anything from bespoke legacy systems to standardized solutions, sometimes owned and operated by the business and sometimes by a third-party supplier. Increasingly, cloud-based solutions are being considered a part of this picture.

In practical terms, Capgemini envisages a service segmentation

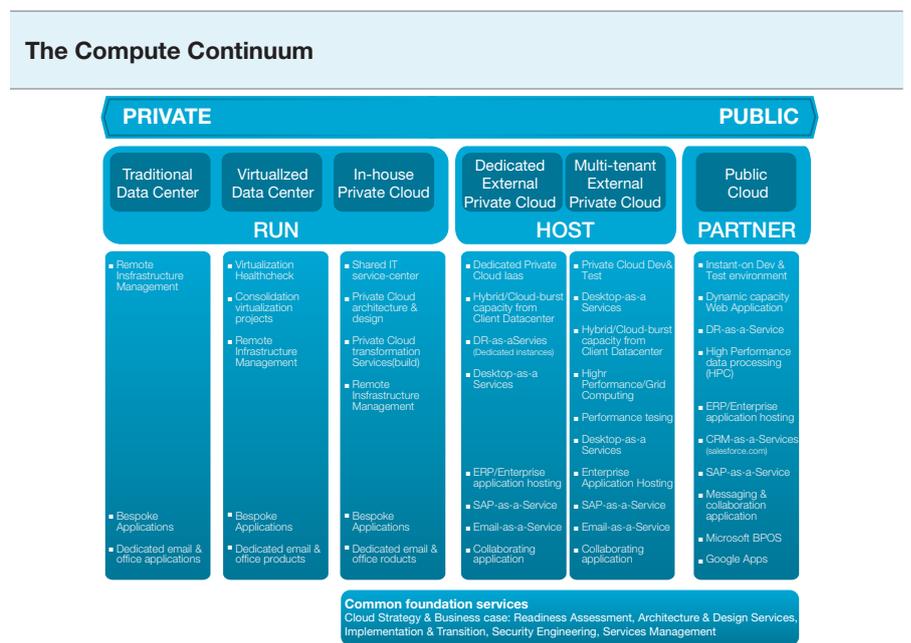
or Compute Continuum that runs from proprietary and discrete assets dedicated to a specific function, through the emergence and adoption of best practices in estate management, virtualization, consolidation, multi-tenancy and, ultimately, to public cloud in its truest sense.

Capgemini's approach to cloud delivery combines multiple sourcing strategies with the right blend of cloud services to function as one service within your environment. The optimal IT solution for each client is achieved by starting with a strong foundation of service management processes, selecting the right IT services for you, selecting the right cloud service provider for you, and combining them to add value to your business.

What do we mean by cloud computing?

Cloud services are the IT components used to build the optimal IT solution: Infrastructure, middleware platforms and applications are purchased on-demand and in a metered environment, allowing the business to align their IT requirements to key business metrics.

In technical terms, our cloud systems are separated into 2 key components



Cloud Management Platform CMP (also called Cloud Control System – CCS)

- The CMP is made up of a set of technologies that allow for a client portal (either web or API) to request Services from the Provider that utilize a system of automation, orchestration and provisioning mechanism to deliver the service back to the client
- It is the Management System that provides the Cloud Service to the client

Cloud Resource Pools – CRP (also called Pods)

- A CRP is a set of technologies such

as Compute, Storage and Network Infrastructure, Middleware and Applications that are combined to provide an IaaS, PaaS or SaaS provision to a client.

- It is the discrete set of technologies that makes up the service component.

Service and Commercial Flexibility

Different businesses face different challenges – from skills availability to security compliance or capacity limitations. According to industry

analyst firm Gartner, “Not all applications are suited for public cloud IaaS; and depending on the use case, you may want different sorts of offerings. Although there is rapid convergence between types of IaaS offerings, most such offerings are still better suited to certain use cases”¹. Capgemini’s IaaS platform is offered in the three following varieties to provide highly flexible commercial and service level terms:

Express Private Cloud	Enterprise Private Cloud	Select Private Cloud
<ul style="list-style-type: none"> ■ On-demand per-virtual machine, per-day or per-month flexible capacity with approvals and limits. ■ Pricing rate cards for standard virtual machine sizes. ■ 99.8% availability service level agreement. ■ Business Essential workloads (balanced performance, security and price). 	<ul style="list-style-type: none"> ■ On-demand per-virtual machine, per-day or per-month flexible capacity with approvals and limits. ■ Pricing rate cards for standard virtual machine sizes. ■ 99.9% availability service level agreement. ■ Business Sensitive workloads for applications requiring robust quality of service. 	<ul style="list-style-type: none"> ■ An isolated private service instance, based upon dedicated compute infrastructure. ■ Cloud commercial models and longer contractual durations. ■ 99.9% and higher availability service level agreement. ■ Mission Critical and Tier-1 workloads requiring high performance, isolated resource pools and regulatory compliance.
<p>Infrastructure is administered through a self-serve web interface. The infrastructure is shared across multiple clients to save money and to pool capacity availability.</p>	<p>Complete support through fully managed infrastructure and fully outsourced server management.</p>	<p>Dedicated compute and storage infrastructure for a single client within a common cloud management platform.</p>

What level of service best suits my requirement?

Client Challenges	Express Private Cloud	Enterprise Private Cloud	Select Private Cloud
Lack of available capacity of internal data center facilities	✓	✓	✓
Lack of growth capacity of internal data center facilities	✓	✓	✓
Trust and security threats within the public cloud	✓	✓	✓
Lack of the required knowledge, investment and change to develop an internal cloud	✓	✓	✓
Commercial models, investments and changes to develop internally are challenging	✓	✓	✓
Lack of business agility from current infrastructure provisioning capabilities	✓	✓	✓
Lack of quality SLA commitment from public cloud providers		✓	✓
Capital appropriation processes, payback periods for short-term requirements	✓		
Data under management requires high levels of protection and isolation			✓

Capgemini Cloud Services

Infrastructure-as-a-Service is one component of our comprehensive portfolio of cloud services and thought leadership encompassing infrastructure, applications and business processes.

Our approach to cloud service provision combines multiple sourcing strategies with the appropriate level and array of cloud services delivered collaboratively with our client. Getting this balance right ensures that we create and deliver the optimal IT solution for you; generating significant value by addressing your specific need for cost reduction as well as focusing on growth, innovation and sustainable competitive advantage.

Capgemini's breadth of technical expertise and depth of sector knowledge enables the delivery of cloud service solutions by pooling the skills of many of our technology and industry experts in core enabling technologies, including cloud assessment, Identity and Access Management, Service Management, Service Oriented Architecture, Risk Management and Compliance.

How we do it

We have developed a decision and assessment process to help businesses determine the appropriate platforms, and just as importantly, those platforms that are not suitable for migration to the Capgemini IaaS Cloud.

The comprehensive assessment model poses a series of tiered questions and scenarios, through the following stages:

- Assessment of business challenges
- Assessment of ICT service challenges
- Alignment of service characteristics to challenges
- Elimination of non-qualifying ICT resources
- Assessment of technical landscape
- Assessment of appropriate service level characteristics
- Alignment to optimum Capgemini IaaS Cloud service.

Once these stages are completed, we engage with the business and applications owners to define:

- Transformation Goals
- Success Criteria
- Scope for Analysis
- Change Control for Analysis
- Length of Capacity Analysis.

This work produces a series of recommendations on which the commercial relationship will be based, focusing on:

- Risk / challenges
- Next steps
- Cloud container allocation
- Utility storage requirements
- Vendor support options.

The rigor and thoroughness with which this process is undertaken ensures that the client derives optimal business, technical, commercial and environmental benefits of Capgemini IaaS.

For further details, go to
www.capgemini.com/iaas

¹ Gartner, Inc.: "Cloud Infrastructure as a Service: An Essential Overview", Lydia Leong, 8 September 2010.



About Capgemini and the Collaborative Business Experience™

Capgemini, one of the world's foremost providers of consulting, technology and outsourcing services, enables its clients to transform and perform through technologies. Capgemini provides its clients with insights and capabilities that boost their freedom to achieve superior results through a unique way of working, the Collaborative Business Experience™. The Group relies on its global delivery model called

Rightshore®, which aims to get the right balance of the best talent from multiple locations, working as one team to create and deliver the optimum solution for clients. Present in 40 countries, Capgemini reported 2010 global revenues of EUR 8.7 billion and employs over 112,000 people worldwide.

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