

HYBRID CLOUD INFRASTRUCTURE AS A SERVICE

RM1557.15 G-Cloud 15 (Lot 1a IaaS/PaaS)



CCS Approved Supplier:

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Overview of Hybrid Cloud Infrastructure-as-a-Service (IaaS)

Exponential-e IaaS is built on enterprise class server hardware and supported by high performing all flash storage arrays. Combined with best practice VMware configuration and management, applications migrated to our IaaS platform benefit from significant performance enhancements. The service has been designed on the VMware vSphere platform with Cloud Director, which continues to set the standard for enterprise-class infrastructure and application performance, scalability and reliability. A robust, virtualised infrastructure deployed in multiple UK Data Centres, the platform serves as the underlying technology for all of our infrastructure, hardware, and application service offerings.

We provide IaaS via our carrier grade Ethernet network, allowing us to provide these services privately as a seamless extension of our customer's network. Our IaaS infrastructure is hosted in UK based Tier 3 Data Centres and is highly accredited with nine accreditations including ISO 27001 and CSA Star.

We provide 24 x 7 x 365 infrastructure support, and customers can consume a multitude of managed services and professional services to enable low risk cloud adoption and enterprise support.

Furthermore, as a partner to Microsoft and Amazon we provide fully hybrid cloud services by enabling private connectivity to Azure and AWS over ExpressRoute and DirectConnect onto our WAN network services. This enables customers to consume a hybrid cloud portfolio across a performant, private network to provide a high-quality experience to end users.

Key Product Features

The Exponential-e IaaS enables pay-as-you-grow computing for both permanent and short-term requirements, and with a range of pricing models. Resources may be consumed on a Pay-As-You-Go basis, a Fixed billing basis or a Hybrid (minimum commit, PAYG above).

We manage the platform to the IaaS level providing customer access via the vCloud Director portal, customers can create vApps and VMs as required and provision additional resources on demand. The platform supports several operating systems as detailed on our website at <https://www.exponential-e.com/operating-systems-support>. Customers can integrate authentication with their Active Directory and further secure the environment via Multi-Factor Authentication if required.

Virtual Machines (VMs) can be deployed from the public catalogue of pre-built images of the supported operating systems, or customers can build their own catalogues of VM images for their applications and workloads.

In addition to the standard Virtual Data Centre (VDC) offering, we provide reservation VDC for workloads requiring Central Processing Unit (CPU) reservations. This is priced on a per MHz per month basis and delivered from the vCloud Director portal. Exponential-e also provides dedicated cloud architecture for customers requiring specific performance, static constant workloads or isolation from other customers. This can be useful for such purposes as compliance, licensing isolation, and more stringent veto rights over maintenance periods. Further information available on request.

Key Technical Features

Infrastructure

The Exponential-e IaaS is built on enterprise class hardware based on N+1 principles to ensure no single points of failure exist. Multiple cloud nodes are available within the UK, connected via our core network service, enabling customers to maximise availability by distributing VMs across multiple cloud nodes.

The service has been designed on the VMware vSphere platform, which continues to set the standard for enterprise-class infrastructure and application performance, scalability and reliability. A robust, virtualised infrastructure deployed in multiple UK Data Centres, the platform serves as the underlying technology for much of our infrastructure, hardware and application service offerings.

The Exponential-e IaaS enables pay-as-you-grow computing for both permanent and short-term requirements, and with a range of pricing models. Resources may be consumed on a Pay-As-You-Go basis, a Fixed billing basis or a Hybrid of both to provide flexibility and elasticity.

The service can be complemented by combining it with our other services, such as Online Cloud Backup and Server Replication.

IaaS Management

Our customers have the option of choosing one of the following models for VM management:

Customer Managed – the customer will be provided with a vCloud Director portal, enabling full management of virtual machines, and the ability to provision from catalogue images or customer provided operating systems.

Exponential-e Managed – Exponential-e will provide Operating System level, and application level managed services, whereby Exponential-e support teams will undertake ongoing management and monitoring of virtual machine state deployed on the IaaS platform.

IaaS Networking

The IaaS platform may be accessed in a variety of different ways including:

- ✓ Internet (VPN)
- ✓ Point to Point Layer-2 e-pipe
- ✓ VPLS Layer-2
- ✓ VPLS Layer-3
- ✓ Software Defined Data Centre Networks

The IaaS platform is built around enterprise-level network isolation both between customer environments, and within customer environments, backed up by our certifications including ISO 27001. QoS policies can also be implemented, for example to provide virtual desktop prioritisation such as Remote Desktop Services (RDS) or Citrix.

Firewalls

Exponential-e offers several firewall options to support our customer security requirements. The heart of the isolation mechanism is the Exponential-e high-availability Next Generation Fortinet firewall service, providing each customer with a dedicated virtual domain (VDM). Each VDM allows a fully configurable firewall rule base, Internet Protocol Security (IPSec) and Secure Sockets Layer Virtual Private Network (SSL VPN) capabilities, Unified Threat Management (UTM) Features – per customer and with multiple trust zones.

For more complex or larger environments, physical firewall platforms can be implemented, but regardless of the solution deployed, all firewalls and routing solutions benefit from the Exponential-e 24 x 7 central monitoring and management and change control in accordance with our security services and certifications.

Physical Data Centres

Exponential-e's IaaS operates from three UK sovereign, highly resilient Tier 3 Data Centres, including Ark Farnborough. Security is guaranteed with proactive and protective monitoring in place. A tour of the facilities can be arranged, and any further information required can be provided.

Service Levels

Exponential-e will use reasonable endeavours to ensure that the availability of the service purchased by the customer in each calendar month equals the applicable Availability Commitment.

To define availability, Exponential-e monitors several service elements — some generic, some service specific — which collectively enable the customer to use or access the service. If the availability of the service is less than the associated Availability Commitment, the customer may request Service Credits for the service within 30 calendar days of the service being deemed unavailable. Service credits are measured in the table below.

Availability

	Target Availability
Infrastructure as a Service	99.9%

Service Credits

	Measure	Service Credit*
Availability	Below Target	5%
	>0.1 Below Target	10%
	>0.2 Below Target	15%

* The service credit is applied as a percentage of the Monthly Charge for the Object Storage Service for the month concerned (whether based on the fixed Annual Charge, Pay As You Go Charges or, in the case of a Hybrid Billing Model, both).

What Billing Models are supported?

Exponential-e believes the customer should have as much flexibility in consuming the service as possible. To that end, we therefore support the following billing and consumption models:

Fixed Billing

The customer has a fixed level of resources for a fixed Annual Charge.

Pay As You Go

The customer is charged for the actual resources used in accordance with the Rate Card and the applicable Service Definition and will be billed monthly in arrears. Actual usage levels will be recorded by Exponential-e.

Hybrid Billing

The customer has a minimum amount of resources that are contracted for subject to a fixed Annual Charge, yet retains the ability to use additional resources “on demand” in accordance with the Pay As You Go section above.

Trial Service

A trial of the Exponential-e IaaS services is available to customers for the purpose of evaluation and can be arranged by contacting Exponential-e. Trial periods are limited to 30 days and any data saved using the Service(s) during the trial period will be automatically deleted at the end of the trial period unless an order for full service is placed within the trial period. Any right or license provided to use the trial service shall be revoked at the end of the trial period. No Service Credits or Service Levels shall be applicable during the trial period. Should a customer place an order during the trial period, Exponential-e is able to on-board the data to the full service if required.

On-boarding and Off-boarding

On-boarding

Once an order is accepted, Exponential-e aims to provision a login and provide it to the customer for the IaaS Cloud Portal within 2 business days. The customer is then able to create and configure virtual machines with specific vCPU, vRAM and storage within the overall capacity limits as provisioned by Exponential-e’s Cloud team.

Exponential-e shall use reasonable endeavours to ensure that the customer may connect to the IaaS Cloud Portal over the Public Internet within the timescale stated above. However, where IaaS is also part of a solution that contains an order for a Connectivity Service, or where access is provided by an alternative supplier, access to the Virtual Machines located within the Virtual Data Centre shall also be dependent upon the lead times for the Connectivity Services.

For existing data and virtual machines, Exponential-e is able to offer on-boarding through a variety of technologies and techniques:

- ✓ Import from Open Virtualisation Format (OVF) files
- ✓ Import from common hypervisor files (VMDK etc.)
- ✓ Online replication tools to take an image of the source virtual machine and incrementally update it until cut-over
- ✓ Application level replication (i.e. SQL mirroring, log shipping, backups etc.)

- ✓ Customised Exponential-e WAN circuits (Layer 2 or Layer 3 as appropriate) to facilitate the above options
- ✓ Internet or physical transfer of images

The on-boarding process will be managed by Exponential-e's dedicated Cloud Project Management team using PRINCE2 project management methodology.

Off-boarding

The customer may extract their application-based data at any point during the contract term by self-service. At the end of the term and/or if the contract is terminated, the Service Migration provisions will apply. If customised data transportation, data extraction or full virtual machine export services are required these will be charged at the day rates listed in the G-Cloud Pricing document.

Service Constraints

Planned and Emergency Works

Exponential-e will adhere to the following maintenance windows:

'Planned Maintenance' means any pre-planned maintenance of any of the infrastructure relating to the service. Planned Maintenance activity may result in periods of degradation or loss of availability depending on the nature of the activity required. In such cases, Exponential-e will aim to provide at least 14 days' notice via email of any planned works and shall aim to perform them between 00:00 and 06:00 GMT/BST.

'Emergency Maintenance': Exponential-e reserves the right to carry out emergency works at any time, without notice. Every effort shall be made to contact customers before the commencement of emergency maintenance.

Ordering and Invoicing

Billing for the service is monthly in arrears based on the consumption model chosen. Please refer to the What Billing Models are Supported? section earlier in this document for the consumption types.

Billing for the service is:

- ✓ Via Purchase Order
- ✓ At point of order for up-front fees
- ✓ Monthly in arrears for monthly fees

Payment can be made by direct bank transfer (BACS/CHAPS).

Service Lead Times

Exponential-e IaaS Service lead times is 5 Working Days*.

* From order acceptance. Lead time is subject to confirmation if changes are made by the customer and/or further information comes to light which would have affected the initial design. Exponential-e shall use reasonable endeavours to ensure that the customer may connect to the IaaS over the public internet within this Target Service Commencement Date. However, where the IaaS Service is also part of a solution involving Connectivity Services and/or VDC Services, access to the IaaS Service shall also be dependent upon the lead times for the Connectivity Services.

Termination

Terms

At the point of termination, all customer data, accounts and access will be permanently deleted, and will not be able to be subsequently recovered or restored.

Costs

There are no termination costs for this service. Customers are responsible for extracting their own data from the platform if required. Exponential-e may make an additional charge for transferring data out of the service.

Data Restoration / Service Migration

Exponential-e can utilise our Server Replication service for migrations to the cloud ensuring a server-by-server seamless migration to the cloud. Each server is assessed individually to ensure comparability with the cloud and then replicated to our cloud environment. Once the customer is happy that the server is ready, we migrate this server into our IaaS platform. Our network services can ensure that when servers are migrated there is no need to change the IP address or DNS configurations ensuring that the process is seamless and minimises end user disruption. All of this is managed by our in-house project delivery teams in close collaboration with the customer.

Further to the above, in cases where the server is not compatible for migration, we work with the customer to implement the application in the cloud and migrate the relevant data across. In some cases, this is a good opportunity to upgrade to the latest version of the software and our in-house solutions consultants can aid with the design and build of the new service.

We also support cold or “big-bang” style migrations where the entire estate is moved over one weekend, which usually entails capturing an image of the server in its current state and importing this into our IaaS platform.

Customer & Supplier Responsibilities

Item	Responsible party
IaaS computing and storage infrastructure procurement	Exponential-e
IaaS Computing and storage infrastructure management	Exponential-e
IaaS Computing and storage infrastructure break/fix	Exponential-e
Provisioning IaaS	Exponential-e
Network access to Exponential-e Datacentre(s)	Customer (unless Exponential-e WAN circuits are in use)
Network access within Exponential-e Datacentre(s)	Exponential-e
Assigning Public IP addresses within IaaS	Exponential-e – if within Exponential-e range(s); Customer if within Customer range(s)
Configuring Virtual machines with IP addresses	Customer
Network provisioning within Virtual Data Centre	Exponential-e
Internet provisioning from Virtual Data Centre (if applicable)	Exponential-e
Firewall Configuration (Network Address Translation)	Exponential-e
Security Services	Exponential-e

Licensing	Customer, unless provided by Exponential-e
Virtual Machine provisioning	Customer (Provisioning is accessed via the IaaS Cloud Portal)
Virtual Machine reconfiguration (vCPU, vRAM etc)	Customer (Functionality is accessed via the IaaS Cloud Portal)
Virtual Machine operations (Start, Stop, Reboot, Delete)	Customer (Functionality is accessed via the IaaS Cloud Portal)
Backup scheduling	Customer, unless management services taken with Exponential-e
Backup storage management	Customer, unless management services taken with Exponential-e
Replication configuration	Exponential-e if Server Replication services are taken
IaaS Hardware monitoring 24 x 7	Exponential-e
Service management including Service Desk	Exponential-e
Change Management (IaaS infrastructure)	Exponential-e
Change Management – customer virtual machines	Customer, unless management services taken with Exponential-e
Management and support of Hypervisor	Exponential-e
Management and support of Virtual machine operating systems	Customer, unless management services taken with Exponential-e

Management of content contained within Virtual machines	Customer, unless management services taken with Exponential-e
Antivirus – protection against malware and removal – within Virtual machines	Customer, unless provided by Exponential-e
Patching Virtual machine operating systems	Customer, unless management services taken with Exponential-e