exponential-e
APPLIED INNOVATION

Exponential-e Cloud Services Disaster Recovery as a Service (DRaaS)

Server Replication Health/HSCN Assured

www.exponential-e.com/public-sector

Contents

HSCN Assured for Health

The requirements for information access and sharing have changed. Underlying networking arrangements needed to support an affordable, agile and integrated health and social care sector need to change.

As Exponential-e are an accredited HSCN Stage 2 Compliant CN-SP provider of services, we offer HSCN assured digital technologies that will benefit both staff and patients alike. These benefits come from our ability to deliver multiple services over "assured unified platforms". By empowering different healthcare entities to securely aggregate their infrastructure requirements, the resulting outcome brings not only new found agility but also the ability to realise significant cost savings.

Overview of the Service

Exponential-e™ **DR as a Service (Server Replication)** is a fully managed DRaaS service providing geo-replication of protected virtual server workloads in a number of configurations:

Source Environment	Destination		
	Microsoft Azure	VMware IaaS	Private Cloud
On-premises Hyper-V	✓	-	✓
On-premises VMware	✓	✓	✓
Exponential-e Hosted Private Cloud	✓	✓	✓
Exponential-e IaaS	✓	✓	✓
Microsoft Azure	✓	-	-
AWS EC2	✓	-	-

Our DRaaS for VMware environments is powered by Zerto, an industry-leading near continuous replication solution that integrates closely with VMware at the hypervisor layer. This provides reliable, efficient, secure and cost effective protection for VMware workloads with RPOs[1] of as little as five minutes and RTOs[2] from 30 minutes.

For Hyper-V and public cloud environments, we leverage Microsoft tools including System Centre Data Protection Manager and Azure Site Recovery Manager to provide either hypervisor-layer or in-guest replication techniques, enabling us to protect virtual machines regardless of available underlying hypervisor access.

On-net customers replicating between private or IaaS environments can also benefit from seamless workload transition, without the need to change protected server IP addresses during the recovery

---

[1] The amount of time reflecting the amount of data that potentially could be lost during a disaster recovery.
[2] The targeted period of time within which the service will be restored.

process, made possible by our investment in Software Defined Networking (SDN). These techniques can also eliminate risk from permanent workload migration between platforms.

What Can I Do with This Service?

Virtual Server Replication

Virtual servers can be seamlessly replicated to a second data centre in order to provide recoverability in the event of loss of, or loss of access to, the primary data centre.

Virtual Server Migration

Virtual servers protected with our DRaaS service can be permanently moved to the target environment in order to decommission the primary environment, for example as server hardware becomes end-of-life. In this scenario, DRaaS protection can then be re-established to another secondary data centre.

Who Is This Service Aimed At?

- Customers with virtualised environment requiring DRaaS with an op-ex pricing model.

- Customers requiring DRaaS with cross hypervisor replication capability.

Key Product Features

Feature	Benefit
Secure & Sovereign	- UK Sovereign service options, run from tier-3 data centres with ISO 27001 certification. - Data encrypted options both in-transit and at rest.
Predictable Billing	- Per-Protected-VM and per-GB Billing - No data transit charges - No API charges
Scale Indefinitely and On-Demand	Eliminates the need for fork-lift storage expansions
Multi-Hypervisor Support	A single DRaaS service that can cover multiple environments in multiple locations
Storage Agnostic	No storage vendor dependencies, licensing, or tie-in
Application Agnostic	Replication at the hypervisor layer enables the protection of all applications and guest operating systems
Low RTPOs	- Zerto based replication for VMware environments can achieve near continuous replication without the need for VMware snapshots, providing RPOs as short as five minutes - As a managed service, we offer an SLA over the time to invoke recovery of 30 minutes.
Defined Failback	Automatic failback processes

	• Pre- and Post- failover scripting for recovery customisation
Application Groups	• Consistent recovery for multi-tier applications
	• VM group boot ordering and automatic re-IP process
Isolated Testing	• No-impact failover testing to isolated environments decouples the testing of critical infrastructure in the failover path.

Service Options

The service deployment specifics are chosen dependent on the source and destination platforms in-scope, and the available hypervisor access. The Supported Configurations matrix is set out in the Overview of the Service section, above.

For environments replicating to the Exponential-e IaaS platform, customers are able to seed virtual machine images in order to reduce network bandwidth requirements during the set-up phase.

Service Levels

We will use reasonable endeavours to ensure that the availability of the service purchased by the customer in a given calendar month equals the applicable Availability Commitment.

To define availability, we monitor a number of 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, for more information on our Service Level Agreements (SLAs), please see the Exponential-e SLA definition document.

Invocation Start Time (IST)

The DRaaS service is subject to the following target IST:

	IST*
Server Replication Failover Invocation Time	30 Minutes

* The time taken for Exponential-e to start invocation of the Clone Server in accordance with the Invocation Initialization Document measured from the raising of the trouble-ticket.

Recovery Point Objective (RPO) and Recovery Time Objective (RTO)

RPO and RTO (combined, RTPO) will depend upon a number of Customer-specific factors and therefore cannot be detailed within this document.

Service Credits

Metric	Measure	Service Credit*
Invocation Start Time	> 1 hour	5%
	> 1 hour 30 minutes	10%

	> 2 hours	15%
	> 2 hour 30 minutes	20%

* The service credit is applied as a percentage of the Monthly Charge for the 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).

Service Management Details

Invocation

The Customer's authorised personnel must contact us and request invocation of the DRaaS service. We will carry out the invocation plan as documented in the Invocation Initialisation Document. Additional resource charges will arise for metered platform resources, as detailed in the separate Pricing Document, will be incurred for the duration of the invocation.

We have multiple customers using our DRaaS service, using the same underlying resources. Accordingly, we cannot guarantee that there will not be competing demands in the event of multiple simultaneous disasters or a major disaster affecting a number of customers. If such disaster(s) occur, all invocation requests will be enacted on a 'first come, first served' basis. We shall not be liable if, due to such disaster(s), invocation of the service cannot be commenced within the Invocation Start Time set out above.

Testing

The Customer will receive a test allowance of two days per calendar year, or such greater amount as is stated in the Agreement, for testing the DRaaS service.

Testing will be scheduled and conducted in accordance with our policies and procedures then in effect, as amended from time to time. The test environment provided will be an isolated environment and access to the virtual machines shall be provided either by portal console access or with a bastion host, as defined in during the initial delivery.

Full failover tests can also be provided, subject to additional Professional Services costs as scoped as part of the service discovery exercise.

We may cancel a test in order to undertake a live invocation of another customer's DRaaS service. We will use reasonable endeavours to reschedule cancelled tests, but no allowances or credits will be given.

What Billing Models are Supported?

The service is provided with both fixed and pay-as-you-go billing elements.

Fixed Billing

The Customer is charged a fixed Annual Charge and provided access to a fixed resource pool. Fixed elements typically include Replication Licenses and Replicated Server Storage.

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 metered and recorded by Exponential-e.

PAYG elements include IaaS platform metered resources, such as vCPU, vRAM, Disk, or Azure Virtual Machines used for failover testing or during a live invocation of service. PAYG can also be used for additional ad-hoc resource consumption, such as additional replicated server storage.

Trial Service

Due to the integration and work required no trial is available for our DRaaS solutions. If a trial is required, we are able to provide a one month paid Proof of Concept (POC). On completion of the POC, customers choosing to continue with the service will be refunded the one-month trial period.

What are the Terms and Conditions?

Please refer to the associated Terms and Conditions document for full details. The Appendix at the foot of this service description provides a service summary.

Working with Exponential-e

Customer Focused

At Exponential-e, our customers are at the heart of everything that we do; from the solutions that we sell to our 24x7x365 UK based Service Desk as standard, we offer our customers only the very best.

Our employees strive to exceed expectations with innovation and service. We have an open and transparent approach to ensure that our customers are kept updated at every step of the process.

From requesting a quote to your order being delivered, you can expect only the best service from our team who are underpinned by our excellent Client Relations department – in place to ensure your service from Exponential-e and relationship is the very best it can be.

Don't just take it from us – our 96% customer reference-ability and >50 Net Promotor Score (as of May-18) demonstrates our focus on customer service excellence.

Highly Accredited British Company

There is no better way to showcase our success and reliability than through our accreditations. With seven ISOs held, we are more highly accredited than any other British company. In addition to the BSI audits related to the ISOs, we also welcome our customers' external auditors when required.

Exponential-e Has Unparalleled Capability

Security Assurance

Our services are designed, built and optimised with clear alignment to the 14 CESG Cloud Security Principles that UK Public Sector organisations use when assessing cloud hosted solutions for information assurance compliance.

The Exponential-e cloud benefits from extensive independent validation via certifications ranging from international standards (for example, ISO9001, ISO27001, ISO20000) to UK public sector specific standards (for example, HSCN certification).

The Exponential-e Cloud Platforms are subject to regular, extensive IT Security Health Check (ITSHC) CHECK Tests by independent, CESG-approved assessors to ensure that our customers have confidence in the physical and technical security controls which have been implemented to protect their valuable data assets. Platforms are suitable for all data classified at OFFICIAL under the Government Security Classification Policy (GSCP).

All customer data is stored in Exponential-e's secure UK data centres with SC-cleared UK staff.

Customer identifiable data does not leave the UK.

Connectivity

Our UK Data Centres have resilient connections to secure UK government networks such as HSCN Assured as well as large scale, DDoS protected internet connectivity. We also offer the ability for customers to present their own connections (such as direct connectivity into your MPLS, or inexpensive point to point connections via leased lines) and the Secure Remote Access solution to allow security assured VPN access to the Elevated OFFICIAL platform.

Appendix

On-boarding and Off-boarding

On-boarding

The methods used to establishing the protection of virtual machines will depend on the targeted source and destination platforms, and the underlying hypervisor access available (if any) at the source environment.

Where the DRaaS service is also part of a solution that contains an order for a Connectivity Service, or where access is provided by an alternative supplier, implementation shall also be dependent upon the lead times for the Connectivity Services.

Once connectivity and technical implementation of replication software has been implemented, initial data transfer can be achieved using an initial replication over the connectivity services, or, in some scenarios, via a seeding process with the bulk transfer of virtual machine images by portable NAS or other storage device.

Exponential-e's dedicated Cloud Project Management team, using PRINCE2 project management methodology, will manage the on-boarding process.

In-Service Reconfiguration

Resizing of replicated estate (i.e. the number of protected machines and the disk storage allocated) is available by means of a Service Request to the Exponential-e Service Desk. Depending on the billing model (fixed or hybrid), additional orders may be required.

Off-Boarding

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, for example in the example of a post-invocation off-boarding scenario, these services shall be charged at the prevailing time and materials day rates.

In order to action these customised services, an off-boarding service request must be raised via the Exponential-e Service Desk. Due to those services have not been not included within Exponential-e's G-Cloud catalogue entry, and thus do not fall within the Framework Agreement and Call-Off Agreement, Exponential-e's standard terms and conditions for professional services would apply.

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 organisations before the commencement of Emergency Maintenance.

Ordering and Invoicing

Billing for the service is dependent on the chosen billing mode.

- Fixed elements are billed quarterly in advance.
- PAYG elements are billed monthly in arrears based on the metered consumption.

Please refer to the Billing 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
- Quarterly in advance for committed service element

- Monthly in arrears for monthly fees

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

Service Lead Times

Exponential-e DR as a Service (Server Replication) lead times are 5 Working Days*

* From order acceptance. Lead-time is subject to confirmation of whether changes are made by the customer and/or further information becomes known that would have affected the initial design. Exponential-e shall use reasonable endeavours to ensure that the replication service can be established over the specified connectivity within this Target Service Commencement Date. However, where the Service is also part of a solution involving Connectivity Services and/or VDC Services, implementation shall also be dependent upon the lead times for those 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.

Customer Responsibilities

- Provision of an Invocation Initialisation Document to Exponential-e detailing the agreed process to be followed by Exponential-e (including authorised personnel) in the event of Invocation, and update and re-issue to Exponential-e as required, but not less frequently than every six (6) months or upon any change to the Customer's infrastructure.

- Decision to invoke failover of services.

- Activating software in a failover scenario.

- Requesting the use of test days and the testing of the virtual machines and applications running thereon in an isolated test scenario.

- Where access is required over PSN, the customer is responsible for adhering to the Code of Connection and assigning appropriate IP addresses from their own allocation to their services hosted on the Exponential-e platform.

- Ensuring compatibility of all licenses with the target platform.

- Procurement of any additional partner services, product licenses or subscriptions as required for the customer's specific implementation.

- Provision of, or responsibility for the costs arising from the metered use of, sufficient CPU and network bandwidth from the source environment.

- Customers must be aware of the variable nature of the billing based on usage if adopting a hybrid billing model.

- The control and management of access and responsibilities for end users including appropriate connectivity, security and accreditation if required. Where access is required over HSCN, the customer is responsible for adhering to the Code of Connection and assigning appropriate IP addresses from their own allocation to their services hosted on the Exponential-e platform.

The use of the service does not in itself alter the responsibility model of operation of the source environment.

Exponential-e's Responsibilities

- Ongoing management of the Service.

- Invocation of replicated servers for either:

    o Isolated testing, or

    o Failover in a DR scenario.

- Verifying network access to the replication server(s).

Technical Requirements

The technical requirements for the DRaaS Service are dependent on the replication platform and technologies used in each of the scenarios shown in the table provided in the 'Overview of the Service' section earlier in this document.

For VMware to VMware IaaS, or VMware to VMware Private Cloud solutions, adequate resources are required within the source environment for the deployment of:

- One Virtual Replication Appliance per hypervisor host (2vCPU, 4GB RAM, 50GB storage); and

- One 64-bit Windows Server per cluster able to run the Zerto Replication Manager software.

Financial Recompense Model

Refer to the 'Service levels' section earlier in this document.

Technical Information

Assured OFFICIAL (Lower Security Domain):

- Standard Internet connectivity over common protocols (HTTP, HTTPS, SSH)

- HSCN — for access to the Health and Social Care community. You will need to complete the HSCN Information Governance Statement of Compliance process and be certified HSCN consumer.

- PSN Assured service — you need to be a PSN Service Provider or an HMG customer that has PSN certification.

- CAS(T)-compliant connections (leased line, MPLS)

- Non-CAS(T)-compliant connections (leased line, MPLS) using additional CPA/PEPAS overlay encryption

- Site-to-site VPN using standards-based IPSEC solutions

- Dedicated fibre connectivity within the Exponential-e Data Centre

Elevated OFFICIAL (Higher Security Domain):

- Preferred connectivity is over a Government Community Network such as N3 or PSN

- HSCN — for access to the Health and Social Care community. You will need to complete the HSCN Information Governance Statement of Compliance process and be certified HSCN consumer.

- PSN Protected service — you need to be a PSN Service Provider or an HMG customer that has PSN certification.

- Legacy networks such as PNN, via the PSN Protected service

- Exponential-e Secure Remote Access service

- Private circuit solutions including:

  o CAS(T)-compliant connections (leased line, MPLS) using additional CPA/PEPAS overlay encryption

  o Non-CAS(T)-compliant connections (leased line, MPLS) using additional CPA/PEPAS overlay encryption

  o Dedicated bonded fibre connectivity within the Exponential-e Data Centre.