

Secure Storage and Back-Up Services

G-CLOUD 15 - SERVICE DEFINITION



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Secure Object Storage



Secure Storage and Back-up Services Service Definition

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Glossary of Terms

This section describes commonly understood Vodafone- or industry-recognised acronyms and terms that are used within this service description.

Term	Description
CIFS	Common Internet File System
D@RE	Data at Rest Encryption
IOPS	Input Output Per Second
LUN	Logical Unit Number
NAS	Network Attached Storage
RAID	Redundant Array of Independent Disks
SAN	Storage Area Network
SMB	Small Message Block
VLAN	Virtual Local Area Network



Secure Storage and Back-up Services Service Definition

1. Service Definition

Introduction

The total amount of data created by users and applications continues to grow and forecast to increase dramatically over the coming years. This has increased the demand for data storage solutions, which can support high labour-intensive tasks and need skilled engineers to monitor and maintain storage infrastructure and networks 24x7. Furthermore, protecting the data appropriately has become a paramount necessity for most organisations, especially for those organisations and applications processing sensitive information.

Vodafone Business recognises these challenges and provides a portfolio of Secure Data Storage Solutions to help manage this. We can help define strategies, design individual solutions, and manage your data storage with the right level of security and compliance across multiple platforms.

Our secured versions of Data Storage and Backup products have been designed within a specific highly secure infrastructure environment, management tools and secure processes operated by designated teams under strict Security Clearance requirements. Yet they provide exceptional performance and Service Level Agreements (SLA) to meet demanding requirements

1.1 Secure Object Storage Overview

The Vodafone Secure Storage service provides secure object storage that is designed for customers with high security requirements and subject to strong compliance standards that require a solution that can grow with the business and is provided on a simple pay-as-you-go consumption based commercial model.

This solution has high data integrity, is low cost, highly available and grows with you as you require. Some typical use cases are application data storage, data protection and archiving.

Platform

The multi-tenant Secure Object Storage platform is built on industry leading technologies and software to deliver a high-performant, highly available and secure object storage service.

Our service allows storage 'buckets' to be provisioned that provide your users and applications with access to the Cloud storage service. On request we can also enable WORM (write-once-read-many) access which is typically used for compliance and assurance purposes.



Secure Storage and Back-up Services

Service Definition

Service tier

Vodafone offers a service tier that defines how your data will be stored and protected on the platform. This protects your data across multiple Vodafone data centres for the highest levels of availability and data integrity.

SLA

99.99% data availability - Dual site resilience with automatic replication

Connectivity

Vodafone Secure Cloud Storage service is available in selected Vodafone data centres via local connection only.

Compliance and retention periods

For customers that need to meet additional compliance regulations the Vodafone Secure Object Storage service supports government and industry standards for the storage of electronic records. This compliance option meets the storage requirements of the following standards, as certified by Cohasset Associates Inc:

- Securities and Exchange Commission (SEC) in regulation 17 C.F.R. § 240.17a-4(f)
- Commodity Futures Trading Commission (CFTC) in regulation 17 C.F.R. § 1.31(b)-(c)

If the compliance option is not activated (default scenario) then you can still configure 'bucket' or 'object' retention periods, but these settings can be overwritten by the admin. This does not achieve the compliance standards but offers you the opportunity to terminate the service flexibly by removing the retention policies and dates, allowing you to delete the data from the system.

If the compliance option is selected (upon initial order or in-life service request) then the retention policy you configure will be hard-coded. Note that while this feature is useful to achieve compliance, it is not possible to shorten or remove these retention dates (you will only be able to increase a hard-coded retention period) and as such you will be billed for the data remaining on the system until it expires.

Optional Secure Object Storage Services include:

- Storage Professional Services and Consultancy



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1.2 Security features

Regulatory and Compliance.

- Security standards are based on Vodafone Cyber-Security Policy requirements that are aligned to ISO27001.
- Each service undergoes a Security by Design assessment against policy requirements which is performed by Vodafone Global Cyber-Security teams.
- Assessments are periodically repeated to guarantee life-cycle security standards.

End-to-End Encryption

- Data encryption at rest (D@RE)
- Automated redundant internal key management.
- Data encryption in-transit

Sovereign Infrastructure and Data

- All core, management and ancillary infrastructure as well as management tools are located in the UK, in secure high-availability data centres.
- Platform and systems involved are only accessible using dedicated secure laptops and RSA two-factor authentication.

Dedicated Teams with Security Clearance

- The product is sold, delivered and operated by dedicated public sector teams exclusively located in the UK.
- All personnel involved with the design, delivery and operations have accredited Security Clearance.
- All communications handled through the dedicated Secure UK Service Desk

Secure Object Storage data resiliency

- Cloud Storage uses a process called Erasure Coding which splits data into data and coding fragments. The fragments are placed into independent fault domains, residing on different disks and different nodes at a site. This overall process is referred to as “encoding” the object. When an object is requested by a client, the platform will “decode” the fragments back into the original object. This tolerates numerous disk drive failures and introduces self-healing. For added security Vodafone will encrypt all data at rest by default.

Service Management

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Secure Storage and Back-up Services Service Definition

2. Service Management

2.1 Service Desk

We will provide a Secure Service Desk as a single point of contact for our customers to raise and progress incidents and service requests. The Service Desk is available and operational 24x7. Specific contact details, escalation paths and detailed processes will be outlined within your customer handbook.

2.2 Service Manager

The optional cloud and security service manager with security clearance from Vodafone will help maximise and optimise your solution performance to meet your business needs.

With this service you can expect regular ongoing analysis and assessment of your solutions capacity and performance, service continuity and technical enhancements through collaborative engagement.

The service works closely with your business and provides detailed information about performance of your solution.

There will be comprehensive monthly reviews, analysis against trends and statistics seen on your solution.

The service comprises the following:

- Regular reviews of solution capacity and performance statistics to ensure the optimisation of performance across solutions
- Regular reviews of service continuity plans and performance to validate resiliency built into the solution
- Collaborative review of solution infrastructure making recommendations to improve the solution
- Resource levels will be determined based on solution size and complexity



Secure Storage and Back-up Services Service Definition

2.3 Incident Management

These solutions within Vodafone are supported by our Secure Incident Management service. We will carry out incident management when appropriate with the target to restore service operation to within any agreed service levels and minimise the adverse impact of the incident on the customer's business. Our Secure Incident Management team and Service Desk are contactable and operate on a 24x7 basis.

We provide the following definitions for different severity levels of incident:

Severity Level	Description	Example(s)
1	Loss of service	Complete loss of service
2	Degradation of service	Service performance degraded below service level
3	Risk to service	Loss of resilience
4	Non-service-affecting	A failure that does not present a risk, or a non-fault

2.4 Event and Alert Management

We provide 24x7 incident, performance, and monitoring services to ensure your solution is always available. Information can be provided via ticket or Service Manager, if contracted.

Our monitoring approach is based on a combination of agent-based and non-agent-based methodologies. These ensure that the performance of your devices and their accessibility are monitored, and that if a response falls outside the allowed thresholds, our Secure Service Desk is automatically alerted.

2.5 Service Levels

We offer service levels to customers as part of our solutions, and these can vary in type and by service. Your specific service levels will be documented within your contract terms and may be dependent on your high-level designs.

Availability Service Levels

The Service Availability Service Levels are split across two categories and are dependent on your solution architecture and design as per the table below:

- Solution Availability; and
- Component Availability



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Service Definition

Solution Availability Service Levels

Class of solution	Maximum availability	Example
Non-resilient	97%	Solution provided with one or more single points of failure, such as single server or single firewall.
Resilient	99.9%	Solution provided from a single location, but with no single points of failure, utilising load balancing, N+1 design, etc.
Distributed resiliency	99.99%	The same as resilient but also with automated failover to a second location comprising another N+1/resilient solution, with replication between sites.

Component Service Levels

The following service levels below apply to each single component only if there is no solution availability set out in the high-level design.

Service Component	Service Level Type	Service Level	Notes
Cloud Object Storage	Availability	99.99%	

Incident Management Service Level Targets

Our target restoration times are as follows:

Severity Level	Target Time to Restore
1	4 hours
2	8 hours
3	48 hours
4	N/A



Secure Storage and Back-up Services

Service Definition

Service Credits

Vodafone will offer service credits to customers against qualifying incidents against availability and performance service levels. The process and details of acceptance will be provided as part of your contract.

2.6 Change Management and Service Request Fulfilment

Vodafone will provide you with access to raise service requests for action and completion by us. These requests will be completed at our discretion. A service request may only have one requirement; it may not consist of multiple requirements for a single or multiple end users.

Change and service requests apply to soft changes, such as altering a rule on a firewall or applying a patch to the operating system of a server.

We classify change and service requests as follows:

- **Service Requests** Standard changes considered within the BAU-service operation.
- **Routine Change Requests** cover all other types of request that are not service requests, emergency or complex.
- **Emergency Change Requests** are subject to review by Vodafone and acceptance will be at our sole discretion, these must be raised during normal business hours both via the completed form and via a telephone call to our service desk.

Process

- For **Service Requests**, please email a completed Service Request Form to the Change Management team (servicechangerequest@vodafone.com).
- For **Routine Change Requests**, please email a completed Change Request Form to the Change Management team (change-request@vodafone.com).
- For **Emergency Change Requests**, complete the relevant form and email it to change-request@vodafone.com then follow this up with a call to our Hosting Change Management team on 0870 0600 808. Emergency Change Requests are only accepted during normal business hours (between the hours of 09:00 and 17:30 UK time, Monday to Friday).

We will assess, plan, schedule, and implement the change subject to validation and approval. The Change Management team will communicate with you during this process.

The Change Management team and your Service or Account Manager can provide all the forms stated above. Alternatively, they will be available via the customer portal.



Secure Storage and Back-up Services Service Definition

Additional Information

- Not all activities are classified as a change. As a rough guide, re-configuration of an existing infrastructure is a Change, whereas additional infrastructure (e.g., new servers) is an Implementation activity.
- A certain amount of configuration change is included as part of our Managed Service. However, work beyond this may be chargeable.

Charges, Billing & Complaints

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Secure Storage and Back-up Services Service Definition

3. Charges, Billing and Complaints

3.1 Charges

Storage data is considered as the amount of storage consumed on a particular day of the month. This value will then be charged to you monthly in arrears for stored data per gigabyte (GB).

Vodafone do not believe you should be charged to upload or access your data, so we have removed all hidden costs to simplify pricing. This includes storage overheads for protection and multiple copies.

Vodafone can provide the following Cloud Object Storage Options:

- Storage Professional Services and consultancy
- Global Cloud Object Storage
- Connectivity

The minimum order size is 100GB for the initial storage requirement and a minimum of 50GB for additional capacity. Additional storage orders are subject to our approval.

Note:

- Due to technical confines and rounding, your provisioned capacity may be slightly higher than your requested capacity. The storage available to your host computers will be slightly lower than the provisioned capacity due to formatting.

3.2 Billing

Key contacts: Your Account Manager or Billing Account Manager.

If you do not have a dedicated Account Manager or Billing Account Manager, the Customer Service Billing Centre can be contacted at: cbsc@vodafone.com

3.3 Complaints

Vodafone takes great care in providing the highest level of support for our products and services. If you experience any dissatisfaction with any of our products, services or support, a dedicated team is on hand to assist.



Secure Storage and Back-up Services

Service Definition

The Vodafone Complaints Team is available during normal working hours (09:00 to 17:00 Monday to Friday, excluding bank holidays), and will attempt to respond to issues raised by customers within one working day.

All commercially reasonable actions will be taken to resolve the complaint immediately. However, in the event of a resolution not being immediately possible, the Complaints Team will attempt to provide you with a status update via telephone or email, every 48 hours.

The Complaints Team can be contacted at: complaintsteam@vodafone.com or by ringing: **0800 048 1411**.



Secure Primary Storage



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Glossary of Terms

This section describes commonly understood Vodafone- or industry-recognised acronyms and terms that are used within this service description.

Term	Description
CIFS	Common Internet File System
D@RE	Data at Rest Encryption
IOPS	Input Output Per Second
LUN	Logical Unit Number
NAS	Network Attached Storage
RAID	Redundant Array of Independent Disks
SAN	Storage Area Network
SMB	Small Message Block
VLAN	Virtual Local Area Network
VRF	Virtual Routing Forwarding
UXB	Uxbridge
SWI	Swindon
PRL	Park Royal

Service Description

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Secure Storage and Back-up Services

Service Definition

1. Overview

1.1 Secure Primary Storage Overview

Our Secure Primary Storage service offers high-performance file and block-based shared storage for customers with sensitive data requirements within Vodafone secured data centre locations. This service takes the operational maintenance, capacity management and overheads required to manage storage environments and provides this to you in a simple to use flexible commercial model.

These services are designed for customers with specific security requirements to handle critically sensitive information and want to minimise risks, improve data availability and recovery while managing ever-expanding volumes of data. At the same time, they remove the need for capital equipment purchases or dedicated storage operations staffing, all within an enhanced security environment that guarantees maximum security and compliance.

The Primary Storage service offers customers a choice of shared performance tiers and is based in secure Vodafone data centres so benefits from the controlled physical environment and security offered by these facilities.

Platform

The multi-tenant Primary Storage platform is built on industry leading storage arrays, switches, and management software to deliver a high-performance storage service. Our service utilises All-Flash storage arrays to provide a range of tiers, each delivering different performance and price points.

Block-based storage

Block-based Storage is available to customers and presented via Logical Unit Numbers (LUNs)/volumes. The service interface is provided via fibre channel optical connection and two fibre connections are required per physical server/converged solution to protect against failure of either the SAN fabric or connection. Multi-path software is required to ensure continued operation in the event of a SAN fabric failure or planned works.

The service can be provisioned from the indicative performance and protection classes in the tables below:



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Storage Performance Tier	Performance	Use Case
Tier 0	8 IOPS/Gb	High Performance Applications and Databases
Tier 1	2.0 IOPS/Gb	General Purpose Applications
Tier 2	0.5 IOPS/Gb	Test/Dev Environments / applications that do not require data storage performance

Notes:

- Measured on the array at an aggregate level.
- IOPS = Input/Output Operations per Second.
- IOPS are pooled across multiple LUNs where possible

File-based storage

File based storage commonly referred to as Network Attached Storage (NAS) is available to customers presented via Internet Protocol (IP). Multiple connections are required from an appropriately sized customer firewall into Vodafone Data Centre switches. Vodafone will configure a Virtual Routing & Forwarding (VRF) instance for your service and connect this to your associated Virtual Local Area Networks (VLANs).

For customers with managed Active Directory services, the service should be authenticated against your authentication domain operating in your environment.

The following supported file protocols are available:

- Server Message Block (SMB)/Common Internet File System (CIFS)
- Network File System (NFS) – versions 3 & 4

Encrypted Storage Replication

Vodafone offers customers that require storage replication services for data protection or as part of a Business Continuity Plan the option to replicate their storage data between two sites. This can be either Asynchronous or Synchronous for Block storage and Asynchronous for File based storage replication.

Storage replication can be used to protect against a storage system outage by creating a copy of data to a remote system. Asynchronous replication is primarily used to replicate data over long distances. Synchronous replication can be used to replicate data over shorter distances for when there is a need for a continuously updated copy of the data.

Vodafone can offer storage replication for both Block and File data and the table below shows which locations can be used for storage replication and includes access to Vodafone's shared backbone replication network as standard:



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Storage Replication Services	UXB	SWI	PRL
Block Synchronous Replication	✓	✓	X
Block Asynchronous Replication	✓	✓	✓
File Synchronous Replication	X	X	X
File Asynchronous Replication	✓	✓	✓

Optional Primary Storage Services include:

- Storage Professional Services
- Snapshots, Mirrors and clones (LUN basis)
- Block Storage Asynchronous or Synchronous Replication
- File-system snapshots
- Encrypted File Storage Asynchronous Replication

1.2 Security features

Regulatory and Compliance

- Security standards are based on VF Security Policy requirements that are aligned to ISO27001.
- Each service undergoes a Security by Design assessment against policy requirements which is performed by Vodafone Global Cyber-Security teams.
- Assessments are periodically repeated to guarantee life-cycle security standards.

End-to-End Encryption

- D@RE for all storage services.
- Automated redundant internal key management for all storage services.
- Encryption material externally backed up in CyberArk.

Sovereign Infrastructure and Data

- All core, management and ancillary infrastructure as well as management tools are located in the UK, in secure high-availability data centres.
- Platform and systems involved are only accessible using dedicated secure laptops and RSA two-factor authentication.



Secure Storage and Back-up Services Service Definition

Dedicated Teams with Security Clearance

- The product is sold, delivered and operated by dedicated public sector teams exclusively located in the UK.
- All personnel involved with the design, delivery and operations have accredited Security Clearance.
- All communications handled through the dedicated Secure UK Service Desk



Service Management

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Secure Storage and Back-up Services Service Definition

2. Service Management

2.1 Service Desk

We will provide a Secure Service Desk as a single point of contact for our customers to raise and progress incidents and service requests. The Service Desk is available and operational 24x7. Specific contact details, escalation paths and detailed processes will be outlined within your customer handbook.

2.2 Secure Service Manager

The optional cloud and security service manager with security clearance from Vodafone will help maximise and optimise your solution performance to meet your business needs.

With this service you can expect regular ongoing analysis and assessment of your solutions capacity and performance, service continuity and technical enhancements through collaborative engagement.

The service works closely with your business and provides detailed information about performance of your solution.

There will be comprehensive monthly reviews, analysis against trends and statistics seen on your solution.

The service comprises the following:

- Regular reviews of solution capacity and performance statistics to ensure the optimisation of performance across solutions
- Regular reviews of service continuity plans and performance to validate resiliency built into the solution
- Collaborative review of solution infrastructure making recommendations to improve the solution
- Resource levels will be determined based on solution size and complexity

2.3 Incident Management

These solutions within Vodafone are supported by our Secure Incident Management service. We will carry out incident management when appropriate with the target to restore service operation to within any agreed service levels and minimise the adverse impact of the incident on the customer's business. Our Secure Incident Management team and Service Desk are contactable and operate on a 24x7 basis.



Secure Storage and Back-up Services

Service Definition

We provide the following definitions for different severity levels of incident:

Severity Level	Description	Example(s)
1	Loss of service	Complete loss of service
2	Degradation of service	Service performance degraded below service level
3	Risk to service	Loss of resilience
4	Non-service-affecting	A failure that does not present a risk, or a non-fault

2.4 Event and Alert Management

We provide 24x7 incident, performance, and monitoring services to ensure your solution is always available. Information can be provided via ticket or Service Manager, if contracted.

Our monitoring approach is based on a combination of agent-based and non-agent-based methodologies. These ensure that the performance of your devices and their accessibility are monitored, and that if a response falls outside the allowed thresholds, our Secure Service Desk is automatically alerted.

2.5 Service Levels

We offer service levels to customers as part of our solutions, and these can vary in type and by service. Your specific service levels will be documented within your contract terms and may be dependent on your high-level designs

Availability Service Levels

The Service Availability Service Levels are split across two categories and are dependent on your solution architecture and design as per the table below:

- Solution Availability; and
- Component Availability



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Solution Availability Service Levels

Class of solution	Maximum availability	Example
Non-resilient	97%	Solution provided with one or more single points of failure, such as single server or single firewall.
Resilient	99.9%	Solution provided from a single location, but with no single points of failure, utilising load balancing, N+1 design, etc.
Distributed resiliency	99.99%	The same as resilient but also with automated failover to a second location comprising another N+1/resilient solution, with replication between sites.

Block-based Storage Availability

As standard Vodafone provides the following service availability options depending on requirements:

Protection classes	Notes
Single site	Resilient within a single site
Dual site – real-time	Synchronous replication to a second Vodafone data centre to the same performance class
Dual site – near-real-time	Asynchronous replication to a second Vodafone data centre, where the second site is a performance class lower than the primary copy

File-based Storage Availability

As standard Vodafone provides the following service availability options depending on requirements:

Protection classes	Notes
Single site	Resilient within a single site
Dual site – near time	Asynchronous replication to a second Vodafone data centre, where the second site is a performance class lower than the primary copy.



Secure Storage and Back-up Services

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Component Service Levels

The following service levels below apply to each single component only if there is no solution availability set out in the high-level design.

Service Component	Service Level Type	Service Level	Notes
Primary Storage Shared	Availability	99.9%	

Incident Management Service Level Targets

Our target restoration times are as follows:

Severity Level	Target Time to Restore
1	4 hours
2	8 hours
3	48 hours
4	N/A

Service Credits

Vodafone will offer service credits to customers against qualifying incidents against availability and performance service levels. The process and details of acceptance will be provided as part of your contract.

2.6 Change Management & Service Request

Vodafone will provide you with access to raise service requests for action and completion by us. These requests will be completed at our discretion. A service request may only have one requirement; it may not consist of multiple requirements for a single or multiple end users.

Change and service requests apply to soft changes, such as altering a rule on a firewall or applying a patch to the operating system of a server.

We classify change and service requests as follows:

- **Service Requests** are standard changes considered within the BAU-service operation.
- **Routine Change Requests** cover all other types of request that are not service requests, emergency or complex.



Secure Storage and Back-up Services

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- **Emergency Change Requests** are subject to review by Vodafone and acceptance will be at our sole discretion, these must be raised during normal business hours both via the completed form and via a telephone call to our service desk.

Process

- For **Service Requests**, please email a completed Service Request Form to the Change Management team (servicechangerequest@vodafone.com).
- For **Routine Change Requests**, please email a completed Change Request Form to the Change Management team (change-request@vodafone.com).
- For **Emergency Change Requests**, complete the relevant form and email it to change-request@vodafone.com then follow this up with a call to our Hosting Change Management team on 0870 0600 808. Emergency Change Requests are only accepted during normal business hours (between the hours of 09:00 and 17:30 UK time, Monday to Friday).

We will assess, plan, schedule, and implement the change subject to validation and approval. The Change Management team will communicate with you during this process.

The Change Management team and your Service or Account Manager can provide all the forms stated above. Alternatively, they will be available via the customer portal.

Additional Information

- Not all activities are classified as a change. As a rough guide, re-configuration of an existing infrastructure is a Change, whereas additional infrastructure (e.g., new servers) is an Implementation activity.
- A certain amount of configuration change is included as part of our Managed Service. However, work beyond this may be chargeable.

Charges, Billing & Complaints

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Secure Storage and Back-up Services

Service Definition

3. Charges, Billing and Complaints

3.1 Charges

Each combination of performance and protection class has its own monthly unit price in gigabytes (GB), displayed as a Monthly Recurring Charge (MRC) on your order form. The MRC is multiplied against the amount of storage we allocate to you to calculate your monthly price for the storage element of the service. For example, if you order 500GB of Tier 2 single-site storage but only store 100GB of data, we will still charge you for 500GB at the end of each calendar month in arrears.

The minimum order size is 100GB for the initial storage requirement and a minimum of 50GB for additional capacity. Additional storage orders are subject to our approval.

Note:

- Please note that SAN ports are included as part of the onboarding of a block storage client and the price is included within the Tier per GB charge.
- Due to technical confines and rounding, your provisioned capacity may be slightly higher than your requested capacity. The storage available to your host computers will be slightly lower than the provisioned capacity due to formatting.

3.2 Billing

Key contacts: Your Account Manager or Billing Account Manager.

If you do not have a dedicated Account Manager or Billing Account Manager, the Customer Service Billing Centre can be contacted at: cbssc@vodafone.com

Complaints

Vodafone takes great care in providing the highest level of support for our products and services. If you experience any dissatisfaction with any of our products, services or support, a dedicated team is on hand to assist.

The Vodafone Complaints Team is available during normal working hours (09:00 to 17:00 Monday to Friday, excluding bank holidays), and will attempt to respond to issues raised by customers within one working day.

All commercially reasonable actions will be taken to resolve the complaint immediately. However, in the event of a resolution not being immediately possible, the Complaints Team will attempt to provide you with a status update via telephone or email, every 48 hours.

The Complaints Team can be contacted at complaintsteam@vodafone.com or by ringing: **0800 048 1411**.



Secure Dedicated Storage



Secure Storage and Back-up Services

Service Definition

Secure Dedicated Storage

The Managed Services listed within this guide are typically invoiced as a Monthly Recurring Charge with some services available as One Off Charge.

All prices **Exclude** Travel expenses where applicable

Our Secure Dedicated Storage service offers high-performance file and block-based dedicated storage arrays for customers with sensitive data requirements within Vodafone secured data centre locations. This service takes the operational maintenance, capacity management and overheads required to manage storage environments and provides this to you in a simple flexible commercial model.

These services are designed for customers who are unable to take advantage of multi-tenant platforms for either contractual or regulatory reasons. We can offer secure file and/or block based dedicated storage solutions. These managed secure dedicated storage solutions are provided with high security and performance standards that meet the demanding requirements for modern business critical applications.

Pricing for this service consists of a one-time charge and a monthly recurring charge based on the volume of GB required. There is a minimum volume of 50TB required and a minimum contract term of 36 months.

Pricing for a 50TB dedicated storage array is provided below

Description	List Price (OTC)	List Price UK (MRC)
Secure Dedicated Storage Array (50 TB)	£8,937	£8,275



Secure Data Protection



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Glossary of Terms

This section describes commonly understood Vodafone- or industry-recognised acronyms and terms that are used within this service description.

Term	Description
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IOPS	Input Output Per Second
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SAN	Storage Area Network
SMB	Small Message Block
VLAN	Virtual Local Area Network
VRF	Virtual Routing Forwarding
UXB	Uxbridge
SWI	Swindon
PRL	Park Royal



Service Definition



Secure Storage and Back-up Services Service Definition

4. Overview

The total amount of data created by users and applications continues to grow and forecast to increase dramatically over the coming years. This has increased the demand for data storage solutions, which can support high labour-intensive tasks and need skilled engineers to monitor and maintain storage infrastructure and networks 24x7. Furthermore, protecting the data appropriately has become a paramount necessity for most organisations, especially for those organisations and applications processing sensitive information.

Vodafone Business recognises these challenges and provides a portfolio of Secure Data Storage Solutions to help manage this. We can help define strategies, design individual solutions, and manage your data storage with the right level of security and compliance across multiple platforms.

Our secured versions of Data Storage and Backup products have been designed within a specific highly secure infrastructure environment, management tools and secure processes operated by designated teams under strict Security Clearance requirements. Yet they provide exceptional performance and Service Level Agreements (Sla) to meet demanding requirements.

4.1 Secure Data Protection

The Secure Data Protection Shared Backup Service is designed for customers with high security requirements and subject to strong compliance standards that require to simplify the task of managing backups and ensuring data can be restored in the event of data loss. Vodafone replaces the complexity of systems, software, process and integration activities traditionally associated with the management of backup solutions with a simple service designed to automate and report on critical backup and restore activities. All of this within an ultra-secure environment carefully designed to satisfy the highest security standards and controls.

The Data Protection service offers customers with a choice of near-line (on-site), off-site and file application archiving backup and recovery services to ensure your data is always protected.

The service supports a wide range of server platforms and applications, reducing the complexity of integrating backup technologies.

Platform

The multi-tenant Data Protection platform is built on industry leading hardware, backup management software and processes to deliver a high-performance Data Protection backup service.

Backup policies

Vodafone provides a reliable backup and restore capability with flexible scheduling and retention options to ensure that the backup service fits in with Customers' requirements. Backups can be scheduled to

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occur when Customer systems are quiet and retention periods can be set to cover a wide range of recovery timeframes including operational onsite primary backups to offsite backup archiving for compliance or legislation reasons.

The backup policies listed below are designed to provide operational data recovery with the option to support a second site with replicated content and metadata.

Standard Data Protection backup policies offered for on-site retention are detailed below:

Backup Policy	Daily Backups	Weekly Backups	Backup Replication	Backup Archive	Typical Use Case
14 days	6 daily backups per week retained for 14 days	Weekly Full backup retained for 14 days	Optional	Optional	Default backup policy Test/Dev Non-production HW Failure Low cost
1 month	6 daily backups per week retained for 1 month	Weekly Full backup retained for 1 month	Optional	Optional	Production Workloads
3 months	6 daily backups per week retained for 3 months	Weekly Full backup retained for 3 months	Optional	Optional	Compliance – readily available PCI:DSS log access

Data Protection Backup Archiving

For customers that require longer term retention of their data then Vodafone offers a Backup Archiving service that sits alongside the Data Protection Shared Backup offering

The Standard Backup Archiving backup policies we offer for off-site retention are detailed below:

Policy	Backup cycle	Retention
6 months	All monthly	Monthly rotation
1 year	All monthly	Monthly rotation
2 years	All monthly	Monthly rotation
5 years	All monthly	Monthly rotation
7 year	All monthly	Monthly rotation
10 years	All monthly	Monthly rotation



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Application and Database Agents

For customers that require individual backups restored at a granular file level and/or via the client then Vodafone offers Application and Database backup agents that can be installed on the Virtual Machine or Server.

Virtual Estates

Where customers have VMware virtual infrastructure estates the data protection backup service will be configured with VADP (VMware vStorage API for Data Protection) as default, this will allow customers to be able to restore either a full machine image or file. This will mean that no backup agents will be required to be installed and maintained on any of the Virtual Machines. To enable this a vProxy appliance will be required to be installed within the customer cluster. The size and number of these is dependant on the number of Virtual Machines to be backed up and will be discussed during the design phase.

Vodafone will also configure by default auto discovery so that should any new Virtual Machines be created they will automatically be backed up using the 14 day retention policy to ensure your data is protected.

File Application Archiving

Vodafone also offers a File based Application archiving offering providing low-cost storage for Customers who have applications that need file-based storage access for activities such as storing logs. With our file-based application archiving service we can provide a low-cost option to storage of these logs for retention and compliance reasons.

Service Pricing

The following table provides guidance on how we charge for these Data Protection services, please note that these include software licensing, backup hardware, management and maintenance:

Service	Pricing Model	Metric
Data Protection Shared Backup	Monthly Usage based in Arrears	Per GB stored
Data Protection Shared Backup Replication	Monthly Usage based in Arrears	Per GB stored
Backup Archiving	Monthly Usage based in Arrears	Per GB stored post deduplication
File Application Archiving	Monthly Usage based in Arrears	Per GB stored

Note: To be able to order the Backup Offsite Archiving service, your data needs to be backed up as a primary copy on the Data Protection Shared Backup service.

Optional Data Protection Services include:

Backup Replication

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For customers that require a second copy of their data to be stored in another site. Vodafone can provide backup replication from any location to any other Vodafone location within country.

The following tables show the locations available:

Data Centre Location (UK)	Replication availability
Swindon	Yes
Uxbridge	Yes
Park Royal	Yes

4.2 Security features

Regulatory and Compliance.

- Security standards are based on VF Security Policy requirements that are aligned to ISO27001.
- Each service undergoes a Security by Design assessment against policy requirements which is performed by Vodafone Global Cyber-Security teams.
- Assessments are periodically repeated to guarantee life-cycle security standards.

End-to-End Encryption

- Data encryption at rest (D@RE) and in transit for all backup services.
- Automated redundant internal key management.
- Encryption material externally backed up in CyberArk.
- Standard base encryption using AES256 and TLS1.2 for backup transit.

Sovereign Infrastructure and Data

- All core, management and ancillary infrastructure as well as management tools are located in the UK, in secure high-availability data centres.
- Platform and systems involved are only accessible using dedicated secure laptops and RSA two-factor authentication.

Dedicated Teams with Security Clearance

- The product is sold, delivered and operated by dedicated public sector teams exclusively located in the UK.
- All personnel involved with the design, delivery and operations have accredited Security Clearance.
- All communications handled through the dedicated Secure UK Service Desk

Service Management



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5. Service Management

5.1 Service Desk

We will provide a Secure Service Desk as a single point of contact for our customers to raise and progress incidents and service requests. The Service Desk is available and operational 24x7. Specific contact details, escalation paths and detailed processes will be outlined within your customer handbook.

5.2 Secure Service Manager

The optional cloud and security service manager with security clearance from Vodafone will help maximise and optimise your solution performance to meet your business needs.

With this service you can expect regular ongoing analysis and assessment of your solutions capacity and performance, service continuity and technical enhancements through collaborative engagement.

The service works closely with your business and provides detailed information about performance of your solution.

There will be comprehensive monthly reviews, analysis against trends and statistics seen on your solution.

The service comprises the following:

- Regular reviews of solution capacity and performance statistics to ensure the optimisation of performance across solutions
- Regular reviews of service continuity plans and performance to validate resiliency built into the solution
- Collaborative review of solution infrastructure making recommendations to improve the solution
- Resource levels will be determined based on solution size and complexity

5.3 Incident Management

These solutions within Vodafone are supported by our Secure Incident Management service. We will carry out incident management when appropriate with the target to restore service operation to within any agreed service levels and minimise the adverse impact of the incident on the customer's business. Our Secure Incident Management team and Service Desk are contactable and operate on a 24x7 basis.



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We provide the following definitions for different severity levels of incident:

Severity Level	Description	Example(s)
1	Loss of service	Complete loss of service
2	Degradation of service	Service performance degraded below service level
3	Risk to service	Loss of resilience
4	Non-service-affecting	A failure that does not present a risk, or a non-fault

5.4 Event and Alert Management

We provide 24x7 incident, performance, and monitoring services to ensure your solution is always available. Information can be provided via email or Service Manager, if contracted.

Our monitoring approach is based on a combination of agent-based and non-agent-based methodologies. These ensure that the performance of your devices and their accessibility are monitored, and that if a response falls outside the allowed thresholds, our Secure Service Desk is automatically alerted.

5.5 Service Levels

We offer service levels to customers as part of our solutions, and these can vary in type and by service. Your specific service levels will be documented within your contract terms and may be dependent on your high-level designs.

Availability Service Levels

The Service Availability Service Levels are split across two categories and are dependent on your solution architecture and design as per the table below:

- Solution Availability; and
- Component Availability



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Solution Availability Service Levels

Class of solution	Maximum availability	Example
Non-resilient	97%	Solution provided with one or more single points of failure, such as single server or single firewall.
Resilient	99.9%	Solution provided from a single location, but with no single points of failure, utilising load balancing, N+1 design, etc.
Distributed resiliency	99.99%	The same as resilient but also with automated failover to a second location comprising another N+1/resilient solution, with replication between sites.

Data Protection Availability

As standard Vodafone provides the following service availability options depending on requirements:

Protection classes	Notes
Single site	Resilient within a single site
Dual site – real-time	Synchronous replication to a second Vodafone data centre to the same performance class
Dual site – near-real-time	Asynchronous replication to a second Vodafone data centre, where the second site is a performance class lower than the primary copy

Component Service Levels

The following service levels below apply to each single component only if there is no solution availability set out in the high-level design.

Service Component	Service Level Type	Service Level
Data Protection Shared Backup	Availability	99.9%
Data Protection Backup Success Rate	Performance	98%
Data Protection Successful Restores	Restores	100%



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Incident Management Service Level Targets

Our target resolution times are as follows:

Severity Level	Target Time to Restore
1	4 hours
2	8 hours
3	48 hours
4	N/A

Service Credits

Vodafone will offer service credits to customers against qualifying incidents against availability and performance service levels. The process and details of acceptance will be provided as part of your contract.

5.6 Change Management and Service Request Fulfilment

Vodafone will provide you with access to raise service requests via email or phone for action and completion by us. These requests will be completed at our discretion. A service request may only have one requirement; it may not consist of multiple requirements for a single or multiple end users.

Change and service requests apply to soft changes, such as altering a rule on a firewall or applying a patch to the operating system of a server.

We classify change and service requests as follows:

- **Service Requests** are standard changes considered within the BAU-service operation.
- **Routine Change Requests** cover all other types of request that are not service requests, emergency or complex.
- **Emergency Change Requests** are subject to review by Vodafone and acceptance will be at our sole discretion, these must be raised during normal business hours both via the completed form and via a telephone call to our service desk.



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Process

- For **Service Requests**, please email a completed Service Request Form to the Change Management team (servicechangerequest@vodafone.com).
- For **Routine Change Requests**, please email a completed Change Request Form to the Change Management team (change-request@vodafone.com).
- For **Emergency Change Requests**, complete the relevant form and email it to change-request@vodafone.com then follow this up with a call to our Hosting Change Management team on 0870 0600 808. Emergency Change Requests are only accepted during normal business hours (between the hours of 09:00 and 17:30 UK time, Monday to Friday).

We will assess, plan, schedule, and implement the change subject to validation and approval. The Change Management team will communicate with you during this process.

The Change Management team and your Service or Account Manager can provide all the forms stated above. Alternatively, they will be available via the customer portal.

Additional Information

- Not all activities are classified as a change. As a rough guide, re-configuration of an existing infrastructure is a Change, whereas additional infrastructure (e.g., new servers) is an Implementation activity.
- A certain amount of configuration change is included as part of our Managed Service. However, work beyond this may be chargeable



Charges, Billing and Complaints



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6. Charges, Billing and Complaints

6.1 Charges

Each combination of performance and protection class has its own monthly unit price in gigabytes (GB), displayed as a Monthly Recurring Charge (MRC) on your order form. The MRC is multiplied against the amount of storage we allocate to you to calculate your monthly price for the storage element of the service. For example, if you order 500GB of Tier 2 single-site storage but only store 100GB of data, we will still charge you for 500GB at the end of each calendar month in arrears.

The minimum order size is 100GB for the initial storage requirement and a minimum of 50GB for additional capacity. Additional storage orders are subject to our approval.

Note:

- Please note that SAN ports are included as part of the onboarding of a block storage client and the price is included within the Tier per GB charge.
- Due to technical confines and rounding, your provisioned capacity may be slightly higher than your requested capacity. The storage available to your host computers will be slightly lower than the provisioned capacity due to formatting.

6.2 Billing

Key contacts: Your Account Manager or Billing Account Manager.

If you do not have a dedicated Account Manager or Billing Account Manager, the Customer Service Billing Centre can be contacted at: cbsc@vodafone.com



Secure Storage and Back-up Services Service Definition

6.3 Complaints

Vodafone takes great care in providing the highest level of support for our products and services. If you experience any dissatisfaction with any of our products, services or support, a dedicated team is on hand to assist.

The Vodafone Complaints Team is available during normal working hours (09:00 to 17:00 Monday to Friday, excluding bank holidays), and will attempt to respond to issues raised by customers within one working day.

All commercially reasonable actions will be taken to resolve the complaint immediately. However, in the event of a resolution not being immediately possible, the Complaints Team will attempt to provide you with a status update via telephone or email, every 48 hours.

The Complaints Team can be contacted at complaintsteam@vodafone.com or by ringing: **0800 048 1411**.