



PROACT

Service Definition Document

Storage as a Service

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1 Service overview

Proact Storage as a Service (STaaS) delivers flexible, cost effective and off-book storage capacity to the customer's datacentre environment.

Proact STaaS provides organisations with an on-premises storage platform charged as a service, enabling them to align IT spend with data consumption.

With Proact STaaS, the customer pays only for what is used, unlike traditional capital expenditure models, where the customer pay for unused capacity.

STaaS is sold on a cost per TB (Terabyte) of storage, as measured by the raw capacity of the storage controller(s). It is available in one of three service-packages, with varying degrees of support to meet customer requirements:

- STaaS with Premium Support (PS)
 - Provision of raw storage capacity on-premise and off-book
 - Hardware break-fix and vendor support
- STaaS with Premium Support Plus (PSP)
 - Provision of raw storage capacity on-premise and off-book
 - Hardware break-fix and vendor support
 - 24x7x365 monitoring
- STaaS with Service Management (SM)
 - Provision of raw storage capacity on-premise and off-book
 - Hardware break-fix and vendor support
 - 24x7x365 monitoring
 - Proactive management, upgrades and reporting of provided storage capacity

Secure

- Supported from an ISO 27001¹ certified Proact Network Operations Centre (NOC)

Available

- Enterprise-class technology, delivering high levels of availability and performance
- Can be combined with Proact's 24x7x365 monitoring or management services

Flexible

- Charged on a monthly OpEx basis
- Avoids unwanted spikes in capital expenditure
- Customers can easily scale storage capacity up or down to meet changing business needs

Related documents

Full details of the monitoring and management service packages can be found in these service definition documents:

Proact Premium Support Service Definition
Proact Premium Support Plus Service Definition
Proact Service Management Service Definition

¹ ISO27001-certified NOCs are available in selected Proact delivery countries only

The Proact STaaS platform is built on enterprise class technology, assuring high availability and security. Its flexible, pay-per-use cost model is based on two metrics:

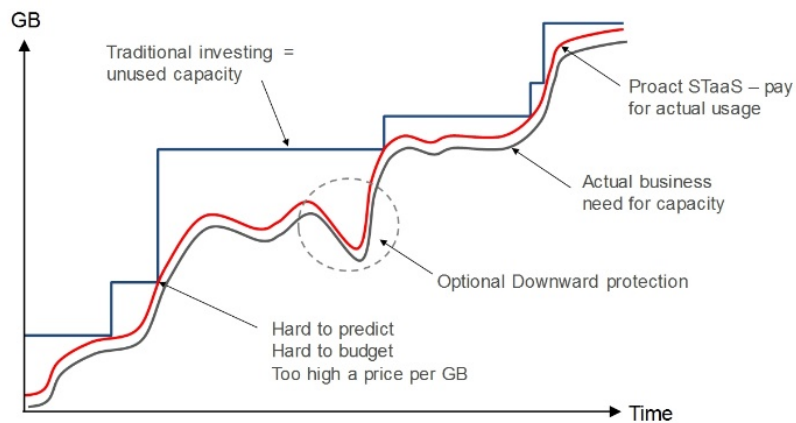
- A fixed base minimum committed usage

The cost per raw TB used (Allocated capacity) is charged monthly or quarterly.

- A fixed price per TB – regardless of remaining contract duration – is charged for any added capacity.

Once an organisation's allocated capacity hits a predetermined threshold Proact ship new capacity to site and add it to the array (on single or multiple storage tiers).

Figure 1: Solution schematic



2 Service scope

This chapter summarises the service scope, processes and capabilities.

Objective	To provision storage capacity to the customer's requirements, with support and optionally including remote monitoring and-or management of the provided storage infrastructure.
Hosted-in	The customer's own designated datacentre environment.
Available service packages	<p>The following service-packages are available:</p> <ul style="list-style-type: none"> ▪ STaaS with Premium Support (PS) – on-premises raw storage capacity ▪ STaaS with Premium Support Plus (PSP) – as above plus 24x7x365 monitoring and break-fix co-ordination in accordance with the Proact Premium Support Plus Service Definition ▪ STaaS with Service Management (SM) – as above plus proactive service management in accordance with the Proact Service Management Service Definition.
Supported items	<ul style="list-style-type: none"> ▪ The list of supportable storage related devices is shown in Supportable infrastructure (Appendix A:, on page II) ▪ For the Premium Support Plus and Service Management packages, each storage controller or switch is associated with one or more feature sets (as appropriate to the technology and its functionality). <ul style="list-style-type: none"> ▪ These feature sets are described in the Service Definition Documents for Premium Support Plus and Service Management respectively
Supported-from	A Proact Network Operations Centre (NOC)
Connection	Proact conduct remote support (as necessary, and where support services are also purchased) through a customer hosted remote support session (for example, LogMeIn [®] Rescue [®]) over encrypted public internet link (that is, HTTPS/SSL/TLS) using existing shared firewalls.
Engagement	<ul style="list-style-type: none"> ▪ Use the Proact Self-service management portal to monitor and raise issues ▪ Use the Proact Service Desk to raise incidents and request capacity expansions
Interoperability with Customer-managed systems	<p>Where this service interacts with any system, application or environment not managed by Proact, it is the customer's responsibility to ensure that it remains compatible with any Proact-managed systems/applications at the hardware, firmware, OS, and application version levels – as recommended by Proact or its vendors as best practice.</p> <hr/> <p>Responsibility 1: Maintain compatibility of interacting external systems or environments at all times</p>
Standard capabilities – All service packages	
Initial storage capacity	<p>The service entails the provision of storage capacity to the customer's specification, with the <i>Initial Bill of Materials (BoM)</i> comprising one or more items from:</p> <ul style="list-style-type: none"> ▪ Storage hardware (for example, controllers, data movers, control stations) ▪ Add-on hardware (for example, PCI cards, racks) ▪ Storage switches (for example, FCP switches) ▪ Replication appliances (for example, EMC RecoverPoint) ▪ Storage capacity (for example, disk enclosures and disks) ▪ System licenses (for example, software packs and capacity licenses) ▪ Capacity licenses (for example, high capacity or high performance) ▪ Support (for example, hardware and software) ▪ Training (for example, vendor courses)

Standard capabilities – All service packages	
Additional capacity	<p>Proact provision expansion storage capacity of the same size and type as the initial minimum commitment at a fixed expansion cost (which remains consistent for the contract term).</p> <p>The following devices cannot be expanded:</p> <ul style="list-style-type: none"> EMC SSD/EFDs (FAST Cache) Nimble SSD (Head cache) Tintri (All cases). <hr/> <p>Note: To expand with a different storage capacity, see Specification Modification below</p>
Specification modification	<p>Where the customer requests changes to the original specification of the storage system during the contract term, Proact create an additional BoM, the contents of which vary depending on the modification to be done, but may include, for example:</p> <ul style="list-style-type: none"> Storage processor/controller/cache upgrade Addition of file or block capability Additional Data Mover Additional control station Add-on hardware (for example, PCI cards, Racks) Additional storage switches (for example, FCP switches) Additional replication appliances (for example, RecoverPoint) Second System for DR System licenses (for example, Software Packs) Host based software (for example, SnapDrive, PowerPath Encryption, ItemPoint). <p>Proact deal with the costs associated with specification modification by revising the customer's <i>Initial Minimum Commitment</i> during the contract term and either:</p> <ul style="list-style-type: none"> Leaving the contract term end date unchanged Resetting the contract term end date Extending the contract term end date.
Billing and reporting	<p>Proact monitor their <i>STaaS</i> solution using a centrally-run billing reporting tool, which collects data using appropriate means (for example: NetApp AutoSupports, EMC Secure Remote Support).</p> <hr/> <p>See also: Billing and reporting (Section 4.3, on page 9)</p>

	Service Package capabilities	PS	PSP	SM
Event management	Near-real-time device monitoring, alert handling and alert notification	x	✓	✓
Incident Management	Hardware <i>break-fix</i> & critical alert fault coordination, incident support and vendor liaison	✓	✓	✓
	Incident resolution	x	x	✓
Change Management	All tasks are performed under the Proact Change Management process, which interacts with customer change processes as required.	x	x	✓
Problem Management	Regular incident <i>trend analysis</i> to proactively identify reoccurring problems and root causes.	x	x	✓
Capacity management	Monitoring and responding to <i>threshold breaches</i> , growth forecasts, maintaining adequate capacity for growth.	x	x	✓
Maintenance	Applying patches, bug-fixes and upgrades to CI related software and-or firmware in line with best practice.	x	x	✓
Service Management & Reporting	Regular service review reports containing incident & change statistics.	x	✓	✓
	Named Service Delivery Manager, regular service review meetings.	x	x	✓

	Service Package capabilities	PS	PSP	SM
Continual Service Improvement	Proact manage service improvement plans which track recommendations for changes to improve service provision.	x	x	✓
Configuration & Knowledge Management	Maintaining a definitive agreed record of all CIs supported by this service.	✓	✓	✓
	Proact maintain a knowledge database to allow support teams to efficiently resolve known issues and find supporting information.	✓	✓	✓

2.1 Service infrastructure

2.1.1 Applications and licensing

EULA	<p>This solution is subject to any vendor terms presented to the customer as well as the specific terms for the vendors listed below. See www.proact.co.uk/terms/vendor for further details:</p> <ul style="list-style-type: none"> ▪ Brocade ▪ Cisco ▪ EMC ▪ NetApp ▪ Nimble ▪ Pure Storage ▪ Tegile Systems ▪ Tintri
Microsoft Software Assurance agreements	<p>If the STaaS solution relies on an existing active Microsoft Software Assurance Agreement (SAA), the customer must ensure the SAA remains active for the duration of the contract.</p> <hr/> <p>Prerequisite 1: Provide & maintain valid MS SAA (as appropriate)</p>
Capacity licenses	<p>Where storage system licenses are required on the storage system for the service to function, the licenses will be provided by the customer.</p> <hr/> <p>Prerequisite 2: Provide storage capacity licenses as necessary</p>
Vendor support agreements	<p>An active support agreement, which will be provided by:</p> <ul style="list-style-type: none"> ▪ Proact – NetApp ▪ Vendor – EMC; Nimble; Pure Storage; Tegile Systems; Tintri.

2.2 Supporting services

Proact Service Desk	<ul style="list-style-type: none"> ▪ Provides 24x7x365 support for the provided storage capacity ▪ Handles events, requests, queries and incidents raised by phone, e-mail or the self-service support portal ▪ Handles change requests by linking to Proact's change management process <hr/> <p>Exclusion 1: Vendor support is available only if the customer holds a valid support contract</p>
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Proact Self-service support portal

- Proact provide the customer's nominated administrators with access to a Self-service support portal through which they can:
 - Create new and update existing Incidents for investigation
 - Create new and update existing changes from a Change catalogue
 - View their CIs on the CMDB
- The credentials assigned to users are for their sole use. Shared accounts are not available

Exclusion 2: Use of service desk or portal by unauthorised users

3 Available service levels

This section identifies the service level measures applicable to – see Table 1 (below)

The customer should consider these measures in the context of the general terms and conditions described in full in the **Proact Service Level Agreement** document, which the customer may view at this web address: <http://www.proact.eu/terms>.

Table 1: Available service level measures

	Premium Support	Premium Support Plus	Service Management
Response time	<ul style="list-style-type: none"> ▪ Not applicable – hardware replacement SLAs only 	<ul style="list-style-type: none"> ▪ Incidents <ul style="list-style-type: none"> ▪ P1 ▪ P2 ▪ P3 	<ul style="list-style-type: none"> ▪ Incidents <ul style="list-style-type: none"> ▪ P1 ▪ P2 ▪ P3 ▪ Changes <ul style="list-style-type: none"> ▪ Standard ▪ Normal ▪ Emergency

4 Service deliverables

This section summarises the key capabilities and deliverables for the *STaaS with PS* service package; see the Related Documents for the additional capabilities for the *STaaS with PSP* and *STaaS with SM* packages.

Deliverables for the STaaS service apply only to the items specified on the initial bill of materials, except as modified by any additional bill of materials.

Related documents

Customers should read these deliverables in conjunction with those deliverables specified in the appropriate service definition document:

- *Proact Premium Support Plus Service Definition*
- *Proact Premium Support Plus Service Definition*
- *Proact Service Management Service Definition*

4.1 ITIL processes

Proact support, and optionally monitor or manage the service infrastructure (according to the service package selected), using processes aligned with the ITIL framework for IT Service Management.

The *Proact Customer Service Operations Guide* provides full detail on how Proact deliver and operate these process

Incident Management	<ul style="list-style-type: none"> ▪ The Proact Service Desk provides an escalation path for the customer's administrators when assistance is required with software issues, firmware issues and hardware faults on CIs. ▪ Proact Service Desk escalates alerts to its technical teams for fault resolution as appropriate ▪ Proact co-ordinate any product vendor involvement necessary to achieve resolution of an issue.
Event Management	<ul style="list-style-type: none"> ▪ Proact receive alerts from systems (<i>for devices which provide call-home facilities, such as NetApp AutoSupport</i>) and create incidents for investigation based on these alerts.
Capacity management	<ul style="list-style-type: none"> ▪ Proact receive and review capacity information (<i>for devices which provide call-home facilities, such as NetApp AutoSupport</i>) and may contact the customer to propose expansion where necessary.
Configuration & Knowledge Management	<ul style="list-style-type: none"> ▪ Proact create and maintain a CMDB for all assets in scope of the contract and provide the customer with visibility of the contents through the Proact Self-service support portal and the SOM ▪ Proact maintain a knowledge database to allow support teams to efficiently resolve known issues and find supporting information.

4.2 Resources

Deliverable	Frequency	Description and content summary
Service Desk – contact number	Continuous	<ul style="list-style-type: none"> ▪ Proact provide the customer with a 24x7x365 service desk telephone number for the purpose of reporting incidents and raising CRs for CIs ▪ Calls are logged on receipt, and will be acted upon within the customer's contractual service window ▪ The Proact Service Desk and Proact Self-service support portal are accessible to named individuals only; not to the customer's users in general. Proact do not offer <i>end-user</i> support.
<p>Exclusion 3: Unauthorised use of the Proact Self-service support portal and-or Service Desk</p>		

Deliverable	Frequency	Description and content summary
Proact Self-service support portal	Continuous	<p>The customer is provided with access to the <i>Proact Self-service support portal</i> via the internet. Using the portal the customer can:</p> <ul style="list-style-type: none"> ▪ Create new and update existing incidents for investigation ▪ Create new and update existing CRs from a change catalogue ▪ View their CIs on the CMDB <p>Proact provide each named individual with an account for their sole use, with their username being their email address. No shared accounts are provided.</p>

4.3 Billing and reporting

Deliverable	Frequency	Description and content summary
Billing and reporting tool	Continuous	<p>Proact monitor usage of the Proact <i>STaaS</i> solution using a billing reporting tool, which is run centrally by Proact.</p> <p>Proact configure the provided storage devices to send regular updates for the storage assigned. This is independent of the data type (SAN or NAS) stored on the devices.</p>
Data collection - summary	Continuous	<p>Proact use the following data collection methods to drive the billing and reporting tool:</p> <ul style="list-style-type: none"> ▪ NetApp AutoSupport (full weekly AutoSupport data) ▪ EMC Secure Remote Support IP Client (see below) ▪ Nimble AutoSupport ▪ Pure PureAlert (puredrive and purearray) ▪ Tegile Cloud Analytics (see below) <p>This requires the customer to allow transmission of information to Proact using the customer's email system (that is, SMTP) for NetApp AutoSupport, Pure PureAlert and Nimble AutoSupport.</p> <hr/> <p>Prerequisite 3: [NetApp and-or Nimble] Allow AutoSupport transmission Prerequisite 4: [Pure] Allow PureAlert transmission</p>
Data collection for EMC ESRS	Continuous	<p>Proact configure the EMC Secure Remote Support (ESRS) IP Client on the customer's site to send relevant configuration information on a scheduled daily basis via email, including:</p> <ul style="list-style-type: none"> ▪ System summary (for example, device name and device serial number) ▪ List of disks (for example, disk serial number and device capacity). <p>This requires the customer provide a Windows server VM to support transmission to Proact of ESRS data (only required for block only, file only and combined block and file system data)</p> <p>Minimum system requirements of the ESRS client are: a VM with 2 GB RAM, 1 GB Disk Space, .NET, Java and a SMTP relay address</p> <hr/> <p>Prerequisite 5: [EMC] Provide ESRS Client Server</p>
Data collection for Tintri based arrays	Continuous	<p>Proact base the billing on the recorded model number of the array (the capacity for the array cannot be changed after implementation).</p>

Deliverable	Frequency	Description and content summary
Data collection for Tegile Cloud Analytics	Continuous	<p>Proact access the customer's Tegile Cloud Analytics Portal to collect and collate the data transmitted there by the customer's storage device(s).</p> <p>To enable this collection the customer should:</p> <ul style="list-style-type: none"> ▪ Allow transmission of any Tegile Cloud Analytics information to Tegile ▪ Authorise Proact to view their data using the Tegile Cloud Analytics Portal. <hr/> <p>Prerequisite 6: [Tegile] Allow Cloud Analytics transmission and Proact access</p>

4.4 Service Guides, Documents and Reports

The following service guides, operational documents and reports will be provided to the customer by Proact, and maintained as required throughout the lifecycle of the service.

Deliverable	Frequency	Description and content summary
Service Specification	Contract	A schedule of the customer's contracted services and associated charges.
Service Level Agreements	Contract	Proact's standard Service Level Agreements.
Terms and conditions	Contract	Proact's terms and conditions for all services.
Managed Service Transition Guide	Start-up	How customer services are transitioned into live operation.
Customer Prerequisites Guide	Start-up	The activities the customer must perform before the service can be commissioned.
Customer Service Operations Guide	Ongoing	A guide to how Proact operate customer service, how to communicate with Proact and how to best use the service.
Service Transfer Policy	Contract	Proact's policy for handling data and asset returns at end-of-contract.
Service Transfer Plan	End of contract	A plan for handling data and asset returns for the customer, in accordance with the Proact Service Transfer Policy .

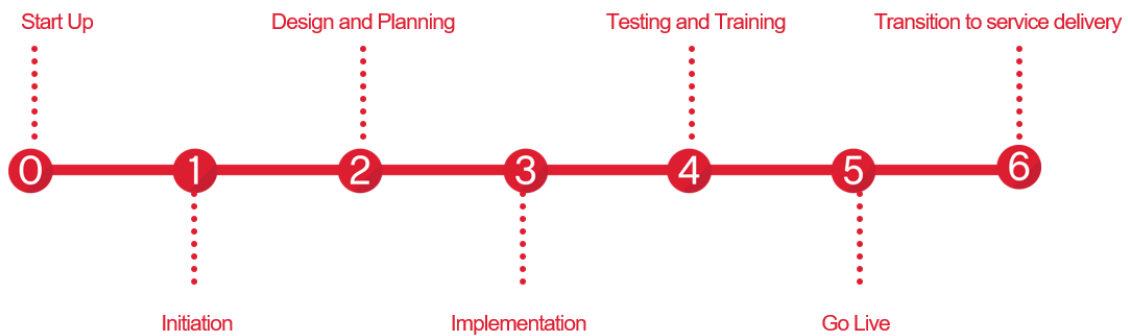
5 Service transition

Proact use a standard methodology for transitioning the customer's services into live operation.

This methodology is described in full in the *Proact Managed Service Transition Guide*.

Proact follow a Stage 0-6 model for all Service Transitions (Figure 2 below).

Figure 2: Stage 0-6 transition model



Meetings	<p>Project Startup</p> <p>The Customer is required to attend a Project Startup meeting and any further workshops required to complete the detailed service and technical design, and make available appropriate service and technical personnel with suitable skill sets at these meetings.</p> <p>Project Closedown</p> <p>The Customer is required to attend a Project Closedown meeting to formally close projects for transitioning new services into operation.</p> <hr/> <p>Prerequisite 7: Provide appropriate customer representation at transition workshops Responsibility 2: Provide appropriate representation at project closedown workshop</p>
Data migration	<p>Migration of workloads and datasets from legacy systems is not included in this service.</p> <p>However, Proact can, optionally on request, provide Professional Services to assist the customer. Please refer to the assigned Proact Account Manager to discuss and arrange this additional service if required.</p> <hr/> <p>Exclusion 4: Data migration is explicitly excluded from the scope of Service Transition</p>
Training sessions	<ul style="list-style-type: none"> ▪ Using the Proact Self-service support portal <p style="margin-left: 20px;">Proact provide, on request, a single remote web-based training session to the customer's administrator(s) covering the access and use of Proact's Proact Self-service support portal, to supplement the instructions provided in the <i>Proact Customer Service Operations Guide</i></p> ▪ Using the Proact Self-service monitoring portal <p style="margin-left: 20px;">Proact provide, on request, a single remote web-based training session to the customer's administrator(s) covering the access and use of Proact's Proact Self-service monitoring portal, to supplement the instructions provided in the <i>Proact Customer Service Operations Guide</i></p>

6 Service charging policy

Proact's monthly invoicing and flexible usage models free the customer's capital budgets.

Self-service portals and intrinsic infrastructure support minimise mundane operational tasks, freeing the customer's focus for strategic business projects.

- Charges are based on usage information provided and assumptions made on that basis; all of which forms part of the contractual agreement.
- Prolonged and significant variation in usage may require a reassessment of the charges.

Table 2: Service charging-model

Item	Detail
Contract term	36 to 60 months
Charging metric	<ul style="list-style-type: none"> ▪ Set-up charge according to the types, sizes and configuration of the CIs selected by the customer ▪ Minimum commit charge according to the types, sizes, configuration and service level of the CIs selected by the customer and the feature sets selected for those CIs. For example, the quantity of controllers, volumes, capacity and the capacity Tier. If those controllers are configured as part of a Storage Area Network with replication or are Network Attached Storage with replication. ▪ Flexible charge according to the types, sizes, configuration and service level of the CIs selected by the customer and the feature sets selected for those CIs. For example, Tiered capacity and volumes increases
Billing profile	<ul style="list-style-type: none"> ▪ Charge based on Milestones or Time & Materials for set-up charges ▪ Monthly or quarterly in advance for Minimum commit charges ▪ Monthly or quarterly in arrears for Flexible charges

7 Additional services

Customers should contact their Proact Account Manager to discuss the available options, some of which are shown Table 3 (below).

Table 3: Service change options

Service Change	<ul style="list-style-type: none"> ▪ Expansion capacity With the flexible commitment options, capacity can be added at a fixed expansion cost (which remains constant for the contract term) – See Flexible commitment – Expansion capacity (App. B.2: on page IV) ▪ Specification modification Can be used to change the original specification of the storage system using an additional BOM
Service upgrade	<ul style="list-style-type: none"> ▪ Service package upgrades – for example from <i>STaaS with PS</i> to <i>STaaS with PSP</i>, or from <i>STaaS with PSP</i> to <i>STaaS with SM</i>
Bespoke services	<p>Proact Professional Services can be engaged to assist with a range of bespoke services including, but not limited to:</p> <ul style="list-style-type: none"> ▪ Migration of workloads, datasets and monitoring configurations from legacy systems to systems under Proact service management ▪ Out of scope support – Proact can provide support and professional services for out of scope equipment ▪ Service transfer and end-of-life – Any bespoke activities required by the customer outside of the Service Transfer Plan can be provided using Proact Professional Services – See also: Proact Service Transfer Policy
Complementary services	<p>Proact provides a range of services complementary to STaaS including, but not limited to:</p> <ul style="list-style-type: none"> ▪ Disaster Recovery (DRaaS) <ul style="list-style-type: none"> ▪ Uses enterprise-class technology ▪ Deliver a highly available platform for the customer’s crucial information ▪ Replicates the customer’s mission-critical data to a secure Proact datacentre and-or the customer’s own secondary datacentre ▪ Contractual SLAs ensure the customer’s services are recovered according to a strict <i>recovery time objective (RTO)</i>. ▪ Proact Backup as a Service <ul style="list-style-type: none"> ▪ Uses enterprise-class technology ▪ Deliver a highly available platform for the customer’s crucial information

8 Service demarcation

This chapter identifies the prerequisites, responsibilities and exclusions upon which the delivery of the service defined in this document depends.

Prerequisites	Prerequisite 6: Provide & maintain valid MS SAA (as appropriate).....	5
	Prerequisite 7: Provide storage capacity licenses as necessary	5
	Prerequisite 9: [NetApp and-or Nimble] Allow AutoSupport transmission	9
	Prerequisite 10: [Pure] Allow PureAlert transmission.....	9
	Prerequisite 11: [EMC] Provide ESRS Client Server	9
	Prerequisite 12: [Tegile] Allow Cloud Analytics transmission and Proact access.....	10
	Prerequisite 13: Provide appropriate customer representation at transition workshops.....	11
Responsibilities	Responsibility 1: Maintain compatibility of interacting external systems or environments at all times.....	3
	Prerequisite 7: Provide appropriate customer representation at transition workshops	
	Responsibility 2: Provide appropriate representation at project closedown workshop.....	11
Exclusions	Exclusion 1: Vendor support is available only if the customer holds a valid support contract	5
	Exclusion 2: Use of service desk or portal by unauthorised users	6
	Exclusion 3: Unauthorised use of the Proact Self-service support portal and-or Service Desk.....	8
	Exclusion 4: Data migration is explicitly excluded from the scope of Service Transition	11
	Exclusion 5: Adding capacity beyond vendor maximum limits	IV

Glossary

Term	Abbreviation	Definition
Break-fix		Break-fix is a reactionary IT business support model in which the repair of an IT device or system component is done only when it fails (for example, a disk drive or server or router ceases to function).
Change advisory board	CAB	Delivers support to a change management team by approving requested changes and assisting in the assessment and prioritisation of changes.
Change request	CR	A document requesting a change to an item within the scope of the contracted service, or to the service itself
Clustering		Connecting two or more computers together in such a way that they behave like a single computer. Clustering is used for parallel processing, load balancing and fault tolerance.
Configuration item	CI	A hardware, firmware, software or other item monitored, supported and-or managed by Proact. That is, it is included in the agreed list of in-scope items as an item covered by the selected service
Configuration management database	CMDB	A repository for information technology installations. It holds data relating to a collection of IT assets
Contract change note	CCN	Contract change notes are used to document amendments to contractual commitments during the contract term
Customer service operations guide	CSOG	The Proact Customer Service Operations Guide. A guide to how Proact operate customer service, how to communicate with Proact and how to best use the service.
Customer-site	Site	Customer-site refers to a geographically-local collection of in-scope customer networks, devices or resources, whether they are physically located on customer premises, in a Proact or third-party provider datacentre, or in a Proact or third-party public or private cloud.
Datacentre	DC	A data centre is a facility used to house computer systems and associated components, such as telecommunications and storage systems
Disaster recovery	DR	The process of restoring and assuring the continuation of essential IT services in the event of a disaster disrupting normal operation/
Exclusion		Exclusions are, for the purposes of this document, items outside of the scope of this service contract for which Proact are not liable.
Feature-set		A feature or collection of features attributed to a device (for example a storage controller) that describe that device's function (for example, Controller) and elements of the device (for example, Data Protection) to be monitored by Proact.
Information Technology Infrastructure Library	ITIL	A set of practices for IT service management that focuses on aligning IT services with the needs of business.
IT Service Management system	ITMS	The system used by the Proact Service desk to manage events, incidents, problems and changes
Network attached storage	NAS	Typically a NAS is a single storage device that operates on data files

Term	Abbreviation	Definition
Network operations centre	NOC	A location from which Proact deliver their monitoring, support and or management services.
Near real-time		Near real-time (in telecommunications and computing) refers to the time delay introduced by automated data processing or network transmission between the occurrence of an event and the use of the processed data (for example, for display or feedback & control purposes).
Prerequisite		Prerequisites are, for the purposes of this document, tangible resources, actions or commitments without which the service cannot be initiated and whose provision and maintenance (where applicable) is the responsibility of the customer for the duration of the contract.
Remote support utility		Remote support utilities provide the ability to connect to and remotely control a host computer (examples include, LogMeIn Rescue and Cisco WebEx)
Responsibility		Responsibilities are, for the purposes of this document, ongoing actions or commitments necessary to sustain service delivery, which must be maintained for the duration of the contract
Storage area network	SAN	Typically a SAN is a local network of multiple storage devices that operate on disk blocks
Service transition		The process of transitioning a contracted service from planning through to a live delivery state.
Service level agreement	SLA	An official commitment to the level of service provision that prevails between a service provider and their customer
Trend analysis		Analysis of data to identify patterns. Trend analysis is used in problem management to identify common points of failure or fragile configuration items.

Appendices

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- B.2: Flexible commitment – Expansion capacity IV

Appendix A: Supportable infrastructure

This appendice lists devices and applications supported by the service. It is included for ease of reference only, the latest Support Matrix remains the definitive source.

A.1: Devices

A.1.1: Storage arrays

Manufacturer	Models				
Tegile Systems – IntelliFlash Series	▪ T3100 ▪ T3200	▪ T3300 ▪ T3400	▪ T3600	▪ T3700	▪ T3800
Tintri – VMStore	▪ T820 ▪ T850	▪ T880	▪ T5040	▪ T5060	▪ T5080
Pure Storage – FlashArray	▪ FA-405	▪ FA-420	▪ FA-450	▪	▪
Nimble – CS Series	▪ CS215	▪ CS235	▪ CS300	▪ CS500	▪ CS700
EMC – VNX Next Gen Series	▪ VNX 5200 ▪ VNX 5400	▪ VNX 5600	▪ VNX 5800	▪ VNX 7600	▪ VNX 8000
NetApp –FAS Series	▪ FAS2220 ▪ FAS2240 ▪ FAS2520	▪ FAS2552 ▪ FAS2554 ▪ FAS6220	▪ FAS6250 ▪ FAS6290	▪ FAS8020 ▪ FAS8040	▪ FAS8060 ▪ FAS8080EX

A.1.2: Storage configurations

Supported Controller Configurations	<ul style="list-style-type: none"> ▪ NetApp and EMC Controllers <ul style="list-style-type: none"> ▪ Single Controller ▪ 2 Node Active-Active High-Availability Cluster ▪ 2 Node Active-Passive High-Availability Cluster ▪ NetApp Controllers only <ul style="list-style-type: none"> ▪ 2 Node MetroCluster (Fabric, including Brocade FCP Disk Switches) ▪ 2 Node MetroCluster (Stretched) ▪ Multi-Node Cluster (Cluster ONTAP) ▪ Pure and Tintri – 2 Node Active-Passive High-Availability Cluster ▪ Tegile <ul style="list-style-type: none"> ▪ 2 Node Active-Active High-Availability Cluster ▪ 2 Node Active-Passive High-Availability Cluster ▪ Nimble <ul style="list-style-type: none"> ▪ 2 Node Active-Passive High-Availability Cluster ▪ Multi-Node Cluster
Supported Replication Types	<ul style="list-style-type: none"> ▪ NetApp <ul style="list-style-type: none"> ▪ Volume SnapMirror ▪ SnapVault ▪ EMC <ul style="list-style-type: none"> ▪ RecoverPoint ▪ MirrorView ▪ VNX/IP/Celerra Replicator ▪ Tintri – ReplicateVM ▪ Pure – Pure Replication ▪ Tegile – Tegile Replication ▪ Nimble – Nimble Replication

OS version requirements

- NetApp – 7.0.x or newer, 8.0.x 7-Mode, 8.2.x C-Mode or newer
 - Tintri – Tintri OS 2.0 or newer
 - Pure – PURITY 3.x or newer
 - Tegile –ZABI 2.1 or newer
 - Nimble – CASL 1.4 or newer
- EMC (VNX may require 2 x OE's, block and file)
 - VNX OE for block 05.32.x or newer
 - VNX OE for file 7.1.x or newer
 - VNX Next Gen OE for block 05.33.x or newer
 - VNX Next Gen OE for file 8.1.x or newer

A.1.3: Storage switches

Manufacturer	Model Series
Brocade –FCP Switch	<ul style="list-style-type: none"> ▪ 300 ▪ 5100 ▪ 5300 ▪ 6505 ▪ 6510 ▪ 6520
Cisco – FCoE Switch	<ul style="list-style-type: none"> ▪ 5010 ▪ 5020 ▪ 6001 ▪ 5548P ▪ 5548UP ▪ 5596T ▪ 5596UP
Cisco – FCP Switch	<ul style="list-style-type: none"> ▪ 9120 ▪ 9124 ▪ 9140 ▪ 9148
Cisco – LAN Switch	<ul style="list-style-type: none"> ▪ Catalyst 2960
NetApp – FCP Switch	<ul style="list-style-type: none"> ▪ ATTO Fibre Bridge 6500N
NetApp – InterConnect Switch	<ul style="list-style-type: none"> ▪ CN1610
NetApp – LAN Switch	<ul style="list-style-type: none"> ▪ CN1601

A.1.4: Disk enclosures and shelves

STaaS supports all disk enclosures and shelves shown in Table 4 (below).

Table 4: Disk enclosures list

Manufacturer	Model	Form Factor	Number of Disks
EMC	VNXB6GSDAE15	3.5"	15
EMC	VNXB6GSDAE25	2.5"	25
NetApp	FAS Series	All currently supported NetApp disk shelves	
Nimble	C Series	All currently supported Nimble disk shelves	
Pure Storage	FlashArray	All currently supported Pure Storage disk shelves	
Tegile Systems	IntelliFlash Series	All currently supported Tegile Systems disk shelves	
Tintri	VMStore	Not applicable	

Appendix B: Technical limits and constraints

B.1: Limits

Maximum Storage Controller Locations	100
Maximum Administrators	50
Maximum Storage Controllers	100 Note: HA clusters are classed as 2 controllers
Maximum Number of Volumes, LUNs & VMs per Controller	3,500 This number refers to: <ul style="list-style-type: none"> FlexVols (NetApp) Volumes or LUNs (EMC) LUNs (Nimble, Pure) Projects (Tegile) Virtual Machines (Tintri)
Type of Volumes/LUNs	<ul style="list-style-type: none"> FlexVols, no Traditional Volumes (NetApp) Storage Pool LUN (EMC) RAID Group LUN (EMC) All supported (Nimble, Pure, Tegile, Tintri)
Maximum SAN Connected Hosts (per controller)	200
Maximum Storage Connected Switches (per controller)	239

B.2: Flexible commitment – Expansion capacity

With the flexible commitment option expansion capacity can be added at a fixed cost, set at contract start and constant throughout the life of the contract.

The expansion storage that can be added will vary depending on the initial BOM, typically only storage of the same size and type supplied in the initial BOM is available, as shown in the table below. A specification modification is required to for expansions not shown as available.

Expansion constraints
Additional expansion must be in-line with the vendor's current best practices and can only be performed if adding additional storage does not exceed the vendor's maximum published limits.

Exclusion 5: Adding capacity beyond vendor maximum limits

Manufacturer	Device	Same Capacity as Initial BOM?	Expansion available?
EMC	SATA	✓	✓
	SATA	✗	✗
	SATA/NL-SAS	✓	✓
	SATA/NL-SAS	✗	✗
	SSD/EFDS FAST Cache	–	✗
NetApp	SAS	✓	✓
	SAS	✗	✗
	SATA	✓	✓
	SATA	✗	✗
	SSD Hybrid Shelves Flash Pool	✓	✓
	SSD Hybrid Shelves Flash Pool	✗	✗
Nimble	NL-SAS/SATA/SSD Hybrid Shelves	✓	✓

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Manufacturer	Device	Same Capacity as Initial BOM?	Expansion available?
	NL-SAS/SATA/SSD Hybrid Shelves	✗	✗
	SSD All-Flash Shelves	✓	✓
	SSD All-Flash Shelves	✗	✗
	SSD Head Cache	–	✗
Pure	SSD	✓	✓
	SSD	✗	✗
Tegile	NL-SAS/SATA/SSD Hybrid Shelves	✓	✓
	NL-SAS/SATA/SSD Hybrid Shelves	✗	✗
	SSD All-Flash Shelves	✓	✓
	SSD All-Flash Shelves	✗	✗
Tintri		–	✗