



Redcentric Infrastructure as a Service

Service Definition

Version 9.0
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redcentric

AGILE • AVAILABLE • ASSURED

1 Service Overview

Redcentric's Infrastructure as a Service (IaaS) product enables the customer to consume compute, storage and network infrastructure through a simple unified platform. IaaS is already used by many Redcentric customers to deliver tier-one applications, all benefitting from expert infrastructure support provided by Redcentric's server, storage, network and security teams.

The IaaS product allows the customer to

- React faster and support business agility through faster delivery of new solutions
- Increase business value by focusing on the applications providing services to the business
- Manage costs, whilst replacing capital with operational expenditure
- Gracefully migrate from traditional physical infrastructure into the cloud
- Supplement on premise infrastructure capacity or meet short term project requirements

IaaS provides the assurance of UK hosted and managed infrastructure delivered from Redcentric's ISO27001 accredited data centres. The underlying platforms are managed by Redcentric, covering design, performance, capacity, security updates, hosting, installation, refresh and upgrades. All delivered against a published Availability Service Level of 99.99%.

Customer can choose between a managed model and self-service. Self-service customers can quickly deploy and manage infrastructure through a web portal, with the flexibility to meet scale-up and scale-out requirements. customers can provision infrastructure from pre-built Windows and Linux templates, utilise their own templates or import virtual machines. The customer controls the processor, memory, storage, network and operating system that makes up the infrastructure

Redcentric-managed customers will have their infrastructure fully managed by Redcentric up to the virtual machine level with Redcentric engineers provisioning and managing the network, storage and virtual machines for the customer. Redcentric will also manage virtual machine backups for data and service recovery.

Full remote console, session and administrative access is provided to customers to manage their application workloads. Access to the Redcentric Managed Backup Service allows customers to protect their data and service against data loss and corruption with backup and restore.

The service is hosted across two locations in the UK, providing a premium virtual machine disaster recovery service as required.

IaaS is delivered from the heart of Redcentric's network, allowing the customer to provision servers within their WAN or the Internet, as well as large private networks such as HSCN (N3) or Janet. The IaaS product uses a secure, enterprise-class multitenant private cloud hosting platform designed and deployed in Redcentric's data centres and managed end-to-end by Redcentric on a 24x7 basis. The design is wholly owned by Redcentric, and services are provided on an as-is basis with defined service levels.

The platform provides a stable and controlled environment for customers to provision virtual machine infrastructure through a self-service portal. This type of service provides strategic advantages over traditional physical and dedicated deployments.

- Simple unified approach to provisioning and managing server, storage and network resource.
- Rapid provisioning of infrastructure allowing application and support teams to react quickly to new requirements and focus on their end users.
- Consistent, standardised and repeatable deployment of infrastructure allowing IT to focus on the application layer upwards, that delivers real business value.

The service is a large-scale private cloud solution managed by Redcentric and consumed by multiple Redcentric customers with logical and security boundaries between customers ensuring that customers are fully segregated, with each customer operating in a discreet virtual data centre. Customers contend on shared compute, storage and network resources.

2 Key features and benefits

2.1 Key Features

- Flexible scale up and scale out capabilities
- Self-service portal
- Use of Redcentric's prebuilt templates
- Flexible CPU, Memory and disk configurations
- Access VMs using console, LAN, WAN Internet and HSCN
- Service resilience based on N+1 industry best practice
- Automatic VM placement across host clusters to ensure optimal performance.

2.2 Key benefits

- Flexible commercial models - Reduce your CAPEX and leverage a consumption model aligned to your budget and OPEX
- High Availability - Utilise a resilient IaaS environment and contracted SLAs that are proven over ten years of service delivery.
- Agile environment - Flex your IaaS solution at speed while also gaining the ability to use a proven cloud; or develop a hybrid cloud approach.
- Aligned To Your Needs - A choice in the infrastructure you consume from us; choose the specifics around virtual machines, scale, operating system and environment.
- Secure - Enjoy peace of mind that our data centres are accredited to government and ISO standards, including Redcentric's Cyber Essentials Plus certification.
- Fully managed IaaS options - Reduce your total cost of ownership through a fully managed Infrastructure as a Service that takes care of the infrastructure, upgrading, patching or management.

3 Service Scope

Redcentric provide both self-service (IaaS) and fully managed (PaaS) cloud services from within the platform. Where a service element in the following section is utilised by IaaS and PaaS the differences between the IaaS and PaaS options are called out.

Locations

Redcentric provisions virtual datacentres at Redcentric's ISO270001 accredited locations, as required by the customer. The service is available as a standard service with resources provisioned in a single datacentre, or with Dual-Site Replication and Recovery, which provides resources at a primary location and shadow resources in a secondary datacentre as a Disaster Recovery capability.

4 How users work with the service

Redcentric provides self-service portals that the customer can use to create, edit, manage and delete virtual machines and networks within their virtual datacentres. The customer can

- Provision, modify or remove virtual machines
- Upload, create and manage virtual machine templates
- Add, modify or remove segregated VDC internal networks
- Provision and manage virtual disks
- Modify the resource configurations for their virtual resources
- Power virtual machines on and off
- Access the virtual console of the virtual machine
- Manage virtual machine snapshots

Configuration changes not supported within the self-service portal can be submitted via Redcentric's change request process where they will be evaluated by Redcentric's engineering teams.

Customer's opting for a fully managed PaaS service will have limited permissions. Standard permissions include

- Power on/off virtual machines
- Restart virtual machines
- Initiate a snapshot
- Access the virtual machine console

Redcentric will assess requests for further access upon request. Customer initiated activities that impact service availability are excluded from SLA calculations.

Redcentric will retain administration rights to Virtual Machines when providing a PaaS managed service. Customer access will be limited to user permissions, unless administrator access is granted for specific time-bound purposes.

Customer templates or ISO images should contain the Redcentric Software Licensing Agent and configuration, if this is not pre-installed, it must be installed and configured as a post provisioning step. Please contact Redcentric support for the latest installation and configuration instructions.

5 Network access

Virtual machines on the platform can be accessed in the following ways.

Access method	Description
Session Access	<p>Session access is used to manage virtual machine operating systems.</p> <ul style="list-style-type: none">• Windows Server session via Remote Desktop Protocol (RDP) [subject to network access]• Linux Server Secure Shell (SSH) [subject to network access]• HTTPS access to configure virtual appliances with web-based configuration interfaces.
Console Access	<p>Console access is provided for initial container operating system configuration and fault finding when session access is not available.</p> <ul style="list-style-type: none">• Using a remote console application (download link provided) via the portal API• Using a web application within the self-service portal
LAN access	<ul style="list-style-type: none">• Access from virtual and physical servers deployed by the customer on the same network segment• Physical, hosted servers deployed for the customer within the same Redcentric data centre, subject to network segregation, routing and security configuration• Servers and devices in co-located hosting racks deployed for the customer within the same Redcentric datacentre, subject to network segregation, routing and security configuration
WAN/MPLS access	<ul style="list-style-type: none">• Any server or device where the customer takes WAN services from Redcentric, subject to network segregation and permitted access• Any server or device where the customer extends a WAN network connection into Redcentric's datacentre, subject to network segregation and network access
Internet access	<p>The virtual servers can be accessed from the Internet where the customer takes managed firewall and internet services from Redcentric and appropriate network security permissions are in place</p>
HSCN (N3)	<p>The virtual servers can be accessed from the HSCN and N3 networks where the customer takes managed firewall and connectivity services from Redcentric</p>

6 Customer Obligations

- Customer must install, support, patch and upgrade their applications(s)
- Customer must ensure their O/S and application licences are compliant with the customers vendor-specific agreements
- Customer must allow Redcentric administrator access within the virtual server to carry out audit activities
- Customer shall not operate Microsoft Windows Desktop OS
- Customers must allow Redcentric to install a License Management Agent to enable software license usage reporting.

7 Virtual machine specifications

Customers can provision resources within the following limits. Customers can choose their own virtual machine specifications and are not limited to “t-shirt sizes” like public hyperscale cloud platforms.

Resource type	Unit	Minimum	Maximum	Notes
Processor	vCPU	1	32	Allocated in 1 vCPU increments. Configurations of 1 or an even number of vCPUs is highly recommended.
Memory	GB	1	512	Allocated in 1 GB increments.
Storage	GB	1	63,488	Allocated in 1 GB increments.
Network interfaces	Items	1	10	Customers can allocate up to ten network interfaces per server

7.1 Processors

Each virtual machine is allocated a single vCPU by default. Additional vCPUs can be allocated in even numbers. Servers may need to be powered down to modify the number of CPUs, depending on the change being made and the capabilities of the operating system.

Processors over the platform typically perform at over 2GHz with variation between host specifications. Redcentric will update and refresh host hardware over the lifecycle of the platform, however processor performance between host will not show significant application performance variation.

Processor resources usage over contracted levels is only charged to the customer when the virtual machines is powered on. Processor usage is metered hourly and an average over the month is reported. The average is rounded up to the next whole number.

7.2 Memory

Each virtual machine is allocated 1GB memory by default. Additional memory can be allocated in 1GB increments to a maximum of 256GB per server.

Memory resource usage over contracted levels is only charged to the customer when the virtual machines is powered on. Memory usage is metered hourly and an average over the month is reported. The average is rounded up to the next whole number.

7.3 Storage

Customers consumes storage space for virtual machines' system disks, data and application disks, snapshots, templates and swap files. These resources are consumed even if the disk is not allocated or visible to a virtual machine.

Redcentric templates will typically have a single disk for the operating system drive. This size may vary with each template used, and the customer should check the disk size before deploying.

Virtual disks and snapshots are held on high performance solid state storage and customers can expect up to 2 IOPS per allocated usable GB with an average response time of 10 – 15ms, based on 70/30 read/write split and 8KB transaction size.

All data is encrypted at rest using strong industry-standard encryption methods, ensuring that the platform is secure against physical data theft and supports many compliance requirements. As a shared platform, data is logically separated between customers, but is not zero-filled after deletion. Due to the disks being encrypted at rest, zero-filling is not necessary to ensure the data is unreadable.

Storage usage is metered hourly and an average over the month is reported. This approach is equivalent to hourly reporting but without the variations associated with differences in the length of calendar months.

7.4 Network

Each server is attached to one network resource by default, with a maximum of ten connections per virtual machine.

External interfaces connect the customer's servers to other network resources, such as a customer WAN, Internet via a Managed Firewall or customer LAN within a co-located hosted rack in Redcentric's datacentre. These network resources will be configured by Redcentric as part of the service activation. Connection to the customer's network allows the servers to co-exist within the customer's IP address scheme and be fully routable & integrated into the customer's network environment. Services on this platform will require some level of connectivity for virtual machine session-based management and service access.

Network resources are defined during service delivery. Changes to the network topology can be requested throughout the lifetime of the customer's service via the Account Manager. These changes may be subject to a one-off charge, and a design and planning lead time.

Network ingress/egress charges to the cloud platform are not metered.

8 Guest Operating Systems (Self-Service)

The platform supports any 64-bit server operating systems currently supported by the vendor, are not end of life and are on the [VMware Guest Operating System Compatibility Guide](#). The platform charges include Microsoft Windows Server licensing.

As of October 2023, this includes

- Microsoft Windows Server 2012, 2016 and 2019
- Major Linux distributions, for example (see vendors or linuxlifecycle.com)
 - Ubuntu Server LTS 14.04 – 22.04 (see [vendor](#))
 - CentOS 6 and later (see [vendor](#))
 - Red Hat Enterprise Linux 5.x, 6.x, 7.x and 8.x (see [vendor](#))
 - Debian GNU/Linux 8 to 11
 - SUSE Linux Enterprise Server 11 to 15 (see [vendor](#))

- FreeBSD 11.3 to 12.1 (see [vendor](#))
- Oracle Linux 4.9 to 8 (contact [Oracle](#))
- Solaris 10 & 11.3 (see [vendor](#))

Where new operating systems are released, there may be a delay until VMware and Redcentric have updated their products to support the new version. Contact Redcentric support to confirm support for Operating System versions not listed above.

Guest operating system support also relies on the customer ensuring that the latest version of VMWare Tools available for the platform is installed on virtual machines.

Customers are required to run Redcentric's License Management Agent and allow it to communicate with the License Management Server to support software license compliance processes. The agent is included in all Redcentric provided templates. Customers are responsible for licensing all software except for Windows Server, which is licensed by Redcentric's Microsoft Cloud Service Provider agreement. Please contact Redcentric support to obtain the latest installation guide for the License Management Agent.

Redcentric recommend a minimum managed server specification as detailed below:

OS	CPU Cores	RAM	Disk
Windows Server 2019	2	4GB	60GB
Windows Server 2016	2	4GB	60GB
Windows Server 2012	2	4GB	60GB
Ubuntu 14.04 LTS to 22.04 LTS	2	4GB	20GB
CentOS 6 and later	2	4GB	20GB
Red Hat Linux 5 to 8	2	4GB	60GB
Debian 8 to 11	2	4GB	20GB
SUSE Linux Enterprise Server 11 to 15	2	4GB	20GB
FreeBSD 11 & 12	2	4GB	20GB
Oracle Linux 4.9 to 8	2	4GB	20GB
Solaris 10 & 11	2	4GB	32GB

8.1 Software Licensing

Customers are responsible for ensuring that all software in use on the platform is properly licensed and used within the limitations on the licensing agreement. This includes ensuring that sufficient per-processor, -core, -user and -device licenses are in place and reviewed regularly to ensure continued compliance.

Redcentric can provide licenses for certain products based on customer requirements, contact your account manager for further details.

The customer must notify Redcentric of any Microsoft software that it intends to operate on the service, to allow Redcentric to identify the correct licencing method.

Microsoft licenses and subscriptions can be provided by Redcentric on a rental basis using the SPLA programme, or customers with active License Mobility rights and active Software Assurance can apply to Microsoft to transfer the licenses for use on Redcentric's platform within ten days of deployment. Redcentric is a Microsoft Authorised Mobility Partner.

At the time of writing, License Mobility applies only to the following Microsoft products.

- Microsoft SQL Server database server
- Microsoft Exchange server
- Microsoft SharePoint server
- Microsoft Lync server
- Microsoft System Center server
- Microsoft Dynamics CRM business software

If the customer has their own SPLA agreement, the customer can also provide SPLA subscriptions to license certain Microsoft products.

Office Pro Plus and Windows 10 subscriptions cannot be used on the platform, except by prior arrangement. Contact your account manager for further details. Redcentric can also provide these subscriptions.

Redcentric provides Microsoft Windows Server licences across the platform for all customer virtual machines deployed.

8.2 Software Licensing Compliance

Customers must agree to installation of Redcentric's software license management agent as a prerequisite for using any commercial software licenses. Redcentric will supply license reports to the nominated customer representative or team responsible for software license compliance on a monthly basis.

Customers are required to provide evidence of license entitlement at contract commencement and when the license agent detects the installation of additional licensed software. If the license entitlement is not supplied within 10 working days Redcentric reserve the right to disable or uninstall the software from managed virtual machines, or disable the VM for self-service instances if no proof of entitlement has been provided, or where the customer has committed to providing such proof within a further grace period of 10 working days. License entitlements must be back-dated to the point of installation.

Redcentric do not require evidence of entitlement for software subscriptions that are dependent upon regular confirmation of entitlement to remain functional as these are typically licensed via the software suppliers own cloud-based licensing engines.

9 Backup and recovery

Backup options are available using Redcentric's BaaS service, during the service design phase Redcentric will agree with the customer the backup schedule, areas to be backed up and frequency.

10 Service Operation

Redcentric monitors and manages the platform up to and including the hypervisor and control layers, including hardware, network and management services. The customer is responsible for managing the hosted virtual server operating systems and applications.

Service management activity	Customer responsibility	Redcentric responsibility
Provision and deliver resources sufficient to provide compute and storage resources to customers	No	Yes
Platform capacity management: compute, storage and network resources.	No	Yes
Ensure availability of hosts, hypervisors and management interfaces	No	Yes
Build and manage physical network infrastructure.	No	Yes
Network security and segregation between customers.	No	Yes
Network security and segregation within a single customer network	Yes	No (*unless Redcentric is providing firewall services)
Build and manage virtual hosts and hypervisor software, including management interfaces	No	Yes
Provision and manage virtual machine containers	Yes	No*
Provision, monitor and manage guest operating system	Yes	No*
Capacity planning and trending within operating systems	Yes	No*
Ensure availability of applications and customer services, including high availability design	Yes	No*
Provision of disaster recovery service, replication of data, etc	No	Yes (if subscribed to)
Monitoring and incident management of disaster recoverability	Yes	No*
Configuration and monitoring of backups and success reports	Yes	No*
Testing of DR and backups	Yes	No*
Creating and maintaining security of virtual machines on the platform	Yes	No*
Antimalware provision within virtual machine operating systems	Yes – compulsory	No*

*unless Redcentric is providing a managed service

11 Onboarding and offboarding

11.1 Getting started

Redcentric will enable login to the IaaS self-service portal for specified customer contacts as part of the service delivery. By default, this will include the identified customer contact on the service agreement but can include additional customer contacts identified during service activation.

Redcentric will setup network resources as part of the service activation. This will include identification of IP addresses, default gateways, firewall configuration, etc.

Upon service activation, the customer will be able build their infrastructure within the self-service portal. The customer will be able to build a new server using a Redcentric provided template.

The customer may choose to engage with Redcentric Professional Services to:

- Migrate physical server infrastructure
- Import or create a new server build template specific to the customer's needs
- Import a server image from the customer's hypervisor platform
- Deliver virtual machines on the platform with a choice of managed service wrappers

The target lead time to complete service delivery is detailed in the table below, for each service element. This is subject to the timescales of delivery of the specific connection mechanism used to connect the customer to IaaS, such as delivery of Ethernet access circuits, HSCN (N3) connection, Internet address allocation via RIPE, firewall configuration, options selected, etc.

Service Element	Service Activation Timescales
IaaS Implementation	Target completion within 20 working days

11.2 Offboarding

11.2.1 End of contract data extraction

On termination or expiry of the Service Agreement, customers are responsible for the extraction on any data required beyond the end of the contract.

11.2.2 End of contract additional assistance

Where the Customer requests additional transitional assistance, Redcentric shall provide such assistance as an additional service. The additional transitional assistance shall be chargeable at the Redcentric prevailing time and materials consultancy day rates.

11.2.3 Resource Deletion

The customer is responsible for deletion of self-service resources. Redcentric will delete managed resources at the end of the contract unless an extension has been requested. In either case, consumed resources will continue to be charged at the contracted rate.

12 Service levels and service credits

12.1 Guaranteed availability

The Service Level applicable to IaaS is as follows

Service Level: Availability	
Measurement Period: Month	
Service Level	Not less than 99.99%

This service level applies solely to infrastructure running customer workloads. Portal and other tooling is excluded from downtime calculations.

13 Approach to resilience

Redcentric has designed the platform with redundancy built-in from generator-backed, diverse power sources, to redundant TOR and core switching, clustered resources, dual network ports, to redundancy within the individual host, and operates the platform on at least an N+1 basis. This is an industry best practice standard.

All software and hardware are actively monitored. In addition, the following table provides additional detail on service resilience implemented within IaaS.

Section	Commentary
Virtual server host maintenance	Redcentric will perform a live migration of customer virtual machines, without service disruption, from a virtual server host before planned maintenance without notification. The customer virtual machines will be distributed automatically between available hosts within the cluster.
Virtual server host failure	<p>In the event of a host failing, the customer virtual machines will be automatically redistributed and restarted on available virtual server hosts within the cluster. The recovery process is automated, but due to the unplanned nature of a virtual server host failure, the customer virtual machines suffer disruption and will be restarted.</p> <p>In exceptional circumstances, this may result in data loss or service disruption. This should be planned against by the customer through highly available service design.</p>
Virtual server workload balancing	Redcentric will automatically live migrate virtual machines between available virtual server hosts, to balance resource consumption within the cluster to provide a consistent level of service. This does not disrupt service and will not be notified in advance.
Virtual machine affinity / anti-affinity	<p>Customer virtual machines are placed across the available virtual server hosts, within the cluster in the data centre, at power-on and during normal operation based on available physical resources.</p> <p>At power-on, virtual machines are assigned to a host. Where more than one virtual machine is providing a highly available service design, there is a risk that the virtual machines in the HA group are placed on the same host.</p> <p>The customer is responsible for setting anti-affinity rules in the web portal to prevent this occurring.</p>
Maintenance	Redcentric reserve the last weekend in every month to carry out planned maintenance, in the unlikely event that a maintenance activity requires an outage, Redcentric will provide

	three weeks notice, the duration of the planned maintenance window, and any activities that the customer must take in advance of the activity commencing.
Emergency maintenance	Emergency maintenance activities are defined as those that protect the integrity of the cloud platform if not implemented immediately. Redcentric will use reasonable endeavors to notify customers of any emergency maintenance that falls outside of the defined maintenance window. In the unlikely event that an activity requires customer outages, Redcentric will advise any activities should be performed to maintain availability in advance of implementation. Customers shall have a minimum of four hours to complete the advised activities.

14 Data Processing

14.1 Data Processing Scope

- Redcentric does not access, alter or use any application data that is running on the IaaS Service except as specifically stated below.
- Redcentric will access Operating System and other system data when managing VMs on a customer's behalf, accessing application data is not within the scope of the service.
- While using the self-service portal, data relating to operations are passed between services using APIs. It is the customer who issues these commands, as this is an unmanaged service. These APIs only build new VMs and no API access to application data is possible.
- No data is backed-up by or as part of this Service – see Data Backup below.

Data Storage and Unencrypted Data

- The Virtual Machine (VM) that is the platform provided by this service consists of CPU cores, GB RAM, network access and working storage for application data that is being processed.
- In the course of normal operations, the platform generates operational data such as log files. Redcentric has access to this data because it has administrator rights to the VM. This operational data does not contain customer specific application data, including Personal Data.
- The VM will be using local working memory to process application data, and Redcentric has access to this data because it has administrator rights to the VM. In the course of normal operations Redcentric has no reason to, and will not, access this data except in the course of providing support, which will be at the request of and in conjunction with the customer.

14.2 Data Processing Decisions

- In the normal course of business Redcentric does not make any data processing decisions in relation to the Service. Processing is automated and instigated by the customer.
- Redcentric Support can be asked by the customer to intervene in the event of an issue with the Service. In such a case Redcentric may make decisions that affect data processing, but such actions will only be undertaken at the request of and in conjunction with the customer.

14.3 Service Configuration with Respect to Data

- The service configuration will be done by Redcentric as requested by the customer.
- The service configuration does not involve customer data.

14.4 Data Backup

- No data is backed-up by or as part of this Service.
- If the customer uses the Redcentric Backup as a Service (BaaS), then the Data Processing section of the BaaS Service Definition applies; if the customer does not use BaaS, then no data is backed up by Redcentric (and the customer is responsible for its own backup arrangements and all backed up data).

14.5 Sub-Processors

- No other parties are involved in delivering this service, and there are no sub-processors.

14.6 Customer Access to Data

- The customer has login rights to the VM that enables it to access, copy, process and back up data as it wishes.

14.7 Security arrangements and options

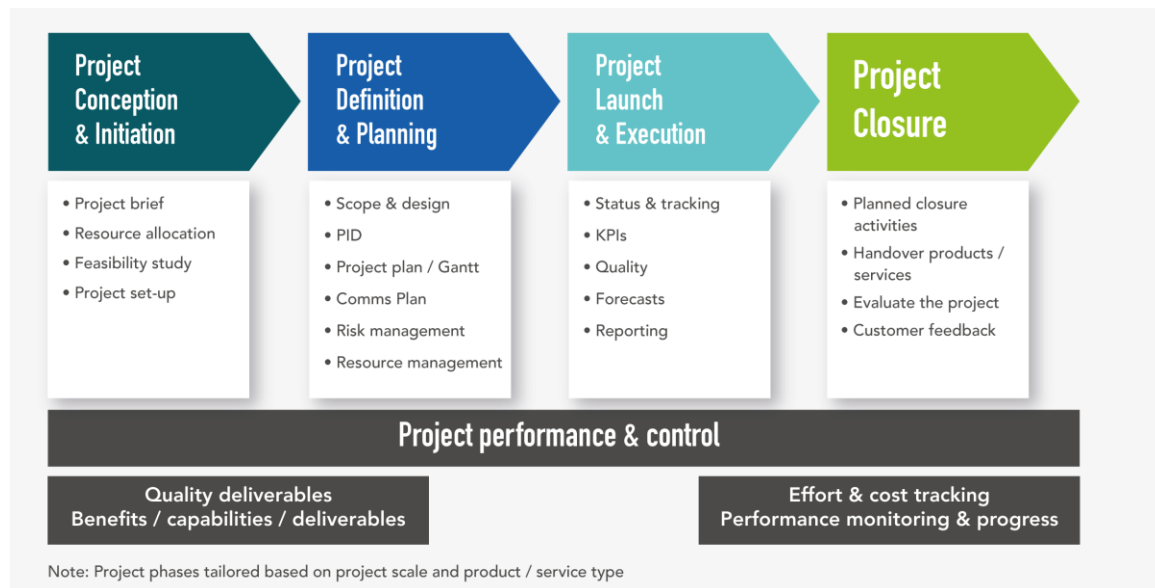
- The virtual machines (VMs) are hosted at Redcentric's data centres with physical data centre security and cyber security measures (e.g. Firewall) in place to protect the back-end systems and platforms.
- Customers have access via a portal to manage the configuration and access the virtual machine console of their own provisioned VMs.
- Customer access to the portal uses role-based access controls (RBAC), authentication is integrated with Redcentric's user directory service.

15 Project management

We understand you need to be confident we can deliver projects successfully and without risk to you or your customers. We know collaboration and communication with you is the key to successful project delivery, and the best way to ensure we can deliver the business value you expect from us.

Redcentric uses a hybrid project approach, based on PRINCE2 and Waterfall methodologies, that is strengthened by ITIL project best practise. Our approach has been honed to foster a close working relationship between you and the dedicated project team that will be responsible for the onboarding of your new services.

The 4 phased approach that will steer your project delivery is:



We recognise the importance of making sure your project and programme of work is delivered on time and meet your quality and cost considerations. Our highly skilled team of project managers have years of project management and solutions expertise which enables us to provide you a clear understanding of when your solutions will be delivered in preparation for a seamless handover into live service.

You will benefit from our experience of managing a very broad spectrum of complex projects across our range of solutions for customers in a variety of sectors including highly sensitive sectors such as healthcare where disruption to BAU might result in a risk-to-life, or commercial sectors for example, retail or legal, where any disruption would have a significant impact on operational or commercial outcomes for the customer.

To meet your individual needs, we understand we need to be flexible to ensure we can deliver results quickly and with the expected outcome for the project. To achieve this, we will work closely with you to understand your needs and learn how issues impact your business. This will provide a clear insight into working together to resolve any challenges.

15.1 Risk Management

The main advantage of our meticulous approach is the handover process at each stage of the project. Risk is a key part of the agenda, which in turn promotes the continuity of risks and the identification of assumptions, issues and dependencies. This early and continuous detection of risk means we are able to promptly and effectively mitigate any challenges as early as possible.

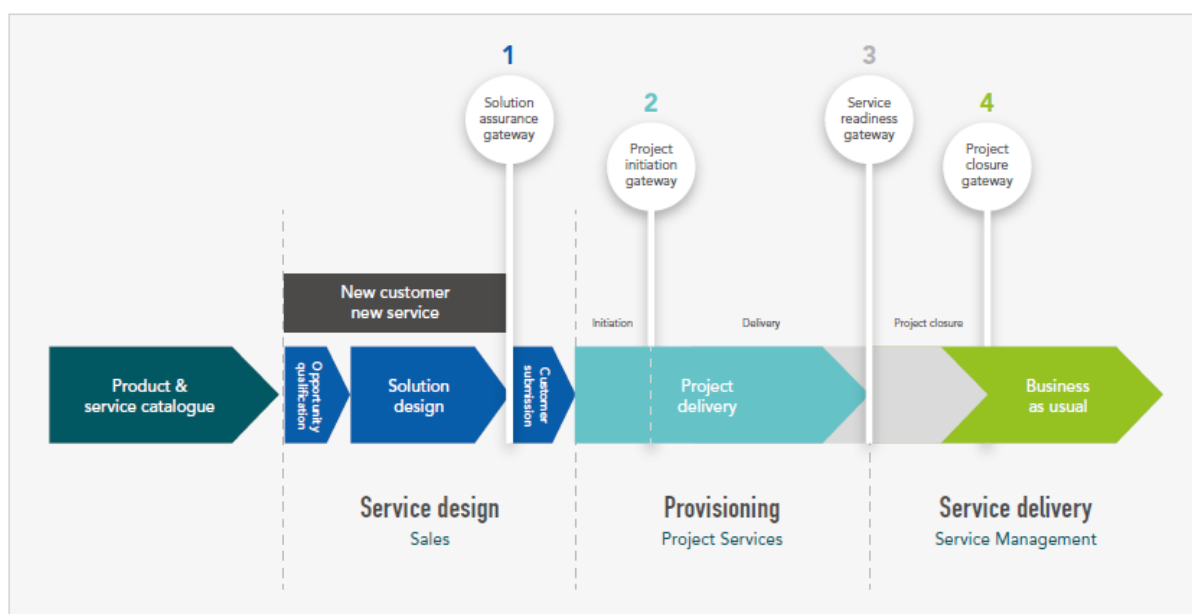
Quality assurance processes are embedded throughout the delivery lifecycle, underpinned by our ISO27001 certification and supported by our centralised programme management office.

15.2 Transition management

It is important to Redcentric that you experience a seamless and smooth transition into your service management team. With an established and proven approach to transitioning customers from solution design, through to projects and into your support team. Redcentric are confident you will feel supported and comfortable for the project team to step back, to let the service management team take over.

Using an effective project delivery approach throughout your transition journey, will ensure:

- Technical delivery is achieved on time and to specification
- The support model is fit for purpose and available at service commencement
- You will experience a 'soft landing' with minimal disruption to service.

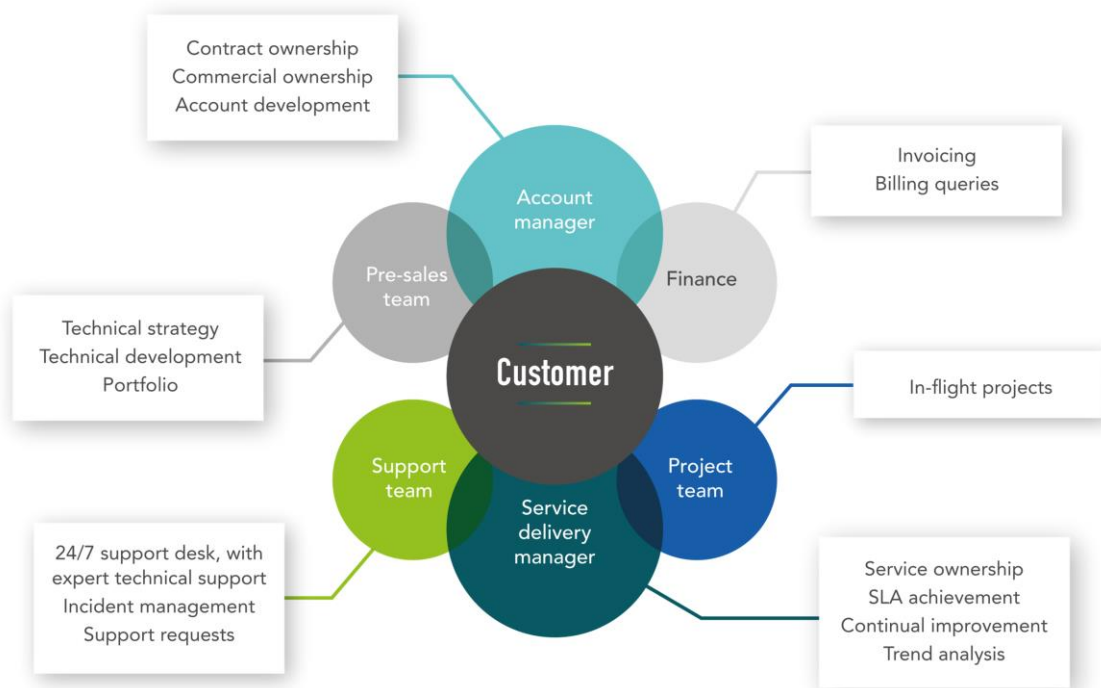


Throughout the lifecycle of the contract, risk management will be actively undertaken using the RAID log as the primary tool [Risks, Assumptions, Issues and Dependencies]. Once the contract is awarded and the project moves from the bid phase into project delivery. There is a formal handover to the appointed Project Manager to enable them to understand the overall risk profile of the project.

With 30 years of track record of delivering projects, Redcentric's knowledge and approach to mitigating risk during the project transition phase is based on experience. Their mature and proven approach is employed as a standard risk management framework which flows from initial bid stage through to project delivery, and into live service.

16 Account management

We appreciate the nature of your business demands an exceptional service. We recognise you need to be supported by a team who are not only competent and highly skilled, but also passionate about delivering the right outcome, every time. In our experience, this is achieved by aligning our expertise from the very beginning to create a single, cohesive, and focused team.



Your Account Manager will build an understanding of your current and long-term strategy and ensure that the wider Redcentric team understands your needs. They are responsible for the day-to-day commercial relationship between the customer and Redcentric. Our aim is to develop a long-standing partnership with you.

Sharing Technology advancements with you

A key role of your Redcentric account manager is to understand your business and to keep you proactively informed on the technology and industry developments that may be of strategic benefit to you. As part of your monthly service reviews, we will discuss our product and services roadmap and where required involve our technical design resources to better understand your requirement and provide guidance.

Our technology roadmap review forms part of the service delivery programme. Our aim is to ensure you are fully informed of the wider developments that we are planning to introduce and allow us to discuss any requirements you would like us to consider for the future.

Working in partnership to drive continuous improvement.

We fully embrace the continuous service improvement and will work with you to develop a continuous service improvement plan (CSIP). At the simplest level your CSIP will act as a way of prioritising and tracking minor improvement initiatives such as tweaking process to better suit your need but is equally used to drive technology enhancements and innovations to align evolving business requirements, including technology refresh, changes and upgrades throughout the contract period.

17 Service Delivery Management

Redcentric will provide a centralised service management model for all services we deliver to you. Our proven model will ensure you receive service management and support services that is easily accessible and effective.

Our mature processes are based on the ITIL framework, and we are fully supported by Gartner-referenced service management tools and process automation which ensures you receive a best-in-class user experience.

The proposed solution is inclusive of our support and account management service, which include

- Genuine 24/7/365 service desk which is manned, monitored and maintained using as mature ITSM tool
- Best-in-class secure management and monitoring tools, designed to ITIL guidelines.

Our service is underpinned by comprehensive, yet agile, documented processes that include major incident management. We have recently introduced enhanced SLAs within our support services, this means we will respond to you quicker and we are committing to faster fix times.

Service Reviews are an opportunity for us to collaboratively evaluate service performance and ensure it is effective and aligned to your needs. The service reviews seek to understand how we can work in partnership with you and your teams and to identify how we can improve performance. We work proactively to propose solutions to problems and suggest the best way to resolve any issues.

17.1 What happens at the monthly service review?

- Review service delivery using performance data and provide this in a graphical format
- Analyse support tickets to identify patterns that indicate we need to explore further to identify the root cause
- Review service availability, service exceptions, significant incidents and related trends
- Build operational relationships between our customers and the wider Redcentric team
- Seek to align internal resources within Redcentric to ensure effective service delivery
- Identify areas for improvement and include them in the service improvement plan
- Seek your input on how we can evolve our services to suit your future objectives
- Share our vision to demonstrate how we can support your future strategic aims
- Create and hold formal records in Redcentric's document management system:
 - ✓ Monthly service pack
 - ✓ Meeting agenda/minutes
 - ✓ Continual service improvement plan

The monthly service pack provides a basis for discussion. It can be tailored to meet specific customer reporting needs as part of the onboarding process or within the lifetime of the contract. As standard, we provide a service pack that includes up to 12 months of data extracted from the support system and service monitoring systems. We analyse current and previous months' performance and identify any trends.

We operate a Service Management System which meets the requirements of ISO/IEC 2000, which means we have a tried and trusted model for service delivery that provides a consistent approach. We then adapt to meet customer-specific requirements and refine processes to ensure service delivery meets your needs.

18 Support Services

We understand that our customers trust the Redcentric team to ensure that our services meet your needs. Our relationship with our customers goes beyond just complying with contractual SLAs and meeting industry standards.



We seek to understand the importance of service delivery to your organisation and work with you to provide the support that leads to the rapid resolution of any issues.



We take a pro-active approach to supporting you so you can be sure that the services which your business relies on are in safe hands.



Our support operations meet the highest industry standards, and service management processes are based on the ITIL framework.



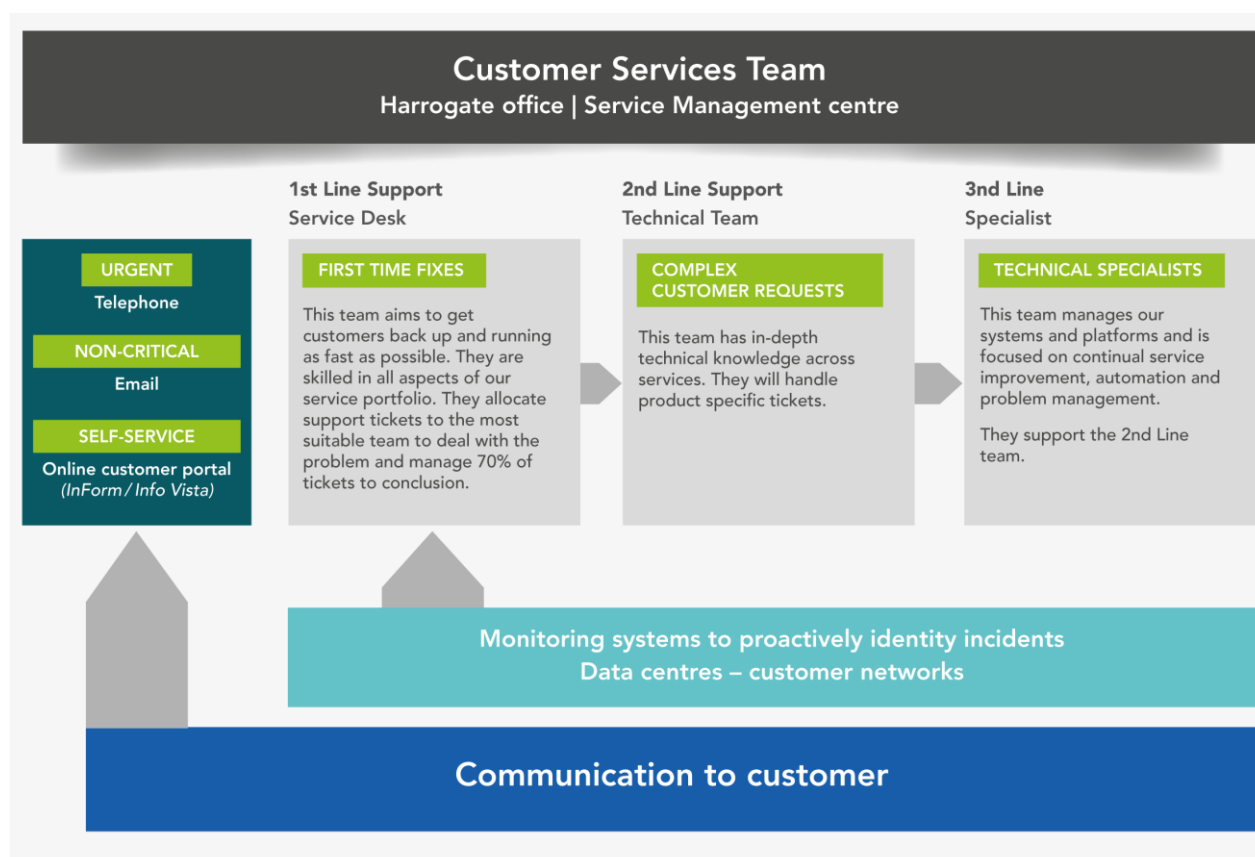
We have thoroughly documented the major incident and customer service plans, which detail how we operate in business-as-usual scenarios and during major incidents.



We use best-in-class secure monitoring tools to manage the services we provide to you actively. We use Gartner-referenced service management tools and process automation, which allow us to work smarter.

Our support function is structured to ensure fast resolution of incidents with timely escalation where appropriate.

The service journey you experience is important to us. Every interaction is monitored by our customer services team, who are highly experienced in handling customer interactions, and understand the importance gathering accurate and timely information to ensure the correct resources are allocated to reach a rapid conclusion.



Our incident management process has been engineered to be customer focused and designed to ITIL guidelines. We follow a proven process for incident management, with clear steps marked out for each team to ensure you are supported in the most effective and organised manner.

19 Information assurance

Accreditations

Redcentric are ISO 20000 accredited demonstrating that we follow ITSM (IT Service Management) best practice, and ITIL (Information Technology Infrastructure Library) provides advice on ITSM best practice.

ITIL v3 is at the heart of Redcentric's managed service operation and support. Redcentric believes that in order to deliver a high quality, professional service it is necessary to invest in training people, empowering them to be strong ambassadors of our service model.

Redcentric has provided managed services to the UK public and private sector for over 30 years. As a highly accredited business, we are proud of the standards and processes for which we are certified/accredited.

Our data centres and all supporting operations are fully English Sovereign and are accredited to;

- The Government's Security Classification Policy ('Official-Sensitive')
- The Government's Previous Protected Marking Scheme classification (BIL4 - Confidential)

Note – Redcentric can also support information and assets classified above the GSCP level of 'Official-Sensitive'

19.1.1 ISO

- ISO 27001:2013 Accredited
- ISO 9001:2015 Accredited for Quality Management
- ISO22301:2012 Accredited for Business Continuity Management
- ISO 14001:2014 Accredited for Environmental Management System
- ISO 20000-1: 2011 – IT Service Management System.

19.1.2 NHS standards

- Registered HSCN CNSP (Health and Social Care Network, Consumer Network Service Provider)
- NHS Certified Commercial Aggregator
- NHS Business Partner
- Authorised to transmit, process and store Person Identifiable Data (PID)
- NHS Digital accreditation – "N3 ISP" (Network Access Agreement 0740)

- NHS Digital IGSoC-compliant commercial third party (NACS code: YGMAP)
- NHS Digital accredited and compliant data centre hosting facilities, including for Clinical Systems environments (Reference: YGMAP)
- NHS Digital-accredited Service Provider (Network Access Agreement Number: 0740).

19.1.3 HMG / other standards

- Cyber Essentials Plus Certified
- Full alignment against the Security Policy Framework
- Authorisation to process HM Government data protectively marked 'Official'
- PCI Compliant for physical hosting services within our care data centre locations
- All services are designed, built, implemented and supported using all relevant and appropriate NSCS GPGs, Cabinet Office and NHS Digital standards
- Fully aligned with ITIL Service Management Standards.

19.1.4 Networks Redcentric is connected to

- The NHS Transition Network
- The HSCN Peering Exchange
- PSTN
- The Public Sector Network
- The Public Internet
- Via Private or Public IP VPN.

Further information with regards to the Redcentric assurance and governance framework can be found within the Redcentric customer security pack which consist of the following documents:

- Cloud Principles
- Security Management Plan
- Security Statement
- Accreditations and Mappings (lists all business accreditations and relevant controls and standards utilised for Redcentric G-Cloud services)
- Security Control Framework

Copies are available under NDA upon request.

20 Professional services

The Redcentric Professional Services team is drawn from across the organisation, bringing together a unique mix of experience, know-how and talent to help deliver substantive value to its consulting assignments.

Strategists, designers, developers, technicians, engineers, analysts, security specialists and project managers from the worlds of infrastructure, networks, applications, communications and mobile can come together to deliver expert, targeted, outcome-driven assistance where it's needed.

The common denominator in every professional services engagement is that we are responding to a specific client need. We provide tailored responses to your requests for assistance, whether that's for help of a strategic or tactical nature, short or long-term, on premises or off, single vendor or multi-vendor environment, in a lead role or in support.

Redcentric provide Professional Services using either our in-house team or approved third parties. Professional Services are not part of the service unless so specified in the customer's order.

Professional Services require a separate order or change control procedure and are defined and priced upon application

20.1.1 Available services

- IT strategy
- Project management
- Change management
- Design integration
- Staging and installation
- Integration design
- Service migration
- Optimisation and performance tuning
- Physical lift and shifts
- Audits and compliance
- Application development
- On premise and/or remote access support.

Our standard day rates are provided below and in the associated SFIA rate card:

Service Element	Details	Charge*
Professional Services	Technical consultancy – on-site – UK only	£1,000/day
	Technical consultancy – off-site	£750/day
	Technical consultancy – on-site – UK only (evening/night)	£1,500/day
	Technical consultancy – off-site – (evening/night)	£1,000/day
	Technical consultancy – off-site – rest of the world	£1,200/day + expenses
	Technical project management – on-site	£1,000/day
	Technical project management – off-site	£750/day
Delivery and Installation	Engineer excess hours charges (per hour)	£150/hour
	Engineer out of hours surcharge	£150/hour
	Failed engineer appointment	£1000/visit

* Pricing for Professional Services and Installation Services does not include travel and expenses which are chargeable separately.

Within mainland UK, travel and expenses costs are limited to 15% of the total professional services charges. Outside of mainland UK, travel and expenses costs are priced on application.

21 Company profile

Redcentric is a managed service provider, delivering highly available network, cloud and collaboration solutions that help public and private sector organisations succeed.

We provide:



Assured availability – Delivering highly available solutions that organisations can rely on to improve productivity and performance



Organisational Agility – Helping organisations to address operational, financial and regulatory challenges at speed



Smarter Working – Enabling and empowering organisations to connect, communicate and collaborate

Our aim is to work in partnership with you to improve efficiencies, drive transformation and enhance the services you provide to your citizens, patients, students and tenants and our services are provided in line with the most stringent public sector standards.

We are here to support you, whether that be with traditional infrastructure or making the move and taking advantage of what the cloud and hybrid environments have to offer.

Today we can offer a rich end-to-end solution portfolio covering the full spectrum of cloud, network and collaboration designed and delivered by our own highly skilled teams from our privately owned, UK based multi-million-pound infrastructure.

Our ethos is one of collaboration; our aim is transformation: helping clients secure desired outcomes, substantive gains and a measured route forward for the future.

Our assurance comes from a long track record across both the private and public sectors, characterised by deep domain expertise, continuous innovation, proactive management and an enduring commitment to business improvement through better IT. We'd like to think that there are hundreds of organisations out there where Redcentric has already made a significant and lasting difference.

- Multiple wholly owned UK data centres
- Serving over 800 customers across the UK
- Health and Social Care Network approved CN-SP
- NHS Digital approved N3/HSCN Aggregator since 2014
- Accredited to connect and supply over Janet
- Authorised to process HM Government data marked 'Official-Sensitive'
- Accredited to store patient data
- HSCN Peering Exchange Provider
- Accredited to connect and supply over Public Services Network (PSN)
- Accredited and experienced G-Cloud supplier
- 15+ years of N3/HSCN experience
- Fully aligned with ITIL Service Management Standards
- ISO 9001, 14001, 27001, 22301 and 20000-1 certified
- Cyber Essentials and Cyber Essentials Plus certified
- PCI Compliant for physical hosting services
- Services designed, built, implemented and supported using appropriate NSCS GPSs, Cabinet Office and NHS Digital standards
- Fully approved HSCN connectivity to Azure and AWS environments.

21.1.1 Why choose Redcentric?



Owned infrastructure

We believe that service quality is dependent on end-to-end control and capability, which is why we've spent the past three decades building our own infrastructure and skills base: a UK-wide MPLS network, UK-based data centres, Voice and IaaS platforms, Network and Security Operations Centre, and a large ITIL-based support operation.



Expert guide

We are not about the provision of one-off IT commodities but rather helping clients over the short, medium and long-term through the strategic alignment of our services to organisational requirements. We guide you on your journey at whatever speed and in whatever direction the need dictates



Customer-centric culture

It is the 'can do' attitude of our teams that we are most proud of and which our customers most value and often comment on. We invest in our staff and work hard to develop and preserve a culture that prioritises staff satisfaction and motivation. We believe that the happier, more engaged, and dynamic we are as a team, the more we can achieve together, ensuring we deliver the best results for our customers.



Open-minded and innovative

We pride ourselves on being an innovative service organisation which means we are always willing to think and do differently and to go beyond norms and conventions. We are always reviewing our proposition, introducing new proven technologies that dovetail with our existing offering; and bringing these opportunities for further gains to our customers. But equally this spirit of innovation may be seen in our flexible approach to project management, and it extends to all aspects of how we work with our customers.



Breadth of services

Our great strength is our ability to be a single unifying partner who can deliver a comprehensive range of IT and Telecoms services across multiple sites with confidence.



Security and integrity

We invest in our systems and processes, that in turn allow us to attain the highest standards of certification and accreditation. These are not badges of honour, but hard-earned evidence of our commitment to quality, security, and integrity, and this supports our aim to be a 'trusted partner'.



Outcomes focused

We believe we have an important role to play in ensuring you have the IT infrastructure and services to help you to achieve your goals. We help you to meet new challenges and to stay agile so that you can respond to change and at the same time keep your data and systems highly secure.



Our teams

We have highly skilled staff, whose average tenure is more than 10 years bringing a huge wealth of experience and a depth of knowledge on which you can rely. We also invest in the development of new team members who bring new or enhanced skills to Redcentric and the training of existing staff to ensure you benefit from a consistent, high-grade delivery of services and support day in, day out.



Continuous Service Improvement

We are committed to investing the most that we can to build a sustainable, successful business that can deliver genuine IT outcomes for our customers. We are continually refreshing our core systems or adding capacity and capability, to the tune of many millions.



Proactive

We think and
act quickly



Inspired

We create
excitement through
innovation

Trusted

We do what
we say we will

Collaborative

We work together
to deliver
a common goal

Transparent

We are open,
honest and fair





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redcentric

AGILE • AVAILABLE • ASSURED

