



Broadband service definition

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redcentric

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1. Service overview

1.1 Introduction

Redcentric's Broadband Service is one of the Managed IP-VPN connectivity options. It is a premium broadband service aimed at businesses wishing to connect small and/or medium size offices to the corporate network in a cost-effective way. Two options exist; a managed option which includes the provision of a high specification terminating device located on the Customer site that is managed and monitored from Redcentric's Network Operations Centre (NOC), and an unmanaged option where the Customer is responsible for sourcing, configuring and supporting the terminating device. This definition covers both copper and fibre to the cabinet and premise options.

2. Service description

Redcentric's Broadband Service uses a cost-effective, shared, contended infrastructure to transport data from Customer sites to the Redcentric core. All circuit types with the exception of Fibre to the Premise (FTTP) require a suitable analogue telephone line (or lines), and if these do not exist, Redcentric can supply new lines in most areas of the UK.

2.1 Access circuit options

Redcentric offers 0.5Mbps, 1Mbps & 2Mbps fixed rate options plus upto 8Mbps and upto 20Mbps rate-adaptive options. Mega-bits per Second (Mbps) is a unit of bandwidth, and gives an indication of the maximum potential line rate.

For managed options, up to 4 of these circuits can be bonded together on a Customer site, offering reasonably high, asymmetric throughput. The circuits are seen as equal cost paths and rudimentary traffic sharing makes use of the available bandwidth when there are multiple traffic streams.

In addition, Redcentric offers options using Fibre to the Cabinet (FTTC) and Fibre to the Premise (FTTP) technologies.

Traditionally all circuit types with the exception of Fibre to the Premise (FTTP) required a suitable underlying analogue telephone line. With the planned phased closure of the BT PSTN by 2025, options are now available including Single Order Generic Ethernet Access (SoGEA) which includes a pair of copper wires to carry the traffic and consequently a separate analogue phone line is not required.

Table 1 below details line speed connectivity options:

Table 1 - Parameters for Redcentric's Broadband Service

Managed Service options	Upstream Speed	Downstream Speed
Managed ADSL 500	Up to 250Kbps#	500Kbps
Managed ADSL 1000	250Kbps	1Mbps
Managed ADSL 2000	250Kbps	2Mbps
Managed ADSL Max	Adaptive between 64-832Kbps#	Adaptive between 288Kbps -8Mbps#
Managed ADSL 2+	Adaptive up to 1024Kbps#	Adaptive up to 20Mbps#
Managed FTTC / SoGEA / FTTP 40/10	Adaptive up to 10Mbps# peak	Adaptive up to 40Mbps#
Managed FTTC / SoGEA / FTTP 80/20	Adaptive up to 20Mbps# peak	Adaptive up to 80Mbps#
Managed ADSL bonded n*500	Up to n*250Kbps	Up to n*500Kbps
Managed ADSL bonded n*1000	Up to n*250Kbps	Up to n*1Mbps
Managed ADSL bonded n*2000	Up to n*250Kbps	Up to n*2Mbps
Managed ADSL bonded n*Max	Up to n*832Kbps	Up to n*8Mbps
Managed ADSL bonded n*2+	Up to n*1024Kbps	Up to n*20Mbps
Wires-only Service Options	Upstream Speed	Downstream Speed
Unmanaged ADSL 500 Premium	Adaptive between 64-250Kbps	500Kbps
Unmanaged ADSL 1000 Premium	250Kbps	1Mbps

Unmanaged ADSL 2000 Premium	250Kbps	2Mbps
Unmanaged ADSL Max Premium	Adaptive between 64-832Kbps#	Adaptive between 288Kbps -8Mbps#
Unmanaged ADSL 2+ Premium	Adaptive up to 1024Kbps#	Adaptive up to 20Mbps#
Unmanaged ADSL 500 Standard	Adaptive between 64-250Kbps	500Kbps
Unmanaged ADSL 1000 Standard	250Kbps	1Mbps
Unmanaged ADSL 2000 Standard	250Kbps	2Mbps
Unmanaged ADSL Max Standard	Adaptive between 64-448Kbps#	Adaptive between 288Kbps-8Mbps#

Rate-adaptive options: the actual speed of the line will depend upon several factors, including the noise conditions, the condition of the line and the distance from the serving exchange or cabinet.

For bonded options, the actual cumulative throughput achieved will depend on the number and type of Internet Protocol (IP) communication sessions.

Actual data throughput at any point in time depends on several factors including the line speed chosen and the level of collective use of the underlying shared network. Redcentric does not commit to deliver specific data transfer rates on any Broadband line.

The ADSL 1Mbps & 2Mbps fixed rate line speed options can ordinarily support 5 concurrent IP voice channels (with G729a codec) supporting cost-effective, feature rich telephony services to smaller sites.

Unmanaged ADSL Premium service uses the broadband infrastructure supplier's elevated throughput option which offers increased throughput during periods of high network utilisation.

Unmanaged ADSL Standard service is ideal where cost is paramount and a lower throughput during busy periods can be tolerated.

2.2 Dynamic line management

Dynamic Line Management (DLM) operates on the ADSL rate-adaptive options only. DLM effectively tunes the line performance to achieve a balance between maximising line speed vs. maximising stability. Performance data will be gathered periodically from the lines and this will be used to identify those lines which are not performing optimally. These lines will then be re-configured automatically (if possible) to give an improvement in their overall ADSL performance. This re-configuration will result in a short break (typically several seconds) in the end user service.

It is possible that re-configuration of a line could occur daily until a stable configuration is found. The DLM process may result in a decrease in the line rate, but this will only occur where a line is identified as performing badly at a higher rate. DLM will also use interleaving to fix problem lines, and this will result in an increase in the delay over the connection, which may affect some delay sensitive services. The DLM process may also be applied manually as part of the standard repair process following an end user fault report.

2.3 Customer premises equipment

Managed options: Redcentric deploys a high-quality device on the Customer's premises to provide demarcation of bandwidth services. The device is commonly referred to as Customer Premises Equipment (CPE). CPE deployed on single circuits is a fixed configuration device; bonded lines are terminated on a modular device. Each bandwidth service will only be presented on a single interface on the CPE. I.e. despite having unused interfaces, the Redcentric CPE cannot be used to provide connectivity to end-user devices. In almost all circumstances, the Customer will need to provide a Local Area Network (LAN) switch to provide connectivity for end-user devices. Redcentric offers, separately, a managed LAN Service. Please see the relevant Service Definition for details.

CPE models incorporating wireless LAN interfaces are intended to offer basic wire-free connectivity. Included in the Service is support for:

- A single WLAN/SSID with non-Enterprise security (i.e. open or local pre-shared keys only).
- Pre-shared keys are changed at the Customer's request and not more often than every six months.
- The internal WLAN access-point is configured in local-mode and does not integrate with other WLAN infrastructure.

- CPE is typically deployed adjacent to the broadband network termination point and is not necessarily optimised for WLAN coverage.

Redcentric will optionally design, build and support more sophisticated WLAN environments to meet Customer requirements – these services incur additional charges.

If the firmware or hardware version of your CPE is forecast to become End of Support (EoS) / End of Life (EoL) during an initial contract term or a renewal of that contract term, Redcentric will no longer be able to provide security or critical firmware updates for that EoS or EoL CPE.

In order to continue to receive security and critical updates, a hardware refresh of the CPE will be required. Any hardware refresh, including the provision of new CPE, is outside the scope of this Service and will be chargeable. New CPE would need to be provided by Redcentric for an additional charge.

Unmanaged options: No CPE is included in the unmanaged Broadband Service. The Customer is required to identify, source, configure and maintain CPE.

2.4 Improved resilience

For sites that require higher levels of availability, a cellular connection can be used to provide backup for bandwidth services delivered over a managed primary Broadband circuit should a failure occur. Please see the Cellular Failover Service Description for details.

Redcentric has connections to multiple broadband infrastructure suppliers. Consequently, Redcentric can offer solutions with primary broadband from one supplier and back-up from another, offering increased site availability.

2.5 Service design

Customer data is carried over an analogue telephone access circuit, then through the Broadband infrastructure and onto Redcentric's resilient core platform. User connections are authenticated on resilient authentication servers and the data tunnels are delivered to the appropriate Virtual Private Networks (VPNs).

2.6 Services delivered

Managed Broadband connections can be used to deliver a single Redcentric bandwidth service (e.g. Internet, private site-to-site VPN etc.)

Redcentric offers an overlay option for FTTC and FTTP connections which supports up to an additional three bandwidth services. This allows customers to deploy a single, cost-effective, high bandwidth line which is capable of supporting for example; corporate traffic, guest Wifi and telephony channels. Tunnels are used to keep traffic separate, consequently more complex addressing scenarios, including multiple default-routes can be accommodated. The overlay option requires specific models of CPE and additional charges apply.

Unmanaged Broadband connections can be used to deliver either Internet access or access to the Customer's corporate VPN.

2.7 Service interface

The service termination point for managed Broadband options is the Ethernet interfaces on the CPE. The service termination point for unmanaged Broadband options is the telephone master socket or fibre network terminating equipment (NTE). Redcentric recommends either dedicated use of the phone line for Broadband or otherwise correct and appropriate internal wiring with the use of Broadband filters (not supplied).

2.8 Coverage

Broadband Services are available to a high percentage of the UK population, though not all speed options are available at all locations. Redcentric consultants can check for availability before an order is taken but any speeds provided are indicative and no assurance can be provided that the speeds will be achieved. Notably in much of Hull, East Riding of Yorkshire, only managed ADSL Max is currently available.

2.9 Quality of service

Redcentric can offer only basic Quality of Service (QoS) capability on the managed Broadband connectivity option, as the broadband supplier's infrastructure randomly drops packets at times of severe network congestion. For demanding, real-time applications like voice, Redcentric identifies and prioritises the packets. In addition, when Redcentric is responsible for delivering the voice service, where possible, Redcentric also controls the number of voice channels supported on the line.

No QOS is offered with the unmanaged Broadband Service.

2.10 Provisioning

Service installation

For the single line managed options, Redcentric configures the network and ships the configured CPE to the Customer, who is then required to connect it to the enabled line. For Bonded options, Redcentric configures the network and a Redcentric engineer installs the configured CPE on the Customer site. For unmanaged options, Redcentric configures the network and the Customer is required to acquire, configure and install CPE.

2.10.1 Lead times

The target lead time to provide orders is between 10 and 15 working days and depends on the availability of a line. Actual times may vary depending on Customer availability for appointment and any additional infrastructure shown to be required by the line plant survey if a new line is required.

Supply of technical information – unmanaged options

For unmanaged options, Redcentric will provide the Customer basic configuration information consisting of:

- ATM path details
- PPP username & password credentials
- IP address assignment

Configuration advice for non-managed CPE is available as a chargeable professional services consultancy service.

2.11 Support

2.11.1 Repair service levels

Redcentric offers three service repair levels:

Standard Care – offers a 48 clock hour clear target within Redcentric. No out-of-hours engineering visits are scheduled under Standard Care.

Enhanced Care – offers a 24 clock hour clear target within Redcentric. Out-of-hours engineering visits to site may be undertaken to complete a repair if unrestricted access is available.

Enhanced CarePlus – offers a 10 clock hour clear target within Redcentric. Out-of-hours engineering visits to site may be undertaken to complete a repair if unrestricted access is available.

The standard service charge includes Standard Care. However Customers are encouraged to upgrade or consider cellular back-up to ensure that connectivity to sites is restored in a timely manner should a fault occur.

2.11.2 CPE faults – managed options

The CPE located on the Customer site forms part of the Broadband Service and is polled every 5 minutes for fault detection and reporting purposes. Please see the Managed IP-VPN Core Service Definition for more details.

If Redcentric determine that a fault on a managed Broadband Service lies with the CPE, Redcentric will aim to deliver a pre-configured replacement device for Customer self-replacement the next business day. Please see the Managed IP-VPN Core Service Definition for details of the expedited CPE repair option.

2.11.3 CPE faults – unmanaged options

Customers may optionally purchase suitable CPE from Redcentric. Redcentric will replace CPE that develops a fault (in line with the manufacturer's guarantee) within 12 months of the date of delivery. When faulty CPE is returned, Redcentric will aim to dispatch an unconfigured replacement within 14 days. It is advisable for Customers to hold spares locally in order to reduce the impact of CPE failure.

2.11.4 Fault identification – unmanaged options

The Customer is required to report suspected faults to the Redcentric NOC. Redcentric staff will check the configuration of the internal broadband systems and also remotely the systems of the broadband infrastructure supplier. If these systems do not identify a fault, Redcentric will seek authorisation from the Customer to arrange for an engineering visit by the broadband infrastructure supplier. If, as a result of an engineering visit, the broadband infrastructure supplier determines that there is no fault on the broadband infrastructure and the broadband infrastructure supplier levies a charge, Redcentric will pass the charge on to the Customer and the Customer is required to pay the charge.

2.12 Redcentric Inform portal

The Redcentric reporting portal presents information on availability and the utilisation of the various bandwidth services delivered on managed CPE. No information is available on unmanaged CPE. Please see the Managed IP-VPN Core Service Definition for detail.

3. Implementation and acceptance

3.1 Acceptance criteria

The following are the Acceptance Criteria applicable to the Broadband Service:

Managed Options:

- Check the LAN connection to the CPE for speed and duplex mismatches and errors (where possible).
- Failover testing where resilient solution is offered and testing possible

Unmanaged options:

- Check that the Point-to-Point Protocol (PPP) session establishes with Redcentric core

All options:

- Test IP connectivity by pinging devices on remote sites (VPN) and/or a known web address (Internet Service)

4. Service levels and service credits

4.1 Service levels

The Service Level applicable to all circuit types of the Broadband Service is as follows:

Service Level: Availability Measurement Period: Month	
Managed Broadband – Standard Care	Not less than 99.0%
Managed Broadband – Enhanced Care	Not less than 99.5%
Unmanaged Broadband	None offered

4.2 Floor service level

The Floor Service Level applicable to the Broadband Service in respect of Availability shall be 85% in any given Month.

4.3 Service credits

The Service Credits applicable to the Broadband Service shall be calculated as follows:

In the following table:

“≥” means “greater than or equal to”

“<” means “less than”

“MS” means the total Charges payable in respect of the Broadband Service for the same Month

Applicable Broadband Service	Service Availability	Service Credit
Managed Broadband – Enhanced Care	≥99.5%	none
	≥99.0% but <99.5%	5% of MS
	≥97.0% but <99.0%	15% of MS
	<97.0%	20% of MS
Managed Broadband – Standard Care / CarePlus	≥99.0%	none
	≥98.0% but <99.0%	5% of MS
	≥96.0% but <98.0%	15% of MS
	<96.0%	20% of MS

5. Data processing

5.1 Data processing scope

- The Broadband Service delivers the transport of IP packets between locations.
- The Broadband Service does not involve any storage or backing up of data.

5.2 Data storage and encryption

- Redcentric does not encrypt IP-VPN inter-site traffic, nor traffic destined for external networks.
- Redcentric does not capture, inspect, analyse, store or share the customer's traffic/data under normal circumstances.
- Under certain circumstances, when managing a support ticket, Redcentric may capture, inspect, analyse and/or store a small sample of the customer's traffic in order to investigate and diagnose a very specific problem, e.g. to help resolve a problem relating to IP packet corruption. Such diagnosis would involve the examination of a small sample of IP packets.

5.3 Data processing decisions

- Redcentric does not make any data processing decisions in relation to the Broadband Service. Any processing of data over Customer systems when using the Broadband Service for transit is instigated, configured and managed by the Customer, including any decision to use encryption.
- Redcentric Support can be asked by the Customer to intervene in the event of an issue with the Broadband 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.

5.4 Sub-processors

- Redcentric's network over which elements of the Broadband Service is delivered uses third party carriers (such as BT and TalkTalk Business) to provide connectivity. These third parties are conduits only for data, and have no involvement in the processing or storing of data transmitted over Redcentric's network.
- No other parties are involved in delivering the Broadband Service, and there are no sub-processors appointed by Redcentric.

5.5 Customer access to data

- The Customer controls its own platforms which use the Broadband Service to carry data, and the Customer therefore has full access to its own data.

5.6 Security arrangements and options

- The core Infrastructure delivering the Broadband Service is hosted at both Redcentric and third party locations. All locations meet physical security standard ISO27002 section 11.1 or equivalent. The Customer is responsible for ensuring the physical security at customer sites/locations, where the Service terminates, meets its needs.

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