BTnet Resilience
Protect Your Internet Connection

BTnet Service Overview

BTnet offers a market leading, highly reliable, flexible and uncontended leased line internet service across the UK. As the number one provider in the UK for leased line internet access * we have unparalleled experience in delivering internet connectivity and solutions to all types of business.

As part of our 21st Century Network expansion, we've rolled out extensive Ethernet fibre coverage across the UK allowing your business to have the bandwidth it needs, both now and in the future. We have also rolled out new delivery technologies including 'Ethernet in the First Mile' (EFM) allowing for reduced cost and flexible access in many locations.

Resilience – Protect Your Connection

BTnet has a market leading Service Level Agreement, offering 100% target availability and money back guarantees if you should ever experience any down time. We do also recognize that some businesses have the requirement to protect and back up their connection even more, where internet connectivity is vital to their operation. BT offer a comprehensive range of resilience services for BTnet connections to add a further level of protection against issues beyond BT's reasonable control. These include events such as third party cable cutting, floods, fires and other force majeure.

BT provides three resilience packages for BTnet services – Failover, Loadbalancing and Backup. Each option can provide varying levels of diversity and resilience dependent on location and requirements. These options may include the following (diagrams to the right):

- **Diverse Routing** – two circuits which are diversely routed into your premises, through different ducting and cabling. This provides protection against access circuit failure. The level of circuit diversity can depend on local infrastructure, path ways into the building and your preferences.

- **Exchange (Point of Presence) Resilience** – two circuits provided from two different BTnet Points of Presence (PoP's). Subject to location and available serving exchanges. Providing protection against any possible exchange faults or failures.

- **NTE and Router Back-up** – All dual-circuit BTnet resilience packages also offer protection locally at your site, with two NTE's and two terminating managed routers. This provides protection against any possible equipment or router failure on site.

- **Site Diversity** – BT's dual circuits can even be delivered to two different customer sites, providing a further level of protection and resilience. Both sites must be connection to the same LAN for this option to function (point to point circuit etc).

These options can be combined where required, for maximum protection and resilience. It is possible that two links can share a single point of failure, particularly where they pass through a single duct into the premises. Resilience plans should be reviewed with your BT account manager to determine the level of diversity you require.

Resilience and Diversity Variations

Below gives a visual summary of the various levels of resilience and diversity available when using the BTnet resilience options:
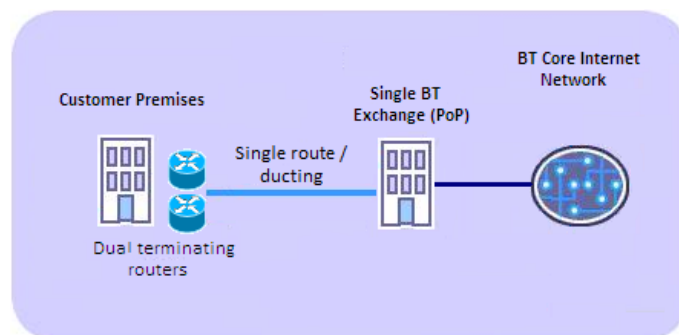

Fig 1 – Single local route, single PoP. Solution provided through same local ducting and to same PoP. Router and NTE resilience provided and possible cabling diversity if secondary circuit is using different access technology to primary circuit (e.g. fibre and EFM).
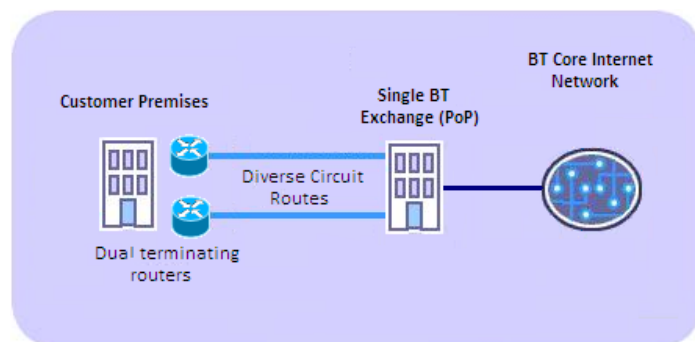

Fig 2 – Dual local route, single PoP. Resilience provided through diverse circuit routing from customer premises. Offering two terminating routers on site, and two circuits connecting to the same local Point of Presence (PoP).
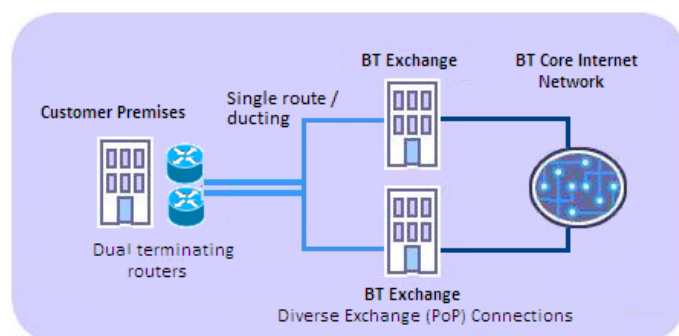

Fig 3. – Single local route, dual PoP. Solution provided through same local ducting but to dual access PoP's in network. Router and NTE resilience provided and possible cabling diversity if secondary circuit is using different access technology to primary circuit (e.g. fibre and EFM).
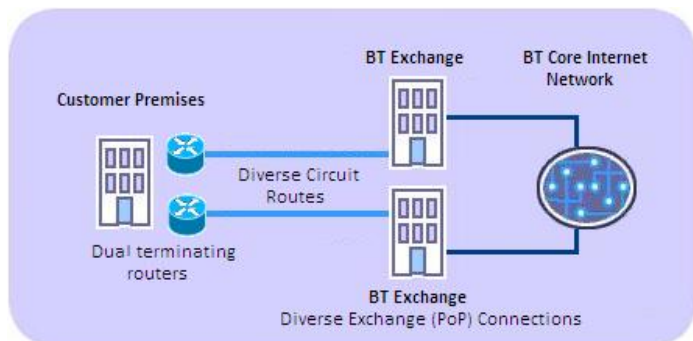
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Fig 4 – Dual local route, dual PoP. Full resilience provided with diverse local routing and duct, connecting to two different Points of Presence (PoP's) within the BT network (where available).
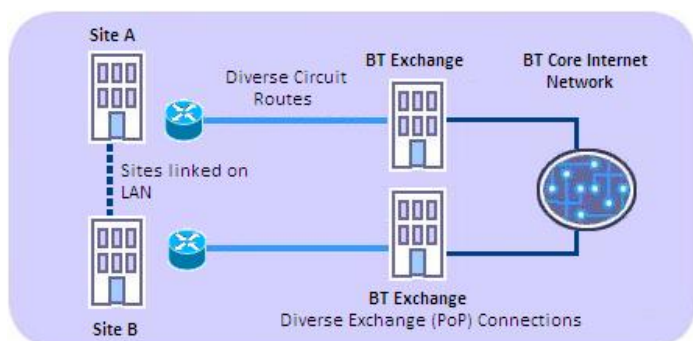

Fig 5 – Two customer premises resulting in diverse local route and dual PoP's. Resilience provided as in figure 4 but with added level or diversity using two customer premises. Both must be connected on the same LAN to operate.

BTnet Resilience Options

The below gives a summary of the various resilience options available with BTnet. Packages can have various levels of diversity as explained in the previous sections.

Backup

Provides a standby connection which remains inactive during normal use. In the event of a failure on the primary circuit or router, all traffic is automatically routed to the secondary circuit and this process is managed by BT (assuming standard managed router option is chosen). Backup is provided through the same route into the customer's premises but can offer cabling diversity if the backup connection is a different technology to the primary (i.e. fibre and EFM). PoP resilience is available in some configurations and the solution can be delivered to two different customer sites if required.

The backup circuit can be of a smaller size and bandwidth to the primary, allowing you to reduce rental costs while still providing a standby circuit of a smaller capacity in case of emergency. With EFM backup available this can be a very cost effective solution in many cases. Since the secondary circuit can be a lower bandwidth class than the primary, throughput may be reduced in the event of a failure on the primary.

Failover

Provides a back-up secondary circuit which remains inactive and dormant during normal operation. In the event of a failure on the primary circuit or router, all traffic is automatically routed to the secondary circuit. The secondary circuit provided with failover always mirrors the primary circuit (e.g. a 100Mb circuit would have a 100Mb secondary) providing you full bandwidth and service even in the event of a failure on the primary circuit. This means you will not see any degradation in throughput or service when the secondary circuit is active.

Failover is a popular option due to its highly cost effective pricing scheme and simplicity of set up and use. A full range of diversity options are provided as default for this solution including local cabling and ducting diversity, dual PoP access and dual customer site access if required. If local cabling diversity is not possible then the backup option described above should be used instead.

Loadbalancing

Provides a back-up secondary circuit which remains fully active during normal operation, working alongside the primary circuit. Traffic can be load-balanced across both links which can be achieved by carefully defining which customer routes are sent via each link. Please note that traffic is not load-shared. There are several methods of providing the Loadbalancing option through the use of different routing protocols etc, but the concepts are the same for all methods of implementation.

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Assuming there is sufficient capacity, in the event of failure on either of the circuits, the traffic is all carried by the active link.

Loadbalancing is a more complex resilient option and does require a good level of technical expertise and configuration from the end user. Two routing options are available for Loadbalancing and Failover options; Static routing and Private AS. Note: For Loadbalancing using Static routing, either RIP or Dual HSRP is used in combination with the Static routing. For more detailed information on the routing configuration please refer to your BT account team.

A full range of diversity options are available on this solution including local cabling and ducting diversity, dual PoP access and dual customer site access if required.

Levels of Diversity Summary

The below table summarises the available levels of diversity of each of the three solutions. While these levels of diversity are available, they are not necessarily required. Options should be discussed with your account manager.

	Resilience option	
Availability of diversity levels:	Failover and Loadbalancing	Backup Solution
Dual PoP	Yes	Yes
Dual routers and NTE	Yes	Yes
Logical / IP Routing	Yes	Yes
Access Technology	No	Yes
Local cabling	Yes	No
Separate ducts	Yes	No

Resilience options and availability are subject to site survey. Where additional paths, cabling and ducting are needed to deliver a diverse route, the installation may be subject to excess construction charges. These will be identified and passed on at the time of survey, at which point you can choose to accept and continue the installation, or cancel without penalty of obligation. Exchange (PoP) diversity is subject to location and availability of local serving exchanges. Please contact your account manager for initial checks, further information and pricing.

Resilience of Your SIP Trunk Service

If you are using your BTnet connection to deliver SIP (Session Initiation Protocol) voice calls, the resilience provided and outlined here can help protect your voice connections as well as your data. With both failover and load-balancing options, SIP traffic is also protected and diverted to your secondary circuit in the event of a failure on your primary circuit.

Disaster Recovery

The disaster recovery (DR) package for BTnet offers you the ability to protect you against other service affecting issues (for example site evacuations). A BTnet customer with Disaster Recovery will benefit from the ability to quickly reconfigure their IP services from one site to another in the event of a disaster. Customers will have to quote a security password, which requires validating before a pre-agreed plan will be invoked. A BTnet customer requiring the additional security of BTnet Disaster Recovery will have a customised Disaster Recovery Plan tailored to their needs.

BT will aim to effect the changes within two hours of a customer's Disaster Recovery request. This service will be available 24 hours/day. It will not however form part of the BTnet SLA.

The DR plan service is only available to BTnet customers. Each request for a DR plan must be discussed and submitted via your account manager. Further information on request.

Why BT?

With our market-leading service offering, SLA and internet security, fully resilient network and competitive pricing, we can help you get online in the way that suits you best. Not only do we have a proven track record in delivering high-quality Internet access, but we also own and operate the entire network, giving you peace of mind that your online communications are always efficient and in secure hands.

For more information about BTnet, please contact your account manager or visit: http://www.bt.com/btnet