



# SIN 133

Issue 10.2  
March 2021

## Suppliers' Information Note

*For The BT Network*

---

## The BT Cardway Service SERVICE DESCRIPTION

Each SIN is the copyright of British Telecommunications plc. Reproduction of the SIN is permitted only in its entirety, to disseminate information on the BT Network within your organisation. You must not edit or amend any SIN or reproduce extracts. You must not remove BT trade marks, notices, headings or copyright markings.

This document does not form a part of any contract with BT customers or suppliers.

Users of this document should not rely solely on the information in this document, but should carry out their own tests to satisfy themselves that terminal equipment will work with the BT network.

BT reserves the right to amend or replace any or all of the information in this document.

BT shall have no liability in contract, tort or otherwise for any loss or damage, howsoever arising from use of, or reliance upon, the information in this document by any person.

Due to technological limitations a very small percentage of customer interfaces may not comply with some of the individual characteristics which may be defined in this document.

Publication of this Suppliers' Information Note does not give or imply any licence to any intellectual property rights belonging to British Telecommunications plc or others. It is your sole responsibility to obtain any licences, permissions or consents which may be necessary if you choose to act on the information supplied in the SIN.

This SIN is available in Portable Document Format (pdf) from: <https://www.bt.com/about/sinet>

Enquiries relating to this document should be directed to: [sinet.helpdesk@bt.com](mailto:sinet.helpdesk@bt.com).

# CONTENTS

|                                                       |                               |
|-------------------------------------------------------|-------------------------------|
| <b>1. INTRODUCTION.....</b>                           | <b>3</b>                      |
| <b>2. DESCRIPTION OF THE BT CARDWAY SERVICE .....</b> | <b>3</b>                      |
| 2.1 GENERAL .....                                     | 3                             |
| 2.2 BT CARDWAY PRODUCT OPTIONS .....                  | 4                             |
| 2.2.1 MPLS.....                                       | 4                             |
| 2.2.2 Internet VPN.....                               | 5                             |
| 2.2.3 Internet TLS.....                               | 5                             |
| <b>3. TECHNICAL SPECIFICATION .....</b>               | <b>7</b>                      |
| 3.1 IP MESSAGE SUPPORT .....                          | 7                             |
| 3.1.1 TCP Header Support .....                        | 7                             |
| 3.1.2 Network Parity.....                             | 8                             |
| <b>4. SERVICE AVAILABILITY.....</b>                   | <b>8</b>                      |
| <b>5. ABBREVIATIONS .....</b>                         | <b>8</b>                      |
| <b>7. REFERENCES .....</b>                            | <b>10</b>                     |
| <b>8. HISTORY.....</b>                                | <b><u>11</u><del>12</del></b> |

## 1. Introduction

This Suppliers' Information Note (SIN) describes the BT Cardway service. The service offers a means of accessing processing hosts in order to obtain automatic authorisation for a variety of payment, loyalty and other types of transaction.

## 2. Description of the BT Cardway service

### 2.1 General

BT Cardway is a PCI-DSS compliant secure, flexible network that provides connectivity options for the delivery of all types of transaction, a transaction being a short message exchange, normally being a request being sent in requiring a response to be returned.

Transactions that originate from Point of Sale (PoS) terminals, Smart Phones, ATM's or Host Systems can be securely delivered to Acquiring Banks or other processors globally, conformant to the latest Payment Card Industry Data Security Standards (PCI-DSS).

The BT Cardway service has been designed to help merchants and acquirers alike overcome the complexity of implementing card industry security standards. BT Cardway provides a secure network environment for anyone accepting card transactions.

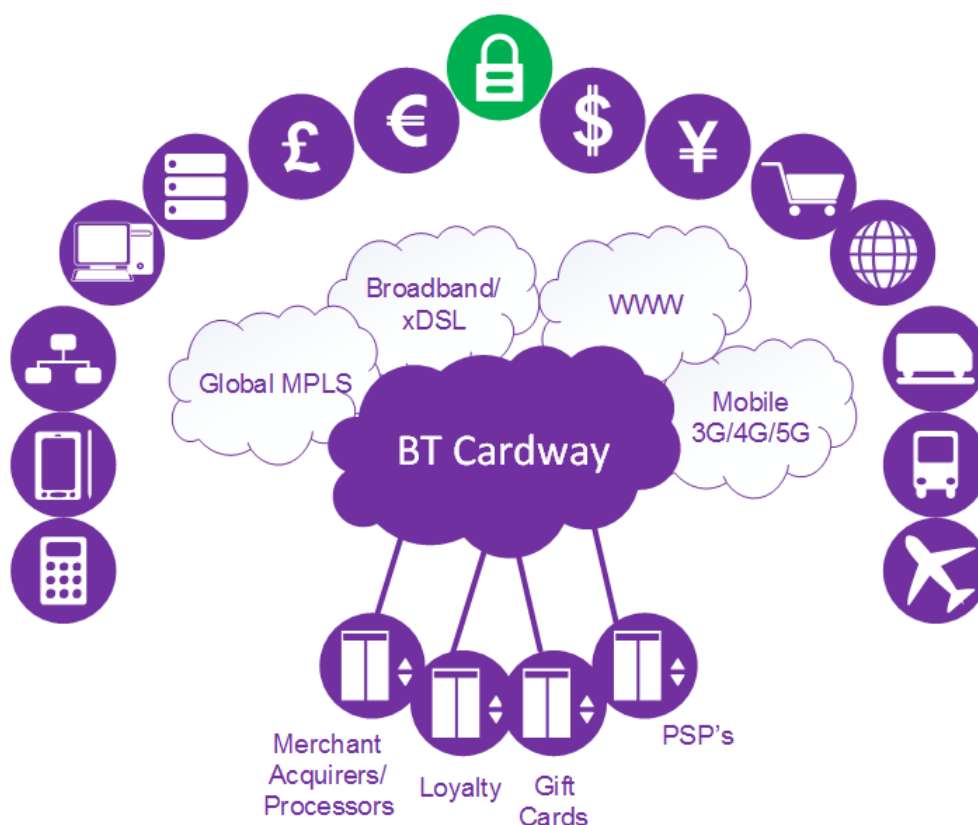


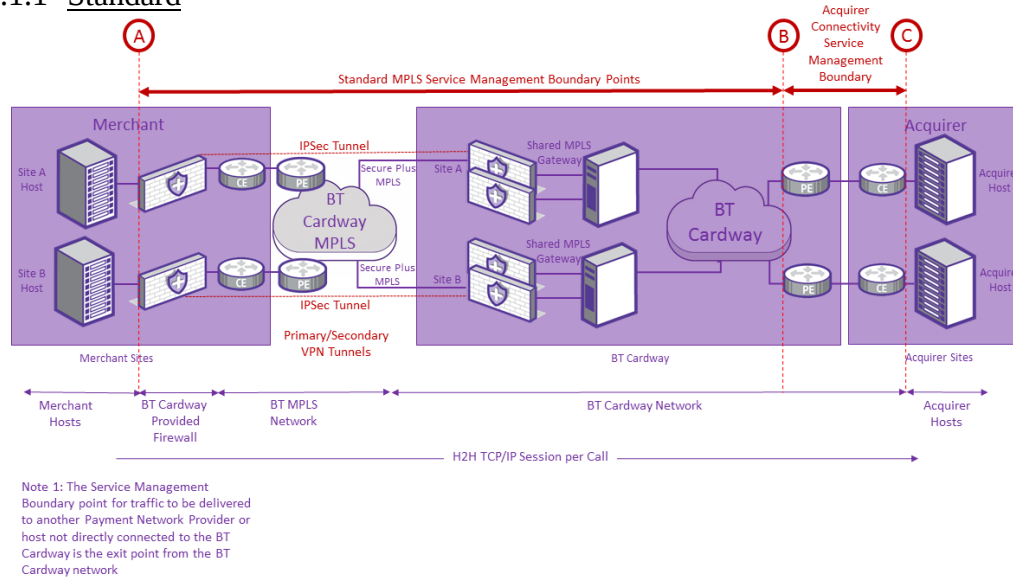
Figure 1 Cardway Network

## 2.2 BT Cardway product options

### 2.2.1 MPLS

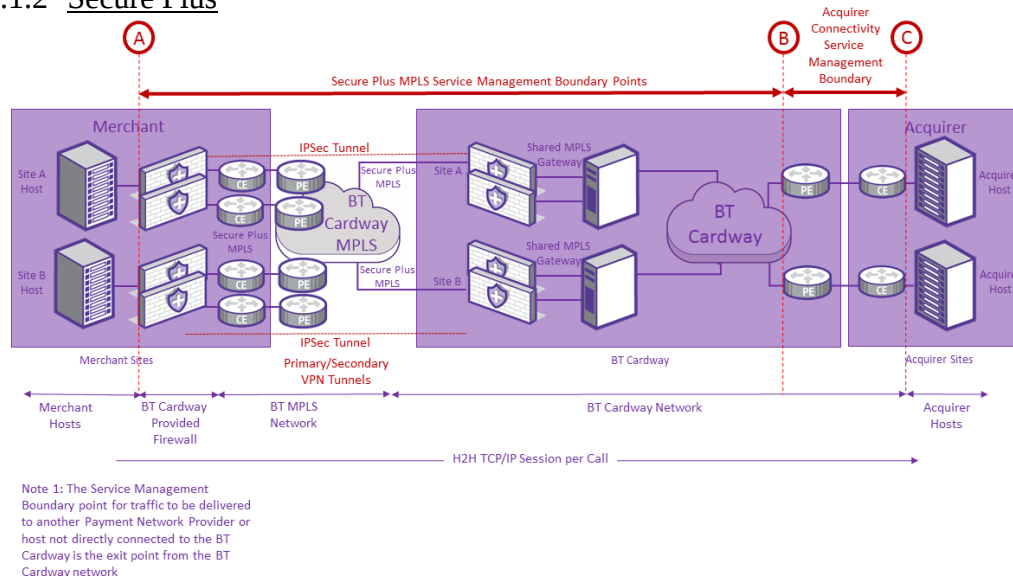
Both merchants and acquirers connect to BT Cardway via BT MPLS connections as shown in the diagrams below. Acquirers would always take a resilient connection.

#### 2.2.1.1 Standard



The standard service is delivered using a single circuit with no resilience or redundancy.

#### 2.2.1.2 Secure Plus

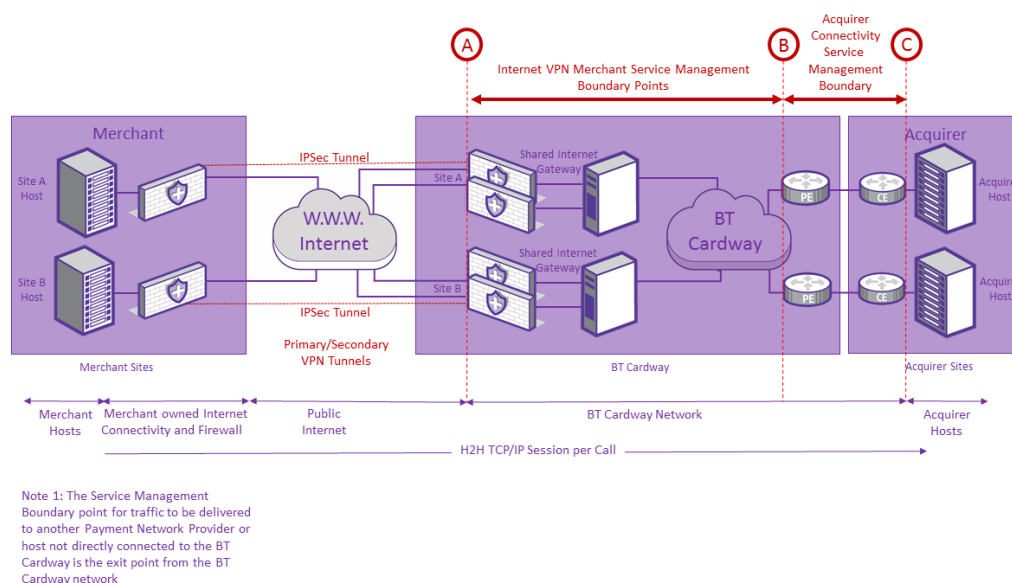


The Secure Plus service is delivered using dual circuits with diverse routing into each Customer site i.e. two diversely routed circuits per site.

### 2.2.1.3 Split Site Secure Plus

The Split Site Secure Plus service is delivered using two (or more) diversely routed circuits into two (or more) Customer sites i.e. one circuit per site.

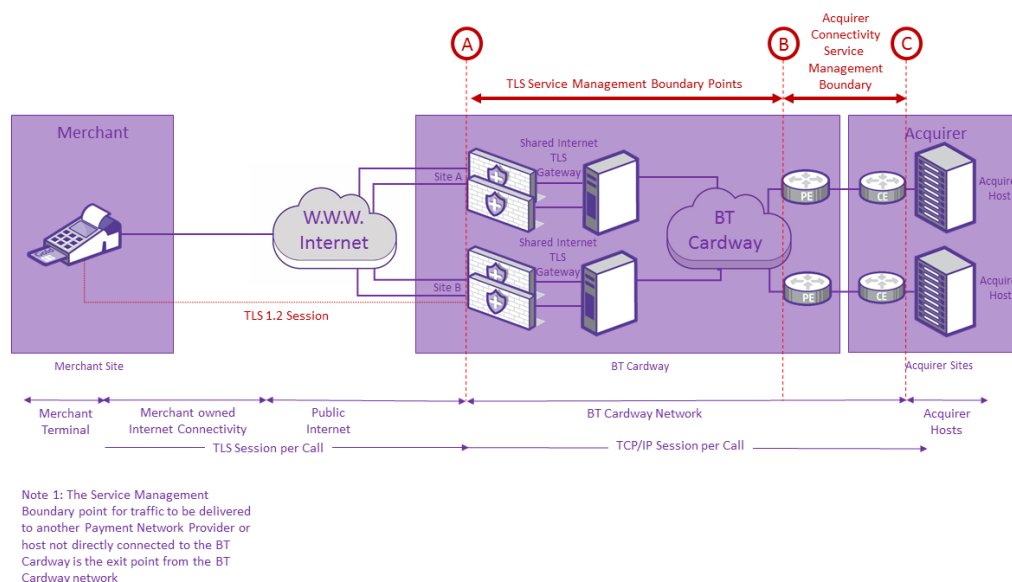
## 2.2.2 Internet VPN



The BT Cardway VPN Service provides internet connected merchants with secure connectivity to deliver transactional data to their acquiring host.

The service utilises the merchant's standard internet connectivity to route into the BT Cardway shared internet gateways to provide connectivity for payment card authorisations from Merchant terminals and servers. Transactions are routed over secure, encrypted IPsec tunnels that are established between the Merchants Internet connection router and the BT Cardway ingress firewall that interfaces the BT Cardway Internet Gateway with the public Internet.

## 2.2.3 Internet TLS



The BT Cardway TLS (Transport Layer Security) Service provides internet connected merchants with secure connectivity to deliver transactional data to their acquiring host.

The service utilises the merchants' standard internet connectivity to route into the BT Cardway shared internet gateways to provide connectivity for payment card authorisations from customer devices supporting the TLS 1.2 standard for encryption and transaction security.

TLS sessions are established between the Merchant device (IP terminal or server) and are terminated within the BT Cardway network on the ingress firewall that provides the interface between the BT Cardway Internet Gateway and the public Internet.

Transmitted data is encrypted using custom algorithm's with BT trustwise certificates.

The connection is reliable because each message transmitted includes a message integrity check using a message authentication code to prevent undetected loss or alteration of the data during transmission.

### 3. Technical Specification

|                                                                                              |                |     |                                                                                                             |
|----------------------------------------------------------------------------------------------|----------------|-----|-------------------------------------------------------------------------------------------------------------|
| The network supports terminals using a number of different access methods. MPLS (IP Connect) | Ethernet, ADSL | N/A | IP, BGP, XOT, optional headers: bin2, bin3, bin4, vap, asc4, asc5, bcd2, bcd4, bin2E, bin3E, bin4E and mbit |
| BTnet (Internet Connect UK)                                                                  | Ethernet, ADSL | N/A | IP, BGP, XOT, optional headers: bin2, bin3, bin4, vap, asc4, asc5, bcd2, bcd4, bin2E, bin3E, bin4E and mbit |

MPLS this can either be:

- BT Cardway shared customer access where multiple VPN connections are supported on an Ethernet access by configuring the access as an IEEE 802.1q VLAN trunk with each VPN using an individual VLAN associated with a VLAN ID. The VLAN ID associated with each VPN connection will be allocated by BT at the time of subscription.
- Dedicated customer access MPLS where the customer provides their own circuit and router into the BT core site.

Whether shared or dedicated connection compatible CPE will connect to an IP network which will allow an MPLS VPN to be established as described in SIN 385 Data is encrypted using IPSEC tunnels. The BT Cardway Network makes no assumptions as to the physical connectivity to the CPE, other than that it conveys an MPLS VPN over IPv4.

For Internet connection compatible CPE will connect to an IP network which will allow a VPN to be established and data is encrypted using IPSEC or TLS.

#### 3.1 IP Message Support

The merchant and acquirer gateway devices (ACP's) have the capability to support various message headers and parity settings.

##### 3.1.1 TCP Header Support

The following are valid entries to specify the length of the message in the header for TCP messages.

---

##### Options

|             |              |
|-------------|--------------|
| <b>None</b> | None defined |
|-------------|--------------|

|             |                                                    |
|-------------|----------------------------------------------------|
| <b>Mbit</b> | Same as “none” with MBIT support enabled (default) |
|-------------|----------------------------------------------------|

---

|              |                                                                                                                                                             |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>bin2</b>  | Two-byte header containing the packet length as a binary value                                                                                              |
| <b>bin3</b>  | Three-byte header containing the packet length as a binary value                                                                                            |
| <b>bin4</b>  | Four-byte header containing the packet length as a binary value                                                                                             |
| <b>VAP</b>   | Four-byte header containing the packet length in the first two bytes. The other two bytes are padded with 0's                                               |
| <b>ASC4</b>  | Four-byte header containing the packet length in ASCII format<br>Example: A value of 37 will be represented as "0037" and in hex as (30, 30, 33, 37).       |
| <b>ASC5</b>  | Five-byte header containing the packet length in ASCII format.<br>Example: A value of 37 will be represented as "00037" and in hex as (30, 30, 30, 33, 37). |
| <b>Bcd2</b>  | Two-byte header containing the packet length as a bcd value                                                                                                 |
| <b>Bcd4</b>  | Four-byte header containing the packet length as a bcd value                                                                                                |
| <b>Bin2E</b> | Two-byte header containing the packet length plus the header length as a binary value.                                                                      |
| <b>Bin3E</b> | Three-byte header containing the packet length plus the header length as a binary value.                                                                    |
| <b>Bin4E</b> | Four-byte header containing the packet length plus the header length as a binary value.                                                                     |

### 3.1.2 Network Parity

This option governs the network parity of outgoing TCP/IP traffic.

#### Options

|                    |                                                                                 |
|--------------------|---------------------------------------------------------------------------------|
| <b>Transparent</b> | Transparent pass-through (default)                                              |
| <b>7E1</b>         | Set parity to 7E1 for outgoing data and strip off parity bit for incoming data. |
| <b>8N1</b>         | Strip off parity bit for outgoing data                                          |
| <b>8N1E</b>        | Strips off parity bit for outgoing data and set parity to 7E1 for incoming data |

## 4. Service Availability

For further information on service availability and tariffs, please contact:

Tim Bell, Head of BT Cardway

E-Mail [tim.j.bell@bt.com](mailto:tim.j.bell@bt.com)

## 5. Abbreviations

|       |                                           |
|-------|-------------------------------------------|
| ADSL  | Asymmetric Digital Subscriber Line        |
| ATM   | Automatic Teller Machine                  |
| APACS | Association for Payment Clearing Services |

|       |                                               |
|-------|-----------------------------------------------|
| BGP   | Border Gateway Protocol                       |
| GPRS  | General Packet Radio Service                  |
| GSM   | Global System for Mobile                      |
| IEEE  | IEEE 802.1q, Recommendations for Virtual LANs |
| IP    | Internet Protocol                             |
| IPSEC | Internet Protocol Security                    |
| MPLS  | Multi Protocol Label Switching                |
| SIN   | Suppliers Information Note                    |
| TLS   | Transport Layer Security                      |
| VLANs | Virtual Local Area Networks                   |
| VPN   | Virtual Private Network                       |

## 7. References

### Suppliers' Information Notes

|   |         |                                   |
|---|---------|-----------------------------------|
| 1 | SIN 385 | IP Connect UK Service Description |
|---|---------|-----------------------------------|

### Standards published by the Association for Payment Clearing Services:

|         |                                                                         |
|---------|-------------------------------------------------------------------------|
| APACS30 | Specification For A Credit Authorisation Terminal                       |
| APACS40 | Acquirers' Interface Requirements For Electronic Data Capture Terminals |
| APACS70 | Redrafting of a number of previous APACS standards                      |

### IP related information

|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IP Bin header | An optional IP header that defines the IP packet length as a binary or ASCII value.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| MPLS VPN      | <p>Multiprotocol Label Switching (MPLS) is a protocol for speeding up and shaping network traffic flows.</p> <p>MPLS allows most packets to be forwarded at Layer 2 (the switching level) rather than having to be passed up to Layer 3 (the routing level). Each packet gets labelled on entry into the service provider's network by the ingress router. All the subsequent routing switches perform packet forwarding based only on those labels—they never look as far as the IP header. Finally, the egress router removes the label(s) and forwards the original IP packet toward its final destination. A customer VPN used as a secure path across the BT MPLS network.</p> |

## 8. History

| Issue      | Date          | Changes                                                                                                                                                                                                                                                                                                                                                                                                                          |
|------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Issue 1    | November 1988 | First published.                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Issue 2    | December 1998 |                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Issue 2.1  | June 2003     | Format Updated. Section on Terminal Equipment Approvals removed. “Private circuit” replaced by “Cardway Delivery Connection” with interface defined by reference to SIN 57.                                                                                                                                                                                                                                                      |
| Issue 3.0  | July 2004     | GSM access added.                                                                                                                                                                                                                                                                                                                                                                                                                |
| Issue 4.0  | July 2006     | IP/MPLS facility added                                                                                                                                                                                                                                                                                                                                                                                                           |
| Issue 4.1  | August 2007   | Contact information amended in Clause 4, Service Availability                                                                                                                                                                                                                                                                                                                                                                    |
| Issue 5.0  | December 2008 | Information on GPRS and IP connectivity now included                                                                                                                                                                                                                                                                                                                                                                             |
| Issue 6.0  | February 2011 | General amendments. Addition of the Cardway PPP service.                                                                                                                                                                                                                                                                                                                                                                         |
| Issue 6.1  | May 2011      | Minor editorial improvements                                                                                                                                                                                                                                                                                                                                                                                                     |
| Issue 7    | October 2014  | Updates and amendments<br>Change SINet site references from <a href="http://www.sinet.bt.com">http://www.sinet.bt.com</a> to <a href="http://www.btplc.com/sinet/">http://www.btplc.com/sinet/</a>                                                                                                                                                                                                                               |
| Issue 8    | February 2016 | Updates and amendments                                                                                                                                                                                                                                                                                                                                                                                                           |
| Issue 9    | June 2017     | Updates and amendments. Section 2 updated to include the following: <ul style="list-style-type: none"> <li>- MPLS access in section 2.2.2</li> <li>- Internet VPN in Section 2.2.3</li> <li>- Internet TLS in section 2.3.4</li> </ul> Section 3 updated to reflect all BT Cardway access types and associated protocols in particular Section 3.1 added to cover the IP message types<br>New contact details added to Section 4 |
| Issue 10   | January 2020  | Minor updates and amendments.<br>Section 2 updated as follows: <ul style="list-style-type: none"> <li>– Revised overview diagram added</li> <li>– V.110 removed as a dial service option</li> <li>– X.25 service removed</li> </ul> New contact details added to Section 4                                                                                                                                                       |
| Issue 10.1 | July 2020     | Change SINet site references from <a href="http://www.btplc.com/sinet/">http://www.btplc.com/sinet/</a> to                                                                                                                                                                                                                                                                                                                       |

|               |            |                                                                             |
|---------------|------------|-----------------------------------------------------------------------------|
|               |            | <a href="https://www.bt.com/about/sinet">https://www.bt.com/about/sinet</a> |
| Issue<br>10.2 | March 2021 | Removal of PSTN and ISDN services.                                          |

- END -