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SCHEDULE B3.3

HNG-X CENTRAL AND TELECOMMUNICATIONS INFRASTRUCTURE

Version History

Version No.	Date	Comments
1.0	31/08/06	Agreed version as at date of signature of CCN 1200
1.1	26/09/06	Minor corrections
2.0	25/01/07	Baseline copy of 1.1
3.0	23/02/09	Baseline copy of 2.1
3.1	13/05/09	Applying changes as per CCN1258
6.0	06/07/09	Moving all schedules to V6.0 as agreed with Fujitsu
6.1	23/12/09	Applying changes as per CCN 1268
6.2	05/01/10	Applying changes as per CNN 1272
6.3	31/03/10	Applying changes as per CCN1276a
6.4	01/04/10	Applying changes as per CCN1270
7.0	10/05/10	Moving all schedules to V7.0 as agreed with Fujitsu.
8.0	21/02/12	Applying changes specified in CCN1294d
9.0	13/01/14	Applying changes as per CCN1349,1311b, 1328b and CCN1400
10.0	10/09/15	Applying changes as per CCN1418, CCN1420a and as subsequently amended in this CCN1506 and moving all Schedules to V10.0 in accordance with CCN1506
11.0	31/03/16	Applying changes as per CCN1423c, CCN1427 and moving all Schedules to V11.0 in accordance with CCN1604
12.0	03/07/17	Applying changes as per CCN1610, CCN1614a, CCN1618a, CCN1621 and moving all schedules to V12.0
13.0		Updating as per CCN1629, CCN1632 and CCN1650c and moving all Schedules to v13.0
14.0	20/12/2021	Updating as per CCN1651b, CCN1655a, CCN1662a, CCN1623b, CCN1648b, CCN1672a and moving all Schedules to v14.0
14.0a	5/5/2022	Updating as per CCN1623b Part 2 sections missed in V14.0 conformance.
15.0	21/12/2022	Updating as per CCN1703a, CCN1705b, CCN1725a, CCN1731, CCN1748

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SCHEDULE B3.3

HNG-X CENTRAL AND TELECOMMUNICATIONS INFRASTRUCTURE

1. HNG-X SERVICE INFRASTRUCTURE

1.1 Introduction

1.1.1 This Schedule B3.3 records and specifies the HNG-X Service Infrastructure that shall be provided by Fujitsu Services in order to deliver the Business Capabilities and Support Facilities described in Schedule B3.2.

1.1.2 The HNG-X Service Infrastructure comprises

(a) HNG-X Central Infrastructure; and

(b) HNG-X Telecommunications Infrastructure.

1.1.3 The HNG-X Service Infrastructure provides functions and capabilities used to deliver the Business Capabilities and Support Facilities, and the Operational Services.

1.1.4 The provisions of this Schedule shall not apply in respect of the HNG-X Central Infrastructure or HNG-X Telecommunications Infrastructure, and accordingly it does not form part of the HNG-X Service Infrastructure.

1.2 HNG-X Central Infrastructure

1.2.1 Subject to paragraph 1.3.4(f), Fujitsu Services shall provide all equipment at the Data Centres necessary to provide the Business Capabilities and Support Facilities. This equipment, including the telecommunications equipment, shall have sufficient capacity to meet the business volumes as set out in the CCD entitled "Horizon Capacity Management and Business Volumes" (PA/PER/033).

1.2.2 The Transfer Asset Register shall be updated in accordance with the timetable contained in paragraph 3.2.1 of Schedule E.

1.2.3 Fujitsu Services shall maintain all increases in the capacity of the HNG-X Service Infrastructure which Fujitsu Services have agreed to make at the request of Post Office.

1.2.4 Fujitsu Services shall retain all hardware and software provided to a particular Post Office specification, save that Fujitsu Services may substitute identical replacements for such hardware and software.

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1.2.5 Fujitsu Services may replace, upgrade, remove or decommission hardware and software from time to time comprised in the HNG-X Service Infrastructure provided that it continues at all times to comply with its obligations in paragraphs 1.2.3 and 1.2.4 (unless agreed otherwise under the Change Control Procedure).

1.2.6 Unless terminated earlier in accordance with Clause 47.11(f), Fujitsu Services shall use the facilities of the DR Data Centre to provide a testing environment, which shall be known as the SV&I Rig which shall support functional testing until 31st March 2025

1.2.7 Unless terminated earlier in accordance with Clause 47.11(f), Fujitsu Services shall maintain at their Bracknell location the Integration (INT) Rig which shall support integration testing until 31st March 2025.

1.2.8 Unless terminated earlier in accordance with Clause 47.11(f), Fujitsu Services shall maintain at their Bracknell location the Component Integration and Test (CIT) Rig which shall support development testing until 31st March 2025.

1.2.9 Any additional test configurations that are required to support changes to Post Office's business shall be dealt with through the Change Control Procedure.

1.2.10 Not used – removed by CT2589b

1.3 HNG-X Telecommunications Infrastructure

1.3.1 Removed by CCN1623b

1.3.2 Removed by CCN1623b

1.3.3 Central Telecom Infrastructure

The Central Telecom Infrastructure provides network connections:

(i) between Data Centres and Post Office sites;

(ii) between Data Centres and Client sites;

(iii) between Data Centres and Fujitsu Services support sites;

(iv) between Data Centres and the Ingenico Central Platform;

(v) between the Data Centres and third party support sites;

(vi) between the two Data Centres (intercampus links); and

(vii) for the test service including any test Branches.

1.3.4 Interface support for Post Office services or Client services

(a) The HNG-X Telecommunications Infrastructure shall include capability to enable connection between the Data Centres and Post Office systems or Client systems. The style of connection and operation shall be

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defined in the relevant TIS and shall support real and delayed time initiation of activities.

(b) The HNG-X Telecommunications Infrastructure and HNG-X Central Infrastructure shall provide a file distribution function which shall be responsible for the transfer, monitoring and retry of files as specified in the relevant AIS and / or TIS.

(c) The HNG-X Service Infrastructure shall support authorisations for Post Office products through access to computer systems which are external to Post Office services or are within Post Office services.

(d) Additional Post Office services or additional Client services which require an additional interface may be agreed from time to time between Post Office and Fujitsu Services and shall be specified in an additional TIS and / or an additional AIS.

(e) Interface Support for Santander

(i) Fujitsu Services shall be responsible for provision of, security of, and management of the communications link between the Data Centres and Santander (which for the purposes of this Schedule includes the physical routers, encryption devices, file transfer management servers and associated cabling), subject to Post Office complying with (and ensuring that any third party Post Office uses for siting or storage of such equipment complies with) the following:

(1) provision of a suitable physical operating environment for Fujitsu Services' equipment used for or in connection with the communications link including the following:

(A) ensuring the physical security of all equipment which is located on Post Office and/or any such third party's premises to protect against unauthorised access; and

(B) provision of environmental conditions as reasonably required by Fujitsu Services.

(2) permitting Fujitsu Services to gain access (at reasonable times and on reasonable notice) to all locations where such equipment is held or is to be installed, in order to enable Fujitsu Services to effect or procure the installation, maintenance, repair, renewal and support of such equipment.

(f) Interface Support for Vocalink

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Removed by CCN1725a

(i) Post Office shall be responsible for procuring the provision of, security of, and management of the communications links between the Ingenico Central Platform and Vocalink in accordance with and subject to paragraph 1.3.4(g), subject to Fujitsu Services complying with (and ensuring that any Sub-contractor or third party Fujitsu Services uses complies with) any reasonable request for co-operation and/or information made by Post Office from time to time, where the provision of such co-operation or information is necessary to enable Post Office to perform the Post Office Communications Links Services.

(g) Post Office Communications Links Services

Post Office shall, in relation to paragraph 1.3.4(f), be responsible for ensuring that:

(i) the Post Office Communications Links Services are carried out promptly, efficiently, diligently and professionally, and with all reasonable skill and care;

(ii) it obtains an undertaking from Vocalink that its employees, servants, agents or sub-contractors engaged to perform the Post Office Communications Links Services:

(1) keep confidential, and not disclose to anyone else, any Confidential Information of Fujitsu Services disclosed by or obtained from Fujitsu Services (or its subcontractors) in the course of performing the Post Office Communications Links Services;

(2) use such Confidential Information only to the extent reasonably required to perform the Post Office Communications Links Services; and

(3) return such Confidential Information held in tangible form to Post Office, and to irretrievably delete or destroy all such information held in electronic form, on termination or expiry of that party's obligations in respect of the Post Office Communications Links Services,

other than as required by law;

(iii) it or any third party engaged by it to perform the Post Office Communications Links Services complies with any reasonable instructions and/or requirements (including without limit any

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reasonable instructions and/or requirements relating to Data Centre security) given to it by Fujitsu Services(or its Subcontractors) from time to time; and

(iv) the communication links between the Ingenico Central Platform and Vocalink, shall have sufficient capacity to meet Post Office's business volume requirements from time to time; and

(v) Post Office shall fully indemnify Fujitsu Services in respect of any personal injury or loss of or damage to Property incurred by Fujitsu Services, its contractors or their respective employees and authorised agents to the extent that such personal injury or loss of Property is caused by a Default of Post Office, its employees, agents or contractors in connection with the performance of the Post Office Communications Links Services.

1.4 Exclusivity

1.4.1 No computer system shall be connected to the HNG-X Central Infrastructure or to those elements of the HNG-X Telecommunications Infrastructure which are employed exclusively in the provision of the HNG-X Services without the approval of Post Office.

1.4.2 Fujitsu Services shall maintain a register of computer systems with which such connections are allowed.

1.4.3 The HNG-X Central Infrastructure and HNG-X Telecommunications Infrastructure shall provide links into other computer systems as required to support the introduction of new or re-engineered Transactions required by Post Office.

1.4.4 The identity of any computer system with which a link is to be established shall be authenticated.

1.4.5 Fujitsu Services shall produce reports detailing any attempt to establish a link (specified in paragraph 1.4.3) which is rejected. Fujitsu Services shall provide these reports to Post Office on request. Such reports will not be required where the link is between the HNG-X Central Infrastructure / HNG-X Telecommunications Infrastructure and the Banks; and the rejection is due to a failure of the Banks; or between the HNG-X Central Infrastructure / HNG-X Telecommunications Infrastructure and the MA and the rejection is due to a failure of the MA.

1.5 Continued Support of operating systems and Software

Fujitsu Services shall fully support the Software in the HNG-X Service Infrastructure during the life of the elements of HNG-X Service Infrastructure on which such Software is utilised in providing Services.

1.6 Functional Title or Code

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Fujitsu Services shall ensure that each component of the HNG-X Service Infrastructure is clearly marked with a functional title or code so that it can be readily identified in the relevant documentation and related to its proper place in the HNG-X Service Infrastructure.

1.7 Not Used

1.7.1 Not Used.

1.7.2 Not Used.

2. SECURITY

2.1 Introduction

This section covers the security provisions relating to the HNG-X Service Infrastructure.

2.2 Encryption Key Management

2.2.1 The HNG-X System shall support a reliable and secure means for the transfer of data to the Data Centre. This shall include the use of techniques used selectively and in agreement between Post Office and Fujitsu Services as specified in the CCD entitled "HNG-X Technical Security Architecture" (ARC/SEC/ARC/0003)

2.2.2 With the exception of PIN Pads (in which case paragraph 2.1.4 of Schedule B3.4 shall apply), a key management system shall be in place so the encrypted data can be deciphered without risk of that cryptographic key being exposed.

2.2.3 Fujitsu Services shall support the use of PIN Pads and the associated cryptographic management. PIN Pads shall comply with the requirements of ISO 9564.

3. BUSINESS CONTINUITY

3.1 Introduction

This paragraph 3 covers the business continuity provisions relating to the HNG-X Service Infrastructure.

3.2 End to End Recovery

End-to-end recovery shall be performed by Fujitsu Services in accordance with the CCD entitled “HNG-X Business Continuity Framework” (SVM/SDM/SIP/0001).

3.3 Business Continuity

3.3.1 Data Centre Resilience

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(a) One Data Centre will be used to support the Business Capabilities and Support Facilities (the "Live Data Centre") with a second Data Centre providing DR (the "DR Data Centre"). There are network components (appliances and platforms) at the DR Data Centre which contribute to the provision of Business Capabilities and Support Facilities.

(b) The DR Data Centre will under normal operation be used for testing except where it needs to be used for business continuity tests. The DR Data Centre will also host some live network components.

(c) Each Data Centre shall have the capability in normal operation with no failures or a single failure having occurred:

(i) to support the Contracted Volumes as defined in the CCD entitled "Horizon Capacity Management and Business Volumes" (PA/PER/033); and

(ii) to support Fujitsu Services' obligations in respect of Service Levels set out in Schedule C1 and each applicable Service Description.

(d) Each Data Centre will be configured such that the failure of a single component will not cause the Business Capabilities and Support Facilities to fail. For the avoidance of doubt, Fujitsu Services will inform Post Office of those major Data Centre components whose failure may result in the need to invoke DR. There is a single high capacity WAN circuit into each Data Centre. Should the link into one Data Centre fail then a patch via the other Data Centre will be used.

(e) Switchover to backup systems within the Data Centre and for the network connections within the Data Centre:

(i) for real-time elements of the Business Capabilities and Support Facilities shall be automated; and

(ii) for non-real time elements may be automated or manual.

(f) Switchover from the Live Data Centre to the DR Data Centre will be manually initiated.

(g) In the event that the DR Data Centre needs to be used to run the live service or if the DR Data Centre itself is unavailable, there will be no significant test environment available. In this scenario, limited testing (sufficient to test minor fixes needed to keep the live service operational) will be available at a Fujitsu Services development site. However such testing facilities will not be sufficient to test releases.

3.3.2 The Central Network

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(a) The Central Network comprises the network communications between the Data Centres and the switches used by Fujitsu Services (or Fujitsu Services' Sub-contractor which operates such network) to:

(i) Until November 15th January 2018, answer ISDN calls from Branches;

(ii) convert asynchronous transfer mode (ATM) communications from ADSL Branches into internet protocol (IP) communications; or

(iii) convert leased line communications from Branches into internet protocol (IP) communications

(iv) convert wireless wide area network (WAN) protocols from Branches into internet protocol (IP) communications,

(the "Central Network").

(b) The loss of a major sub-contractor network switching node within the Central Network shall not cause the complete loss of the Branch Telecom Infrastructure. However, should a loss of a major sub-contractor network switching node within the Central Network occur, Fujitsu Services (in addition to its other obligations under this Agreement) shall use all reasonable endeavours to procure that any shortfall in system performance is recovered within seven days of that loss.

(c) The Central Network shall be configured such that there shall be no single point of failure within the Central Network. Some failures in the Central Network may require the Branch to re-establish communications with the Data Centre.

3.3.3 The Santander Circuit

(a) The Santander Circuit shall be configured such that there shall be no single point of failure (including site failure) within the Santander Circuit.

(b) "The Santander Circuit shall have the capability in normal operation, with no failures or a single failure having occurred to that link:"

(i) to support the Contracted Volumes for Banking Transactions for Santander as defined in the CCD entitled "Horizon Capacity Management and Business Volumes" (PA/PER/033); and

(ii) of supporting Fujitsu Services' obligations in respect of Service Levels set out in Schedule C1 and each applicable Service Description.

4. ASSOCIATED DOCUMENTS

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4.1 The following CCDs are associated with this Schedule B3.3.

	Document Reference	Document Title
1	PA/PER/033	Horizon Capacity Management and Business Volumes
2	SVM/SDM/SIP/0001	HNG-X Business Continuity Framework
3	ARC/SEC/ARC/0003	HNG-X Technical Security Architecture
4	Not Used	

4.2 There are no CRDs associated with this Schedule B3.3.