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S70/S75 Release

Testing Plan

Version 0.3

ROLE	NAME	SIGNATURE	DATE
Delivery Director	Dave Smith		
S70/S75 Release Manager	Marc Reardon		
PO LTD Release Test Manager	Peter Jones		

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1. Document control

1.1. Version history

VERSION	DATED	DESCRIPTION
0.1	05/03/04	Initial draft for internal team review
0.2	23/03/04	Initial issue for POL internal review
0.3	16/04/04	Updated version from POL internal review for external review

1.2. Change co-ordinator

Peter Jones, PO LTD Release Test Manager, GRO

GRO

Telephone: GRO

1.3. Related documents

REFERENCE:	TITLE	VERSION	DATE
[1]	PO Ltd High Level Testing Strategy	1.0	November 2001
[2]	PO Ltd Incident Management Procedures	1.4	September 2002
[3]	PO Ltd Measurement Incident Progress Reporting	1.0	July 2003
[4]	Testing Approach For The Horizon System	1.0	Aug 2003
[5]	PO LTD Generic Testing Approach	1.0	Sept 2003

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1.4. Distribution List

NAME	ROLE	BUSINESS	REVIEW
Dave Smith	IT Delivery Director	Post Office Limited	Internal
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Sue Harding	IMPACT Programme Manager	Post Office Limited	Internal
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Peter Rusling	Parity NRDS & POL MI Project Manager	Parity	External
Dave Lawrence	IBM Service manager	IBM	External
Neil Scott	Alliance & Leicester Testing	Alliance & Leicester	External
Andrew Barnes	LINK Project Manager	LINK	External

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2. Contents

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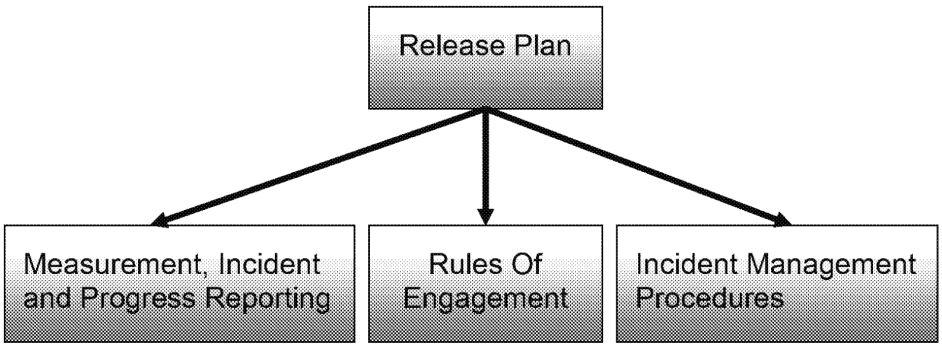
3. Introduction

This document outlines the Post Office Ltd (PO Ltd) high level testing plan for the S70 and S75 releases. It identifies the scope and approach for testing each release, and ascribes responsibility for testing between PO Ltd, Fujitsu Services, Prism, IBM and other 3rd party suppliers/clients.

PO Ltd will use testing to support acceptance of the S70 and S75 releases from Fujitsu Services, Prism and other 3rd party suppliers/clients, and for release authorisation of the service.

The approach detailed within this document is the approach developed over a number of Horizon releases and documented as part of the revised Fujitsu contract. This PO Ltd Generic approach was successfully validated during the recent S50 release without any issues, and is again being operated for the S60 release, and will therefore form the basis of the S70/S75 approach.

This document sits at the top of the PO Ltd Release Testing documents Hierarchy issued for each release.



3.1. Scope of S70/S75

The S70 release includes 3 main components, together with agreed change requests and defect fixes. Two of these components being projects within the Impact programme the other being within the Banking programme.

The three main components of S70 are:

1. New Reference Data System
2. New PO LTD Management Information System
3. EMV Retail

In addition to these, the Horizon counter code will support EMV Banking at this release and therefore S70 testing will include pre-proving as much as possible the “counter” element of S75.

The S75 Release includes two main components, together with agreed change requests and defect fixes.

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The two main components of S75 are:

4. NBX (NBE Replacement)
5. EMV Banking

3.1.1. New Reference Data System (NRDS)

The current reference data processes and systems within POL are complex, inflexible and inconsistent. There are several key systems within POL which key in their own reference data and there are several more systems which key in their own reference data which exists in master systems. The New Reference Data System will ensure consistency in reference data usage within Post Office and Fujitsu, simplify the current processes and allow changes to be made in a more timely fashion. This will support data driven change within the business, a reduction in operation costs, the removal of inconsistent reference data within the organisation and improved speed to market. It will also support a fully automated end to end process to capture reference data changes to reduce delays and errors.

The current reference data systems feed many other legacy systems; these feeds must remain in place and must remain in exactly the same format as they are currently. There will be no changes to any interface files during this project and there will not be any requirement for change to any of the receiving systems.

NRDS Interfaces

Ref	Status	Existing Interface		New Interface		Frequency	Transfer Mechanism
		From	To	From	To		
1	Existing	NNDB/PIVOT	HMIS	New RDS	HMIS	Weekly	FTP
2	Existing	NNDB/PIVOT	Local schemes	New RDS	Local schemes	Monthly	FTP
3	Existing	NNDB/PIVOT	RFLS	New RDS	RFLS	Monthly	FTP
4	Existing	NNDB/PIVOT	POCM	New RDS	POCM	Daily	FTP
5	Existing	NNDB	CREDO	New RDS	CREDO	Monthly	FTP
6	Existing	PAF	NNDB	PAF	New RDS	Monthly	Tape
7	Existing	Intellect	UK PA	New RDS	UK PA	Fortnightly	FTP
8	Existing	RDS	Internet	New RDS	Internet	Weekly	Email
9	Existing	RDS	Link	New RDS	Link	Weekly	Email
10	Existing	RDS	NBSC	New RDS	NBSC	Weekly	FTP

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Ref	Status	Existing Interface		New Interface		Frequency	Transfer Mechanism
		From	To	From	To		
11	Existing	RDS	Network Bank	New RDS	Network Bank	Daily	FTP
12	Existing	RDS	NRM	New RDS	NRM	Monthly	FTP
13	Existing	RDS	EDS card account	New RDS	EDS	Weekly	Email
14	Existing	RDS	POLC	New RDS	POLC	Weekly	FTP
15	Existing	RDS	SAPADS	New RDS	SAPADS	Weekly	Email
16	Existing	RDS	AP Clients	New RDS	AP Clients	Weekly	Email
17	Existing	RDS	Horizon	New RDS	Horizon	Daily	FTP
18	Existing	WRDS	EDS Data Central	New RDS	EDS Data Central	Weekly	FTP
19	Existing	RDS	WRDS	New RDS	MI	Daily	FTP
20	Existing/ Temporary	RDS	OpTIP	New RDS	OpTIP	Daily	FTP
21	Existing	RDS	e-pay	New RDS	e-pay	Daily	FTP
22	New	-	-	HRSAP	New RDS	Daily	FTP
23	New	-	-	ES-FS	New RDS	?	?
24	New	-	-	New RDS	Benefits Agency	?	?

3.1.2. New PO LTD Management Information System

The new Management Information System is a replacement for the existing systems such as LID, STAM and Intellect. It will be built on the current data warehouse functionality and reduce operating costs to the business. It will improve granularity, providing a product view of profit and loss. It will provide a single point for management information and will allow the redundant MI legacy systems to be decommissioned.

MI Interfaces (Inbound)

- NRDS
- ESFS
  - Internal Order Data

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  - Cost Centre Data
- Branch Sales Targets
- CBDB
- Horizon
  - Transaction Files
  - Client Transmission Files
  - Cash Account Files
- Client Reported Errors
  - DVLA
  - Order Book Control Service (OBCS)
  - Girobank
  - Benefits Agency
- Fixed Income
- Local Schemes
- Sales Forecast

MI Interfaces (Outbound)

- Branch Error Advice Letters

3.1.3. EMV Retail

Smart card tokens (EMV chip cards / Integrated Chip Cards [ICC]) with PIN as the customer verification are being introduced in the UK electronic payments industry in order to combat card fraud. The advent of EMV, or Chip & PIN as it is also referred to, introduces:

1. Chip – a secure Integrated Chip Card token that cannot be easily counterfeited – unlike magnetic cards that are simply, and regularly copied.
2. PIN – in place of signature at the point of sale for retail, the customer will enter a PIN number.

The importance of the chip is that it can process and authenticate the entered PIN and this allows terminals to verify the customer without having to go on line (off-line PIN – Retail Point of Sale model. For retail, this means that PIN verification can now occur anywhere – just like a signature, in a taxi, on a train etc. – but with high degree of confidence that the card is genuine.

In the retail sector, where debit and credit cards are used, from 01/01/2005, EMV transactions will become the normal transaction type. From this date, the card schemes will change the liability for card fraud to sit with the party that has the weaker security system and if the Post Office™ were unable to accept EMV cards it would be open to greater liability challenges.

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The introduction of the EMV standard for cardholder verification and card authentication means that a number of mechanisms originally developed for stripe card and signature will need to be enhanced to allow for EMV. The main EMV development, to add EMV processing, will support the same transaction set as the magnetic card, but with the chip token rather than magnetic swipe and PIN for customer verification. Note that signature remains the Cardholder Verification Method (CVM) for mag cards and that signature and no CVM are possible for ICC.

3.1.4. NBX (NBE Replacement)

The functionality currently provided by IBM via the NBE is to be supplied by Fujitsu Services, in addition to current functionality, the replacement for the NBE will also be capable of dealing with banking transactions initiated via ICC cards. The replacement for the NBE is to be called "NBX".

The NBX will interface with card account, LINK and Alliance & Leicester. It will also provide management information and a Transaction Enquiry Service (TES) that will be the replacement for Data Navigator

3.1.5. EMV Banking

In the banking sector, the agreement with the Government and expectation of Banks participating in Universal Banking services is that Post Offices would migrate to Chip/PIN in line with the industry i.e. 01/01/2005 and this aligns with the LINK expectation that its' acquiring network will be chip and PIN capable by this date.

All the banking transaction types currently available through magcard swipe are to be made available via the insertion of ICC cards into the Pin Pad at Horizon counters. Note that deposit transactions will not require the input of a PIN.

3.1.6. CP's for inclusion at S70

- CP3467 - Change the delivery mechanism for D type reference data
- CP3572 - Process for updating Smart Post HTML files – full solution
- CP3595 - System Management platforms to be maintained within POA SCM process
- CP3626 - BFPO Selection in Smart Post
- CP3627 - Generic Message Tablet in Smart Post
- CP3647 - Support for signature CVM and for no CVM
- CP3648 - Beeps relating to EMV card slot

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- The Release will also be used as a vehicle for applying PinICL fixes – as yet to be agreed.

3.1.7. CP's for inclusion at S75

- There are no CP's currently targeted at S75
- PinICL's identified during testing of S70 may be targeted to be fixed at S75

3.2. Summary of S70/S75 E2E Test Phases and Objectives

3.2.1. S70 E2E

- Integration of NRDS with other systems in the E2E environment
- Operation and outputs of the New PO Ltd Management Information System
- EMV Retail counter functionality and E2E data integrity including reconciliation and settlement. Plus accreditation for debit and credit cards achieved via on-site (Feltham) testing by Streamline personnel. This on-site testing is specifically targeted at obtaining
    - Streamline Accreditation
    - Mastercard Accreditation
    - VISA Accreditation
- EMV Banking – From a counter perspective all functionality for S75 will be present at S70 and as much of the banking solution as possible will be tested during S70 E2E.
    - Counter screens Non-Core control products for the migration of Non-EMV to EMV
    - Connectivity to EBT test environment via key exchanges and exchange of administrative type messages from the test NBX platform.
    - Running and pre-proving LINK accreditation scripts from a counter perspective via an enhanced NB emulator
    - The definition of EMV enabled cards and Issuer Schemes by NRDS
    - The Fujitsu maintained reference data applied to the Pin pad which identifies the banking Application Id's appropriate to LINK, A&L and card account
    - Use of type D reference data to prove the mechanism for routing banking transactions from NBE to NBX as per the proposed migration plan

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- Creation by RDS of 13 new Banking Operation Types
- Adding Service Code as a Bank Card Element for each Bank Card to be tested for EMV

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3.2.2. S75 E2E

- Operation and outputs of the NBX for both EMV and non-EMV banking transactions
- Migration testing in terms of Cutover from the NBE to the NBX and then cutback to the NBE should this contingency state be required in Live
- E2E operation of EMV Banking Services
- Gain formal LINK accreditation for the introduction of EMV Banking and the introduction of the NBX. The process of achieving accreditation from LINK is in two stages. The first stage is to be gained during Fujitsu SV&I testing when an agreed set of tests will be run against a Lexcel Simulator within the Fujitsu domain and resultant transaction logs and trace files will be sent to LINK for examination. The second stage is to perform a set of transactions agreed with LINK over the E2E environment with transactions being authorised by a Lexcel Simulator within the LINK domain.
- Gain agreement from card account that the NBX and EMV Banking solutions can be migrated into the production environment.
- Gain agreement from Alliance & Leicester that the NBX and EMV Banking solutions can be migrated into the production environment. However at the time of writing, there has been no discussion with Alliance & Leicester regarding their involvement in S75 E2E testing.

3.3. Purpose of PO LTD S70/S75 testing

The specific purpose of PO Ltd S70/S75 testing is to:

- Support contractual acceptance of the new functionality and agreed change requests from Fujitsu Services, Prism, IBM and other 3rd party suppliers/clients.
- Prove the integration of supplier systems.
- Support release authorisation for S70 and S75 by PO Ltd.

3.4. Assumptions

There are a number of key planning assumptions for S70/S75 testing by PO Ltd :

- Test Reference Data will be aligned and be provided from both current RDS and NRDS for S70 and from NRDS only for S75.

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- Suppliers are responsible for and capable of carrying out internal testing to the point of delivery of a completed internal system to the PO Ltd led E2E testing phases albeit PO Ltd will wish to be involved with internal testing via reviewing supplier plans, scripts, results and fault logs. In particular this will be the method used to achieve the completion of PO Ltd non functional testing.
- In line with the previous assumption POL E2E testing will not cover all permutations and combinations as these are assumed to have been covered prior to E2E albeit a thin slice of common failures may be included.
- Requirements and acceptance criteria for all S70 and S75 components, functional and non-functional, will have been defined and agreed with all parties.
- Individual (hardware and software) components will have been tested, proved and stable before PO Ltd testing commences.
- Fujitsu Services will undertake testing during development and will have undertaken a number of test cycles as part of their System Validation and Integration (SV&I) testing.
- Fujitsu Services maintain a LINK configured Lexcel simulator during SV&I and can execute adequate tests to fit with the stage 1 accreditation requirements of LINK without disruption to their own testing.
- Fujitsu Services will undertake sufficient regression testing to demonstrate that the existing Horizon functionality will continue to work. For S75 testing this includes S70 as part of the regression test.
- Fujitsu Services and Prism will have completed their development and testing prior to the final cycle of E2E testing by PO Ltd.
- All suppliers and clients will work co-operatively to support the PO Ltd led Integration and E2E testing phases including accreditation for EMV Retail and Banking.
- A stable E2E test environment is in place, with the S60, S70 and S75 (counter) code sets incorporated as appropriate.
- The necessary resources (people, environments, test data, test tools and test cards) are available from PO Ltd, Fujitsu Services, Prism, IBM and other 3rd parties to support the agreed testing schedule.
- The planned test schedule for S70 can be achieved during 5.2 days of E2E test cycles. These will start on a Monday and the final transactions will be undertaken on the following Saturday morning (08:00 to 09:30) to ensure that weekend transactions are included in the test cycle. The rigs will then be accelerated to roll forward to produce the required reports. They will be released for a rig reset by close of play on the Sunday. Checking of outputs will continue into the second week during which the rigs will be reset ready for the next cycle.
- The planned test schedule for S75 can be achieved during 10.2 days of E2E test cycles. These will start on a Monday, include Saturday morning

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(08:00 to 09:30) to ensure that weekend transactions are included in the test cycle and the final transactions will be undertaken on the Friday afternoon of the second week. The rigs will then be accelerated to roll forward to produce the required reports. Checking of outputs will continue into the third week during which the rigs will be reset ready for the next cycle.

- CBDB is out of scope for S70 and S75 E2E testing.
- All systems and hardware delivered into these POL led phases will be EMV certified.

3.5. Migration Testing

The E2E cycles will carry out testing to confirm as far as possible the proposed migration approaches planned for the live migration.

3.5.1. RDS To NRDS –

The early stages of preparation for S70 E2E testing will see data provided from an RDS test environment delivered to and loaded by those participating systems that receive Type A reference data feeds from POL.

Throughout the preparation for each cycle of S70 E2E testing, data will be supplied by NRDS and loaded to those participating systems that receive Type A reference data feeds from POL.

S70 E2E testing will therefore demonstrate that systems can continue to operate by using a mixture of RDS and NRDS created data.

Details of E2E testing of the NRDS are to be defined within the NRDS High Level Test Plan

Changes keyed to the NRDS environment will also be keyed to RDS and Prism will execute automated comparison routines to demonstrate that extracts from NRDS are the same in terms of data content as they are from RDS.

The diagram and notes at Appendix E (S70/S75 NRDS Migration and Testing) explain the backups required to be taken by various systems and the sequence of reference data keying that is to be performed

The testing will cover having the Horizon outlets operating on ref data supplied from the current Ref Data then getting the next changes from NRDS demonstrating that the transfer is seamless.

3.5.2. NBE To NBX

Testing during S70 will ensure that the enhancements to the Horizon counter to support EMV Retail and EMV Banking have not impacted the Horizon to NBE interface. The Fujitsu environment during S70 will only be capable of routing banking transactions to either the NBE or an emulator at any point in time. The NBE cannot accept EMV Banking transactions but the emulator

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can. It is proposed that on day one of each cycle of S70 E2E, banking transactions are routed via the NBE and via the emulator on all subsequent days.

The table below shows how transactions for various institutions will move through the S70 E2E Test cycles from NBE to NBX (NBX is enhanced NB emulator at S70) and from Non-EMV to EMV.

BANKING MIGRATION (S70)

	Mon Day 1	Tue Day 2	Wed Day 3	Thu Day 4	Fri Day 5	Sat Day 6
Card Account (Magcard)	NBE	NBX	NBX	NBX	NBX	NBX
Card Account (ICC)			Pilot EMV	NBX	NBX	NBX
LINK - Bank of Ireland (Magcard)	NBE	NBX	NBX	NBX	NBX	NBX
LINK - Bank of Ireland (ICC)		Pilot EMV	NBX	NBX	NBX	NBX
Other LINK Schemes (Magcard)	NBE	NBX	NBX	NBX	NBX	NBX
Other LINK Schemes (ICC)			NBX	NBX	NBX	NBX
A&L (Magcard)	NBE	NBX	NBX	NBX	NBX	NBX
A&L (ICC)		NBX	NBX	NBX	NBX	NBX

NOTES

Day 1:	All NBE (No Control Products for Banking linked to any of the test offices)
Day 2:	LINK (Bank of Ireland) routed to NBX from all test offices for non-ICC
	Card Account routed to NBX from all test offices for non-ICC
	LINK (Bank of Ireland) (EMV) enabled at all but one test office
	Other LINK Schemes routed to NBX from all test offices for non-ICC
	A&L routed to NBX from all test offices for non-ICC
	A&L (EMV) enabled at all test offices
Day 3:	Card Account (EMV) enabled at all but one test office
	LINK (Bank of Ireland) (EMV) enabled at remaining test office
	Other LINK Schemes (EMV) enabled at all test offices
Day 4:	Card Account (EMV) enabled at remaining test office

Testing during S75 will prove the NBX migration plan for the production environment through use of the following:

- The creation in RDS/NRDS of three new Routing Gateways
- Subscription Groups to control the routing of transaction messages for individual banking schemes

These reference data changes will also be applied for S70 and will be partially proved by the make-up of DRS reports but the routing of banking messages will not be fully proven until S75 and the existence of the NBXThe table below shows how transactions for various institutions will move through the S75 E2E Test cycles from NBE to NBX and from Non-EMV to EMV.

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BANKING MIGRATION (S75)

	Mon Day 1	Tue Day 2	Wed Day 3	Thu Day 4	Fri Day 5	Sat Day 6	Sun Day 7	Mon Day 8	Tue Day 9	Wed Day 10	Thu Day 11	Fri Day 12	Sat Day 13
Card Account (Magcard)	NBE	NBE	NBX	NBX	NBX	NBX	S75 Counterpoy	NBX	NBX	NBX	NBX	NBX	S76 Counterpoy
Card Account (ICC)				Pilot EMV	NBX	NBX		NBX	NBX	NBX	NBX	NBX	
LINK - Bank of Ireland (Magcard)	NBE	NBX	NBX	NBX	NBX	NBX		NBX	NBX	NBX	NBX	NBX	
LINK - Bank of Ireland (ICC)			Pilot EMV	NBX	NBX	NBX		NBX	NBX	NBX	NBX	NBX	
Other LINK Schemes (Magcard)	NBE	NBE	NBX	NBX	NBX	NBX		NBX	NBX	NBX	NBX	NBX	
Other LINK Schemes (ICC)				NBX	NBX	NBX		NBX	NBX	NBX	NBX	NBX	
A&L (Magcard)	NBE	NBE	NBE	NBX	NBX	NBX		NBX	NBX	NBX	NBX	NBX	
A&L (ICC)				NBX	NBX	NBX		NBX	NBX	NBX	NBX	NBX	

NOTES

Day 1: All NBE (No Control Products for Banking linked to any of the test offices)

Day 2: LINK (Bank of Ireland) routed to NBX from all test offices for non-ICC

Day 3: Card Account routed to NBX from all test offices for non-ICC
LINK (Bank of Ireland) (EMV) enabled at all but one test office
Other LINK Schemes routed to NBX from all test offices for non-ICC

Day 4: Card Account (EMV) enabled at all but one test office
LINK (Bank of Ireland) (EMV) enabled at remaining test office
Other LINK Schemes (EMV) enabled at all test offices
A&L routed to NBX from all test offices for non-ICC
A&L (EMV) enabled at all test offices

Day 5: Card Account (EMV) enabled at remaining test office

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4. Testing approach

4.1. Overview

The S70 and S75 releases are classed as a significant release, under the PO Ltd Generic approach, and therefore testing will include the following stages:-

4.2. Internal Functional Testing

Joint working with internal functional testing via the following:-

- Review Suppliers internal test plans/ scripts for completeness
- Review Suppliers internal test results / progress reports
- Review Suppliers internal testing fault logs for impact

4.3. Non Functional Testing

Joint working with Suppliers internal non functional testing via the following:-

- Suppliers document reviews
- Review Suppliers test plans for completeness
- Involvement with testing specific key tests during a Suppliers testing cycle
- Review Suppliers test results
- Review Suppliers test fault logs for impact

4.4. Direct Interface Testing

Support Suppliers through the execution of Direct Interface testing between two suppliers e.g. Horizon to card account,

- Review Interface scripts between the two supplier domains
- Support set – up of test environments
- Support or coordinate the provision of required Ref Data
- Support where appropriate the tests
- Review the test results including any faults

4.5. Certification or Accreditation Testing

PO Ltd will coordinate supported by Suppliers the preparation and execution of scripts to achieve certification or accreditation.

- Review and agree Certification / Accreditation scripts
- Support or coordinate set – up of test environments

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- Support or coordinate the provision of required Ref Data
- Support or execute where appropriate the tests
- Provide required evidence e.g. counter receipts
- Review the test results including any faults

4.6. E2E Integration Testing

This phase is where PO Ltd will lead, supported by Suppliers, in demonstrating the successful connection of all the appropriate systems (test versions) in the release E2E solution including carrying out some E2E test transactions to confirm the readiness to enter the PO Ltd E2E functional testing cycles.

4.7. E2E Functional Testing

This phase is where PO Ltd will lead, supported by Suppliers, in demonstrating through short "days in the life of the PO Ltd business" cycles that the revised systems interact correctly in an E2E manner and with the revised business process and procedures.

This is also to assure PO Ltd that the changes to current systems and the introduction of new systems has not impacted upon the businesses operation including E2E financial aspects (accounting, reconciliation, settlement, remuneration) have been and can maintained during live operation. E2E Management Information is maintained or new information reflects the requirements and business needs.

Successful completion of this phase will lead to the introduction into the Live environment via one or more of the following PO Ltd selected options:-

- a pre-pilot (transactions carried out in a passive Post Office)
- pilot (small number of outlets)
- soft launch (a progressive planned roll out)
- go-live.(rolled out to the full estate)

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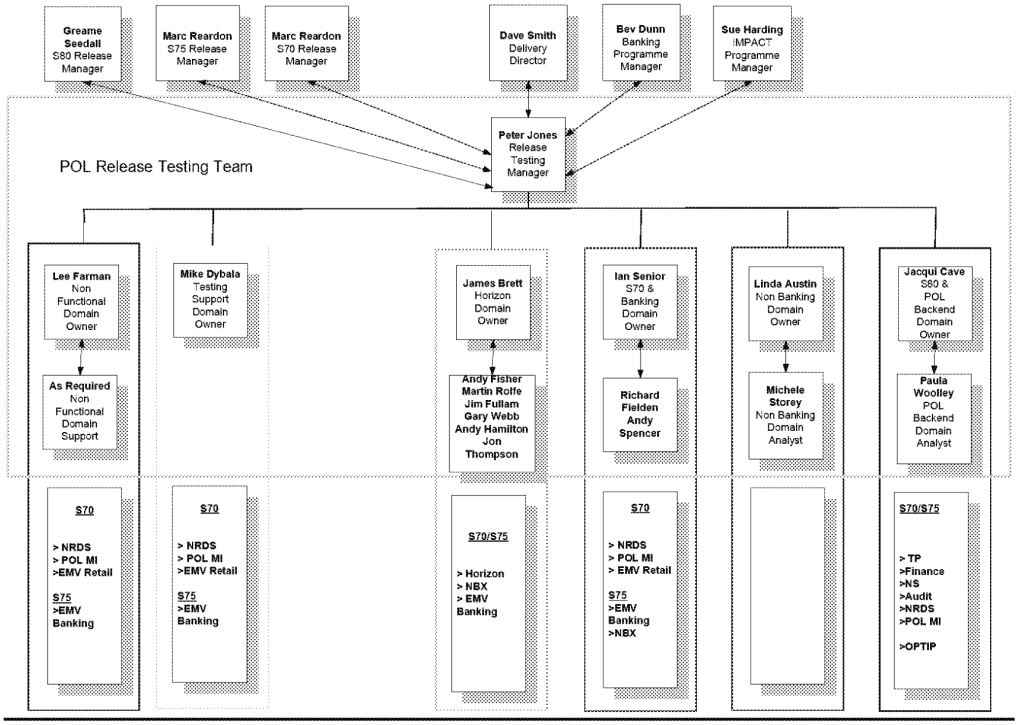
5. PO LTD Test organisation

Testing of the S70 and S75 releases will flexibly utilise the appropriate resources from within the PO Ltd Release test team. This team are also preparing for PO Ltd testing of the S60, and S80 releases. The execution of S75 which will commence immediately after the PO Ltd S70 testing has completed and they are also concurrently supporting the internal testing by suppliers of these other releases. Members of the team are also supporting other smaller self contained testing phases e.g. card account releases.

This team consists of the core team members, supplemented by appropriate non-core as required.



The core test team consists of:

- **A Release Test Manager**.
- **Non Functional Test Manager**, who will manage all the non functional testing which includes areas such as security, performance, volume testing, resilience and Disaster recovery. This manager will be supported by external experts as and when required.
- **A Test Support Domain**, which will provide support by the provision of test environments, test tools, test data and test cards. This domain also includes the coverage of the New Reference Data system operated by Prism.

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- **Test Domains**, who coordinate and manage testing across supplier/client domains and covering a number of systems.

There are five domains which are:

  - **External Systems (Banking) Domain** – covering Card Account (EDS), NS&I, LINK, other LINK FIs, A&L and IBM. Also NatWest Streamline (Debit Card)
  - **External Systems (Non-Banking)** Domain – covering e-Pay, DVLA, FRTS, AP Clients and SAPADS. The majority of these will not be directly targeted within S70 other than general regression.
  - **Horizon Domain** – covering Fujitsu Services.
  - **PO Ltd Backend Domain**. – covering PO Ltd BAU areas (TP, Finance and Network support) other PO Ltd systems (e.g. NRDS,SAPFIN, TIP, CBDB, PO Ltd MI).

The non-core resources required to support testing will include:

- Specialist testers, particularly to cover non-functional testing (these will be expert external consultants, brought in for specific testing activities).
- BAU resources appropriate to the release (e.g. RDS, NRDS, TIP, TP, Network Support, MI).
- Prism resources (e.g. who support TestDirector).

Testing resources will be used flexibly to deliver both Non Functional and business testing activities for S70 whilst maintaining the required progress on other releases.

5.1. Roles and responsibilities

5.1.1. Release Test Manager

The Release Test Manager has the overall responsibility for testing delivery. The responsibilities of this role are:

- Assist in the project initiation for S70 and S75.
- Develop and maintain the S70 and S75 Release Test Plans and test schedules.
- Provide testing input to the S70 and S75 release plan.
- Provide test / reqts coverage information to the design authority in support of the release authorisation process.
- Sign-off the completion of S70 and S75 testing.
- Manage S70 and S75 testing issues through to resolution.
- Provide risk analysis and manage any risks associated with testing the release.
- Provide a contact point for testing issues.
- Provide input to the development of S70 and S75 acceptance criteria.

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- Organise the resources for the team.
- Liase with the different suppliers to maintain the relationship and agree the environment requirements for S70 and S75 testing.
- Assign, schedule and manage the day to day activities of the S70 and S75 test team.
- Monitor the progress of the testing activities and prepare status reports as required.
- Manage the defect/incident management process with the different suppliers.
- Prepare and distribute daily progress reports throughout the execution phases.
- Ensure that the testing activity/scripts planned during the various test phases support the verification of the functional and non-functional requirements and acceptance criteria in each domain.

5.1.2. Non Functional Test Manger

The Non Functional Test Manager has the responsibility for the delivery of Non Functional testing. Reporting to the Release Test Manager the Non Functional Test Manager will review the individual supplier designs and the PO Ltd business requirements to determine the scope of the Non Functional testing required for S70 and S75. This will consider aspects such as security, performance, volume and disaster recovery. The responsibilities of this role are:

- Review supplier Non Functional specifications and determine level of testing required for security, performance, volume, disaster recovery and other Non Functional infrastructure changes.
- Produce/review test scripts for all Non Functional testing.
- Agree a witnessing plan for Non Functional testing with each supplier/client.
- Co-ordinate tests between interfacing suppliers/clients, as necessary.
- Provide Non Functional testing input to the S70 and S75 Release Test Plans.
- Provide input to the development of S70 and S75 acceptance criteria.
- Develop and maintain the S70 and S75 testing plans for the Non Functional test phases.
- Sign-off the completion of S70 and S75 Non Functional testing.
- Manage S70 and S75 Non Functional testing issues through to resolution.
- Provide risk analysis and manage any risks associated with Non Functional testing.
- Provide a lead contact point for Non Functional testing issues.

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- Organise the Non Functional testing resources, including supporting the Release Test Manager obtaining additional non-core resources to support Non Functional testing.
- Liase with the different suppliers/clients to maintain the Non Functional testing relationship.
- Prepare status reports as required throughout the test preparation stage.
- Assign, schedule and manage the day to day Non Functional testing activities.
- Monitor the progress of the Non Functional testing activities.
- Manage the Non Functional defect/incident management process with the different suppliers.
- Prepare and distribute progress reports throughout the execution phases.
- Ensure that the testing activity/scripts planned during the Non Functional phases support the verification of the non-functional requirements and acceptance criteria in each domain.

5.1.3. Horizon Test Manager

Reporting to the Release Test Manager, the Horizon Test Manager will be responsible for the creation, maintenance and execution of the counter test scripts. The responsibilities of this role include:

- Manage the development of test scripts to assure the new counter functionality in relation to:
    - EMV Retail
    - EMV Banking
    - Transition from RDS to NRDS
    - Any other changes to functionality being introduced by Fujitsu Services as part of S70 or S75 (e.g. CRs, fixes for previous releases)
- Manage the co-ordination of the interface testing (DIT phase) of all interfaces where the Horizon Test Manager is identified as the primary owner of that interface (see Appendix B).
- Provide liaison between the external / PO Ltd domains and Horizon for all interfaces identified at Appendix B, where the Horizon Test Manager is identified as the secondary owner.
- Assist in the development and/or review of testable acceptance criteria for functional and non-functional requirements within the Horizon domain.
- Manage the selection and updating of existing test scripts required to support regression testing of the existing functionality at the S70 and S75 releases, including:
    - Cash Account integrity.

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  - EPOSS transactions.
  - AP transactions (including barcode, magnetic stripe and SMART).
  - Banking transactions.
  - Debit Card transactions.
  - New S60 functionality at S70 and new S70 functionality at S75

- Manage the development of counter test scripts to support the testing of any new non-counter functionality for S70 and S75 (e.g. reconciliation processing, external system requirements, PO Ltd back end requirements).
- Manage the scheduling/planning of the counter tests scripts into test sets relating to cycles and/or test days within the overall S70 and S75 Test Plans.
- Team lead both the core and non-core Horizon testers throughout the preparation and execution of the S70 and S75 testing activities.
- Execute testing scripts.
- Co-ordinate the scheduling/planning of tests into cycles and test days with Fujitsu Services, PO Ltd and other suppliers.
- Complete status reports for the Horizon domain.
- Collect and collate test results.
- Prepare defect reports and provide an impact analysis rating (low, medium or high) for both the business and testing impacts.
- Re-test fixes.
- Provide the liaison between Fujitsu Services and Post Office Limited/External Systems for testing activities.
- Manage the Horizon counter test environment.
- Provide risk analysis and manage any risks associated the Horizon testing domain.
- Support the Release Test Manager in obtaining additional resource to support the E2E test phase.

5.1.4. Horizon Test Analysts

Reporting to the Horizon Test Manager, the Horizon test analysts will be responsible for the creation, maintenance and execution of the counter test scripts. They will also deputise as the Horizon test manager when required. The responsibilities of this role include:

- Act as the author for test scripts to test the new counter functionality in relation to:
  - EMV Retail
  - EMV Banking

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  - Any other changes to functionality being introduced by Fujitsu Services as part of S70 or S75 (e.g. CRs, fixes for previous releases)

- Maintain/update existing test scripts used during S70 and S75 testing for regression purposes.
- Schedule/plan test scripts within cycles and/or test days (test sets within TestDirector) as per the S70 and S75 E2E test plans.
- Maintain the script schedules (TestDirector test sets) throughout S70 and S75 testing.
- Execute test scripts.
- Support integration test execution.
- Provide testing expertise and training to the non-core testers both on initial recruitment and as support on an ongoing basis.
- Collect and collate test results to assist in preparation of Expected Results.
- Prepare defect reports and provide an impact analysis rating (low, medium or high) for both the business and testing impacts.
- Re-test fixes and confirm successful completion.

5.1.5. Horizon Test Operators

Reporting to the Horizon Test Analysts, the Horizon Test Operators will be responsible for the creation, maintenance and execution of the counter test scripts during the E2E cycles.

The responsibilities of this role include:

- Maintaining/updating all test scripts used during S70 and S75 E2E testing.
- Executing testing scripts.
- Completing status logs.
- Collecting and collating test results.
- Document defects.
- Re-testing fixes and confirm successful completion.

5.1.6. PO Ltd Domain Test Manager

Reporting to the Release Test Manager, the PO Ltd Domain Test Manager will be responsible for the creation, maintenance and execution of PO Ltd test scripts, The responsibilities of this role include:

- Manage the co-ordination of the interface testing (DIT phase) of all interfaces identified at Appendix B where the primary owner of that interface is the PO Ltd Test Manager.

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- Provide liaison between the external/Horizon domains and PO Ltd for all interfaces identified at Appendix B, where the PO Ltd Test Manager is identified as the secondary owner.
- Gather test requirements for the S70 and S75 releases from all impacted PO Ltd areas including:
    - Transaction Processing (including OPTIP).
    - Audit and Security.
    - Finance.
    - Network Support (NBSC).
- Assist in the development of testable acceptance criteria for any functional and non-functional requirements within the PO Ltd domain.
- Act as the author for test scripts and obtain sign off from the relevant PO Ltd areas (as detailed above).
- Liaise with the PO Ltd BAU areas to identify and obtain the required resources for test preparation/execution.
- Execute test scripts.
- Co-ordinate the scheduling/planning of tests into cycles and test days with the relevant PO Ltd teams.
- Complete status reports for the PO Ltd domain.
- Collect and collate test results.
- Prepare defect reports and provide an impact analysis rating (low, medium or high) for both the business and testing impacts.
- Re-test fixes.
- Provide the liaison and issue management between the third party suppliers and PO Ltd personnel for testing activities.

5.1.7. External Systems (Banking)

Reporting to the Release Test Manager, the External Systems (Banking) will be responsible for:

- Provide the liaison between the PO Ltd and Horizon domains to all External Systems (Banking) domains suppliers involved in a release. These are:
    - IBM (NBE)
    - LINK
    - NS&I
    - Other LINK FI's
    - Direct FI's (A&L and/or card account)
    - NatWest Streamline

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- Gather the business and client/supplier test requirements for each of the systems detailed above.
- Manage the co-ordination of the interface testing (DIT phase) of all interfaces where the External Systems (Banking) is identified as the primary owner of that interface at Appendix B.
- Provide liaison between the Horizon/PO Ltd domains and External Systems for all interfaces identified at Appendix B, where the External Systems (Banking) is identified as the secondary owner.
- Assist in the development of testable acceptance criteria for functional and non-functional requirements for each supplier.
- Manage the development of the test scripts for these domains.
- Work with other members of the testing team to co-ordinate the scheduling of the test into cycles and test days within the S70 and S75 test plans.
- Executing test scripts as required.
- Co-ordinating the tests with the relevant supplier teams in these domains.
- Completing status reports for the External Systems (Banking) domain
- Collecting and collating test results.
- Preparing reports and provide an impact analysis rating (low, medium or high) for both the business and testing impacts.
- Re-test fixes.
- Provide the liaison and issue management between the each of the suppliers and PO Ltd personnel for testing activities.
- In support of the Release Test Manager, assist in the provision of the co-ordination across all of the domains (PO Ltd, Horizon and external systems) throughout the E2E test phases, ensuring that all scripted tests for each domain are supported/planned within dependant domains where necessary.
- In support of the Release Test Manager provide the consolidation of status and incident reporting across all banking domains.

5.1.8. External Systems (Non-Banking)

Reporting to the Release Test Manager, the External Systems (Non-Banking) domain will be responsible for:

- Provide the liaison between the PO Ltd and Horizon domains to all External Systems (Non-Banking) domains involved in a Release.
    - AP- Clients – if applicable
    - DVLA – if applicable
    - e-Pay (ETU) – if applicable
    - First Rate Transaction Services (Bureau de Change) – if applicable

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  - SAPADS – if applicable

- Gather the business and client/supplier test requirements for each of the systems detailed above.
- Manage the co-ordination of the interface testing (DIT phase) of all interfaces where the External Systems (Non-Banking) is identified as the primary owner of that interface at Appendix B
- Provide liaison between the Horizon/PO Ltd domains and External Systems for all interfaces identified at Appendix B, where the External Systems (Non-Banking) is identified as the secondary owner.
- Assist in the development of testable acceptance criteria for functional and non-functional requirements for each supplier.
- Manage the development of the test scripts for this strand.
- Work with other members of the testing team to co-ordinate the scheduling of the test into cycles and test days within the S70 and S75 test plans.
- Execute test scripts as required.
- Co-ordinating the tests with the relevant supplier teams in this strand.
- Complete status reports for the External Systems (Non-Banking) domain.
- Collect and collate test results.
- Prepare reports and provide an impact analysis rating (low, medium or high) for both the business and testing impacts.
- Re-test fixes.
- Provide the liaison and issue management between the each of the suppliers and PO Ltd personnel for testing activities.
- In support of the Release Test Manager, assist in the provision of the co-ordination across all of the domains (PO Ltd, Horizon and external systems) throughout the E2E test phases, ensuring that all scripted tests for each domain are supported/planned within dependant domains where necessary.
- In support of the Release Test Manager provide the consolidation of status and incident reporting across all non-banking domains.

5.1.9. Domain Test Analysts

Reporting to the Domain Test Manager, the domain test analysts will be responsible for the creation, maintenance and execution of the test scripts for their domain. They will also deputise as their Domain test manager as and when required.

The responsibilities of this role include:

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- Support the co-ordination of the interface testing (DIT phase) of all interfaces identified at Appendix B where the primary owner of that interface is their Domain.
- Gather test requirements for the S70 and S75 releases from all impacted areas within their domain.
- Assist in the development of testable acceptance criteria for any functional and non-functional requirements within their domain.
- Act as the author for test scripts and obtain sign off.
- Execute test scripts.
- Co-ordinate the scheduling/planning of tests into cycles and test days with the other domains.
- Collect and collate test results.
- Prepare defect reports and provide an impact analysis rating (low, medium or high) for both the business and testing impacts.
- Re-test fixes.

5.1.10. Test Support

Reporting to the Release Test Manager, the Test Support will be responsible for the co-ordination and maintenance of all test environments and test tools. They will also own the NRDS as a system and assure its supplier internal testing phases prior to entry into the PO Ltd led phases.

This will include the specification and, in liaison with BAU areas, the provision of PO Ltd reference data required to support the E2E test environment. Also to specify non-PO Ltd reference data required to support the E2E test environment (e.g. simulator tables, Mails Reference Data, margin and spot rate files). The responsibilities of this role also include:

- Specification of all reference data required to support S70 and S75 testing.
- Co-ordination of delivery of non-RDS data to relevant suppliers.
- Management/maintenance of Test Tools (e.g. TestDirector).
- Maintenance of central 'pool' of test scripts.
- Maintenance of test environments details, including use of simulators, access/availability of external supplier test systems (e.g. NBE, LINK, e-Pay, NatWest Streamline).
- Co-ordination of E2E test environment requirements/usage.
- Gather the expected result requirements of all domains for the test phases and develop/maintain a system to meet those requirements.
- Manage the production of detailed expected results for all domains throughout the test phases.
- Support the Horizon Test Manager throughout the test phases.

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6. Test environment management

A key element of the testing framework is the management of the E2E test environment. This environment consists of a number of test rigs and/or simulators, which can be connected together and configured, with suitable test data, to perform the required tests. Suppliers will provide, maintain, support and operate the test rigs within their domain. PO Ltd will have overall management and co-ordination of the E2E test environment.

Maintenance of the environment plan will be the responsibility of Test Support Domain. It will then be Test Support's responsibility to ensure that external suppliers are aware of their responsibilities for delivering facilities to the agreed plan.

The following sections describe the S70 and S75 testing environments, including the tools, simulators and test data required for day-to-day operation of the test environment.

6.1. S70 and S75 test environment

A schematic of the E2E test environment required to support all aspects of testing the S70 release is presented in Appendix B. It consists of the following components.

6.1.1. Horizon configuration

The Horizon E2E test rig at Fujitsu Services consists of the following elements, some will be in place at S70 and some at S75

- 12 Counter terminals in the Post Office test room at Feltham (room F1) – as this has existing connectivity to the Post Office network. (S70 & S75)
- A mixture of single, dual and multi-counter office configurations, consisting of the 12 counter terminals. (S70 & S75)
- Network monitoring/message spy software to assist in incident investigation. (S70 & S75)
- Connections to the NBE and e-Pay.
- Connection to Streamline for debit card testing (EMV retail)
- EMIS Tool which is required to provide EMIS files in support of regression testing of DRS outputs relating to debit or credit card transactions
- Connection to an enhanced NB emulator. (S70 Only)
- Transaction Enquiry Service (TES) (S75 Only)
- Connection to the PO Ltd test gateways for:
    - Delivery of TIP transaction, cash account and client summary files. (S70 & S75)
    - Receipt of PO Ltd reference data from NRDS. (S70 & S75)

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- Delivery of end of day files from the NBE to the NBE PO Ltd gateway or Fujitsu Services. (S70 & S75)
- Delivery of the spot rate and margin files from FRTS via the FTMS/TIP gateway and the EDG. (S70 & S75)
- Delivery of the daily Trx file for FRTS via the FTMS/TIP gateway. (S70 & S75)
- Delivery of the control totals file for PO Ltd to the PO Ltd gateway (S70 & S75)
- Delivery of DRS reconciliation/reports. (S70 & S75)
- Delivery of MIS reports. (S70 & S75)
- Delivery of NBX Reports (S75 Only)

- Connection to EBT which is part of the card account test system (S75 Only)
- Connection to LINK (S75 Only)
- Connection to Alliance & Leicester test system (S75 Only)

6.1.2. Post Office configuration (provided by Prism)

- Two test gateways to support the file transfers from Horizon (inc. NBX), NBE and DVLA. (S70 & S75)
- Current Reference Data System to provide test reference data. (S70 Only)
- New Reference Data System to provide test reference data. (S70 & S75)
- New POL Management Information System (S70 & S75)
- Delivery of reconciliation and MIS reports. (S70 & S75)
- Connections to the Electronic Data Gateway. (S70 & S75)
- OPTIP Test Environment

6.1.3. Streamline configuration

Connectivity to the Streamline test environment via an X25.TNS protocol connection will be required for on-line EMV Retail testing and Streamline, VISA and Mastercard accreditation
An ISDN connection is required for Payment File (and EMIS File if necessary).

6.1.4. NBE configuration

- Connection to Horizon to support interface and integration testing: (S70 & S75)

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- Connection to LINK (S75 Only)
- Connection to card account EBT (S75 Only)
- Connection to Alliance & Leicester (S75 Only)
- Connection to LINK, card account and Alliance & Leicester simulators (S70 Only)
- Data Navigator access. (S70 & S75)
- Connect: Direct service to send end of day files to the PO Ltd test gateway, and receive reference data from PO Ltd RDS. (S70 & S75)
- Connect: Direct service to receive files from LINK. (S75 Only)
- FTMS connection to Horizon to send files to Horizon. (S70 & S75)

6.1.5. LINK configuration (S75 Only)

- Simultaneous but separate connections to NBE and NBX for LIS5 interface
- Connection to NBX for LIS5 interface
- Connection to a minimum of two EMV compliant Lexcel Simulators to simulate two issuers for E2E and accreditation testing
- ConnectDirect for transmission of LREC files to NBE
- ConnectDirect for transmission of LREC files to NBX

6.1.6. Alliance & Leicester configuration (S75 Only)

No contact with Alliance & Leicester at the time of writing but it is expected that A&L test systems will connect to the NBE and NBX during S75

6.1.7. First Rate configuration (not required for either S70 or S75 release)

Test system connected to the PO Ltd gateway to send rate (spot and margin rates) data and receive daily transaction files.

6.1.8. NS&I configuration (not required for either S70 or S75 release)

- NS&I test system connected to the LINK ATMOS system for LINK certification for NS&I and NS&I free-for-all testing.
- A system to receive APS files from Horizon containing initial transaction data

6.1.9. e-Pay configuration (S70 & S75)

A test system to receive ETU requests and provide the appropriate responses. This test system is also required to generate daily transaction summary for reconciliation purposes.

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6.1.10. card account configuration (S75 Only)

An EBT test system connected to the NBE and subsequently NBX to support migration and card account testing. It is expected that for the S70 release regression card account transactions will be handled within the Fujitsu domain using the NB emulator.

6.2. Test data -

In this context, test data takes the following forms:

- Physical objects are required to support testing – such as DVLA tax discs and bar codes, network banking cards, debit cards, ETU PIN cards, ETU cards, AP & OBCS barcodes, Avery Scales, rate boards, POUCH barcodes.
- System data – such as PO Ltd reference data, MAILS tariff data, MID / TID data for debit card and ETU, margin and spot rate files for Bureau.

The following sections describe physical and system data in more detail.

6.2.1. Physical test data -

The following set of physical objects will be manufactured, maintained and referenced within the appropriate test scenarios and scripts. Where required, corresponding system data will be generated and loaded into the appropriate test system/simulator to enable the use of the objects within the test environment.

- Network Banking Cards – A set of banking cards for each FI involved in testing, which should exercise all possible response / outcome code combinations. To test EMV Banking via LINK, scripts (text files that determine how a card will respond to commands from the Pin Pad) will be provided by LINK and loaded onto ICC Solutions EMV cards
- Debit Cards – A set of magswipe debit and credit cards, again exercising all response code variations for use when interfacing with the Streamline test system. To test EMV Retail, which will be provided by Streamline, VISA and Mastercard and loaded onto ICC Solutions EMV cards
- AP Tokens – AP tokens of various types (magnetic card, smart and barcode) for regression purposes.
- OBCS Barcodes – For regression testing purposes.
- card account Card Receipt barcodes – As per AP tokens.
- PIN & ETU Cards – A set of PIN and ETU cards.
- Smartpost labels

6.2.2. System test data

Test data required by supporting systems will be specified in advance, and published within the “S70/S75 Release E2E Test Reference Data

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Specification", this will allow the creation of test scenarios and detailed test planning.

- POL RDS reference data – At a given point in time, a backup of the live reference data position will be taken, on top of this the following data will be created:
    - Outlet data, including outlet structures and opening times.
    - Standing Data such as new Customer Verification Method, Permitted Methods of Entry and Banking Operation Types
    - Outlet links to non-core products (not EMV Retail or EMV Banking at this stage)
    - Additional EFTPoS schemes to support Credit Card
    - Additional Retail and Banking operations, items, cards, bankcard elements, etc.
- POL NRDS reference data will be populated with that contained within the test RDS after the above data has been created. The NRDS system will then be used for two purposes:
    - Input and extraction of data to prove the tests detailed within the NRDS HLTP
    - Provide the data that is specific to each cycle of S70 and S75 E2E, e.g. non-core links to EMV banking control items, etc.
- Type C reference data to support Identification of cash and near cash items for SAP FIN.
- MAILS Tariff Data – usually taken from the latest live version available.
- MID / TID Data –for Debit Card and ETU transactions.
- Response Data – to be loaded into the
    - Simulators at the NBE (for S70)
    - NB emulator within Fujitsu Domain (for S70)
    - Simulators within LINK Domain (for S75)
    - Streamline Test Sytem (for both S70 & S75)
- EMIS Response Data – Actions required to authorise / pend / reject Debit Card transaction received in the daily payment files.
- ETU Response Data – as per the network banking simulator above.
- Rate and Margin Data – to provide rate and margin data for updating of rate board and reference during bureau transactions
- Type D reference data to control the routing of banking transactions via either NBE or NBX. This data will be specified for both S70 and S75. Although it will only control the flow of banking messages during S75, it's effect on DRS reports will be seen during both S70 and S75 E2E phases.

6.3. Testing tools

TestDirector will be used to manage the following elements of testing:

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- Requirements – a hierarchy of requirements which are then used as a basis for the creation of test scenarios.
- Test Planning – a repository for the test scenarios generated to prove requirements and system functionality.
- Test Execution – groups of test scenarios, planned into logical test sets, and executed in a controlled manner.
- Incident Management – tracking the lifecycle of identified incidents, through identification, action, retest and resolution.
- Test Reporting – management information on each of the above elements, in graph and tabular form.

These Testing Procedures are covered in greater detail in the next section of this document.

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7. Testing Procedures

7.1. Requirements

The requirements of each project within a release are included within a catalogue of business requirements (Conceptual Designs) which will be used as a basis for testing and system acceptance. These requirements will be owned by the PO Ltd Design Authority, with changes and updates being managed through formal change control.

Once a baseline set of requirements is available, it will be imported into TestDirector. This will form the basis of test scenario creation, with each scenario being linked to an originating requirement. Once tests are executed, a view of requirement coverage can be easily obtained.

7.2. Test specification

Testing the integration of supplier domains will be based on the interface specifications produced by the relevant suppliers. There are Application Interface Specifications (AIS) and Technical Interface Specifications (TIS) for all inter-domain interfaces. Integration testing will develop test scenarios and test scripts using the agreed AIS and TIS.

PO Ltd testing supports the PO Ltd Release authorisation process which will be based on the solution achieving the acceptance criteria/methods defined within the Conceptual Designs (CD). These acceptance methods will be used as the basis for determining the requirements which can be accepted through PO Ltd testing and developing test scenarios and test scripts for E2E testing to support those requirements. The Test Team will use the CD to develop the Test Scenarios required to cover the identified requirements and document these within a High Level Test Plan (HLTP) for each project. The High Level Test Plan is a deliverable to the Project manager and PO Ltd Design Authority for each area, who are responsible for ensuring that the scenarios cover the requirement/acceptance criteria satisfactorily and sign off the Test Plan. Following development of the HLTP, lower level tests are then developed and input to Test Director, under the relevant folder for execution during E2E Testing.

Appropriate BAU resources will be required to contribute to the development, review and acceptance of test scenarios and scripts.

Test scenarios and test scripts developed by PO Ltd will be held in TestDirector, together with the Requirements Catalogue and High Level Acceptance Criteria for S70 & S75.

7.3. Test planning –

The test plan is a section of TestDirector where tests are created and stored in a logical hierarchy, or Test Plan Tree. The Test plan tree contains a number of folders/strands covering regression testing of the E2E solution

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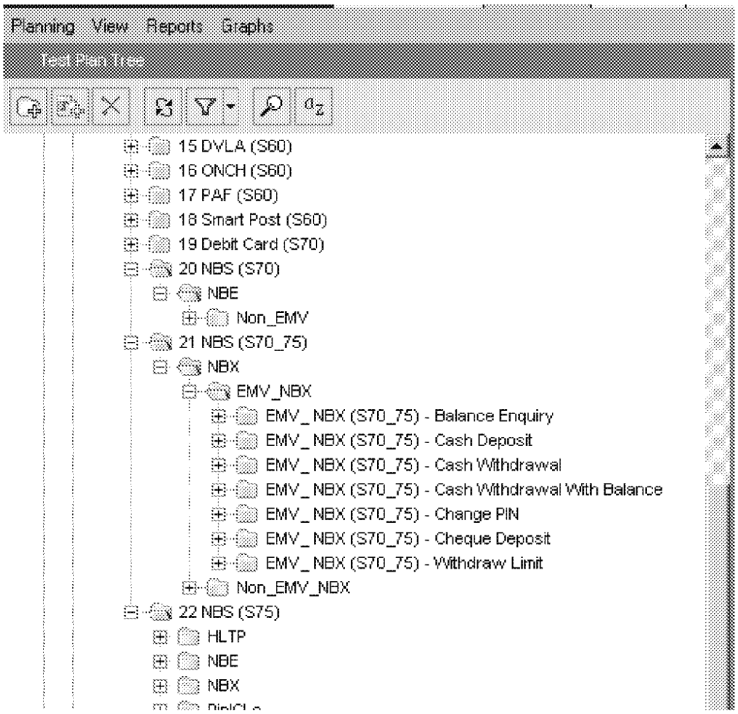
which are then supported by a folder for each project within the S70 release, which would then contain appropriate tests to cover functionality for that area.

For S70 and S75, the test plan tree could look something like this.



The example shows that the release is broken down into the relevant test phases, and then into the components of each test phase. For integration testing, this would be each domain, but for interface testing, it could be each interface under test.

7.4. Test execution

Tests will be taken from the Test Plan Tree and allocated into a Test Set. A Test Set is a logical grouping of tests in run order. Test Sets will be executed, and the results of each test within the set updated. Tests can be Passed, Not Run or Failed, Not completed, in which case, an incident may be raised (see below).

7.5. Incident management

TestDirector provides a section to manage incidents as they are raised. Incidents will be classified and managed in accordance with the PO Ltd Test Incident Management Process [2]. This document which is one of the detailed documents within the PO Ltd Testing document hierarchy and sits under the Test Plan. It will be reissued to all parties involved in the S70 and S75 releases. This section provides a brief overview of the documents coverage.

- Incident management approach

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- Incident classification
- Incident management process
- Fix management
- Incident management tool

7.5.1. Incident management approach

Every test campaign is focused on finding incidents. Given that the goal is to fix them, monitoring the status of incidents is critical to the successful and timely release of a system. Incidents must be fixed and then the service and associated systems/processes must be tested such that both the incidents have been fixed and that the fix implemented has not resulted in the introduction of any new incidents elsewhere in the service.

The process of finding, reporting and tracking the incidents found during the PO Ltd led testing will be monitored carefully.

The PO Ltd internal process will use the web-based tool, TestDirector. Authorised PO Ltd users will be able to see the status of the outstanding incidents. These can be "sliced and diced" in the manner required by the person viewing the incidents, provided that they are sufficiently skilled in the use of the incident management tool. With the selected test tool, there are standard reports that can be produced to support management reporting and analysis. These reports can be customised, and additional reports generated, as required. In this way, managers can view high-level summaries of which incidents have been identified and/or fixed and can then drill-down for more detail as required.

In order that this can be achieved, it is essential that the details of each incident are carefully recorded and classified, and that the status of the incident is maintained throughout its lifecycle. Details of how incidents will be classified and the typical lifecycle of an incident are described in the following sections.

Incidents are linked to test scenarios, so that it is possible to identify which test to rerun once the defect has been resolved.

Incidents will be categorised by test phase and then major component, and management information (in graph and table form) will be available to aid discussion between domains.

7.5.2. Incident classification

There are many characteristics associated with every incident found during testing. These include *at least* following details that *must* always be held within the incident management system (see Appendix B for example Test Director input screen):

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- The date the incident was found
- A description of the incident
- Details regarding how to reproduce the incident (or a clear statement that the incident cannot be reproduced)
- The version of the system or process in which the incident was found (and where appropriate, details of any environmental conditions)
- The name of the person who detected the incident
- Reference to the test case (or Acceptance Test if appropriate)
- Testing phase in which the incident was found
- The severity of the incident [ratified by the incident review meeting]:

Severity	Description
High	An incident that has serious impact on functionality or reliability, such that the service or components of the service are either: • Not available or are inoperable • Prevent further testing of the service or component of the service • Prevent key data being passed to another system • Would render the service unfit for operational use For a high severity incident, there is no workaround available.
Medium	An incident that is obvious to all or many users, but it would not prevent operation of the service and the service remains usable. A medium severity incident either: • Restricts testing, but testing could continue in the short term without too much detrimental effect • Would cause significant operational problems For a medium severity incident, a workaround is available, but only possible in the short term.
Low	A minor incident, which might not be noticed by all users, as:

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Severity	Description
	• Its is either cosmetic or an inconsistency • The service remains usable • It does not impede further testing For a low severity incident, either a minor workaround, or no workaround, is required.

- The priority or urgency for which a fix is needed by the testers or the business [ratified by the incident review meeting]:

Priority	Description
High	Required immediately, as testing cannot continue for the system, or key functions of the system are impaired.
Medium	Needs to be fixed as soon as possible (within suppliers' agreed turn-round times), as it stops or significantly restricts testing of a particular function or component of the system. A medium priority incident must be fixed prior to pilot (soft launch).
Low	There is no urgent need, as the impact of the incident is low and does not impeded testing or would not prevent a move into pilot (soft launch).

If a test team within one of the System Suppliers identifies and raises the incident the following additional information is also required. This information will be recorded on the manual Incident Tracking form.

- The originating organisation.
- The originating organisation's unique reference number from their own Incident Management system.

N.B. The identification of Supplier raised incidents will be the combination of Supplier Organisation and their unique reference number. These two fields must be used in all communication regarding supplier-originated incidents so that cross-reference is possible.

This number will be entered into the "Other Ref." field in TestDirector as a single entry (i.e. IBM 001)

This combination of Supplier and Supplier Reference Number must be entered in the "Other Ref." Field in TestDirector so that it is interlocked with the PO LTD incident tracking.

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- Responsibility for fixing the incident. The name of the organisation assigned to investigate and resolve the incident [coordinated by the Test Stage owner or Domain Coordinator and ratified by the incident review meeting]:

- The name of the organisation assigned to investigate and resolve the incident [ratified by the incident review meeting]:

- The status of the incident within the incident management system (see the following section for a description of the incident lifecycle) [ratified by the incident review meeting]:

Status	Set when	Set by
New	The incident is reported	The person who reports the incident. Test Operator/Test Analyst or Test Stage Owner/Domain Co-ordinator
Open	The Test Stage Owner/Domain Co-ordinator /Domain Owner agree that the incident must be fixed	Test Analyst or Test Stage Owner/Domain Co-ordinator
Rejected	The Test Stage Owner/Domain Co-ordinator /Domain Owner agree that the incident has been raised in error	Test Analyst or Test Stage Owner/Domain Co-ordinator
Deferred	The Test Stage Owner/Central Co-ordinator or daily progress meeting determine that the incident is to be deferred, or is an enhancement, and is to be fixed at some point in the future, after E2E testing.	The Test Stage Owner/Central Co-ordinator.
Fixed	The incident has been fixed, tested in development and is available for testing	The Test Stage Owner/Domain Co-ordinator.

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Closed	When the fix is included within a full release and this release has been tested by an independent tester to show the incident is fixed	The individual who identified the incident. Test Operator/Test Analyst or Test Stage Owner/Domain Co-ordinator
Reopen	When the incident is shown to still be present	The individual who identified that the incident is not fixed Test Operator/Test Analyst or Test Stage Owner/Domain Co-ordinator

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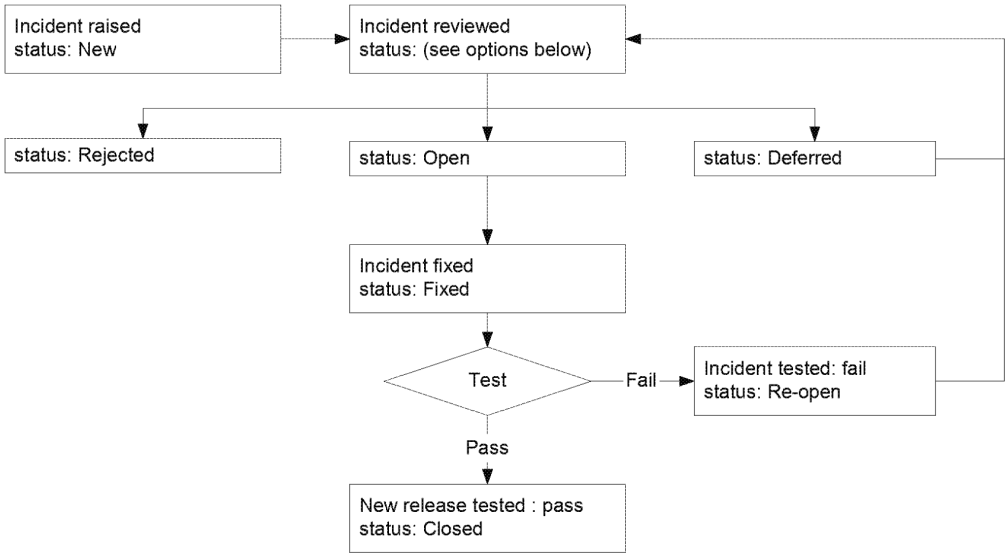
7.5.3. Incident management process

The diagram below shows the lifecycle for an incident reported by PO Ltd or suppliers, indicating how the status changes as the incident is reviewed, fixed and re-tested.



7.5.4. Fix management

In order to ensure that fixes and changes to software and environment levels are maintained in a controlled manner it is necessary to follow tightly controlled processes.

- Each System Supplier will appoint a Version Control Representatives to act as their central notification point through whom all communications and approvals pass.
- On entry into the PO Ltd Testing, the system suppliers will be responsible for base lining their system levels as a reference point for future updates. The version levels of the supplier systems will be notified to the PO Ltd Testing Domain owner who will distribute this information to all interested parties.
- No updates to systems, applications, data or environments impacting the systems within the scope of the release will be permissible unless agreed and approved with the PO Ltd Testing Domain owner. All updates will be on a “Pull” basis controlled by the PO Ltd Testing Domain owner.
- Fixes or changes will be compiled into release packages.

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- On completion of a release package to match a release window, each supplier will create a list of content for their package including all fixes and changes being applied. Each supplier will also indicate the new version level of their system(s) and pass this on to the PO Ltd Testing Domain owner.
- On agreement of the release content, the system suppliers will implement their fixes and changes within the pre-agreed release window.

7.6. Test reporting

Monitoring the progress and measuring the success of E2E testing is a vital management tool required to both assess the suppliers performance against requirements, as input into the Release Authorisation/Acceptance process, and to gauge the business and systems readiness to move into a live environment. Test reporting will be managed in accordance with PO Ltd Measurement Incidents and Progress Reporting [3]. This document which is one of the detailed documents within the PO Ltd Testing document hierarchy and sits under this Test Plan. It will be reissued to all parties involved in the S70 and S75 releases. This section provides a brief overview of the documents coverage.

During the last 3 major PO Ltd releases (BI3,S30 & S50) a PO Ltd testing team developed and maintained a reporting system covering **progress**, **measurement** and **incidents** across the release.

Daily progress reports were completed by each domain and consolidated into a release progress report.

Incidents statistics and details were maintained monitored and reported.

Measurement information provided reporting on three dimensions across the release; Performance, Confidence and Coverage.

This reporting stream is well received and allows progress to be measured in a controlled manner, giving managers a clear picture of the current status and the rising confidence of the system(s) and processes under test.

For The S70 and S75 Releases, the intention is to again use Test Director and it's outputs to create the reporting described above.

7.7. Test schedule

As with previous releases planned test schedules, which show the PO Ltd led phases, have been developed to support S70 and S75 testing and are documented separately in appendix C.

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8. Appendix A – Glossary of Terms & Abbreviations

AIS	Application Interface Specification
APS	Automated Payments System
A&L	Alliance & Leicester
BI3	Banking Increment 3
BAU	Business as Usual
BCM	Business Change Management
CD	Conceptual Design
DIT	Direct Interface Test
DR	Disaster Recovery
DRS	Data Reconciliation Service
DVLA	Driver & Vehicle Licensing Agency
E2E	End-to-end
EDG	Electronic Data Gateway
ETU	Electronic Top-Ups
FI	Financial Institution
FRTS	First Rate Travel Services
HMIS	Horizon Management Information System
LINK	LINK banking network
LINK FI	A financial institution connected via the LINK network
MID	Merchant Identifier
NBA R1	Network Banking Automation – Release 1
NBE	Network Banking Engine
NNDB	National Network Data Base
NS&I	National Savings & Investments
NSSC	National Secure Stock Centre
PIN	Personal Identification Number
PO Ltd	Post Office Ltd.

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RDS	Reference Data System
SBS	Siemens Business Services
SV&I Testing	System Validation and Integration Testing
TID	Terminal Identifier
TIS	Technical Interface Specification

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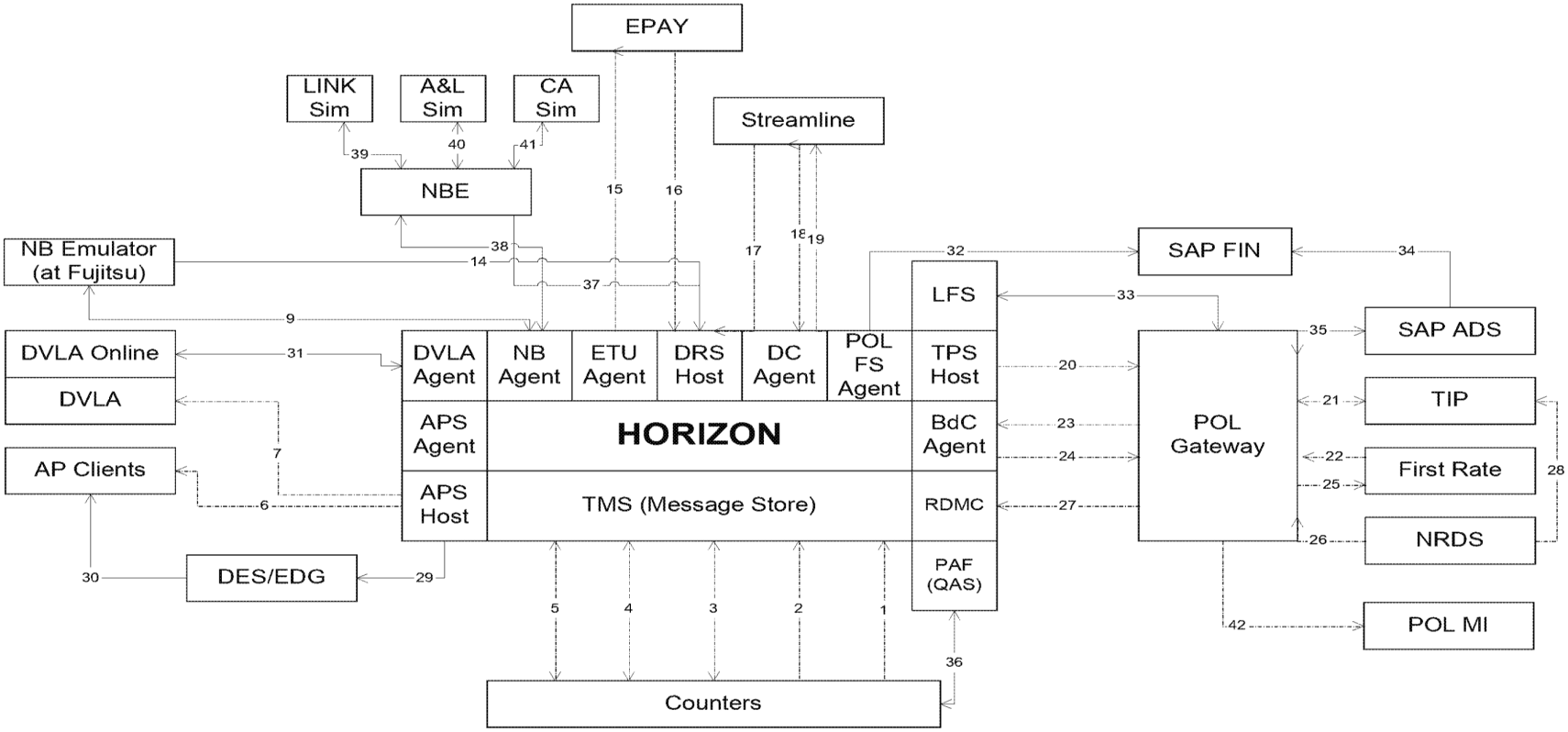
9. Appendix B – S70 Interface Diagram & Matrix



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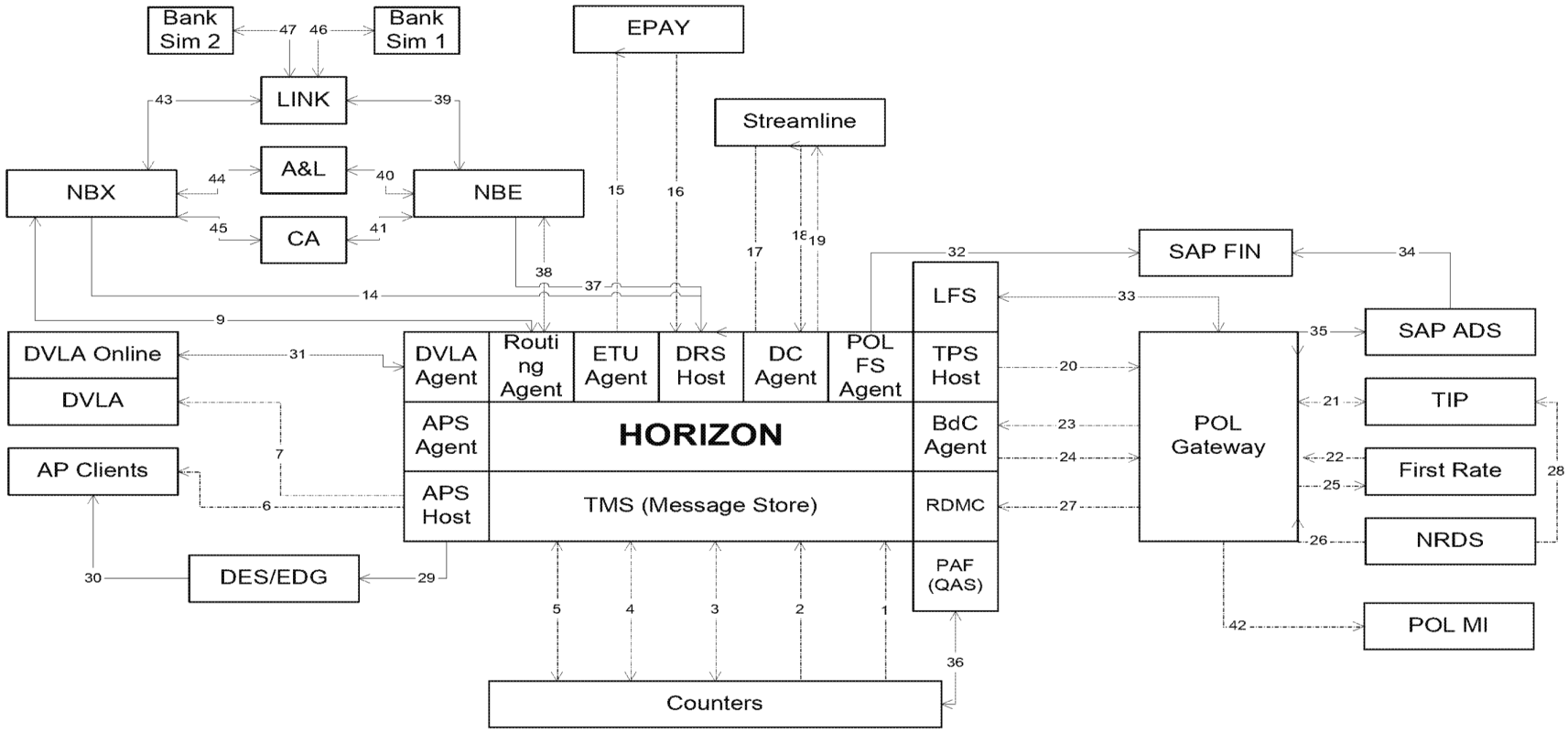
S75 Interface Diagram & Matrix



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Ref	From	To	Description	Comment	Primary Owner	Secondary Owner
1.	Counter	Campus (TPS)	EPOSS Transaction stream	Existing feed, with additional Bureau products. Will include DVLA and NS&I and ETU confirmation transactions	Fujitsu Services	Horizon Test Manager / Banking Strand Manager / Non Banking Strand Manager
2.	Counter	Campus (APS)	APS Transaction stream	PO Ltdled with EPOSS stream, will include DVLA transactions with additional data, and NS&I Initial transaction	Fujitsu Services	Horizon Test Manager / Banking Strand Manager / Non Banking Strand Manager
3.	Counter	Campus (DC)	Debit Card Online Transaction stream	Regression test of existing interface	Fujitsu Services	Horizon Test Manager / Non Banking Strand Manager
4.	Counter	Campus (NB)	NB Online Transaction stream	Enhanced with additional Cheque Deposit transaction type, and manual method of capture for LINK	Fujitsu Services	Horizon Test Manager / Banking Strand Manager
5.	Counter	Campus (ETU)	ETU Online Transaction stream	E Top Up / PIN Sales and Refunds	Fujitsu Services	Horizon Test Manager / Non Banking Strand Manager
6.	Campus	AP Clients	APS Client Files	Regression test of existing interface	Fujitsu Services	Non Banking Strand Manager
7.	Campus	DVLA	APS Client Files	Existing interface enhanced at S70 with additional data	Fujitsu Services	Non Banking Strand Manager
8.	Previous Link	Please Ignore				

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Ref	From	To	Description	Comment	Primary Owner	Secondary Owner
9.	Campus	NBE Emulator (NBX at S75)	Horizon to NBE Emulator (NBX at S75)	Requests and Authorisations Emulator at S70 to cater for no NBX	Fujitsu Services	Banking Strand Manager
10.	Previous Link	Please Ignore				
11.	Previous Link	Please Ignore				
12.	Previous Link	Please Ignore				
13.	Previous Link	Please Ignore				
14.	NBE Emulator at S70 (NBX at S75)	DRS	NBE Emulator to DRS reconciliation stream (Emulator replaced by NBX at S75)		Fujitsu Services	Banking Strand Manager
15.	Campus	EPAY	Campus to EPAY Online ETU Transaction stream	Regression test of existing interface	Fujitsu Services	Non Banking Strand Manager
16.	EPAY	DRS	Daily Transaction File to DRS	Regression test of existing interface	Fujitsu Services	Non Banking Strand Manager
17.	Streamline	DRS	EMIS Files to DRS	Regression test of existing interface	Fujitsu Services	Non Banking Strand Manager
18.	Campus	Streamline	Campus to Streamline Online DC Interface	Regression test of existing interface	Fujitsu Services	Non Banking Strand Manager

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Ref	From	To	Description	Comment	Primary Owner	Secondary Owner
19.	Campus	Streamline	Payment Files to Streamline	Regression test of existing interface	Fujitsu Services	Non Banking Strand Manager
20.	Campus	PO Ltd Gateway	TIP Files	Transaction, Cash Account and Client Transaction Files	Fujitsu Services	PO Ltd Test Manager
21.	PO Ltd Gateway	TIP	TIP Files	as 20.	Prism	PO Ltd Test Manager
22.	First Rate	PO Ltd Gateway	Exchange Rate and Margin Data from First Rate	Regression test of existing interface	FRTS	FRTS / Non Banking Strand Manager
23.	PO Ltd Gateway	Campus	Exchange Rate and Margin Data to Horizon	Regression test of existing interface	Prism	PO Ltd Test Manager / Non Banking Strand Manager
24.	Campus	PO Ltd Gateway	Bureau Transaction Data to PO Ltd	Regression test of existing interface	Fujitsu Services	PO Ltd Test Manager / Non Banking Strand Manager
25.	PO Ltd Gateway	First Rate	Bureau Transaction Data to First Rate	Regression test of existing interface	Prism	PO Ltd Test Manager / Non Banking Strand Manager
26.	RDS	PO Ltd Gateway	Reference Data to PO Ltd Gateway		Prism	PO Ltd Test Manager
27.	PO Ltd Gateway	RDMC	Reference Data to Horizon RDMC		Prism	PO Ltd Test Manager
28.	RDS	TIP	Reference Data to TIP	New Item, TRX Mode and Cash Account mappings	Prism	PO Ltd Test Manager
29.	Campus	DES/EDG	Data for external clients to exchange server	New Interface at S60	Fujitsu Services	Prism

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Ref	From	To	Description	Comment	Primary Owner	Secondary Owner
30.	DES/EDG	AP Clients	Data from exchange server to external clients	New Interface at S60	Prism	PO Ltd Test Manager
31.	Campus	DVLA Online	Interactive DVLA MOT verification and price requests	New Interface at S60	Fujitsu Services	DVLA
32.	Campus	SAP Finance	Cash and near cash movements	New Interface at S60	Fujitsu Services	Prism
33.	Campus	PO Ltd Gateway	LFS Interface	Enhanced interface at S60 to include generated cash figure (ONCH)	Fujitsu Services	Prism
34.	SAP ADS	SAP Finance	Movement of cash values between cash centres to SAP FIN	New Interface at S60	Prism	Prism
35.	SAP ADS	PO Ltd Gateway	LFS Interface	Enhanced interface at S60 to include POUCH contents	Prism	Prism
36.	Campus	Counter	Parameters from and address fields to counter for PAF lookups	New Interface at S60	Fujitsu Services	Horizon Test Manager / Banking Strand Manager / Non Banking Strand Manager
37.	NBE	DRS	NBE to DRS reconciliation stream	Regression test of existing interface	IBM	Banking Strand Manager
38.	Banking Agent	NBE	Horizon to NBE	Regression test of existing interface	Fujitsu Services	Banking Strand Manager

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Ref	From	To	Description	Comment	Primary Owner	Secondary Owner
39.	NBE	LINK Sim at S70 and LINK at S75	NBE to LINK	Use of simulator to cater for absence of LINK from E2E environment during S70	IBM	Banking Strand Manager
40.	NBE	A&L Sim at S70 and A&L at S75	NBE to A&L	Use of simulator to cater for absence of A&L from E2E environment during S70	IBM	Banking Strand Manager
41.	NBE	card account Sim at S70 and card account at S75	NBE to card account	Use of simulator to cater for absence of card account from E2E environment during S70	IBM	Banking Strand Manager
42.	PO Ltd Gateway	PO Ltd MI	TIP Files & NRDS Files	Major components of data inbound to POL MI	Prism	POL Backend Domain Owner
43.	NBX	LINK	Horizon to LINK	New Interface at S75	Fujitsu Services	Banking Strand Manager
44.	NBX	Alliance & Leicester	Horizon to Alliance & Leicester	New Interface at S75	Fujitsu Services	Banking Strand Manager
45.	NBX	card account	Horizon to card account	New Interface at S75	Fujitsu Services	Banking Strand Manager
46.	LINK	Lexcel Sim 1	Lexcel Simulator in LINK domain acting as Authorising bank		LINK	Banking Strand Manager

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Ref	From	To	Description	Comment	Primary Owner	Secondary Owner
47.	LINK	Lexcel Sim 2	Lexcel Simulator in LINK domain acting as Authorising bank		LINK	Banking Strand Manager

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10. Appendix C – Test Plan - Key Milestones

Activity	Start Date	End Date	Lead
S70 and S75 Business Change Processes and Testing Requirements Agreed		End of April 2004	Business Change
S70 and S75 High Level Test Plans Completed		End of May 2004	PO LTD Test Team
S70 Interface Validation (pre DIT)	14/06/04	25/06/04	Fujitsu
S70 Direct Interface Testing	19/07/04	30/07/04	Fujitsu
S70 Fujitsu S, V & I Cycle 4	16/08/04	27/08/04	Fujitsu
S70 Integration Testing	19/07/04	30/07/04	PO LTD Test Team
S70 E2E Testing Cycle 1	09/08/04	13/08/04	PO LTD Test Team
S70 E2E Testing Cycle 2	23/08/04	27/08/04	PO LTD Test Team
S70 E2E Testing Cycle 3	06/09/04	10/09/04	PO LTD Test Team
S75 Interface Validation (pre DIT)	31/08/04	10/09/04	Fujitsu
S75 Direct Interface Testing	14/09/04	17/09/04	Fujitsu
S75 Fujitsu S, V & I Cycle 3	11/10/04	22/10/04	Fujitsu
S75 Integration Testing	14/09/04	17/09/04	PO LTD Test Team
S75 E2E Testing Cycle 1	27/09/04	08/10/04	PO LTD Test Team
S75 E2E Testing Cycle 2	18/10/04	29/10/04	PO LTD Test Team

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Activity	Start Date	End Date	Lead
S75 E2E Testing Cycle 3	08/11/04	19/11/04	PO LTD Test Team

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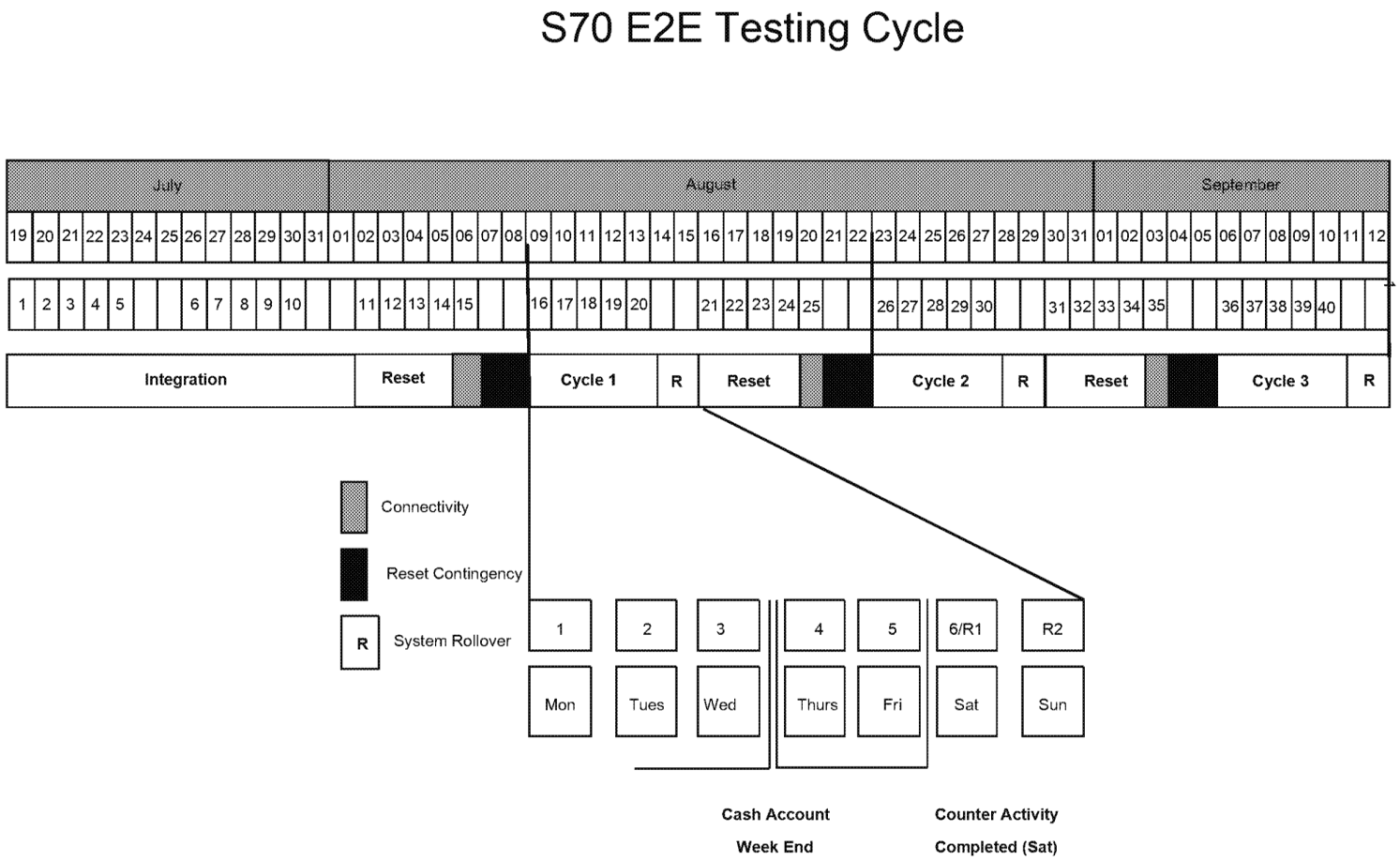
11. Appendix D - Schedules



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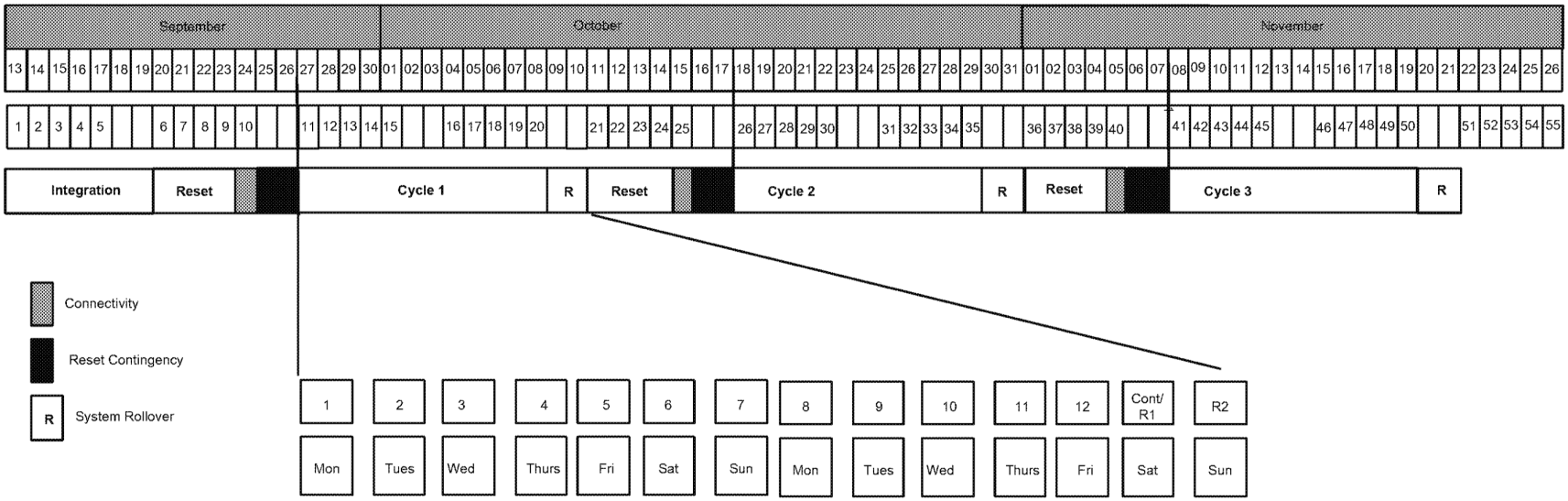
S75 E2E Testing Cycle



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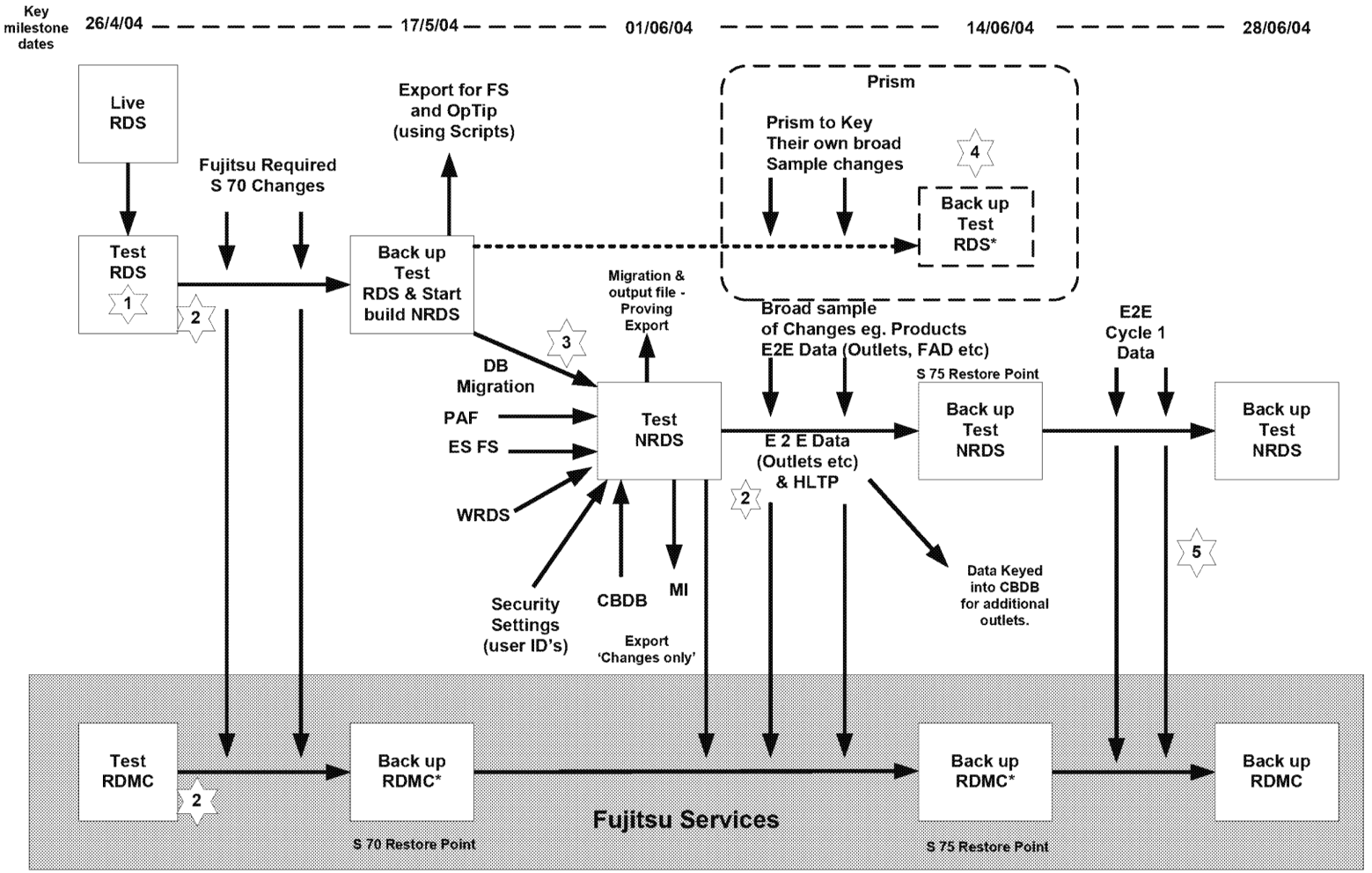
12. Appendix E – S70/S75 NRDS Migration and Testing



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S 70 / S 75 NRDS Testing Diagram - Notes

Point 1 - All systems are to be backed up on between 23/4/04 - 26/4/04. The interfacing systems are RDS (23/4/04), TIP (24/04/04), CBDB (25/04/04), ES FS and WRDS are to be confirmed. (A file needs to be taken on the Friday night -23/4/04, and sent to FS for them to load, once loaded then back up).

Point 2 - These are all key backup points that need to be taken at the appropriate times. The back points that are asterisked are also contingency sites for NRDS.

There are specific changes for S70 that are required for FS and these need to be built into RDS after the initial back up has been taken.

Point 3 - Prism need to do a comparison of the files between RDS and NRDS. Prism will query both Databases to check on Record count validation and the specification matching.
RDS should also prove exporting for FS and Optip (by using scripts) and NRDS needs to be tested against imported interfaces and Data NRDS will also need to prove exporting through a migration and output file. The latest version will be the one carried forward to the S75 restore point, after product changes and E2E Data have been input together with the HLTP requirements on testing. The export output to TIP will be taken on 1st June, stored and then loaded onto TIP early in July.

Point 4 - Prism to retain RDS and keep updated with Testing process and this will have product changes keyed in by Prism themselves. - To act as contingency site - if required.

Point 5 - Key-in any date specific data for the end to end testing i.e Routing gateway links to migrate over will need to be input at this point ie. NBX and EMV migration as an example. At the end of cycle 1, the preparation for the next cycle need to start back at the position - as of the 1/06/04. Data must then be re keyed for cycle 2 and again for cycle 3. It should also be noted that Date progression may need to be manually overridden as the default will always be 1st June, yet cycle E2E testing is progressing throughout July.

S 70 is complete after following this process.

The S 75 E2E testing start point will be as the 14th June position database that will be used as the base and data needs to be entered as in point 5 for the three cycles until the end of S 75 testing.

N.B - All Back ups taken must all be synchronized.