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0.2	Draft	03 June 2021	eftpos QR

eftpos QR (eQR)

Overview

eftpos

eftpos
Australia
~~ABN 37 126~~

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1.0 Document Overview

1.1 Background

eftpos is seeking to lead the industry and create an eftpos National QR Code Acceptance Network, eftpos QR (eQR). In turn providing a much-needed platform for transaction processing that offers greater security, faster payments, lower costs, and progresses eftpos' vision to be Australia's trusted payment choice by being the centre of the digital ecosystem.

eftpos is focussed on enabling a rich consumer experiences to enhance the value across the industry for consumers, merchants, Issuers and Acquirers. The consumer experience will be consistent across all payment channels making life easier, safer, and more rewarding.

The eQR will be wallet and merchant agnostic enabling:

- Digital receipts
- Digital warranties
- Split payments with debit cards , gift cards or loyalty points
- Loyalty point offers, balances etc.
- Gift card balances, redemption etc.
- And many more

All while continuing to support lower merchant costs and reducing compliance obligations such as PCI.

The eQR aims to elevate and enrich the consumer payment experience while driving growth for local businesses.

1.2 Intended Audience

This document is intended for Product Owners, Business Analysts, Solution Architects, Designers and Developers seeking to integrate with eQR in order to offer conformant QR codes to enable payments and value-added services to Merchants and Wallet Providers.

1.3 Scope

This document provides high level detail on the participants in the solution ecosystem, the components of the solution, as well as sequence diagrams for a detailed view of the flows.

1.4 Reference Documents

Please refer to the following documents or sources for more detailed information on eftpos QR:

- Implementation Guides?
- The eftpos API Developer Portal – https://developer.eftpos-online.com.au/

and what else?

2.0 Service Overview

eQR provides a robust environment for the provisioning of a QR based workflow. This service facilitates the use of QR-codes in all forms of merchant commerce within the domestic landscape, covering in-App, e-commerce and bricks and mortar interactions with a consistent consumer to merchant engagement, interacting with the domestic cards-based payment systems.

Cloud native services are used to reduce operational costs and to automate manual processes.

The service supports a variety of interactions including servers/platforms, desktop browsers, mobile browsers and native mobile applications.

2.1 Participants

This section is from Lindsay's work in progress document. Will need the latest version to finalise this section – for the purposes of this document is it too detailed? I took out the Responsibilities column and edited many of the role definitions to reduce to amount of content for this document.

This table is to provide readers a high level of understanding of the various participants who will be involved in the National QR Code Utility and their role within the whole ecosystem. It is important to note that some participants may have multiple role(s) and responsibilities within the ecosystem.

	Consumer	Merchant	Acquirer	Issuer	Wallet Providers	Payment Scheme/Instrument	Loyalty Service Providers	Payment Gateways	Merchant Aggregators
Consumer	x								
Merchant		x	x		x				
Acquirer		x	x		x				
Issuer				x	x				
Wallet Providers		x	x	x	x	x	x		
Payment Scheme/ Alternative Payment Instrument					x	x			
Loyalty Service Providers					x		x		

Payment Gateways								x	
Merchant Aggregators									x

Participant Name	Role Definition
Consumer	Someone who purchases goods and services with a wallet containing multiple payment instruments
Merchant	An entity that sells goods and services to both Consumers and other Merchants. Depending scale of the Merchant they may also have a role to play as a Wallet Participant.
Acquirer	The Card Scheme Acquirer for. Has a direct commercial agreement with the Merchant for processing of these card scheme types.
Issuer	The Card Scheme Issuer providing Scheme branded cards to their customers. Issuers can issue: • Credit Cards • Multi Network Debit Cards • Proprietary Debit Cards • Charge Cards • Prepaid Cards • Gift Cards • Loyalty Cards These cards can be used at most Merchants to pay for goods and services or accrue loyalty points with purchases
Wallet Provider	The provider of a 3rd party digital/mobile wallet to consumers to use for purposes including, but not limited to: • Payment for good or service • Digital Receipt • Peer to Peer payments • Split Payments • Merchant promotions • Content management • Gift cards • Loyalty programs

Participant Name	Role Definition
Payment Scheme/Instrument	Payment Scheme(s) provide access to their payments infrastructure to Consumers, Merchants and their various participating Members such as Acquirers/Issuers for Card based schemes. Non-card based Schemes such as NPP, BPAY provide access directly to Financial Institutions, Consumers and Merchants.
Loyalty Service Providers	These providers offer loyalty type schemes to Consumers via Merchants or Card Issuers (for the most part).
Payment Gateway	Payment Gateways often provide both eCommerce payment services and hosted eCommerce websites for SME Merchants. Given the QR Code payments will be processed via a Switch to Issuer Settlement model the Payment Gateways will have limited role within QR Code payments because the payment is facilitated by the Wallet Provider.
Merchant Aggregator	Merchant Aggregators "aggregate" Merchant Acquiring Services on behalf a large number of individual Merchants. This "aggregation" allows these providers to negotiate Merchant Service Fees at a lower rate due to the volume of payments they can push through an Acquirer.
SDK Provider	Provide participants in eQR with a Software Development Kit to simplify and consolidate the technical requirements into one centralised kit.
BNPL Provider	Provide consumers a way to spread the cost of a purchase across multiple transactions via eQR
POS Provider	Software providers who offer inventory management systems and/or self service kiosk facilities to merchants, enabling eQR presentment in-store in store

2.2   Onboarding to eftpos QR

Onboarding processes for eftpos QR vary depending on the type of participant and are covered in the following:

- For Merchants – <Document Name>
  Onboarding a merchant involves configuring the appropriate information for merchant engagement with the QR platform (includes details such as Acquirer ID, Merchant ID, Terminal ID, Name, MCC, plus details regarding QR Code details, Loyalty and Gif Card Program details, API Access Credentials, and more). The onboarding process will include setting up as an eftpos API Developer Portal user. Navigate to https://developer.eftpos-online.com.au/ and follow the prompts to self-register.

- For Wallet Providers – <Document Name>
  Onboarding a wallet provider involves configuring the appropriate information for Wallet engagement with the eQR platform (includes details such as Wallet ID, Contact Details, Transaction Limits, and API and User Access Credentials). The onboarding process will include setting up as an eftpos API Developer Portal user. Navigate to https://developer.eftpos-online.com.au/ and follow the prompts to self-register.

2.3   eQR APIs

The Merchant and Wallet QR eftpos APIs are utilised in order to enable eftpos QR, in addition to the Token on File API (for Wallet providers only).

For information on the eftpos APIs above, plus the additional APIs that eftpos has available, navigate to the eftpos API Developer Portal (https://developer.eftpos-online.com.au/). This portal provides detailed information, use cases, and specifications for each available API.

## 2.4   Business View of Flows

2.4.1   Purchase (QR Code at Checkout)
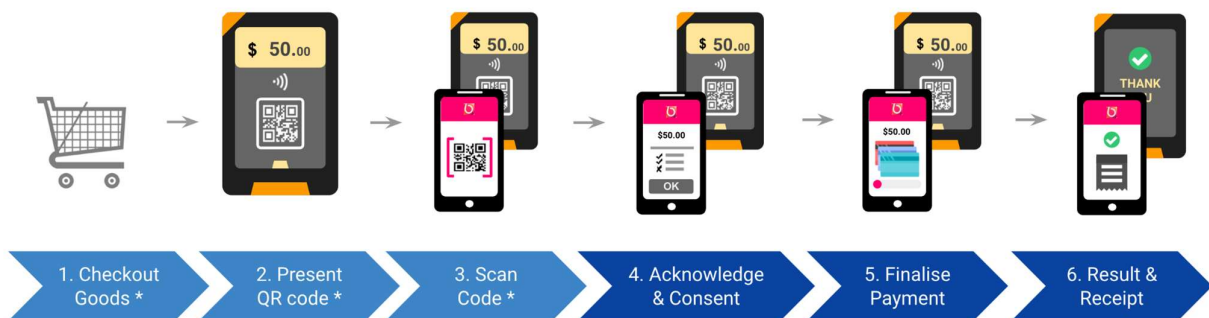
1. The Customer shops and checkouts goods at a POS device or online site.
   This triggers a request from the Merchant Platform to eQR for a QR code, along with a list of items.
2. The Merchant presents the Dynamic QR code & raw code to the customer.
3. The Customer opens up their chosen Wallet App to either scan the QR code or enter the raw code.
   This triggers a request to eQR to associate the Wallet to the QR code, the Order and the Merchant. eQR will respond with merchant and order details, as well as candidate loyalty schemes/gift cards, and user information required by the Merchant.
4. On the premise that consent has been obtained, the Wallet shares the requested details and Customer's loyalty card/gift card(s) to retrieve the final amount and balance to present to the Customer for payment. This triggers eQR to initiate a Callback to the Merchant for final order details & balance.

5. The Customer reviews the order details, selects their preferred payment option(s) and finalises the transaction.
6. The Customer sees the payment approval including a receipt on their wallet.

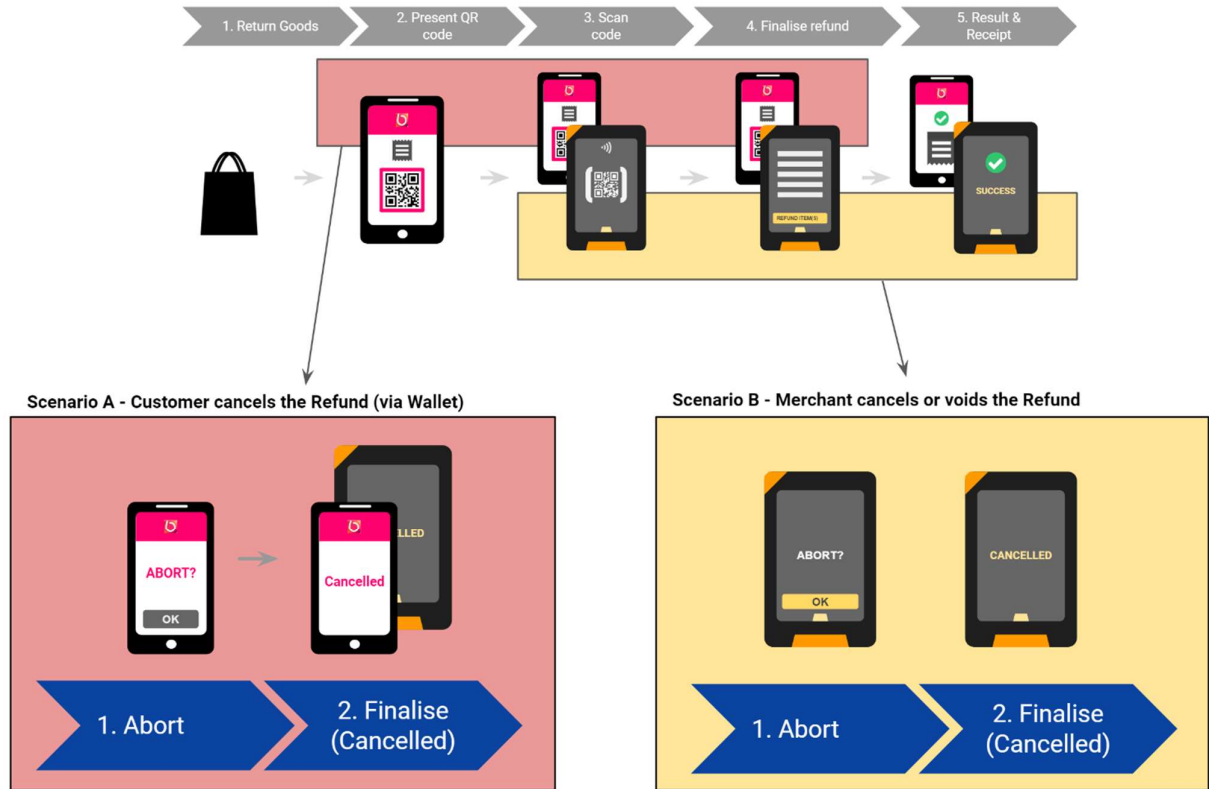### 2.4.2 Cancelling a Purchase
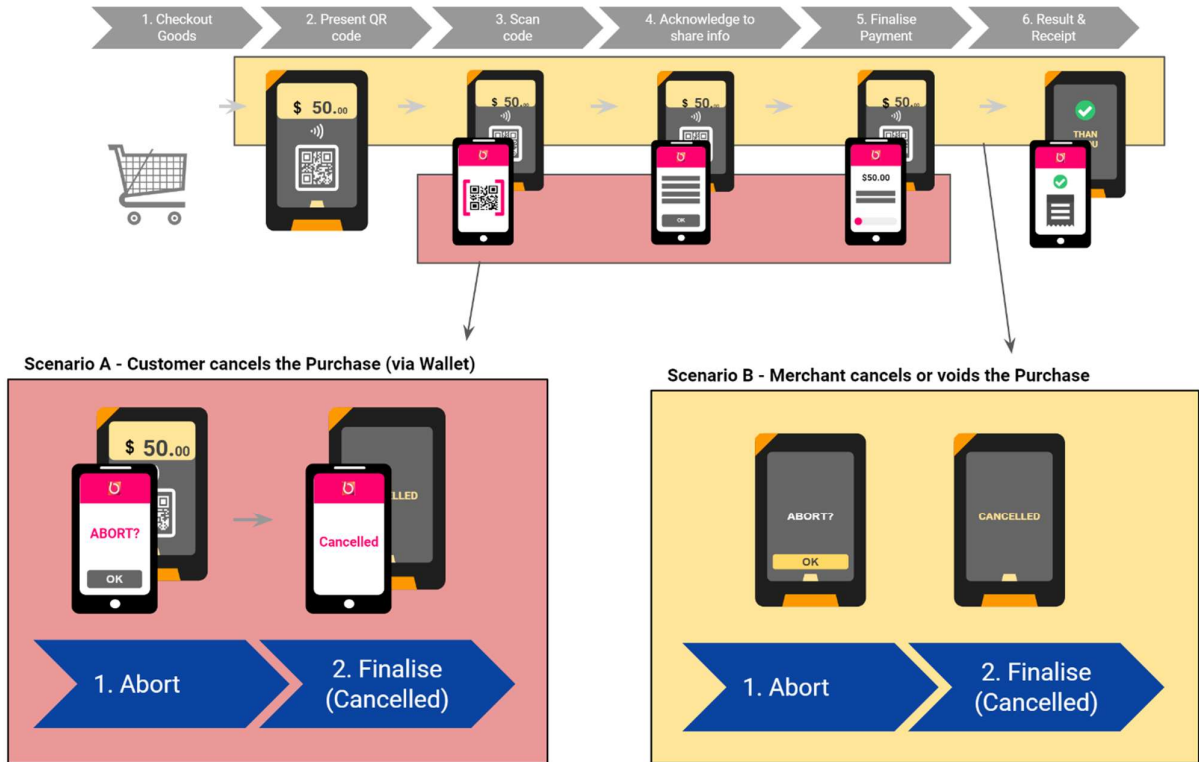
Scenario A: Customer cancels the Purchase via their Wallet

1. Abort – The Customer decides not to proceed with the Purchase, electing to abort the operation, with the Wallet then prompting for confirmation before proceeding.
   This triggers a request to eQR to cancel the operation.
2. Finalise – The Customer sees the final result on their wallet that the operation has been cancelled.

Scenario B: Merchant cancels or voids the Purchase

1. Abort – The Customer decides not to proceed with the Purchase, requesting the merchant to cancel the Purchase, with the Merchant's system then prompting for confirmation before proceeding.
   This triggers a request to eQR to cancel the purchase and if required, the eftpos Hub to switch to Issuer to reverse the purchase (the switch to Issuer for reversal only occurs if the purchase order is in a 'Processing' or after it has been finalised.).
2. Finalise – The Merchant sees the final result on their system and advises the Customer that the purchase order has been cancelled.

2.4.3   Cancelling a Refund

Scenario A: Customer cancels the Refund via their Wallet

1. Abort – The Customer decides not to proceed with the Refund, electing to abort the operation, with the Wallet then prompting for confirmation before proceeding.
   This triggers a request to eQR to cancel the operation.
2. Finalise – The Customer sees the final result on their wallet that the operation has been cancelled.

Scenario B: Merchant cancels or voids the Refund

1. Abort – The Customer decides not to proceed with the Refund, requesting the merchant to cancel the Refund, with the Merchant's system then prompting for confirmation before proceeding.
   This triggers a request to eQR to cancel the refund and if required, the eftpos Hub to switch to Issuer to reverse the refund (the switch to Issuer for reversal only occurs if the refund is in a 'Processing' or after it has been finalised.).
2. Finalise – The Merchant sees the final result on their system and advises the Customer that the refund has been cancelled.

2.4.4 Refund – In Store

| 1. Return Goods | 2. Present QR code | 3. Scan code | 4. Finalise refund | 5. Result & Receipt |
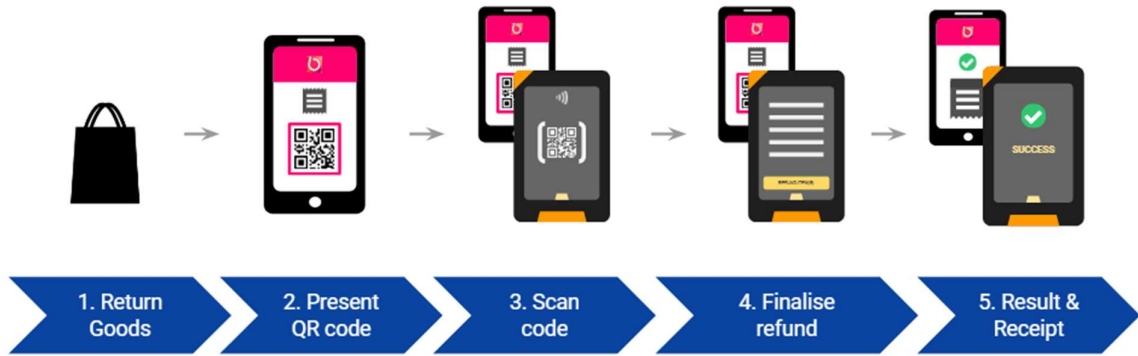
1. The Customer engages with the Merchant to return goods and opens their Wallet to retrieve the order.
2. The Customer presents the QR code (either per item or for the whole order) and the relevant raw code to the Merchant.
   Note: The Wallet may already store the QR code details from the original purchase or alternatively may request the QR code from the Orchestrator via a Status call.
3. The Merchant then scans the QR code or enters the provided raw code.
   This triggers a request to eQR for the matching order details and breakdown (including gift cards & loyalty points) for review.
4. The Merchant reviews the order payment details on their system and engages with the Customer to finalise the refund.
   This then triggers eQR to request, via the eftpos Hub, authorisation of the supplied card for a refund from corresponding card issuer.
5. The Customer sees the final result, including the updated digital receipt, on their wallet.

2.4.5 Refund – Online

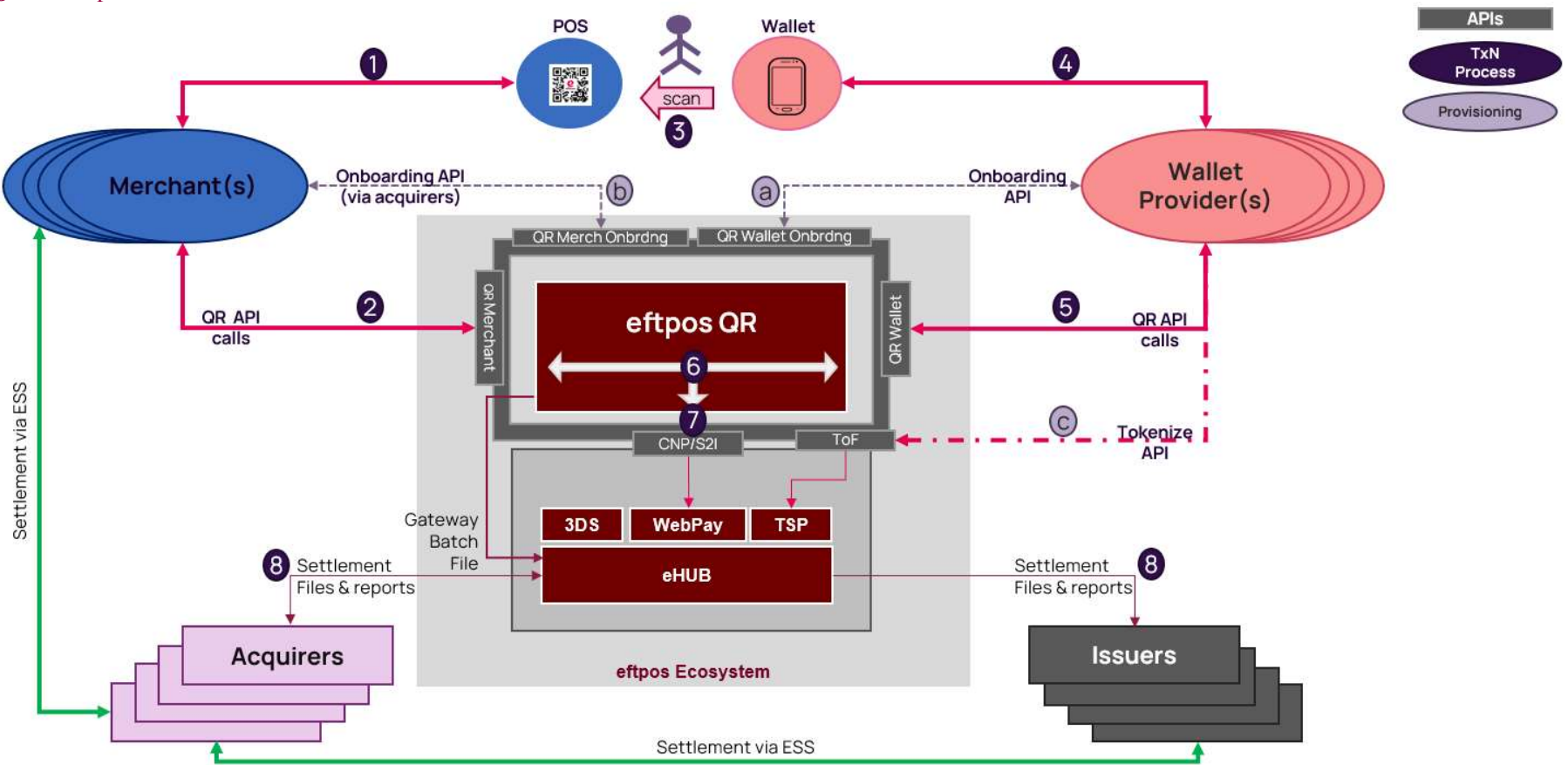| 1. Start Refund | 2. Retrieve QR code | 3. Enter code | 4. Review & Confirm | 5. Finalise refund | 6. Result & Receipt |

(Diagram to come)

1. The Customer goes to the Merchant's site to start the Refund process and is prompted to provide the reference number for the order to be refunded.
2. The Customer opens their wallet to retrieve the order details, including the QR code and reference number.
   Note: The Wallet may already store the QR code from the original purchase or alternatively may request the QR code from eQR using a status call.
3. The Customer enters the Reference Number on the Merchant's site and in response the Merchant's site presents the relevant order details to the Customer.
   Note: As above, the Merchant may already store the Order details from the original purchase or alternatively request the Order details and breakdown from eQR (including loyalty points/gift cards).
4. The Customer reviews and confirms item(s) to be refunded. The Merchant's site instructs and guides the Customer on the refund process and any required next steps.
5. The Merchant (or the Merchant's site) reviews and finalises the refund order.
   This then triggers eQR to request, via the eftpos Hub, authorisation of the supplied card for a refund from corresponding card issuer.

6. The Customer receives the final result including the updated digital receipt on their wallet.

3.0 Component View

The following diagram provides an overview of the broader QR ecosystem participants and the various integration points with eQR and provides a summary of the steps involved to execute a payment.

3.1   Component View

3.2 End to End Business Process for Main Flow

	Ref#	Process Step
1	1, 2	Merchant calls eQR for a QR Code to present the consumer (sending current order Data, and data sharing requests)

2	3, 4, 6	**For Android OS users:**
		
		Consumer scans the code with a mobile device and is linked to an eftpos URL
		
		     i. eftpos "Brokering Service" determines consumer's preferred Wallet
		
		     ii. Wallet is opened on the mobile device (optional)
		
		For Apple iOS users:
		
		     i. Consumer opens their Wallet of choice on their mobile device
		     ii. Consumer scans the code and is lined to an eftpos URL

3	5, 6	eQR will reply, to the wallet with payload/merchant details and request for any data that the merchant has requested.
4	5, 6	Wallet/User acknowledges the merchant/amount, consents and shares data and passes back loyalty card number - back to eQR.
5	2, 6	eQR shares data and loyalty information with Merchant (allowing the merchant to reprice based on loyalty classification, or not)
6	2, 6	Merchant replies with points balance and conversion rate for points burn.
7	5, 6	eQR replies to the Wallet (directly or via Merchant system as per specific scenario) with points info (and possibly altered pricing).
8	4, 5	Wallet user selects the number of points to burn, gift card(s) to use and Debit card(s) to use and sends that to eQR.
9	2, 6	eQR orchestrates with the merchant, to redeem points and use gift card(s)
10	7	If the merchant accepts the tendered points and gift card(s), then eQR will authorise the Debit card(s) to the appropriate Issuer(s).
11	2, 5	Success/ fail provided to Wallet and Merchant
12	8	Settlement occurs between the underlying Issuer and Merchant (note, Wallet provider not involved in funds flow)

Appendix A Acronyms

Acronym	Description
3DS	3 Domain Secure
API	Application Programming Interface
eSS	eftpos Settlement Service
IaaS	Infrastructure as a Service
PaaS	Platform as a Service
POS	Point Of Sale
QR	Quick Response
SaaS	Software as a Service
SKU	Stock Keeping Unit
TSP	Token Service Provider
TTL	Time To Live