

Unlocking Growth: How real-time payments help merchants unlock business resilience and reach

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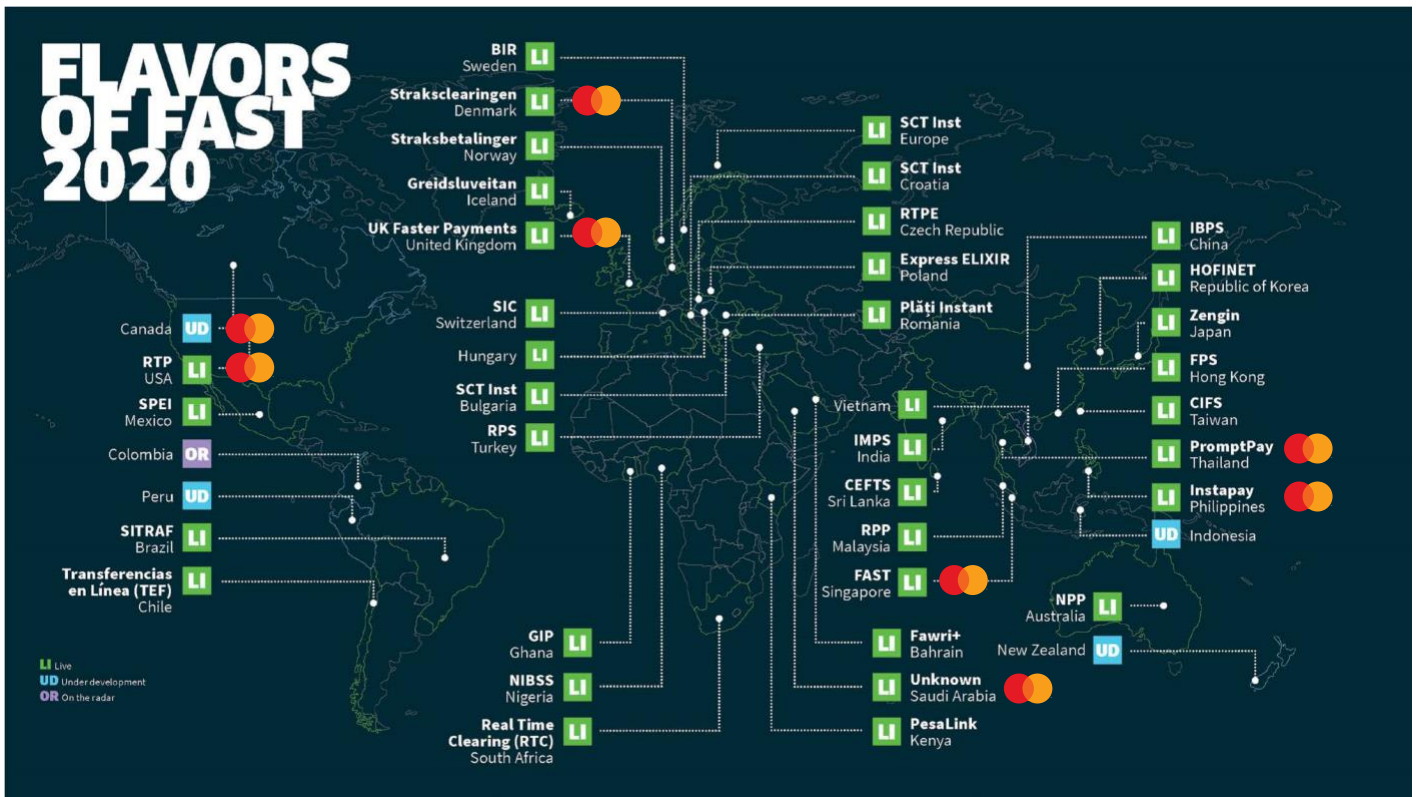


Figure 2: Real-time payments systems around the world in 2020 (FIS flavors of fast¹¹) adapted to show markets powered by Mastercard's RTP technology¹

¹ See page 8 - <https://b2b.mastercard.com/media/3o2jfql/the-evolution-of-real-time-payments-in-the-philippines.pdf>

Summary

You are likely familiar with cards and alternate payment methods, but have you heard about ISO-20022 and Real-Time Payment (RTP) systems?

By the end of this series, you will understand how real-time payments systems are transforming the financial landscape across Asia and discover practical insights on augmenting these systems with your existing payments infrastructure.

You will learn about the unique characteristics of RTPs across different markets in Southeast and North Asia and gain actionable implementation strategies per country.

You will also understand key friction points that other merchants have experienced when deploying RTP systems from the ground up and gain insights into effectively launching your RTP strategy in Asia for maximum impact.

Now, let's dive into the world of real-time payments — beginning our journey with Southeast Asia.

Introduction to Real-Time Payments

But first, what exactly are real-time payments?

Real-time payments are payments rails available 24/7, giving anyone the ability to move large or small volumes of money between bank accounts, instantly. Unlike legacy systems that can take hours—or even days—to settle, RTP pushes funds through within seconds of initiation.

Adoption is high. Commonly built on the modern ISO-20022 standard and subsidised by consortiums, real-time payments systems are projected to experience significant growth.

According to ACI Worldwide and Global Data, RTPs will grow by 63% year-over-year, reaching \$511 billion in annual transactions by 2027.²

² *Stripe. (n.d.). Real-time payments explained: What they are and their risks and benefits.*
<https://stripe.com/en-sg/resources/more/real-time-payments-explained>

How do RTPs compare with cards and APMs in Southeast Asia?

While payments experts often recommend adopting APMs and cards as the primary strategy for Southeast Asia, RTPs offer a viable complementary payment method that complements both cards and APMs. Here is an overview of the different types of payment card tokens:

The following table contrasts when to use either and how they differ.

Feature/Aspect	Real-Time Payments (RTPs)	Cards/Buy Now, Pay Later (BNPL)	Alternative Payment Methods
Primary Beneficiary	Merchants (Faster cashflow)	Consumers (Ready access to credit)	Merchants (Faster cashflow)
Ideal customer segment	<ul style="list-style-type: none"> - Banked - Large-ticket payments 	<ul style="list-style-type: none"> - Banked - Large-ticket payments - Items which require financing on access to credit 	<ul style="list-style-type: none"> - Underbanked
Speed/Settlement	- Instant/near-real-time settlement (funds available to payee within seconds/minutes)	- Real-time authorisation, but funds may not be immediately available to the beneficiary (can take days (T+3 days) for settlement)	- Takes time to close and settle, for example, carrier billing and convenience store payments (T+3 days for settlement)
Cost (to sender/merchant)	Generally low cost, fixed fees per transaction.	Can incur higher merchant discount rates (MDRs) for businesses. For instance, BNPL offloads cost to merchant at 6-8% of the total transaction.	Generally low cost, fixed fees per transaction.
Credit Extension	Does not inherently offer credit; requires separate arrangements (e.g., BNPL as an overlay service).	Credit cards explicitly offer credit facilities. BNPL provides short-term loans, often interest-free, helps close the dropped-cart problem	Does not inherently offer credit.
Transaction Finality/Reversibility	Non-refundable. Exception is PromptPay in Thailand.	Robust chargeback mechanisms and refund processes for disputes.	Non-refundable
Data Richness	High data richness with ISO-20022 messaging, aiding reconciliation, and business automation.	Card data structure is different from account numbers, less capable of carrying extensive remittance information.	Built on bespoke systems.

Key Use Cases (examples)	<ul style="list-style-type: none"> - Payroll - Loan disbursements - Gig worker payments - B2B payments - Merchant payouts - Emergency fundraising - Government benefits - Bill payments - P2P, P2B 	<ul style="list-style-type: none"> - Consumer purchases (in-store/online) - Recurring payments (subscriptions) - Bill payments (via direct debit) - BNPL for online purchases 	
Customer Experience	<ul style="list-style-type: none"> - Aims for simple, convenient, 24/7 access - Use of aliases and QR codes 	<ul style="list-style-type: none"> - Cards offer wide acceptance and familiarity - BNPL offers seamless one-click checkout 	<p>Varying.</p> <p>Typically a level of friction for customers (e.g. opening a bank app to deposit payments via virtual accounts)</p>
Ability to support recurring payments	No	Yes	<p>No in most cases.</p> <p>eWallets - Yes in practice, but not used (e.g. deliberately keeping balances low to prevent being charged for the next invoice).</p>
Perception	Usually subsidised as public infrastructure and therefore more perceived as cost-effective.		
Cross-border payments acceptance	Generally not supported. Mainly through bilateral country agreements.	Yes	No

RTPs can complement, yet not all is a bed of roses.

Despite their benefits, real-time payment systems in Southeast Asia face several critical challenges that hinder widespread merchant adoption.^{3 4}

As Brian Clark from Minor Hotels observes, “The fragmented ecosystem combined with limited development resources makes it very challenging to integrate/operationalize this.” Edge Dalmacio at Grab adds, “Some RTP rails don’t have a live refund API. Refunds can only be done offline via a batch process”. Livia Ang at NetEase Games comments that “different merchant onboarding requirements across RTP schemes can complicate adoption”.

To better understand these barriers, MAG conducted a survey among enterprise merchants, revealing consistent pain points in RTP implementation across the region. The top pain points adopting RTPs in our survey are as ranked below, with 5 being rated high, and 1 being rated low.

What are your key friction points when adopting RTPs in Asia?

5 - Painful, 1 – Effortless

Friction Category	Mean Score
Multi-Market Scalability (no common technical/RTP format)	4.13
Onboarding Complexity (KYB/KYC, market entry)	4.00
Refunds & Disputes (lack of standardisation)	3.93
API Integration Inconsistency (across markets/PSPs)	3.73
Customer Checkout Experience (confirmation, alias UX)	3.60
Recurring/Subscription Payments Support	3.60
Reconciliation Issues (missing reference info, payout tracking)	3.27
FX Conversion/FX Transparency	3.27
Fraud & Chargeback Protections	3.20

³ Stripe. (n.d.). Real-time payments explained: What they are and their risks and benefits. <https://stripe.com/en-sg/resources/more/real-time-payments-explained>

⁴ World Bank. (2021). Cross-border fast payments: Technical design aspects and implementation practices. Finance, Competitiveness & Innovation Global Practice, Payment Systems Development Group. <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/022622163586515320/cross-border-fast-payments-technical-design-aspects-and-implementation-practices>

How are RTPs adopted across Southeast Asia?

Having established the relevance of RTPs, let's dive into how real-time Payments are adopted across various regions in Southeast Asia. Here is a summary of some countries we will be discussing: ⁵

	Singapore	Malaysia	Thailand
GDP	372b USD	365b USD	543.6b USD
Income bracket	High	Upper middle (World Bank, 2023)	Upper middle
Population	6.5m	32m	69.6m
Mobile phone penetration	93.55%	78.75%	92.3%
Internet access	84.12%	87.4%	54.1%
Banked population	97.93%	85.5%	81.6%
Bank branches per 100,000 adults	8.49	10.05	11.88
Made or received digital payments in last 1 year	90.10%	70.42%	62.3%
Received wages electronically	67.56%	40.30%	38.04%

⁵ Figures quoted from the World Bank.

Singapore

Fact trivia

- As of November 2020, PayNow monthly transaction volumes accounted for almost half of all FAST transactions.⁶
- Mastercard’s Vocalink was key to the development of the FAST RTP rails in Singapore.
- 150,000 transactions worth 24m SGD occurred during the first month of operations.
- 2.62m mobile numbers have been registered with PayNow.

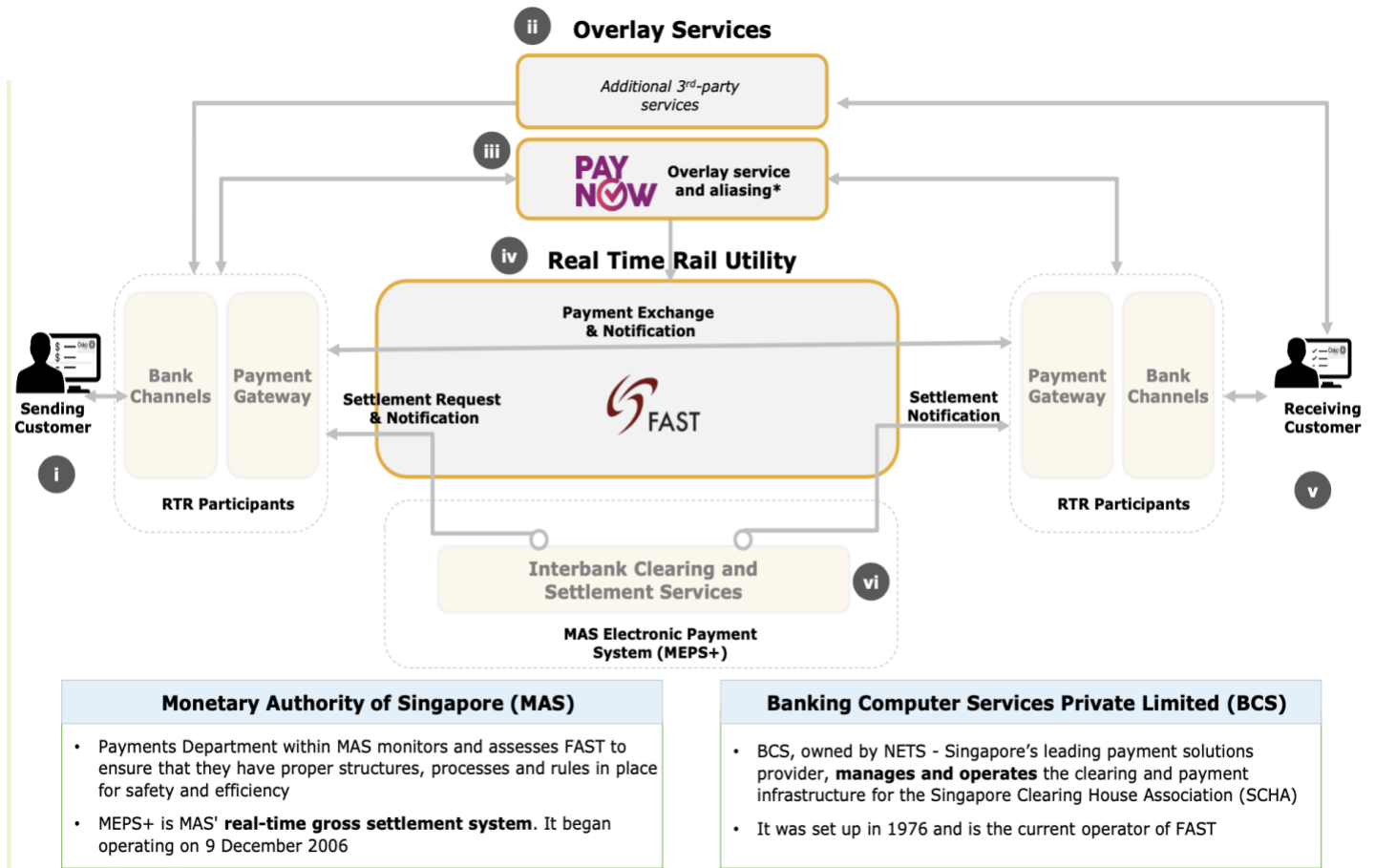
In Singapore, RTPs are implemented through the Fast and Secure Transfers (FAST) network, which was launched on 17 March 2014. It serves as a key component of Singapore's digital public infrastructure, enabling efficient and inclusive digital payments. Before FAST, interbank transfers could take up to three working days through cheques, or GIRO.

Here is a summary of FAST's key features:

RTP	FAST
Aliasing	Paynow (Company registration ID UEN, Phone number, QR Code)
Cost	Free
Availability	24/7
Clearing	Instant
Participation	Businesses. Individuals supported since 2020
Limit	200,000 SGD
Messaging	ISO 20022
Settlement	Deferred net settlement; Intra-day (2 cycles)
Settlement Rails	MEPS+
Use cases	Merchant payments, bills, P2P, B2C, C2B, B2B, Government-to-citizen payments, cross-border payments
Legislation	- Payments Act

⁶ Figures quoted from the World Bank.

The following diagram summarises how RTPs are structured in Singapore:



PayNow: The Overlay Service

PayNow is the highly successful overlay aliasing service that drives adoption of FAST RTPs in Singapore. Launched in July 2017 by the Association of Banks in Singapore (ABS), PayNow is offered free-of-charge (FOC) to Retail customers.

PayNow enhances the user experience and drives merchant adoption by enabling payments to be made using easy-to-remember proxy identifiers (phone numbers, QR Codes) instead of traditional bank account numbers.

In particular, Singapore recognised the need for standardisation in QR codes and launched the Singapore Quick Response Code (SGQR) based on EMVCo's QR specifications to promote interoperability. In addition, banks offering FAST decide on their customer authentication standards, balancing security and user experience.

Malaysia

Fact trivia

- Malaysia's RPP RTP rails were developed by a subsidiary of Bank Negara Malaysia
- RPP took 1 year to develop
- Businesses can transfer up to 10m MYR per transaction via RPP ⁷

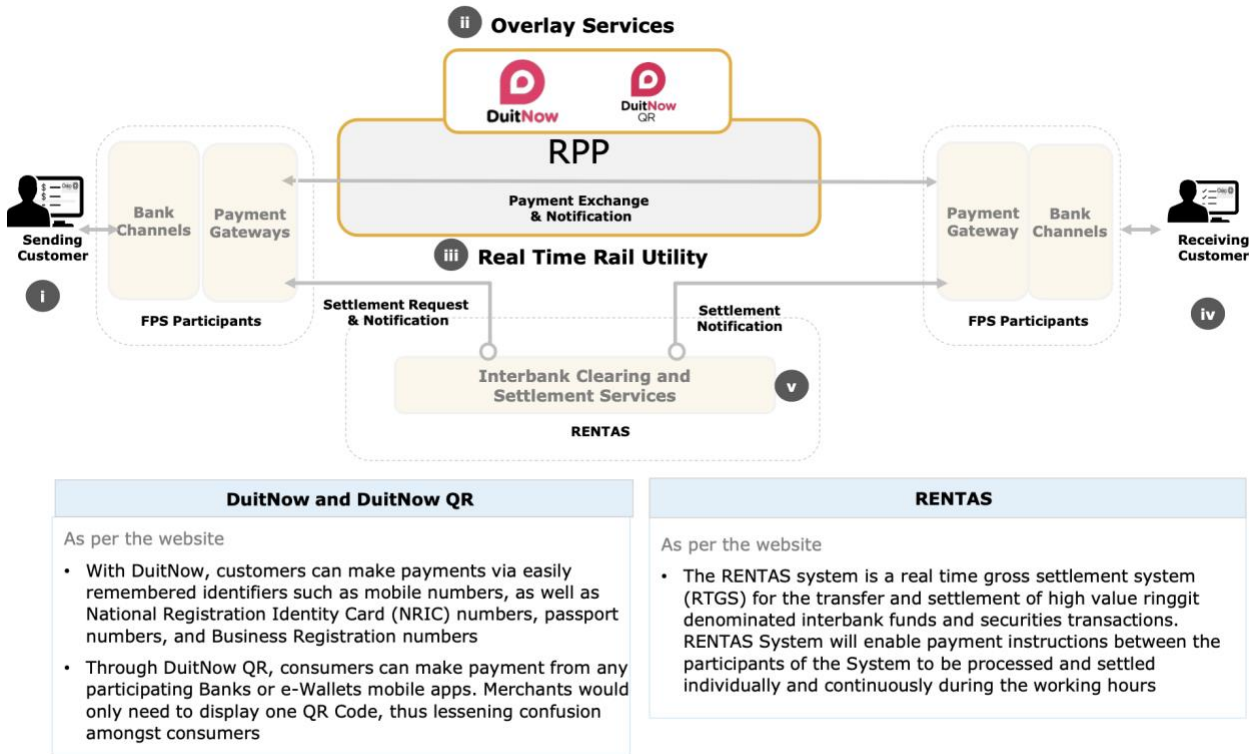
Malaysia's RTP system, better known as the Real-time Retail Payments Platform (RPP), was launched in 2018. Unlike Singapore's RTP system, both aliasing and credit transfers are handled by the overlay system, known as *DuitNow*.

The following highlights key features of RPP.

RTP	Real-time Retail Payments Platform (RPP)
Aliasing	DuitNow (Mobile numbers, National IDs, Passport numbers, Business IDs, QR Code).
Cost	Free for transfers 5,000 MYR and below; 0.50 MYR fee applies thereafter. Fees applicable to participating financial institutions
Availability	24/7
Clearing	Instant
Participation	Businesses. Individuals supported since 2020
Limit	- 50,000 MYR/day for retail accounts - 10m/transaction for corporate accounts
Messaging	ISO 20022
Settlement	Deferred net settlement; Intra-day (2 cycles)
Settlement Rails	RENTAS
Use cases	Merchant payments, bills, Request to Pay, eMandates, P2P, B2C, C2B, B2B, real-time debit, cross-border payments.
Legislation	- Central Bank of Malaysia Act 2009 - Financial Services Act 2013 - Islamic Financial Services Act 2013

⁷ Figures quoted from the World Bank.

The following diagram summarises how RTPs are structured in Malaysia:



DuitNow: The Overlay Service

To facilitate adoption, DuitNow is the initial service offered under the RPP, enabling instant credit transfers using easy-to-remember proxy identifiers instead of traditional bank account numbers. Examples include mobile phone numbers, National Registration Identity Card (NRIC) numbers, passport numbers, and business registration numbers.

In addition, DuitNow offers **DuitNow QR**, an interoperable QR code payment service facilitated by RPP. This allows merchants to accept payments from customers of different participating financial institutions via a unified QR code, reducing confusion for consumers.

Thailand

Fact trivia

- The PromptPay RTP rails could account for 2% of Thailand's forecasted GDP by 2026.⁸
- PromptPay was developed in partnership with Mastercard's Vocalink.
- 6 million merchants accept Thai QR Codes.

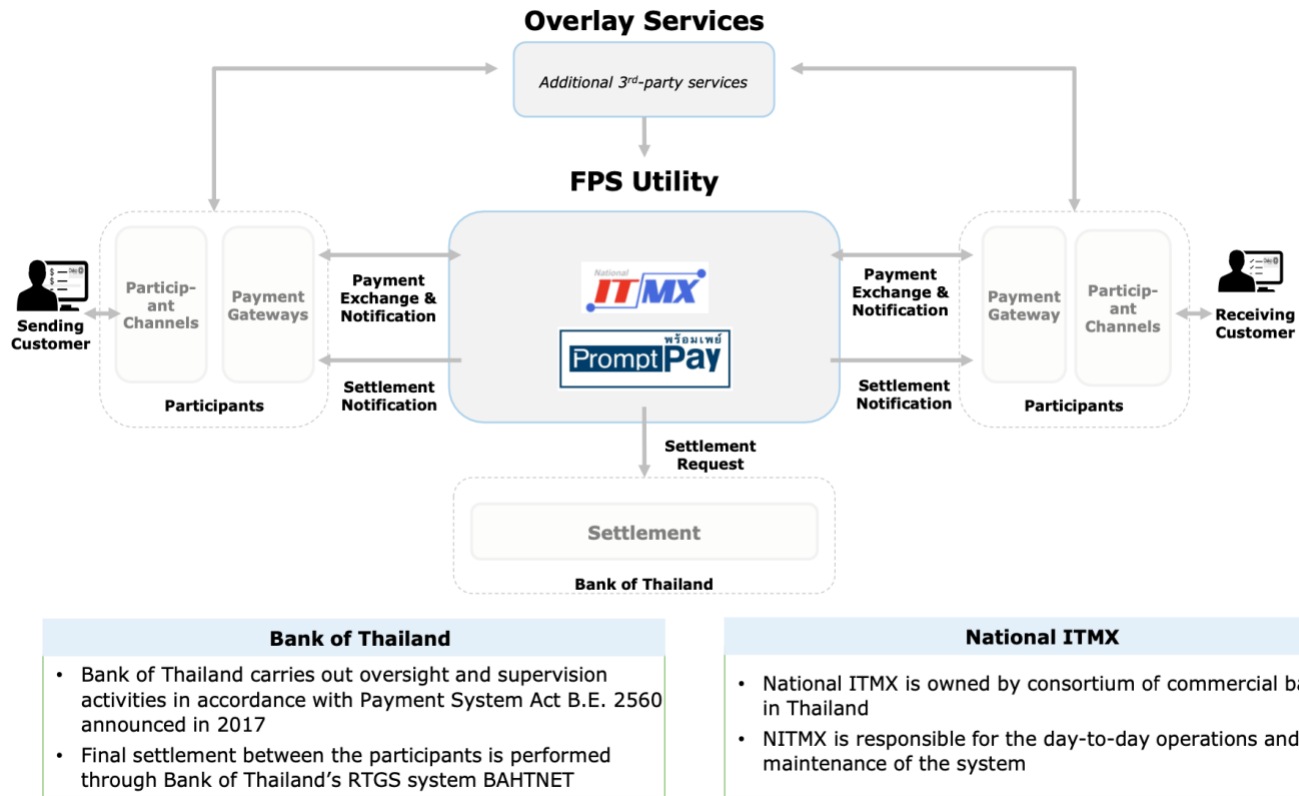
Thailand's RTP system, known as PromptPay, was launched in December 2016. It was created by a consortium of banks (National ITMX), and is the most widely used payment method in Thailand.

Unlike most other regional rails in Southeast Asia, PromptPay additionally offers a dispute resolution mechanism for transactions made on the system.

RTP	PromptPay
Aliasing	Mobile numbers, National IDs, Business IDs, eWallet IDs, QR Codes (Thai QR, MyPrompt QR)
Cost	Free for individuals. Participating banks charged a fee; fees between parties passed to sub-members, merchants via mutually-arranged agreements.
Availability	24/7
Clearing	Instant
Participation	Businesses and individuals
Limit	Differs per bank. Typically 25,000 THB per day.
Messaging	ISO 8583 inter-bank; ISO 20022 adapter to translate messages
Settlement	Deferred net settlement; Intra-day (2 cycles)
Settlement Rails	BAHTNET
Use cases	Merchant payments, bills, Request to Pay, P2P, B2C, C2B, B2B, bulk payments, donations, cross-border payments
Legislation	- Payment System Act B.E. 2560 2017

⁸ Figures quoted from the World Bank.

The following diagram summarises how RTPs are structured in Thailand:



PromptPay: The Overlay Service

PromptPay is the central overlay service that powers Thailand's RTP system. Unlike Singapore's PayNow and Malaysia's DuitNow, PromptPay handles both proxy identification and the actual payment processing on a single platform.

Philippines

Fact trivia

- InstaPay, the country's RTP service, processed 58 million transfers in April 2023, representing a 41% increase from the previous year.⁹
- 8.4 million PhilSys registrants have opened a bank account for the first time through a co-location strategy with the Landbank of the Philippines¹⁰.
- The Philippines has seen remarkable growth in retail payments digitisation, increasing from 1% in 2013 to over 30% in 2021.

Moving over to the Philippines, RTPs have been deployed through a system known as InstaPay, operated by both BancNet and Vocalink.

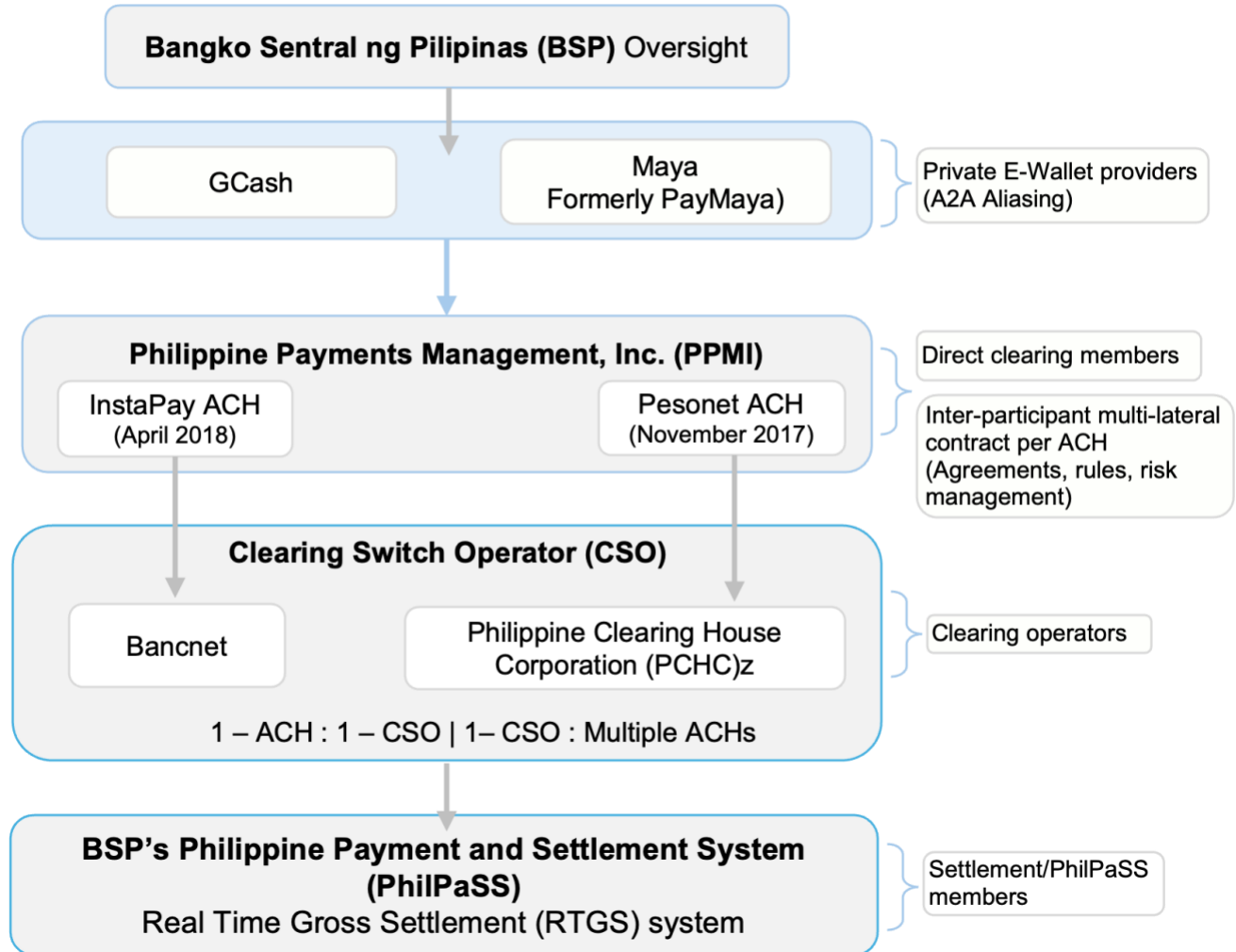
RTP	PromptPay
Aliasing	Mobile numbers, QR Code (QRPh), National IDs (PhilSys)
Cost	PHP 10 per transaction.
Availability	24/7
Clearing	Instant
Participation	Banks and non-bank Electronic Money Issuers (EMIs) nationwide can participate in InstaPay
Limit	PHP 50,000 per transaction, up to PHP 250,000 /PHP 500,000 per day.
Messaging	ISO 20022 adapter to translate messages; IPS technology provided by Vocalink (Mastercard)
Settlement	Deferred net settlement
Settlement Rails	PhilPaSS
Use cases	P2P credit transfer, social benefit disbursement, proxy capability, merchant in-store payments, electronic-COD (cash-on-delivery), consumer bill payments, corporate bill payments
Legislation	National Retail Payment System (NRPS) framework

⁹ Figures quoted from "The evolution of real-time payments in the Philippines", Mastercard.

¹⁰ Figures quoted from "PSA, LANDBANK Reaches Financial Inclusion Milestone in 2022; Onboards 8.4 Mil-lion Unbanked Filipinos", Philippine Statistic Authority.

The following diagram summarises how RTPs are structured in the Philippines:

National Retail Payment (NRPS) governance framework



Further Reading

In this article, we covered what is RTP and the core elements of RTP systems in Singapore, Malaysia, and Thailand. We examined how these systems are structured, their key features, and the overlay services that drive their adoption.

While each system demonstrates unique characteristics while sharing common features like 24/7 availability, instant clearing, and ISO 20022 messaging standards.

For a deeper understanding of RTPs, please join us in our next article as we explore RTP adoption across North Asia.

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