



Trade APIs deep-dive – March 20th 2024

Welcome! Some logistics first

RECORDING & TRANSCRIPTION

Auto-recording and live transcription in-progress.

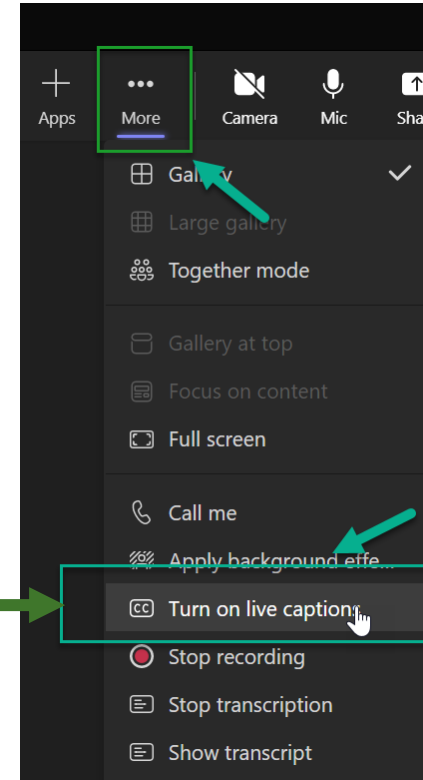
AI-powered note taking for effective sharing



CART CAPTIONS

Communication Access Realtime Translation is enabled for **real time transcription**.

Go to **«More options»** and select **«Turn on live captions»**
May assist you to follow market practice discussions



QUESTIONS & INTERACTION

We have Q&A after the main presentations.

Please enter your questions in the chat box.



Agenda

CET	Topics	Speakers
1.00-1.05	Opening & Webinar logistics	
1.05-1.10	Welcome Address and Introduction	Co-Convener, Dr Mario Reichel – PPI AG
1.10-1.35	1. Swift Trade Strategy 2. Pilot Participation & Roadmap 3. Bank Guarantee APIs –Standards	Avanee Gokhale, Head of Trade Strategy - Swift Tom Alaerts, Principal, Standards - Swift Mukta Kadam, Director, Standards - Swift
1.35-1.55	Q&A	Audiences & Speakers
1.55-2.00	Closing Remarks	Co-Convener, Dr Mario Reichel – PPI AG



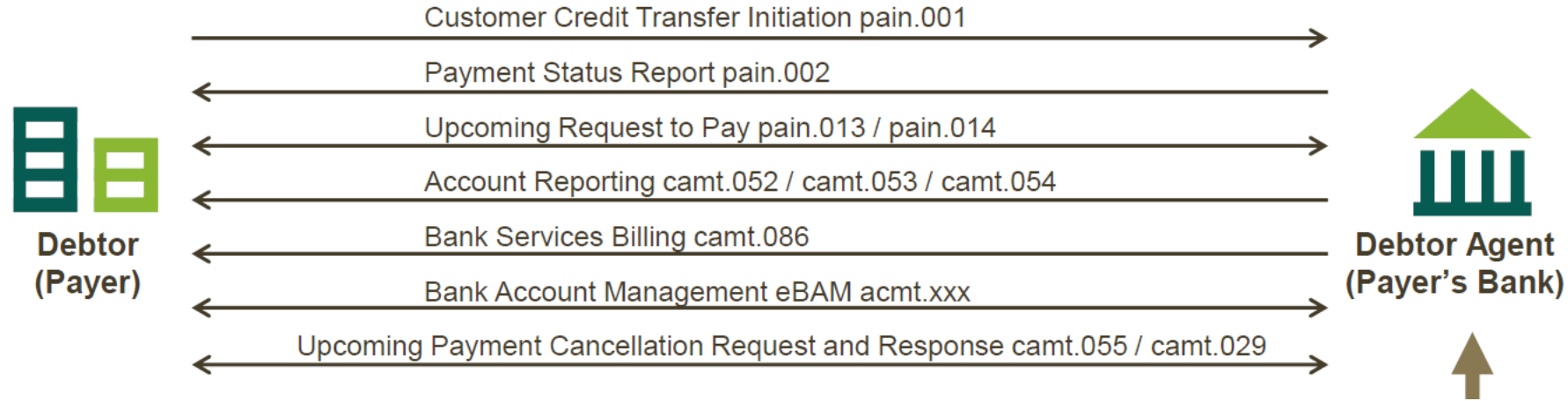
Welcome Address and Introduction



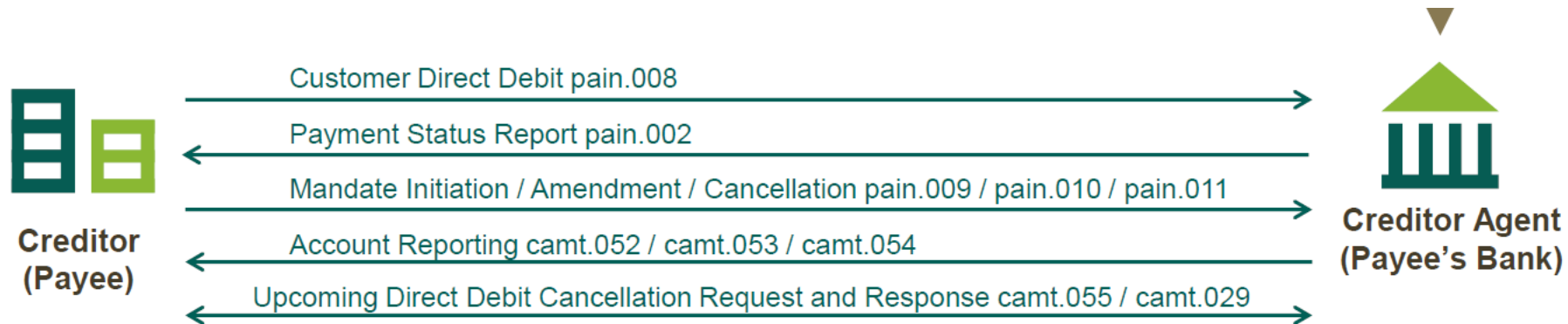
Dr Mario Reichel
PPI AG
Co-Convener



Payment flows addressed by CGI-MP



“A corporate can use the same message structure for all their payments with all of their transaction banks reaching any payment system across the globe.”



Main Part – Trade APIs deep-dive

Avanee Gokhale, Head of Trade Strategy - Swift

Tom Alaerts, Principal, Standards - Swift

Mukta Kadam, Director, Standards - Swift



Corporate to Bank Guarantee API



Avanee Gokhale

Mukta Kadam

Tom Alaerts

March 2024

Confidentiality: **Restricted**

Agenda

March 2024

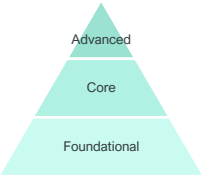
C2B Guarantees API

1. Swift Trade Strategy
2. Pilot Participation & Roadmap
3. Bank Guarantee APIs - Standards

1. Swift Trade Strategy

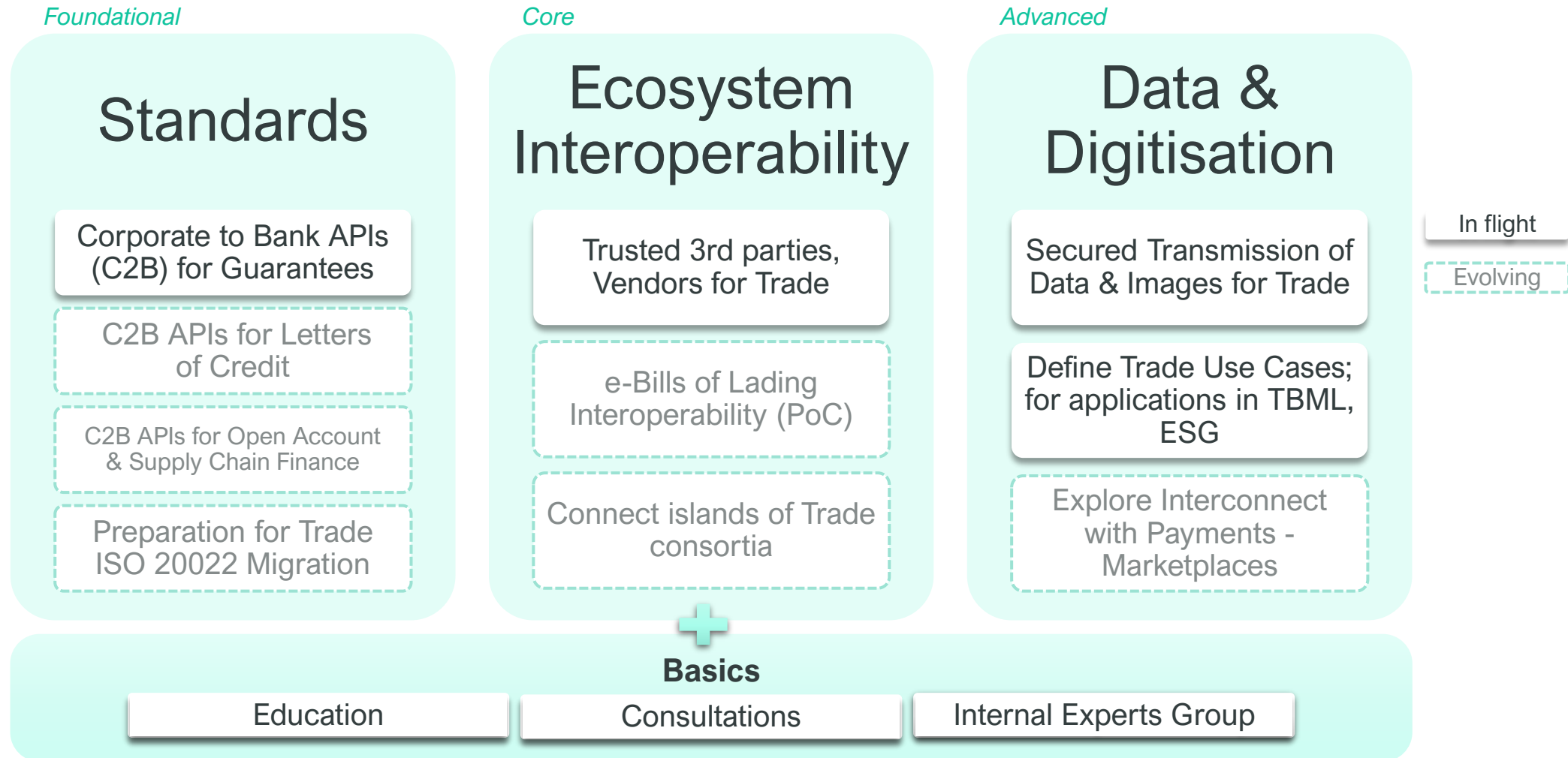


Swift Trade Strategy – Scope under the core areas



March 2024

C2B Guarantees API



Trade Standards: Corporate to Bank Guarantees Summary

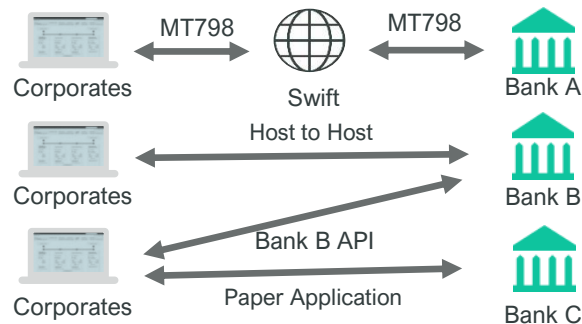
..... Adoption is the Key to the Success of the C2B Gtee API Initiative

March 2024

C2B Guarantees API

Problem Statement

- Full lifecycle of guarantee issuance is done via a few disparate channels – Manually via paper requests, host to host connections, MT798 or bank’s propriety APIs. This is very inefficient and a key pain point for banks.
- MT798 data is not structured and validated.
- Lack of standardized APIs in the industry with every bank developing its own APIs.

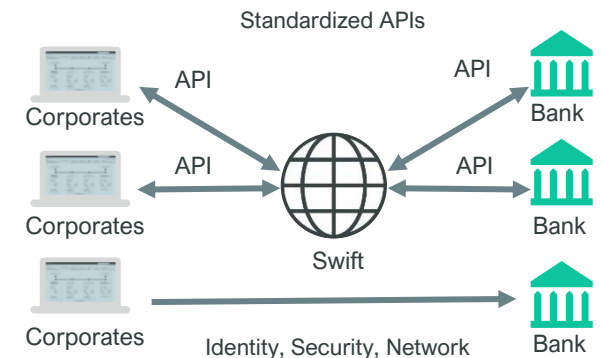


Work Done

- Based on a Community request, Swift and ICC collaborated to deliver a **full life cycle** Guarantee API Standard in the **Corporate to Bank** space.
- 1st API for Trade with **ISO 20022** data elements and hence is a **future ready** standard.
- **Commercialization:**
 - Banks, Corporates and Platforms part of the **working group** along with Swift and ICC to develop the APIs.
 - **APIs published** on Swift’s developer portal in Aug 2023.
 - **Swift own Pilot** Readiness Sept 2023.
 - **Adoption** by industry is the **key to the success** of the C2B Gtee API Initiative.

Impact created

- Drive **standardization**, provide **richer data** and **reduce friction**.
- Data compatible with the present, **ready for the future**.
- Real-Time Visibility.
- Ability to leverage on Swift’s core strengths of **identity, security & non-repudiation** through adoption of the Guarantee APIs.
- **Light footprint**.
- Provides corporates the optionality to easily integrate to any bank via standardized API instead of propriety APIs per bank.



Value proposition for Banks, Corporates and Vendors

Leverage the high availability, security, resilience, and confidentiality of the Swift network

March 2024

C2B Guarantees API

Banks



- Broadening the client base - a new appealing and competitive offering to entice (new) corporates
- A standardised solution
 - rapidly scalable to all your corporates and their SCF/TMS providers
 - offering significant efficiency enhancements
- Leveraging your existing Swift infrastructure and investment in APIs (increasing ROI)

Corporates



- Basis for monitoring the guarantee portfolio in an efficient and unified end-to-end process
- Richer structured, predictable and verifiable data
- Easier integration and adoption due to open specification (which also allows usage by non-Swift connected companies)
- Enhanced data quality & richness, leading to better reconciliation and visibility across the guarantee application lifecycle
- Single identity and connectivity. A single way of connecting with all the banks via the standards will help reduce time, effort and costs

Vendors / Third party Platforms



- A significant efficiency enhancement thanks to
 - The use of a single format across all banks globally
 - The richness and specificity of data
 - A single identity and connectivity to both, banks and corporates
- The value and benefits of being labelled a Swift certified API provider

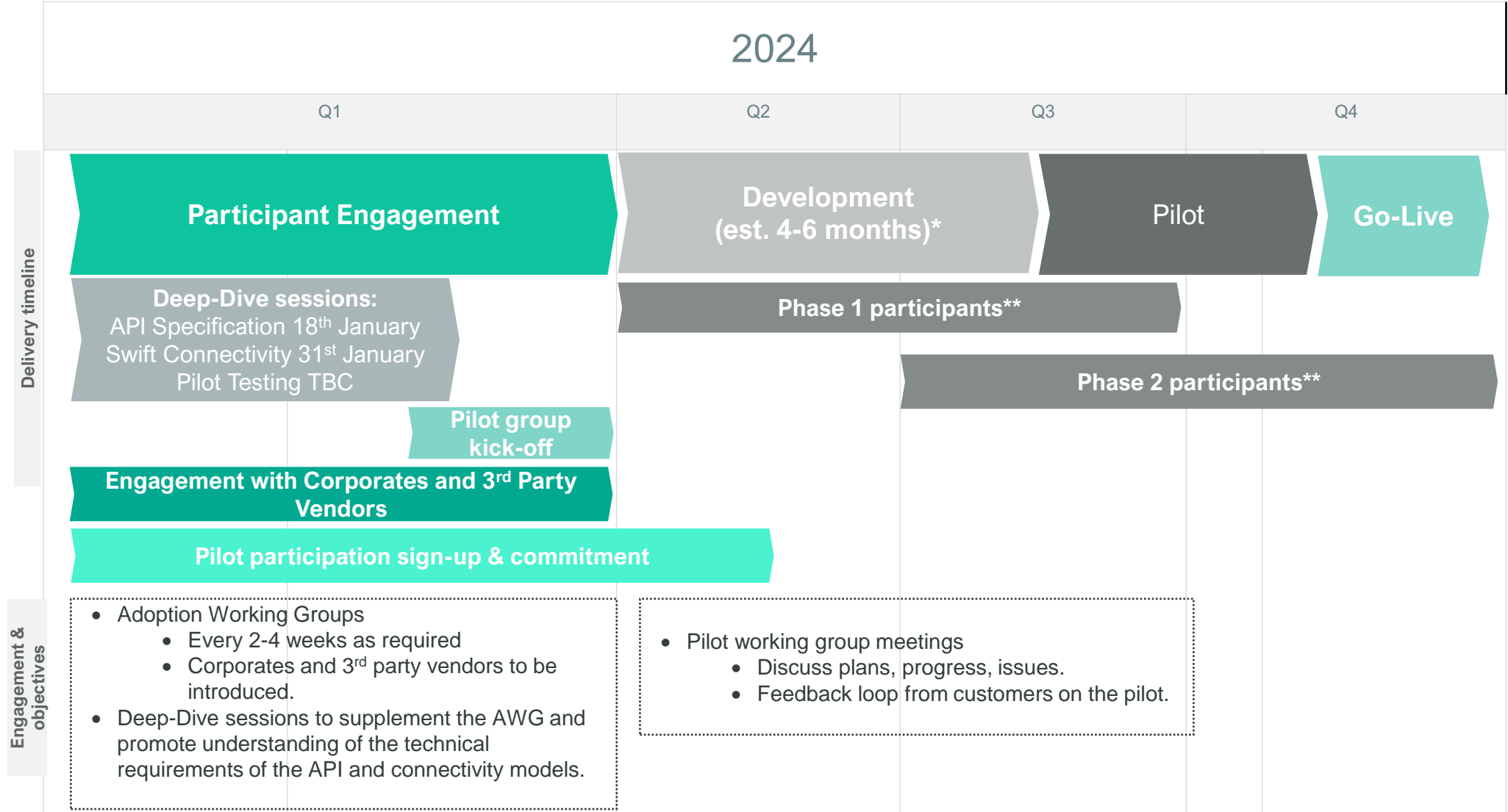
2. Pilot participation & Roadmap



Roadmap – High Level Q1 2024

March 2024

C2B Guarantees API



*high-level indication only – development timelines to be confirmed by participants once technical requirements are clarified

** phase to be determined by participant availability & requirements



Trade Guarantee API adoption requirements

In order to implement the Trade Guarantees API, there is a development requirement on each organisation.

Timelines to implement the API are dependent on each organisation's technical infrastructure and resource availability. However, based on previous Swift pilots we estimate an average of up to 6 months to implement.

The steps on the right assume that the organisation already has Swift connectivity in place. Swift also offers the option to use the API outside of Swift.

Consumers

No additional footprint is required. Following are the steps for consuming the API over the Swift platform:

1. Sign up to [developer portal](#) to obtain specification and documentation and create your App.
2. A user with an ordering role on www.swift.com should complete and submit the appropriate e-form.
3. Decide on the API consumption option suited for your organisation - [getting started with API consumption](#).
4. If the connectivity is provided by a third party such as service bureau, the connectivity provider must implement Microgateway and get ready to provide consumer implementation.

Providers

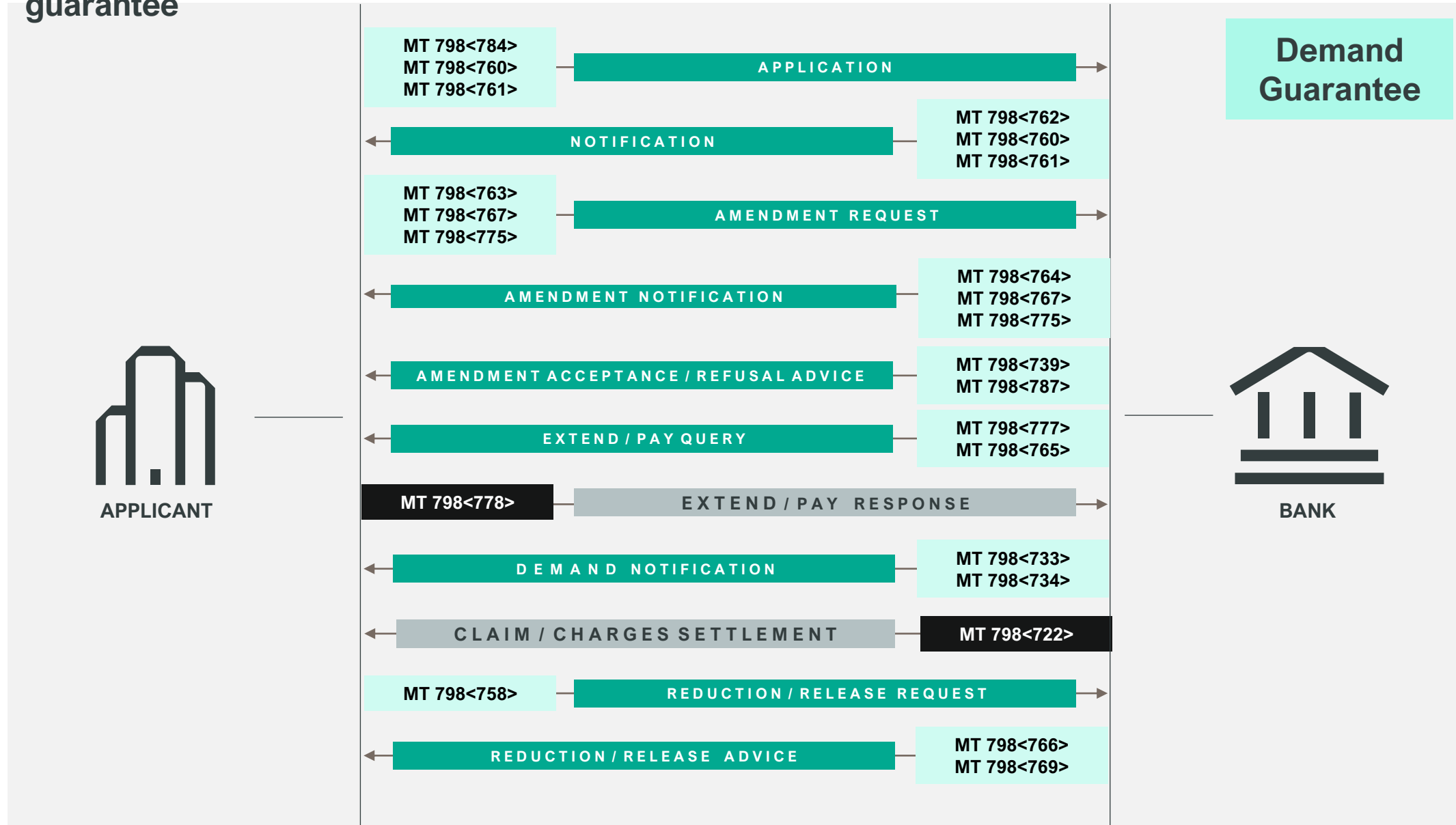
No additional footprint is required. Following are the steps for consuming the API over the Swift platform:

1. Sign up to [developer portal](#) to obtain specification and documentation and create your App
2. A user with an ordering role on www.swift.com should complete and submit the appropriate e-form
3. Setup API server and 2-Way TLS (mTLS) connectivity
4. Configure network/firewall for Swift MV-SIPN connectivity following the instructions [here](#)

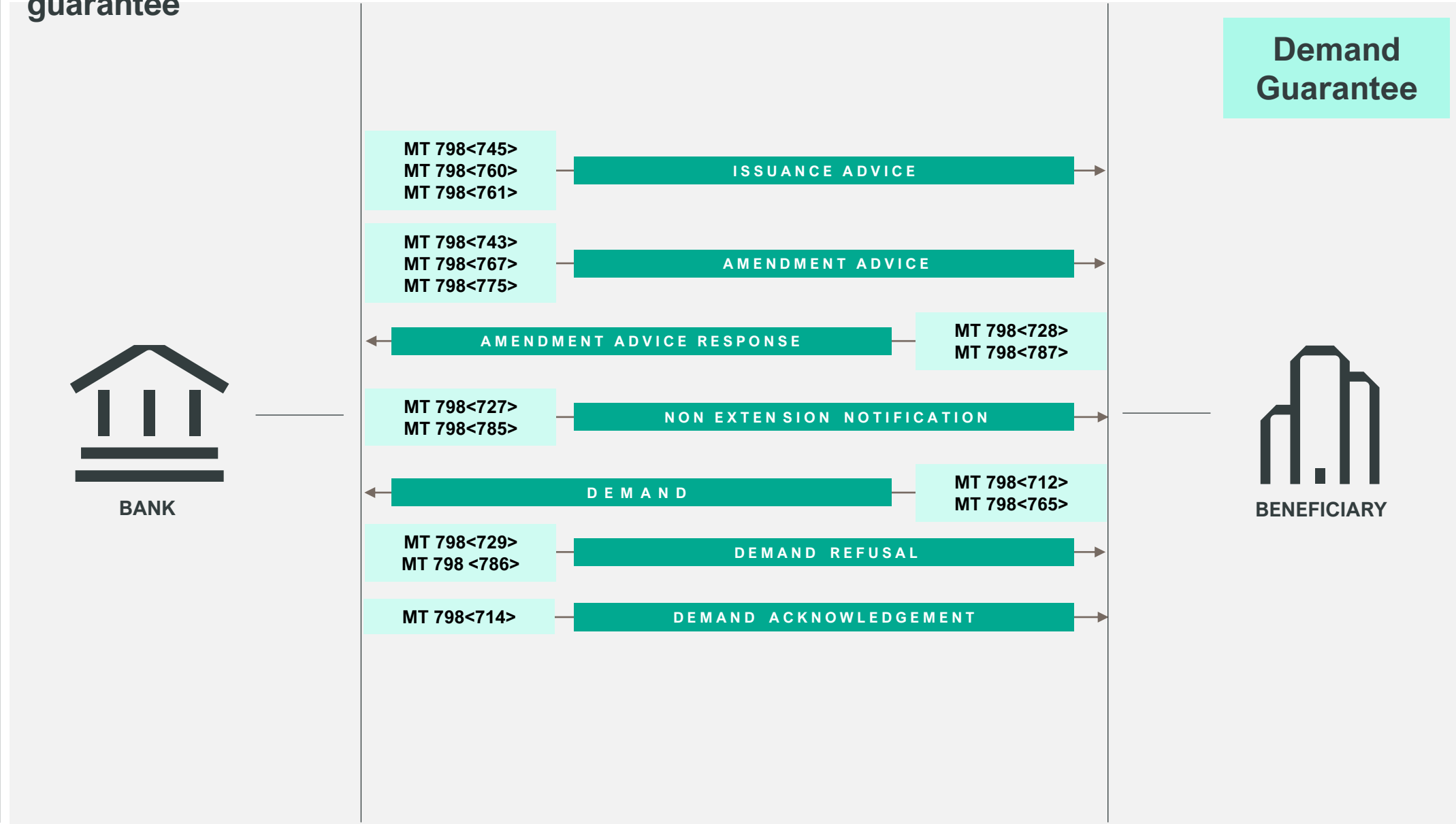
3. Bank Guarantee API - Standards



MT 798 - There is a dedicated message type for each event within the life cycle of a demand guarantee



MT 798 - There is a dedicated message type for each event within the life cycle of a demand guarantee



Difference between MT798 and API for Guarantees

March 2024

C2B Guarantees API

MT 798

- A so-called envelope message which incorporates multiple sub-messages for a transaction event (e.g. application)
- The envelope message has a free format structure by default. The standardization is based on a guideline that provides room for different interpretations
- No validation
- Restricted text length and field limitation
- Swift centric development

Guarantee API

- Full life cycle Guarantee API Standard
- Designed using Open API specification (OAS), ISO 20022 information model and taxonomy for interoperability and evolvability
- Validation (when used via Swift)
- Extended text length and flexible field usage
- Compatible with other ISO initiatives (e.g. payments) and trade API ones (e.g. eBL)
- Co-created with ICC and community

ISO submission versus pilot resources

ISO 20022 submission

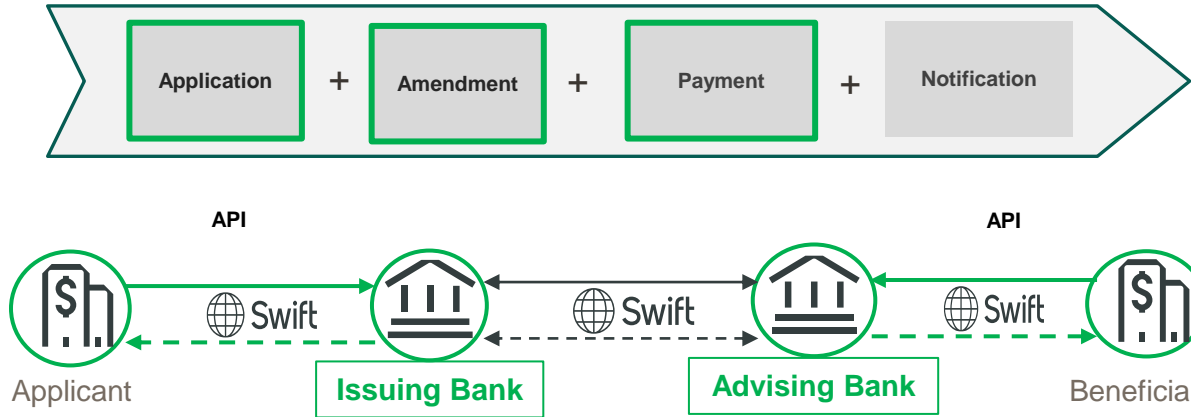
- Business Justification has been submitted and is getting positive reactions
- Resources review comes next, may result in a few changes (esp additions)
- Will result in the truly global gold standard

For the pilot (and ICC community) we will use MT798 data-aligned resources for a smooth, easy integration onto the back-office database. Same field lengths, same functionality as MT798, easily mappable.

ISO 20022 submitted resource is aligned with ISO 20022, hence has longer reference fields, can handle more character sets and has a few additional elements. It is the long-term way forward, and will not be used in the Pilot.

Bank Guarantees API

March 2024
C2B Guarantees API



- POST** `/trade-finance-undertakings` Create Trade Finance Undertaking.
- GET** `/trade-finance-undertakings` Get Trade Finance Undertaking.
- GET** `/trade-finance-undertakings/{application-reference}` Get Trade Finance Undertaking.
- PUT** `/trade-finance-undertakings/{application-reference}` Replace Trade Finance Undertaking.
- PATCH** `/trade-finance-undertakings/{application-reference}` Update Trade Finance Undertaking.
- POST** `/trade-finance-undertakings/{application-reference}/payment-demand` Request Payment.

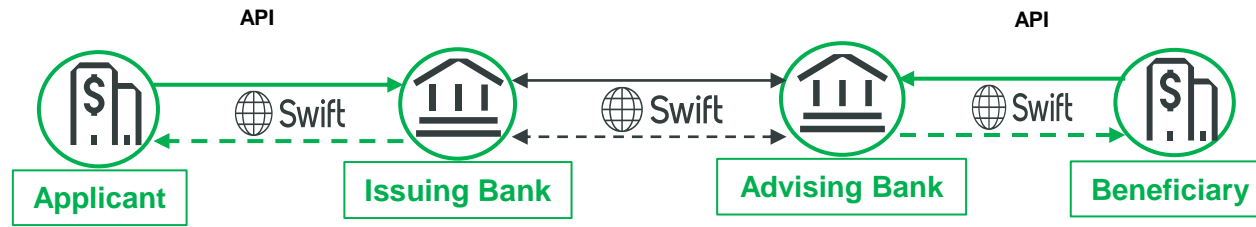


Bank Guarantees API



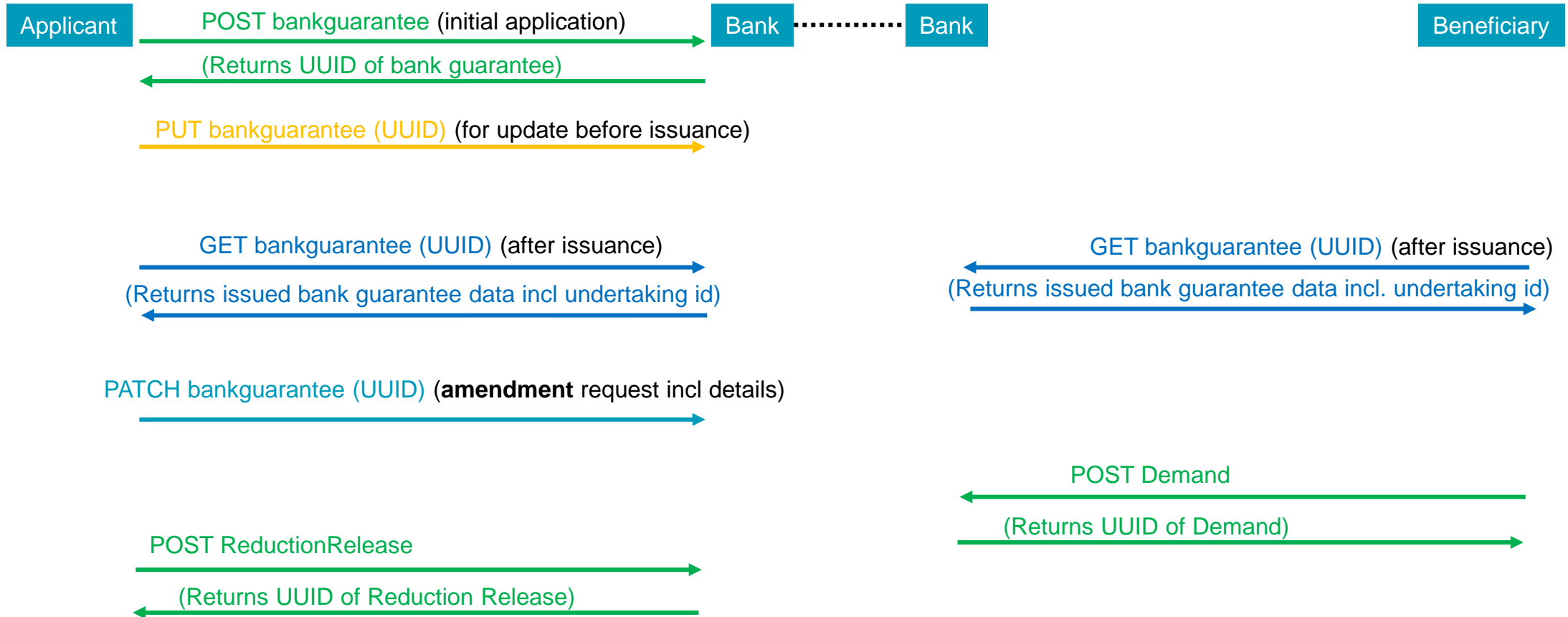
March 2024

C2B Guarantees API



```
POST /bank-guarantee-events Bank Guarantee Notification.
```

API Flows— 4 resources BankGuarantee, Demand, ReductionRelease, Events



Data model extracts – bank guarantee

Bank Guarantee Details [1,1] : BankGuaranteeSubset

- Bank Acknowledgement Reference [0,1] : UUIDv4Identifier
- Applicant Issuance Request Identification [1,1] : RestrictedFINXMax16Text
- Issuer Acknowledgement Identification [0,1] : RestrictedFINXMax16Text
- Undertaking Identification [0,1] : RestrictedFINXMax16Text
- Status [0,1] : ApplicationEventType2Code
- Form Of Undertaking [1,1] : FormOfUndertaking1Code
- Undertaking Purpose [1,1] : UndertakingPurpose1Code
- Undertaking Type [0,1] : Max4Text
- Wording Of Undertaking Type [0,1] : Max4Text
- Language Of Standard Wording [1,1] : ISO2ALanguageCode
- Party [1,*] : PartyIdentification193
- Undertaking Amount [1,1] : ActiveCurrencyAndAmount
- Undertaking Amount Additional Information [0,1] : Max780Text
- Expiry Type [0,1] : ExpiryType1Code
- Undertaking Expiry Date [0,1] : ISODate
- Undertaking Expiry Condition [0,1] : Max780Text
- Expiry Open Ended Indicator [0,1] : boolean
- Confirmation Instructions [0,1] : TradeConfirmationType1Code
- Undertaking Terms And Conditions [1,8] : Max9750Text
- Auto Extension Period [0,1] : AutoExtend1Choice
- Auto Extension Final Expiry Date [0,1] : ISODate
- Auto Extension Notification Period [0,1] : Max3Number
- Auto Extension Non Extension Notification Narrative [0,1] : Max780Text
- Governance Rule Identification [1,1] : Governanceldentification2Code
- Governance Rule Narrative [0,1] : Max35Text
- Applicable Law Or Jurisdiction [0,1] : Location3Subset
- Underlying Transaction Additional Info [0,1] : Max3250Text
- Presentation Instructions [0,1] : Max6500Text
- Presentation Document [0,*] : Document13Subset
- Presentation Medium [1,1] : Max4Text



Data model extracts – bank guarantee

- Bank Guarantee Details [1,1] : BankGuaranteeSubset
 - Bank Acknowledgement Reference [0,1] : UUIDv4Identifier
 - Applicant Issuance Request Identification [1,1] : RestrictedFINXMax16Text
 - Issuer Acknowledgement Identification [0,1] : RestrictedFINXMax16Text
 - Undertaking Identification [0,1] : RestrictedFINXMax16Text
 - Status [0,1] : ApplicationEventType2Code
 - Form Of Undertaking [1,1] : FormOfUndertaking1Code
 - Undertaking Purpose [1,1] : UndertakingPurpose1Code
 - Undertaking Type [0,1] : Max4Text
 - Wording Of Undertaking Type [0,1] : Max4Text
 - Language Of Standard Wording [1,1] : ISO2ALanguageCode
 - Party [1,*] : PartyIdentification193
 - Undertaking Amount [1,1] : ActiveCurrencyAndAmount
 - Undertaking Amount Additional Information [0,1] : Max780Text
 - Expiry Type [0,1] : ExpiryType1Code
 - Undertaking Expiry Date [0,1] : ISODate
 - Undertaking Expiry Condition [0,1] : Max780Text
 - Expiry Open Ended Indicator [0,1] : boolean
 - Confirmation Instructions [0,1] : TradeConfirmationType1Code
 - Undertaking Terms And Conditions [1,8] : Max9750Text
 - Auto Extension Period [0,1] : AutoExtend1Choice
 - Auto Extension Final Expiry Date [0,1] : ISODate
 - Auto Extension Notification Period [0,1] : Max3Number
 - Auto Extension Non Extension Notification Narrative [0,1] : Max780Text
 - Governance Rule Identification [1,1] : Governanceldentification2Code
 - Governance Rule Narrative [0,1] : Max35Text
 - Applicable Law Or Jurisdiction [0,1] : Location3Subset
 - Underlying Transaction Additional Info [0,1] : Max3250Text
 - Presentation Instructions [0,1] : Max6500Text
 - Presentation Document [0,*] : Document13Subset
 - Presentation Medium [1,1] : Max4Text

Name

UndertakingAmount

Documentation

Amount and currency of the undertaking.

MT Mapping: field 32B



Data model extracts – bank guarantee

- Bank Guarantee Details [1,1] : BankGuaranteeSubset
 - Bank Acknowledgement Reference [0,1] : UUIDv4Identifier
 - Applicant Issuance Request Identification [1,1] : RestrictedFINXMax16Text
 - Issuer Acknowledgement Identification [0,1] : RestrictedFINXMax16Text
 - Undertaking Identification [0,1] : RestrictedFINXMax16Text
 - Status [0,1] : ApplicationEventType2Code
 - Form Of Undertaking [1,1] : FormOfUndertaking1Code
 - Undertaking Purpose [1,1] : UndertakingPurpose1Code
 - Undertaking Type [0,1] : Max4Text
 - Wording Of Undertaking Type [0,1] : Max4Text
 - Language Of Standard Wording [1,1] : ISO2ALanguageCode
 - Party [1,*] : PartyIdentification193
 - Type [1,1] : Max4Text
 - Identification [0,1] : Max35Text
 - Issuer [0,1] : Max35Text
 - Any BIC [0,1] : AnyBICDec2014Identifier
 - LEI [0,1] : LEIIdentifier
 - Name [0,1] : RestrictedFINXMax35Text
 - Address Line [0,3] : RestrictedFINXMax35Text
 - Country [0,1] : CountryCode
 - Contact Name [0,1] : RestrictedFINXMax35Text
 - Contact Phone Number [0,1] : PhoneNumber
 - Contact Email Address [0,1] : Max2048Text
 - Undertaking Amount [1,1] : ActiveCurrencyAndAmount
 - Undertaking Amount Additional Information [0,1] : Max780Text
 - Expiry Type [0,1] : ExpiryType1Code
 - Undertaking Expiry Date [0,1] : ISODate
 - Undertaking Expiry Condition [0,1] : Max780Text
 - Expiry Open Ended Indicator [0,1] : boolean
 - Confirmation Instructions [0,1] : TradeConfirmationType1Code
 - Undertaking Terms And Conditions [1,8] : Max9750Text
 - Auto Extension Period [0,1] : AutoExtend1Choice
 - Auto Extension Final Expiry Date [0,1] : ISODate
 - Auto Extension Notification Period [0,1] : Max3Number
 - Auto Extension Non Extension Notification Narrative [0,1] : Max780Text
 - Governance Rule Identification [1,1] : Governanceldentification2Code
 - Governance Rule Narrative [0,1] : Max35Text
 - Applicable Law Or Jurisdiction [0,1] : Location3Subset
 - Underlying Transaction Additional Info [0,1] : Max3250Text
 - Presentation Instructions [0,1] : Max6500Text
 - Presentation Document [0,*] : Document13Subset
 - Presentation Medium [1,1] : Max4Text

Type		
"Code"	"Name"	"Definition"
ADVP	AdvisingParty	Party advising the undertaking.
ANYB	AnyBank	Any bank.
APPL	Applicant	Party named in the undertaking as the "ap
BENE	Beneficiary	Party in whose favour the undertaking (o
CONF	ConfirmationParty	Party that adds its undertaking to
CUB2	SecondCounterUndertakingBeneficiary	Beneficiary of t
CUB3	ThirdCounterUndertakingBeneficiary	Beneficiary of t
ISSU	Issuer	Party that issues the undertaking (or counter-u
ORIG	Obligor	Party obligated to reimburse the issuer



Data model extracts – amendment request is done through patch operation of the bank guarantee resource

- Amendment Request Supporting Information [0,1] : BankGuaranteeAmendment2Subset
 - Amendment Request Identification [1,1] : RestrictedFINXMax16Text
 - Amendment Sequence Number [1,1] : Max3NumericText
 - Amendment Request Date [0,1] : ISODate
 - Date Of Amendment [0,1] : ISODate
 - Undertaking Termination Request [0,1] : boolean
 - Undertaking Amendment Instruction Purpose [0,1] : AmendmentMessagePurpose1Code
 - Undertaking Increase Decrease Amount [0,1] : Amount1Choice
 - Undertaking Amendment Additional Information [0,8] : Max9750Text
 - Counter Undertaking Increase Decrease Amount [0,1] : Amount1Choice
 - Counter Undertaking Amendment Additional Information [0,1] : Max9750Text
 - Delivery Channel Method [0,1] : Max4Text
 - Deliver To Party Type [0,1] : Max4Text
 - Deliver To Name [0,1] : RestrictedFINXMax140Text
 - Deliver To Address [0,3] : RestrictedFINXMax35Text
 - Deliver To Tracking Reference [0,1] : Max35Text
 - Supporting Document [0,*] : Document14
 - Instructions To Bank [0,1] : Max210Text

(response as part of Events resource)

- Amendment Response [1,1] : AmendmentResponseInformation1
 - Amendment Request Identification [1,1] : RestrictedFINXMax16Text
 - Amendment Sequence Number [1,1] : Max3NumericText
 - Amendment Request Date [0,1] : ISODate
 - Amendment Response [1,1] : UndertakingStatus2Code
 - Amendment Response Date [0,1] : ISODate
 - Amendment Response Information [0,1] : Max10000Text

Data model extracts – demand resource (also for Extend or Pay request)

- 🔒 Demand [1,1] : Demand7Subset
 - 🔒 Bank Acknowledgement Reference [1,1] : UUIDv4Identifier
 - 🔒 Undertaking Identification [0,1] : RestrictedFINXMax16Text
 - 🔒 Demand Identification [1,1] : RestrictedFINXMax16Text
 - 🔒 Advising Party Reference Number [0,1] : RestrictedFINXMax16Text
 - 🔒 Beneficiary Reference Number [0,1] : RestrictedFINXMax16Text
 - > 🔒 Demand Type [1,1] : DemandType1Code
 - 🔒 Demand Submission Date [1,1] : ISODate
 - > 🔒 Demand Amount [1,1] : ActiveCurrencyAndAmount
 - 🔒 Demand Amount Additional Information [0,1] : Max780Text
 - > 🔒 Party [1,*] : PartyIdentification193
 - 🔒 Requested Expiry Date [0,1] : ISODate
 - > 🔒 Complete Indicator [1,1] : CompleteDemand1Code
 - 🔒 Completion Information [0,1] : Max3250Text
 - 🔒 Presentation Completion Details [0,1] : Max700Text
 - > 🔒 Settlement Account [0,*] : CashAccount204
 - 🔒 Instructions From Bank [0,1] : Max210Text
 - > 🔒 Documentation [0,*] : Document14
 - > 🔒 Extend Or Pay Details [0,1] : ExtendOrPayQuery3

(response as part of Events resource)

- ✓ 🔒 Extend Or Pay Response [1,1] : DemandResponseInformation1
 - 🔒 Demand Identification [1,1] : RestrictedFINXMax16Text
 - > 🔒 Extend Or Pay Status Response [0,1] : DemandStatus1Code

(refusal response as part of Events resource)

- ✓ 🔒 Demand Refusal [0,1] : DemandRefusal2
 - 🔒 Demand Identification [1,1] : RestrictedFINXMax16Text
 - 🔒 Status [1,1] : Refused7Text
 - 🔒 Reason [0,*] : Max3500Text
 - 🔒 Disposition Of Documents [0,1] : Max105Text
 - 🔒 Additional Information [0,1] : Max210Text



Data model extracts – reduction / release resource

- Reduction Release [1,1] : ReductionReleaseNotice3Subset
 - Bank Acknowledgement Reference [1,1] : UUIDv4Identifier
 - Undertaking Identification [0,1] : RestrictedFINXMax16Text
 - Undertaking Release Reduction Date [0,1] : ISODate
 - Undertaking Release Reduction Reason [0,1] : Max4Text
 - > ➤ Reduced Or Released Amount [0,1] : ActiveCurrencyAndAmount
 - > ➤ Outstanding Amount [0,1] : ActiveCurrencyAndAmount
 - Amount Additional Information [0,1] : Max140Text
 - > ➤ Account With Bank [0,1] : PartyIdentification196
 - Charge Type [0,1] : Max8Text
 - Charges Payable By [0,1] : Max4Text
 - > ➤ Charges Account [0,1] : AccountIdentification47Choice
 - > ➤ Charge Amount [0,1] : ActiveCurrencyAndAmount
 - AdditionalInformation [0,1] : Max210Text
 - > ➤ Supporting Document [0,*] : Document14

(event code as part of Events resource)

◆ Reduction Release Advice [RRAD]

Appendix - Swift API channel



Standardised APIs on Swift Benefits

March 2024

C2B Guarantees API

	APIs in the wild	APIs on SWIFT	Benefit of SWIFT's standardised API approach
Consumption models	Multiple connections (1 per partner)	Single connection	<ul style="list-style-type: none"> • Lower cost • Simple maintenance • Reduced security risk • Easy to scale
Identification authentication, authorisation	Multiple identity standards and providers	Single solution: SWIFT identity, OAuth 2.0	<ul style="list-style-type: none"> • Lower cost • Simple maintenance • Reduced security risk • Easy to scale
Data model and specification	Multiple rulebooks Multiple specifications	Single rulebook Single specification based on ISO20022 OpenAPI 3.0	<ul style="list-style-type: none"> • Lower cost • Simple maintenance • Easy to scale

Benefits

- Single identity and connectivity globally
- Single global standard
- Real-Time Visibility
- Secure Swift connectivity
- Greater ROI by reusing your SWIFT connection and scale for global access
- Light footprint



What are the different types of services available through the Swift API?

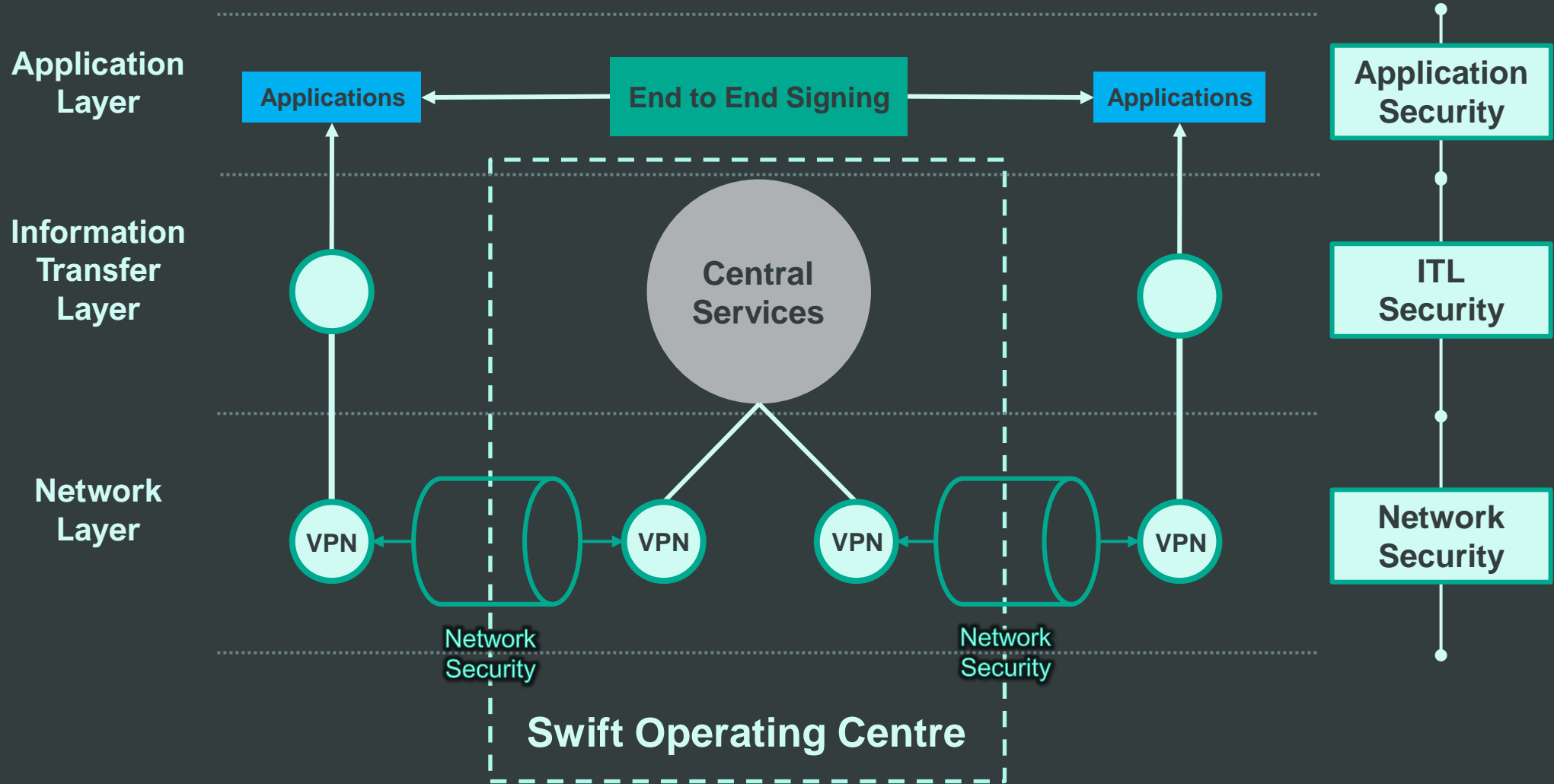
March 2024

C2B Guarantees API

	Description	Requirements	Example
Swift services	SWIFT services are those where the underlying data or functionality is provided by a Swift product.	<ul style="list-style-type: none"> The only requirement is for the member to sign up to the service as a consumer on the Swift platform. 	<ul style="list-style-type: none"> Cross-border payment/transaction tracking Payment pre-validation
Standardised services	Standardised services are provided through APIs designed by Swift in collaboration with the Swift community. The service may be provided by Swift or the data and functionality may be provided by a Swift member.	<ul style="list-style-type: none"> Swift members sign up to the service – as a consumer, as a provider or both. 	<ul style="list-style-type: none"> Full life cycle Guarantee API Standard in the Corporate to Bank space, produced as a unified specification jointly developed with ICC Multiple banks providing standardized Instant Cash Reporting to their corporates
Trusted third party services	Trusted third party services are those where a proprietary service is provided by a Swift member or certified partner to SWIFT members via API.	<ul style="list-style-type: none"> The Swift member must sign up to the service as a consumer on SWIFT platform. The SWIFT member must order the service from the third party. Swift members providing services must also sign up as a provider. 	<ul style="list-style-type: none"> Bank of England RTGS APIs EBA Clearing providing Liquidity Management services for Step 2 (many-to-one) MonetaGo providing trade document validation services to SWIFT banks.

Swift's Services Architecture ensures Confidentiality and Integrity

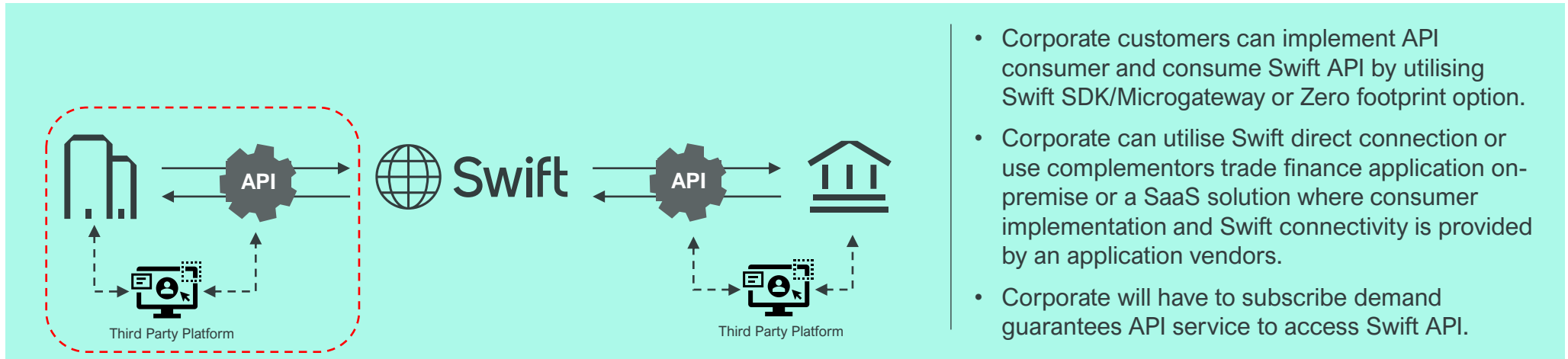
Layered security model with PKI-based user to user authentication



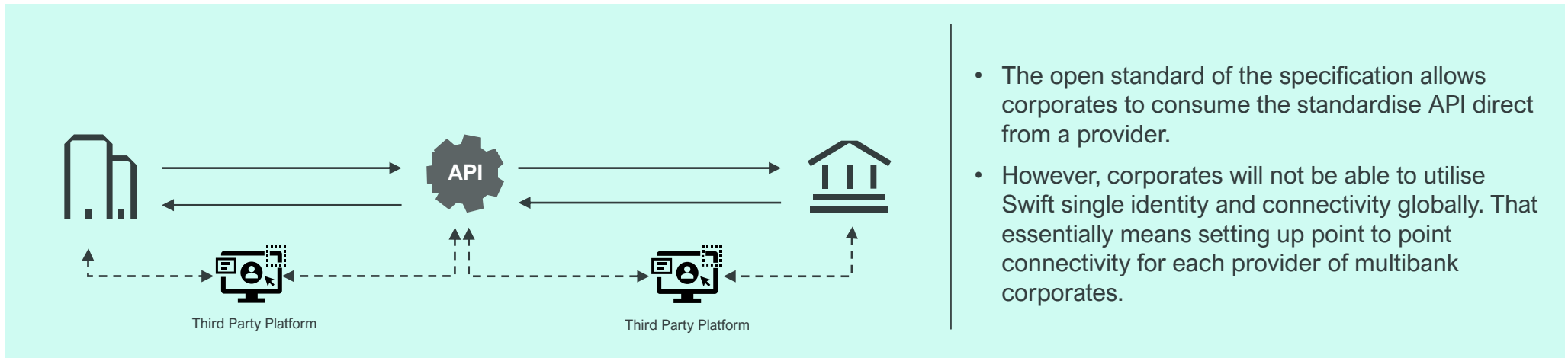
Connectivity Models – API Consumer

March 2024

C2B Guarantees API



- Corporate customers can implement API consumer and consume Swift API by utilising Swift SDK/Microgateway or Zero footprint option.
- Corporate can utilise Swift direct connection or use complementors trade finance application on-premise or a SaaS solution where consumer implementation and Swift connectivity is provided by an application vendors.
- Corporate will have to subscribe demand guarantees API service to access Swift API.

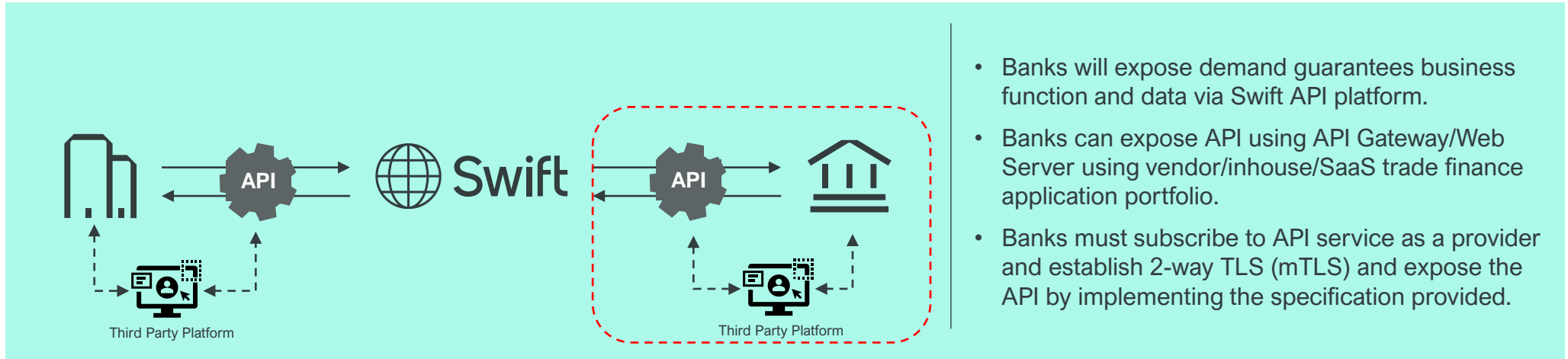


- The open standard of the specification allows corporates to consume the standardise API direct from a provider.
- However, corporates will not be able to utilise Swift single identity and connectivity globally. That essentially means setting up point to point connectivity for each provider of multibank corporates.

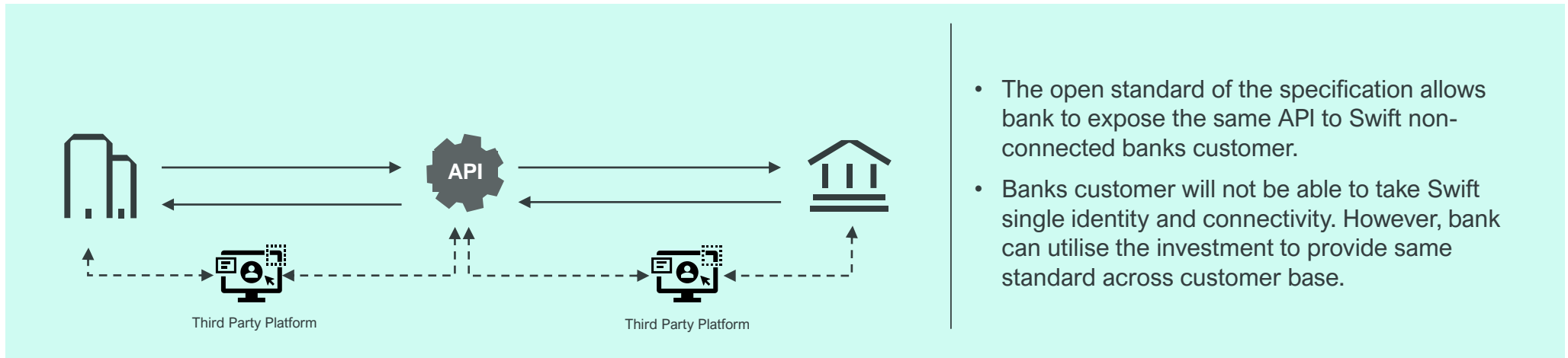
Connectivity Models – API service provider

March 2024

C2B Guarantees API



- Banks will expose demand guarantees business function and data via Swift API platform.
- Banks can expose API using API Gateway/Web Server using vendor/inhouse/SaaS trade finance application portfolio.
- Banks must subscribe to API service as a provider and establish 2-way TLS (mTLS) and expose the API by implementing the specification provided.



- The open standard of the specification allows bank to expose the same API to Swift non-connected banks customer.
- Banks customer will not be able to take Swift single identity and connectivity. However, bank can utilise the investment to provide same standard across customer base.

Questions?



Closing



Dr Mario Reichel
PPI AG
Co-Convener



