Report and conclusions

gpi link
Proof of concept

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Executive summary

In January 2019 SWIFT kicked-off a proof of concept with 7 gpi instructing members, one DLT technology provider and one trade platform. The objective was to test the feasibility for non-SWIFT connected corporates - active on digital trade ecosystems - to initiate a payment via an open API, have it settled through gpi members and receive the credit confirmation back on the trade platform. The technical feasibility of the concept was successfully demonstrated in a lab environment and the results were presented at Sibos 2019.

Conclusions confirm that the proof of concept was successful from a technical perspective and SWIFT has a central role to play in the development of a settlement link solution thanks to its global payment reach, its authority to act as an industry standardisation body and the trust that parties have in the network. However the demand for such a solution, especially for the proposed use case (i.e. corporate-initiated payments), has proven to be limited at this stage. As such, we have decided to pause further development of the gpi link service at this time.

As a next step, SWIFT will continue monitoring the evolution of ecosystems across different industries, focus its efforts on the development of payment confirmation APIs for the gpi for corporates community and explore how these can be extended to non-SWIFT users.

Business drivers, objectives and scope

Digital ecosystems are thriving across different types of industries, the main driver often being to facilitate and optimise the flow of data amongst a network of participants.

A digital ecosystem is an interdependent group of enterprises, financial institutions, government bodies or individuals that share standardised digital platforms for a mutually beneficial purpose, such as commercial and/or efficiency gains. Digital ecosystems enable interactions with customers, partners, adjacent industries, and even the competition (definition freely adapted from Gartner Research). Trade finance, supply chain management, capital markets and e-commerce are typical areas seeing the emergence of such digital ecosystems.

From a technology point of view, many ecosystems rely on DLT (Distributed Ledger Technology) for its data sharing benefits. Open APIs (Application Programming Interfaces) are commonly used to interact with third parties.

In the majority of the ecosystems, a payment transaction ultimately needs to be executed. However, digital ecosystems are facing challenges when it comes to settle a transaction:

- a global payment reach is hard to achieve as it requires many banks to be connected to the digital platform. There are also so many different platforms that a bank can simply not connect to all of them;
- the payment confirmation is a key enabler to ensure workflows are automated;
- digital platform members expect a seamless payment experience. It not only needs to be fast, secure and trackable but it also needs to be convenient and easy to use.

SWIFT gpi has the capability to address the above-mentioned challenges, and to engage gpi banks that otherwise risk disintermediation by the emergence of alternative settlement channels.

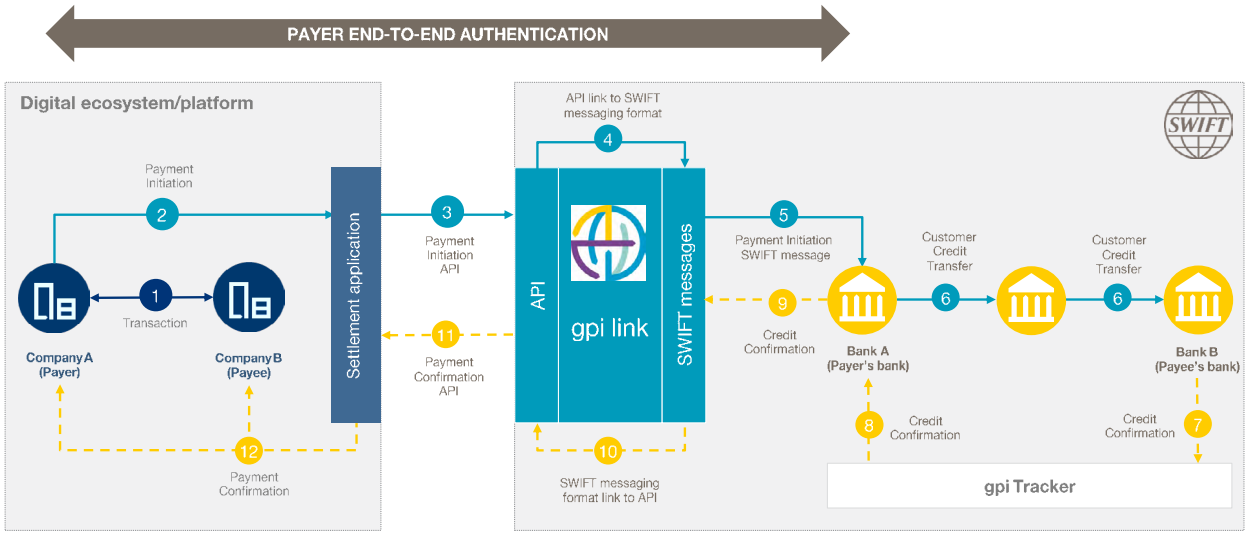
The objective of the proof of concept was therefore to demonstrate that:

- a payment can be initiated through an open API by a non-SWIFT corporate from a non-SWIFT ecosystem to their bank;
- the gpi instructing member can validate the authenticity of the payment initiation;
- the payment confirmation can be returned to the ecosystem via an open API.

The project was kicked-off in January 2019, with seven gpi banks (BBVA, Citi, Deutsche Bank, HSBC, Intesa Sanpaolo, Sumitomo Mitsui Banking Corporation and Société Générale), one DLT technology provider (R3), and one trade ecosystem (Rice Exchange).

Concept

The gpi link was designed to work as depicted below:



1. Company A trades with Company B on a digital ecosystem. As part of that trade, Company A has to make a payment to Company B;
2. Company A initiates a payment to its bank using the trade application;
3. The trade application sends a (signed) payment initiation request to the gpi link via an API. This payment initiation contains a UETR (Unique Transaction End-to-end Reference);
4. The gpi link receives the payment initiation request and creates a standard message that contains the UETR and the signature;
5. The gpi link sends the signed payment initiation message to Bank A (bank of Company A);
6. Bank A validates the payment initiation signature, processes the payment as a gpi payment (gpi Customer Credit Transfer) and sends it to Bank B (bank of Company B);
7. Bank B confirms the credit and updates the gpi Tracker;
8. Bank A receives the confirmation from the gpi Tracker;
9. Bank A sends a standard confirmation message to the gpi link;
10. The gpi link receives the standard confirmation message and makes the payment confirmation available to the trade application via an open API;
11. The trade application calls the payment confirmation API using the UETR of the transaction to get the payment status;
12. The trade application updates the ecosystem's ledger on the payment confirmation.

Key areas of exploration

In the proof of concept, we assumed that the payment would be originated by a non-SWIFT corporate from a non-SWIFT ecosystem. We therefore needed to explore a number of areas: the potential use cases for gpi link, the end-to-end authentication, the identification of the payer and the payee, the credit confirmation and the contractual framework.

Use cases

The credit confirmation being a key enabler of the value proposition, gpi link is built on payment messages that are currently tracked and confirmed on SWIFT, i.e. customer credit transfers. For convenience reasons, we opted for corporate-initiated payments.

However, the demand for this use case quickly proved to be limited, at least at this stage. Many trade and supply chain platforms have not yet moved beyond the proof of concept phase and do not have the required critical mass of users. Potential reasons for this include the emergence of multiple platforms to solve similar business challenges, the lack of standards, the lack of interoperability between the platforms, and the maturity level of the underlying technologies (e.g. DLT still raises legal or privacy concerns).

Participants rather expressed a strong interest in developing APIs to initiate and confirm financial institution payments. Most of the participating banks are indeed involved in at least one of the major DLT-based trade finance platforms. Confirmation of MT202 on SWIFT is however a pre-requisite to serve these ecosystems.

Additional use cases identified for gpi link include capital markets digital platforms, e-commerce or Open Banking.

End-to-end authentication

End-to-end authentication was a key aspect to explore in this proof of concept. As the payment is initiated by a non-SWIFT corporate from a non-SWIFT platform/ecosystem, the gpi instructing bank needs to be certain that the payment request is truly originated by their customer. An embedded end-to-end authentication was successfully demonstrated using a private/public key solution. However, there are many authentication options and models that could be implemented. On top of security concerns, the end-user experience should be a key concern in the design of the authentication solution. Hence the authentication solution might differ according to the use case.

Identification

The assumption of the proof of concept was that the paying corporate on the ecosystem is not a SWIFT user and therefore does not have a BIC, while a BIC is required to send messages over SWIFTNET. In the proof of concept, the LEI (Legal Entity Identifier) was used to identify corporates and a BIC was assigned to gpi link. Open questions remain such as the entity that should have a BIC, or the potential re-use of the ecosystem's own identification scheme.

Credit confirmation

The payment confirmation is key on most ecosystems, especially the DLT-based ones that are using smart contracts. The information contained in the confirmation message is however sensitive and today banks only provide that information to their customers only. But to fully realise the benefits of the ecosystem, other stakeholders might need to receive the credit confirmation as well.

To cater for sensitivity concerns, only a 'light' confirmation was provided in the proof of concept: transaction status (credited, rejected, pending) and credited amount. This was considered enough to prove the concept (a confirmation can be returned to the ecosystem).

There was no consensus amongst the participants' community on the content and on the recipient(s) of the confirmation message. Answers to these questions can only be provided when the use case and the various stakeholders are concretely identified. A due diligence by the instructing gpi member on the ecosystem is likely to be required. Confirmation rules can also vary depending on the type and nature of the ecosystem. This in turn raises the question of the contractual framework between all stakeholders.

Contractual framework

The gpi instructing bank receives a (signed) payment initiation that is issued on an ecosystem which is "unknown" to the bank. Therefore, the instructing bank might request to have a contractual relationship with the ecosystem. According to all participants, such a contract should at least include security and compliance clauses. Another model to explore is one where gpi link has a relationship with the ecosystem, and the gpi instructing bank relies on gpi link.

Value and benefits

In our opinion, a gpi link-type of solution has the potential to bring value as described below to various stakeholders:

For banks:

- Standardised integration in many platforms in the market and across industries;
- Re-intermediation in the payment chain: ability to capture payments at risk which would otherwise be settled via alternative channels;
- Ability to address evolving customer demand (digitalisation) and diverse segments (corporates, retail, FIs…) through a single integration;

For corporates:

- Seamless settlement experience in fiat currency within the digital ecosystem;
- Payment confirmation returned to the ecosystem, allowing for the smooth execution of business processes and contracts;
- gpi payment experience: fast, global, transparent and secured settlement.

For platform providers and ecosystems:

- Capability to offer a global payment reach in fiat currency with a single integration;
- Easy integration via open APIs.

Key learnings and next steps

The technical feasibility of the concept was successfully demonstrated in a lab environment:

- payment initiation and payment confirmation APIs;
- payment initiation signature;
- industry standard messages (ISO 20022);
- validation of the payment initiation's signature by the gpi instructing bank.

Some challenges remain (end-to-end authentication, identification, contractual framework, etc.) but can only be further explored when potential use cases are more mature.

Participants also confirmed that SWIFT has a central role to play in the development of a settlement link solution, thanks to its global payment reach, its authority to act as an industry standardisation body and the trust that parties have in the network:

"Corporate trade digital ecosystems are isolated from payment ecosystems. This SWIFT initiative could bridge the gap and pave the way for the emergence of a new standard." (Société Générale)

"We believe that this Proof of Concept is truly ahead of its time, and will, with time, be applicable within several different scopes, from DLT trade platforms to e-commerce sites. The opportunities and reach of this visionary project has few bounds; when the global need for this will spread throughout the markets, the SWIFT team will be ready!" (Intesa Sanpaolo)

As the demand for such a solution is limited at this stage, SWIFT has decided to pause further development of the gpi link service at this time and will now focus on developing payment confirmation APIs for the gpi for corporates community. In addition, a potential extension of these APIs to non-SWIFT users will also be explored with the gpi members.

We will continue monitoring the evolution of ecosystems across different industries.

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About SWIFT

SWIFT is a global member-owned cooperative and the world's leading provider of secure financial messaging services. We provide our community with a platform for messaging and standards for communicating, and we offer products and services to facilitate access and integration, identification, analysis and financial crime compliance.

Our messaging platform, products and services connect more than 11,000 banking and securities organisations, market infrastructures and corporate customers in more than 200 countries and territories, enabling them to communicate securely and exchange standardised financial messages in a reliable way.

As their trusted provider, we facilitate global and local financial flows, support trade and commerce all around the world; we relentlessly pursue operational excellence and continually seek ways to lower costs, reduce risks and eliminate operational inefficiencies.

Headquartered in Belgium, SWIFT's international governance and oversight reinforces the neutral, global character of its cooperative structure. SWIFT's global office network ensures an active presence in all the major financial centres.

To find out more about SWIFT's work on distributed ledger technologies, please contact DLT@swift.com

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About SWIFT gpi

SWIFT gpi has prompted the largest change in cross-border payments over the last 30 years and is the new standard, combining real-time payments tracking with the certainty of same-day settlement. As an initiative, it engages the global banking industry and fintech communities to innovate in the area of cross-border payments while reducing their back-office costs. Since its launch in January 2017, gpi has dramatically improved the cross-border payments experience for corporate treasurers in over 1,900 country corridors. Key features of the gpi service include enhanced business rules and a secure tracking database in the cloud accessible via APIs, resulting in faster "same day credits" to end beneficiaries, transparency of fees, and end-to-end tracking of payments in real-time.

Disclaimer

This report is the final report.
The views expressed in this report are SWIFT's views and interpretation of the results arising out of the PoC and do not necessarily reflect all individual participating bank's views.

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