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Jun. 14, 2022

By Keith Axelsen.

The credit card has come a long way since Forrest and Dorothea Parry invented it in 1960. Forrest was an IBM engineer working on bar code systems and optical character readers when he came up with the idea of a plastic card with data stored on a magnetic tape strip. He tried gluing the strip to the card, but the glue destroyed

the data. His wife Dorothea suggested ironing it on. Her idea worked, and the system

With the rise of third party APIs and microservices, companies building digital businesses can integrate customized virtual card capabilities right into their operational processes. Think of it as a Virtual Card as a Service. I spent 15 years helping develop this technology, starting in the mid-2000s.

At the time, what we were building was targeted at helping online travel agencies (OTAs) and Travel Management Companies (TMCs) better service hotels. During the Great Recession, corporate or leisure travel collapsed. With business slumping, OTAs & TMCs were looking for ways to increase efficiency and cut costs–for themselves, and for the hotels they served.

Their business model, which was relatively new at the time, was to collect and aggregate data about room inventory and prices from global distribution systems (GDSs) such as Sabre, Amadeus and Travelport. They would then publish the listings in a user-friendly platform where travelers could book rooms directly through an API integration to the GDS, as opposed to having to call a bunch of hotels on the telephone and book directly.

In exchange for acting as a marketing and sales arm for the hotels, OTAs would earn a commission or assess a fee on room nights. For example, let's say you reserve a hotel room through an OTA for $225. The OTA charges your card $225 through their acquirer. They're the merchant in this scenario, so on your credit card statement you'll see a charge from the OTA or TMC for $225.

You're done with the transaction, but the OTA still needs to pay the hotel the agreed upon amount. At the time, most OTAs were doing this part offline. Hotels could send them a detailed invoice weekly or monthly, and they would manually reconcile that with inventory sold and send a check. It was costly and inefficient for all parties.

Then as now, most travelers paid for hotel stays with credit cards, so hotels' accounts

We built a tech stack to be able to issue unique virtual card numbers one at a time, at the time the traveler booked the room. The $225 hotel room sale triggers the OTA to call a virtual card API and request a virtual card.

The issuer sends the OTA a unique 16-digit MasterCard number, with expiration date, CVC and embedded controls that only allow it to be used only for an agreed upon amount in the merchant category code hotels. The OTA then pushes that unique card number to the GDS, which has all the data associated with your reservation, and they pass the card number and the data to the hotel.

The hotel's payment system charges that card the same way they would if the 16 digits were embossed on plastic, and the authorization request from the hotel goes back to the credit card processing platform for authorization.

The validity of the card number, the available credit, and merchant category code are confirmed. The transaction clears through the MasterCard network overnight. The hotel gets the funds immediately into their account. The transaction is posted to the processing platform, and the OTA associated with the booking sees the expected charge on their bill.

The Virtual Card Advantage

All of this is computer to computer, and it happens in seconds–much faster than you can read this explanation about it.

It didn't take long for other industries to understand the benefits of this system– immediate, secure payment with customizable controls to prevent fraud; ease of reconciliation, and charge back capabilities in the case of disputes. Insurance claims management software providers were among the early adopters to integrate virtual cards into their processes..

Once an auto insurance claim is approved, for example, you need a mechanism to pay

This is the beauty of APIs and microservices. Developers and product leaders can focus on the core capabilities of their business, and connect into as a service offerings for capabilities such as website search, location data, and payment connectivity. It doesn't make sense to build these things themselves when they can integrate it as a service from a provider that has already perfected it.

In the realm of payments, working with a full stack virtual card as a service provider–one who is both issuer–can even enhance their own offerings with additional capabilities such as terms and financing.

The humble plastic credit card with the mag stripe changed the way we pay. Although people still carry plastic in their wallets, it's been a long time since plastic was just a convenient way to pay for something. Today's credit cards are sophisticated payment tools that carry richer data and offer a broader range of capabilities. In a data driven world, being able to integrate all of that into a wide variety of business processes is at the core of helping digital businesses scale and thrive.

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