OPTI

CASE STUDY

Mobile payments platform

OPTI integrated 100+ mobile carriers worldwide to quickly charge game players

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challenge

Mobile payments are a strategic move for all gaming companies. They allow scaling to a large user base that pays regular small amounts.
To sell mobile games worldwide through mobile payments, we tackled four challenges:

Unify hundreds of different APIs

Unify user journeys and flows

Deliver speed and scalability

Ensure reliability and traceability

solution

Unify hundreds of different APIs

Each mobile carrier has its own API. The single platform took into account their differences:
- Support for *HTTP and non-HTTP API*.
- Multiple authentication methods
- Multiple format encoding.
- Multiple interaction patterns: send a request-read response, *send a request-download response, send a request-wait-receive response*.

In order to translate all of them into a single standard format, high-level standardization was applied. OPTI found common patterns to organize the variable APIs in less than ten general concepts. The most important concepts were the user (the millions of end clients) and the procedure (an action performed by or for a user, such as a payment, balance-check or refund). Intermediary concepts were used to make the transition from the standard high-level structure to the low-level variable APIs. The standardization used UML in a structured SQL database, and noSQL data stores for non-critical data.

Unify user journeys and flows
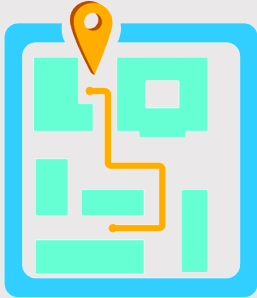
The payment platform's purpose was to bring the user from their first access to the completed payment. We took into account:

- *Regulatory differences (country laws).*
- *Payment-schedule differences*: one-time charging, daily charging, weekly charging etc.
- *Balance checking.*
- *Product granularity*: One of the thousands of product variants should be delivered to the user based on what he paid.

OPTI extended the high-level standardization in the data structure to the programming code used. Each mobile carrier could be assigned a programmer. But common standards and a mandatory common design are specified.

Deliver speed and scalability
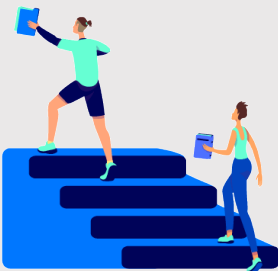
The payment platform has to deal with millions to billions of users and procedures. Our top priorities were:

- *Payment speed*
- *Payment regularity*
- *Distributed nature*
- *Natural separation of resources*
- *Resources economy*

OPTI measured and computed the impact of each procedure on the hardware theoretically, choosing time-tested technologies. A scheduling engine was developed from scratch. We also put business logic in the database itself (i.e. using stored procedures and database triggers)

Ensure reliability and traceability

Any payment system requires the highest level of reliability and traceability:

- *Payment history*
- *Atomicity and reversibility*
- *Ease of inspection*
- *Documentation and ease of on-boarding in place.*

OPTI designed a noSQL data store separated from the standard structured SQL data store to record the entire process history. All API interactions are also logged. The project documentation includes the programming standards, the detailed programming structure and the API interaction details.

results

Billions of SMS and mobile payments
The system supports loads of up to one hundred mllion micropayments per day.

Millions of subscribers
Users are subscribed and charged at regular intervals using mobile and SMS payments.

Quality assurance
The system performs reliable balance checking. partial payments, payment retry, payment deferal, payment refund.

Real-time analytics
The systems is integrated with a powerful analytics platform allowing real-time inspection and reaction.

Local and timezone optimization
The system is optimized for country, operator and timezone efficiency, so as to charge users in the best time interval.

Cloud infrastructure
The system runs in the cloud on scalable infrastructure, allowing cost control and easy scaling.

Thank you for your time!