

PAYMENT SERVER AND METHOD FOR PERFORMING A PAYMENT

TECHNICAL FIELD

[0001] Various aspects of this disclosure relate to payment servers and methods for performing a payment.

BACKGROUND

[0002] Consumer Digital Payment is a service which is becoming more and more popular since it offers consumers (i.e. customers) a convenient way to pay for goods or services. One of the biggest issues with such a service are fraud and risk since they may result in low confidence of consumers and vendors to accept the digital payment service as means to pay and receive payments, respectively.

[0003] A vendor would typically like to receive timely payment confirmation from the consumer and payment network, and the consumer would like to make sure their payment is safe, secure and easy to use.

[0004] Accordingly, approaches for performing payments digitally which are secure and convenient for both consumer and vendor side are desirable.

SUMMARY

[0005] Various embodiments concern a payment server comprising a client interface configured to receive a request to perform a payment from a consumer to a vendor, a payment interface configured to request settlement of the payment from a payment source predefined for the consumer and a processing unit configured to detect whether the settlement of the payment by the payment source has been successful, determine, if the settlement of the payment by the payment source has not been successful, whether the consumer is eligible for an arrears service, and, if the settlement of the payment by the payment source has not been successful and the consumer is eligible for the arrears service, inform the vendor that the payment has been successfully settled.

[0006] According to one embodiment, determining whether the consumer is eligible for the arrears service comprises determining whether the consumer is eligible for a credit.

[0007] According to one embodiment, the payment server comprises a record system configured to, if the settlement of the payment by the payment source has not been successful and the consumer is eligible for the arrears service, record the payment as having being settled by the arrears service.

[0008] According to one embodiment, determining whether the consumer is eligible for the arrears service comprising determining whether the sum of the amounts of payments recorded as having been settled by the arrears service and not yet compensated by the consumer exceeds an arrears limit of the consumer, wherein the consumer is eligible for the arrears service if the sum does not exceed the arrears limit of the consumer.

[0009] According to one embodiment, the payment server comprises a credit controller configured to determine the arrears limit of the consumer.

[0010] According to one embodiment, the credit controller is configured to determine the arrears limit of the consumer depending on income information about the consumer.

[0011] According to one embodiment, the credit controller is configured to determine the arrears limit of the consumer to be higher than the arrears limit of another consumer if the consumer has a higher income than the other consumer.

[0012] According to one embodiment, the client interface is configured to accept payments to compensate for payments which have been settled by the arrears service.

[0013] According to one embodiment, the processing unit is configured to set a deadline for compensation of payments which have been settled by the arrears service.

[0014] According to one embodiment, the payment server comprises a vendor interface, wherein the processing unit is configured to, if the settlement of the payment by the payment source has not been successful and the consumer is eligible for the arrears service, inform the vendor that the payment has been successfully settled.

[0015] According to one embodiment, the client interface is configured to, if the settlement of the payment by the payment source has not been successful and the consumer is eligible for the arrears service, inform the consumer that the payment has been settled by means of the arrears service.

[0016] According to one embodiment, the processing unit is configured to detect whether the settlement of the payment by the payment source has been successful by checking

whether the payment interface has received a confirmation for settlement of the payment from the payment source.

[0017] According to one embodiment, the processing unit is configured to, if the settlement of the payment by the payment source has not been successful and the consumer is eligible for the arrears service, settle the payment to the vendor.

[0018] According to one embodiment, the processing unit is configured to settle the payment to the vendor by means of assets of a provider of the arrears service.

[0019] According to one embodiment, a method for performing a payment is provided, comprising receiving a request to perform a payment from a consumer to a vendor, requesting settlement of the payment from a payment source predefined for the consumer, detecting whether the settlement of the payment by the payment source has been successful, determining, if the settlement of the payment by the payment source has not been successful, whether the consumer is eligible for an arrears service and, if the settlement of the payment by the payment source has not been successful and the consumer is eligible for the arrears service, informing the vendor that the payment has been successfully settled.

[0020] According to one embodiment, a computer program element is provided comprising program instructions, which, when executed by one or more processors, cause the one or more processors to perform the method for performing a payment described above.

[0021] According to one embodiment, a computer-readable medium is provided comprising program instructions, which, when executed by one or more processors, cause the one or more processors to perform the method for performing a payment described above.

[0022] It should be noted that embodiments described in context of the payment server system are analogously valid for the method for performing a payment.

BRIEF DESCRIPTION OF THE DRAWINGS

[0023] The invention will be better understood with reference to the detailed description when considered in conjunction with the non-limiting examples and the accompanying drawings, in which:

- FIG. 1 shows a digital payment architecture according to an embodiment.
- FIG. 2 shows a flow diagram illustrating a payment with a credit-based arrears service according to an embodiment.
- FIG. 3 shows a payment server according to an embodiment.

- FIG. 4 shows a flow diagram illustrating a method for performing a payment according to an embodiment.

DETAILED DESCRIPTION

[0024] The following detailed description refers to the accompanying drawings that show, by way of illustration, specific details and embodiments in which the disclosure may be practiced. These embodiments are described in sufficient detail to enable those skilled in the art to practice the disclosure. Other embodiments may be utilized and structural, and logical changes may be made without departing from the scope of the disclosure. The various embodiments are not necessarily mutually exclusive, as some embodiments can be combined with one or more other embodiments to form new embodiments.

[0025] Embodiments described in the context of one of the devices or methods are analogously valid for the other devices or methods. Similarly, embodiments described in the context of a device are analogously valid for a vehicle or a method, and vice-versa.

[0026] Features that are described in the context of an embodiment may correspondingly be applicable to the same or similar features in the other embodiments. Features that are described in the context of an embodiment may correspondingly be applicable to the other embodiments, even if not explicitly described in these other embodiments. Furthermore, additions and/or combinations and/or alternatives as described for a feature in the context of an embodiment may correspondingly be applicable to the same or similar feature in the other embodiments.

[0027] In the context of various embodiments, the articles “a”, “an” and “the” as used with regard to a feature or element include a reference to one or more of the features or elements.

[0028] As used herein, the term “and/or” includes any and all combinations of one or more of the associated listed items.

[0029] In the following, embodiments will be described in detail.

[0030] FIG. 1 shows a digital payment architecture 100 according to an embodiment.

A computer system of a consumer 101, a computer system of a vendor (e.g. a merchant) 102 and a computer system (i.e. a server computer or arrangement of server computers) providing a digital payment platform 103 are connected by means of, typically, the Internet which is

implemented by an arrangement of communication networks 104 (e.g. radio access network, backhaul network, backbone network etc.).

[0031] The consumer 101, using a consumer's client computer (which may be a mobile device like a smartphone) contacts the vendor 102, e.g. browses a website of the vendor supplied by the vendor's computer system 102 (which may host a shopping website) and selects a good or service. In response to the selection, the vendor 102 invites the consumer to pay for the good or service.

[0032] The consumer 101 intends to use a digital payment service for convenience (rather than, for example perform a cash transfer via the consumer's bank) and therefore sends a request to the digital payment platform 103 to perform a payment (e.g. via a website hosted by the computer system providing the digital payment platform). It should be noted that the consumer 101 may also initiate the payment via the digital payment platform 103 by making a corresponding selection on the vendor's website. In any way, there will be typically a communication between the consumer 101 and the digital payment platform 103. For example, the consumer 101 is requested to input the consumer's password and confirm the payment. This confirmation of the payment sent from the consumer 101 to the digital payment platform may be seen as request to perform the payment.

[0033] The digital payment platform 103 then contacts a payment source 105 (e.g. a bank where the consumer 101 has an account) to settle the payment (e.g. to have money transferred from an account of the consumer 101 to an account of the vendor 102, which they consumer 101 and the vendor 102 may have at some bank or may also have with the digital payment service's provider). Ideally, the settlement is successful and, in response, the digital payment platform informs the vendor 102 that the payment has been settled. The vendor 102 will then typically ship the goods or provide the service etc. Payment of a service or goods (such as a cab ride or a pizza delivery) may of course also be settled after provision of the service.

[0034] The digital payment platform 103 offering the digital payment service has control of the consumers 101 and vendors 103 which may use the digital payment service.

[0035] Nevertheless, the settlement of a payment may fail. This may be due to an oversight of the consumer 101 (e.g. the consumer 101 has forgotten to refill an account the consumer uses for certain services or payments), a technical error (e.g. a delay in a cash transfer) or due to any other circumstance. This may be inconvenient for both the consumer

101 and the vendor 102, because the vendor may suspect fraud and, for example, refuse to provide a good or service or the consumer may need to choose another way to pay.

[0036] Therefore, according to various embodiments, the digital payment platform 103, implemented by a payment server 108, is configured to provide guarantee (to a certain extent) and convenience to participants (consumers and vendors). According to various embodiments, this includes the provision of an arrears system (or platform) 106 which provides a mechanism referred to as arrears service to the consumer, which can warrant a payment to a vendor when the consumer has failed to make payment in some circumstances (i.e. when settlement of the payment has been unsuccessful). Combined with a credit scoring system, this allows the digital payment platform 103 to confidently take liability to some extent, and warrant vendors to provide service, and recover payment from consumers separately.

[0037] According to various embodiments, the digital payment platform 103, which provides a digital payment service to consumers (e.g. consumer 101) and vendors (e.g. vendor 102), is configured to improve safety and user experience, by providing an arrears service to the consumer 101, so that if in any circumstances, the consumer's selected payment method for a transaction (purchase of a good or service), i.e. a payment using a predefined payment source 105, has failed for any reason, instead of failing the payment (i.e. instead reporting to the vendor 102 that the payment has failed, i.e. was not successfully settled), the payment platform 103 can let the transaction go through based on user crediting score, i.e. have the vendor 102 be informed that the payment was successful and receive the payment.

[0038] For this, the digital payment platform 103 is in communication with the arrears system (or platform) 106 (implemented by the same or another server computer or server computer arrangement as the digital payment platform). At the same time, a failed payment (using the predefined (e.g. by consumer selection) payment source 105) is recorded in the arrears platform 106 (in association with an arrears account of the consumer 101). The consumer can settle such an arrears record for a failed payment separately from the payment of the transaction for which the failed payment was recorded with some deadline set by the arrears platform 106. The arrears platform 106 gives some arrears credit balance (also referred to as arrears limit) according to a credit score the consumer 101 set by a credit system 107. The arrears platform 106 freezes the consumer's arrears account if the consumer's arrears credit balance has run out until the consumer settles the consumer's

arrears record or records. When the consumer's arrears account has been frozen, this means that when a payment using the predefined payment source 105 has failed, the digital payment platform 103 does not report to the vendor 102 that the payment has been successful, i.e. does not provide the arrears service to the consumer 101 for as long as the consumer's arrears account is frozen.

[0039] The functionalities of the digital payment platform 103 and the arrears platform 106 can together be seen to be the functionalities of the payment server 108 (implement by a server computer or a server computer arrangement comprising multiple server computers). The payment server 108 may also provide the functionality of the credit system 107.

[0040] It should be noted that for using the arrears account, the user does not have to open another credit account (which may consume the consumer's overall credibility). Moreover, the consumer 101 does not need to actively choose the arrears service as a payment method. Rather, it is automatically triggered when the initial payment fails (i.e. the payment with the predefined payment source), e.g. due to insufficient balance or ledger side issue, which is usually not intended by the consumer.

[0041] The credit system 107 comprises a crediting engine which grants the consumer 101 the credit score based on different information and input data, which may for example be provided by the digital payment platform 103 and the arrears system 106. This means that both the digital payment platform 103 and the arrears system 106 can contribute to the credit system 107 to decide upon the user arrears limit.

[0042] For example, the credit system 107 sets a credit score according to an annual income of the consumer 101. The credit score defines the arrears limit. For example, an annual income of 100000 US\$ grants the consumer 101 an arrears limit of 1000 US\$, an annual income of 50000 US\$ grants the consumer 101 an arrears limit of 500 US\$, and an annual income of 10000 US\$ grants the consumer 101 an arrears limit of 100 US\$.

[0043] In particular, multiple levels of arrears limits (e.g. 1000 US\$, 500 US\$ and 100 US\$) may be provided. The payment server 108 may decrease the consumer's arrears limit if the consumer has exceeded the consumer's arrears limit for a predetermined number of times.

[0044] The specific formula according to which the credit system 107 sets the credit score and thus the arrears limit may depend on the requirements regarding protection against fraud (e.g. the acceptable risk of losses due to fraud) of the provider of the arrears service.

[0045] FIG. 2 shows a flow diagram 200 illustrating a payment with a credit-based arrears service.

[0046] A consumer 201, corresponding to consumer 101, a digital payment platform 202, corresponding to digital payment platform 103, a credit system 203, corresponding to credit system 107, an arrears system 204, corresponding to the arrears platform 106, a payment source 205, corresponding to payment source 105 and a vendor (e.g. merchant) 206, corresponding to vendor 102, are involved in the flow.

[0047] In 207, the consumer 201 initiates a payment by requesting to perform a payment from the payment platform 202.

[0048] In 208, the payment platform sends a charge request to the payment source 205 (i.e. a payment provider or ledger having an account of the consumer 201).

[0049] In this example, it is assumed that settlement of the payment via the payment source 205 fails. For example, the consumer 201 does not have sufficient funds on the consumer's account.

[0050] Accordingly, in 209, the payment source 205 reports that the requested charge has failed.

[0051] In accordance with the arrears service, in 210, the digital payment platform 202 checks the consumer's arrears credit with the credit system 203, i.e. whether the consumer is below the consumer's arrears limit. In this example, it is assumed that the consumer is below the consumer's arrears limit.

[0052] Therefore, the credit System performs a check, sees that the consumer is sufficiently below the consumer's arrears limit and confirms to the digital payment platform 202 that the consumer 201 is eligible for the application of the arrears service to the payment initiated by the consumer 201.

[0053] In 212, the digital payment platform 202 requests the arrears system 204 to create an arrears record for the initiated payment.

[0054] In 213, the arrears system 204 confirms that an arrears record has been created as requested.

[0055] In 214, the digital payment platform 202 sends notification to the vendor 206 which confirms that the initiated payment has been successfully settled.

[0056] In 215, the digital payment platform 202 informs the consumer (as response to the payment initiation in 207 that the original payment method (using the payment source 205)

charge has failed, but with an arrears having been created, payment to the vendor 206 has been settled.

[0057] Another message flow is provided to allow controlling available features of the arrears service. Specifically, as described above, once a consumer 101 has breached the consumer's arrears limit, meaning the consumer has non-resolved (i.e. not yet paid for) arrears records the sum of which exceeds the consumer's arrears limit, the consumer 101 will be limited to available features in the payment platform until the consumer compensates the payments of the open arrears records.

[0058] The payment server 108 may further comprise means for the consumer 101 to restore the rights to use the arrears service. For example, an additional platform may be provided which enables the consumer 101 to check the consumer's open arrears records on a mobile app or web portal and settle them online or offline by calling a customer service. A team may also be provided to call consumers and chase them for payment (settlement of arrears records) either online or offline. The arrears system 106 may mark an arrears record as settled once the team has confirmed that it will be settled by the consumer 101.

[0059] In summary, according to various embodiments, a payment server is provided as illustrated in FIG. 3.

[0060] FIG. 3 shows a payment server 300.

[0061] The payment server 300 comprises a client interface 301 configured to receive a request to perform a payment from a consumer to a vendor and a payment interface 302 configured to request settlement of the payment from a payment source predefined for the consumer.

[0062] The payment server 300 further comprises a processing unit 303 configured to detect whether the settlement of the payment by the payment source has been successful, determine, if the settlement of the payment by the payment source has not been successful, whether the consumer is eligible for an arrears service, and, if the settlement of the payment by the payment source has not been successful and the consumer is eligible for the arrears service, inform the vendor that the payment has been successfully settled.

[0063] According to various embodiments, in other words, a payment server provides a backup in the form of an arrears service for payments that fail. As long as a consumer (or customer) is eligible, e.g. credit-worthy with respect to the provider of the arrears service, the payment server confirms to a vendor that a payment was successful, even if it was not, and,

for example, pays the vendor in the consumer's stead using assets of the provider of the arrears service (i.e. the operator of the payment server).

[0064] The approach of FIG. 3 (i.e. providing an arrears service) allows addressing a major user experience issue in which consumers are in face to face transactions with vendors and failed payment cause bad experience and delay or even rejection by the vendor providing a service. Further, it protects payment platforms from taking too much liability and run into high risk of bad debt or fraud.

[0065] FIG. 4 shows a flow diagram illustrating a method for performing a payment.

[0066] In 401, a request to perform a payment from a consumer to a vendor is received.

[0067] In 402, settlement of the payment from a payment source predefined for the consumer is requested.

[0068] In 403, it is detected whether the settlement of the payment by the payment source has been successful.

[0069] In 404, if the settlement of the payment by the payment source has not been successful, it is determined whether the consumer is eligible for an arrears service.

[0070] In 405, if the settlement of the payment by the payment source has not been successful and the consumer is eligible for the arrears service, the vendor is informed that the payment has been successfully settled.

[0071] The methods described herein may be performed and the various processing or computation units and the devices and computing entities, platforms and systems described herein may be implemented by one or more circuits. In an embodiment, a "circuit" may be understood as any kind of a logic implementing entity, which may be hardware, software, firmware, or any combination thereof. Thus, in an embodiment, a "circuit" may be a hard-wired logic circuit or a programmable logic circuit such as a programmable processor, e.g. a microprocessor. A "circuit" may also be software being implemented or executed by a processor, e.g. any kind of computer program, e.g. a computer program using a virtual machine code. Any other kind of implementation of the respective functions which are described herein may also be understood as a "circuit" in accordance with an alternative embodiment.

[0072] While the disclosure has been particularly shown and described with reference to specific embodiments, it should be understood by those skilled in the art that various changes in form and detail may be made therein without departing from the spirit and scope of the

invention as defined by the appended claims. The scope of the invention is thus indicated by the appended claims and all changes which come within the meaning and range of equivalency of the claims are therefore intended to be embraced.

CLAIMS

1. A payment server comprising:
 - a client interface configured to receive a request to perform a payment from a consumer to a vendor;
 - a payment interface configured to request settlement of the payment from a payment source predefined for the consumer; and
 - a processing unit configured to
 - detect whether the settlement of the payment by the payment source has been successful,
 - determine, if the settlement of the payment by the payment source has not been successful, whether the consumer is eligible for an arrears service, and,
 - if the settlement of the payment by the payment source has not been successful and the consumer is eligible for the arrears service, inform the vendor that the payment has been successfully settled.
2. The payment server of claim 1, wherein determining whether the consumer is eligible for the arrears service comprises determining whether the consumer is eligible for a credit.
3. The payment server of claim 1 or 2, comprising a record system configured to, if the settlement of the payment by the payment source has not been successful and the consumer is eligible for the arrears service, record the payment as having being settled by the arrears service.
4. The payment server of claim 3, wherein determining whether the consumer is eligible for the arrears service comprising determining whether the sum of the amounts of payments recorded as having been settled by the arrears service and not yet compensated by the consumer exceeds an arrears limit of the consumer, wherein the consumer is eligible for the arrears service if the sum does not exceed the arrears limit of the consumer.

5. The payment server of claim 4, comprising a credit controller configured to determine the arrears limit of the consumer.
6. The payment server of claim 5, wherein the credit controller is configured to determine the arrears limit of the consumer depending on income information about the consumer.
7. The payment server of claim 6, wherein the credit controller is configured to determine the arrears limit of the consumer to be higher than the arrears limit of another consumer if the consumer has a higher income than the other consumer.
8. The payment server of any one of claims 1 to 7, wherein the client interface is configured to accept payments to compensate for payments which have been settled by the arrears service.
9. The payment server of claim 8, wherein the processing unit is configured to set a deadline for compensation of payments which have been settled by the arrears service.
10. The payment server of any one of claims 1 to 9, comprising a vendor interface, wherein the processing unit is configured to, if the settlement of the payment by the payment source has not been successful and the consumer is eligible for the arrears service, inform the vendor that the payment has been successfully settled.
11. The payment server of any one of claims 1 to 10, wherein the client interface is configured to, if the settlement of the payment by the payment source has not been successful and the consumer is eligible for the arrears service, inform the consumer that the payment has been settled by means of the arrears service.
12. The payment server of any one of claims 1 to 11, wherein the processing unit is configured to detect whether the settlement of the payment by the payment source has been successful by checking whether the payment interface has received a confirmation for settlement of the payment from the payment source.

13. The payment server of any one of claims 1 to 12, wherein the processing unit is configured to, if the settlement of the payment by the payment source has not been successful and the consumer is eligible for the arrears service, settle the payment to the vendor.
14. The payment server of claim 13, wherein the processing unit is configured to settle the payment to the vendor by means of assets of a provider of the arrears service.
15. A method for performing a payment, comprising:
receiving a request to perform a payment from a consumer to a vendor;
requesting settlement of the payment from a payment source predefined for the consumer;
detecting whether the settlement of the payment by the payment source has been successful;
determining, if the settlement of the payment by the payment source has not been successful, whether the consumer is eligible for an arrears service; and,
if the settlement of the payment by the payment source has not been successful and the consumer is eligible for the arrears service, informing the vendor that the payment has been successfully settled.
16. A computer program element comprising program instructions, which, when executed by one or more processors, cause the one or more processors to perform the method of claim 15.
17. A computer-readable medium comprising program instructions, which, when executed by one or more processors, cause the one or more processors to perform the method of claim 15.