Patent Portfolio
“Secure Payment and Data Transmission”
for licensing or sale.

kapea

Summary

No Common Payment (NCP), a Swedish high-tech company, has developed and patented solutions related to secure transactions and data transmissions. There are three patent families where

- Families 1 and 2 focus on secure payments with credit cards, and
- Family 3 focuses on security during any data transmission (beyond card payments).

Technical solutions, project plans and cost estimates are available and NCP can be consulted for implementation.

Further technical and commercial discussions under NDA.

The Secure Payment Problem

Problem: As more and more people pay digitally and/or with credit cards, fraud is an increasing problem. Anyone who has access to the card credentials, in particular the card security code (CSC), can use the card.

Solution: A minimal perfect hash function is used to generate a unique hash for each CSC, allowing the service provider to efficiently verify the temporary CSC. An app on your phone or other device will provide the temporary CSC. You just enter the temporary CSC instead of the original one on your card when requested.

Advantage: A cost-effective and yet secure solution which replaces the need for complicated and/or expensive encryption schemes where keys have to be exchanged beforehand. It can moreover be added as an extra security layer to your existing solution such as two-factor authentication (2FA).

The Data Transmission Problem

Problem: Credentials can be stolen as part of an authentication process to a user account or in a terminal/server-to-server communication.

Solution: Generation of temporary authentication values using a hash function and transmitting only a portion of the value.

Advantage: A cost-effective and yet secure solution which replaces the need for complicated and/or expensive encryption schemes where keys have to be exchanged beforehand. The fact that only only a portion of the value is transmitted minimizes the amount of data exposed during transmission, improving security and reducing bandwidth requirements.

The Patents

Patent family 1: **Generation and verification of a temporary card security code for use in card based transactions**
Priority 2016, Expires 2037
Patent family: US, EP (CH, DE, DK, FI, FR, GB, IE, IT, LI, LU, MT, NO, SE), CN, HK

Ex. Carlemalm '817 (US11,216,817)

1. A method of generating a temporary Card Security Code (CSC) via a mobile terminal comprising a memory and a processor, the method comprising the steps of:

obtaining a CSC from a card by reading the CSC from the card using the mobile terminal;

obtaining, using the mobile terminal, a data seed, by summing a time stamp and one or more of a bank account number, an installation identifier, or a mobile terminal identifier of the mobile terminal;

generating, using the mobile terminal, a total sum of the data seed and the CSC;

generating, using the mobile terminal, a temporary CSC by applying a minimal perfect hash function to the generated total sum; and

initiating with the mobile terminal a card based transaction utilizing the generated temporary CSC.

Key concepts and usage: Using a mobile terminal (eg. a smartphone) to enhance the security of card transactions by creating a temporary Card Security Code (CSC) that changes with each transaction. By combining the original CSC with unique data from the mobile device and the current time, it generates a new code that is difficult for fraudsters to replicate. It helps protect users' financial information during online and mobile transactions, making it safer to shop and pay digitally.

Potential buyers/licensees:

1. Payment Service Providers (PSPs) offering mobile payment platforms and digital wallets
2. Credit Card networks (Visa, Mastercard etc)
3. Banks and financial institutions that issue credit and debit cards
4. Other companies that facilitate online/mobile transactions

Patent family 2: **Regaining an original card security code used in a card based transaction**
Priority 2018, Expires 2039
Patent family: EP (UP*, CH, ES, GB, IE), CN, HK
*Unitary Patent

Ex. Carlemalm ‘486 (EP3,818,486 B1)

1. A method of regaining an original Card Security Code, CSC, from a temporary CSC used in a card based transaction, wherein the method is performed by a server system having one or several computer servers and the method comprising:

obtaining (610) a temporary CSC, wherein the temporary CSC has been generated by previously applying a minimal perfect hash function to an original CSC as well as a first data seed, the first data seed including a mobile terminal identifier of a mobile terminal and a time stamp generated by said mobile terminal; and

obtaining (620) a second data seed, the second data seed being a same data seed as the first data seed and including the same mobile terminal identifier and the same time stamp as the first data seed, wherein at least said mobile terminal identifier has been stored in advance at the server system such that obtaining (620) the second data seed comprises obtaining the mobile terminal identifier locally from the server system;

applying (630) a same minimal perfect hash function to the obtained second data seed together with each one of several CSCs from a stored list of available CSCs until a match is found between the obtained temporary CSC and one CSC from the stored list of available CSCs; and in response to a match having been found:

continuing (640) an initiated card based transaction.

Key concepts and usage:

Same as Family 1, however this addresses the server side.
Enhancing security and fraud prevention for card-based transactions, especially in non-face-to-face scenarios, by leveraging temporary CSCs that can be securely generated and then later regained by the appropriate server systems.

Potential buyers/licensees (same as family 1)

1. Payment Service Providers (PSPs) offering mobile payment platforms and digital wallets
2. Credit Card networks (Visa, Mastercard etc)
3. Banks and financial institutions that issue credit and debit cards
4. Other companies that facilitate online/mobile transactions

Patent family 3: **Generation and verification of a temporary authentication value for use in a secure transmission**
Priority 2019, Expires 2040
Patent family: US, SE, EP (pending), CN (pending), UA (pending)

Ex. Carlemalm ‘548 (US11,863,548)

1. A method of generating a temporary authentication value, for use in a secure transmission to a service provider system having one or several computer servers, wherein the method is performed by a terminal, the method comprising:

receiving, by the terminal, first identification data associated with the terminal, an item, or a user;

receiving, by the terminal, security data associated with the first identification data;

applying, by the terminal, a hash function to the first identification data and the security data to generate a temporary authentication value;

dividing, by the terminal, the generated temporary authentication value into a first part and a second part; and

transmitting, by the terminal, only the second part of the divided temporary authentication value to the service provider system, wherein the second part of the divided temporary authentication value is configured to be used for authentication of the terminal, the item, or the user.

Key concepts and usage:

Generating and verifying a temporary authentication value on a user terminal and sending (only) part of it to a service-provider backend for verification. To be used anywhere to authenticate a user/terminal over a potentially unsafe channel without heavy crypto at the edge.

Potential buyers/licensees:

1. Payment Service Providers (PSPs) offering mobile payment platforms and digital wallets
2. Credit Card networks (Visa, Mastercard etc)
3. Banks and financial institutions that issue credit and debit cards
4. Technology firms providing authentication solutions

	A	B	C	D	E	F	G
1	**Legal status**	**Country code**	**Application date (YY-MM-DD)**	**Appl. number**	**Registered (YY-MM-DD)**	**Patent number**	**Titel**
2							
3	**Patent family 1**						
4	Dead	SE	2016-08-30	SE 1651165-1	2018-10-09	SE 540668	GENERATION AND VERIFICATION OF A TEMPORARY CARD SECURITY CODE FOR USE IN CARD BASED TRANSACTIONS
5	Dead	WO	2017-08-24	PCT/SE2017/050858			GENERATION AND VERIFICATION OF A TEMPORARY CARD SECURITY CODE FOR USE IN CARD BASED TRANSACTIONS
6	Dead	EP	2017-08-24	17847093.6	2020-09-23	EP 3507756	GENERATION AND VERIFICATION OF A TEMPORARY CARD SECURITY CODE FOR USE IN CARD BASED TRANSACTIONS
7	Granted	CH	2017-08-24	17847093.6	2020-09-23	EP 3507756	GENERATION OF A TEMPORARY CARD SECURITY CODE FOR USE IN CARD BASED TRANSACTIONS
8	Granted	DE	2017-08-24	17847093.6	2020-09-23	EP 3507756	GENERATION OF A TEMPORARY CARD SECURITY CODE FOR USE IN CARD BASED TRANSACTIONS
9	Granted	DK	2017-08-24	17847093.6	2020-09-23	EP 3507756	GENERATION OF A TEMPORARY CARD SECURITY CODE FOR USE IN CARD BASED TRANSACTIONS
10	Granted	FI	2017-08-24	17847093.6	2020-09-23	EP 3507756	GENERATION OF A TEMPORARY CARD SECURITY CODE FOR USE IN CARD BASED TRANSACTIONS
11	Granted	FR	2017-08-24	17847093.6	2020-09-23	EP 3507756	GENERATION OF A TEMPORARY CARD SECURITY CODE FOR USE IN CARD BASED TRANSACTIONS
12	Granted	GB	2017-08-24	17847093.6	2020-09-23	EP 3507756	GENERATION OF A TEMPORARY CARD SECURITY CODE FOR USE IN CARD BASED TRANSACTIONS
13	Granted	IE	2017-08-24	17847093.6	2020-09-23	EP 3507756	GENERATION OF A TEMPORARY CARD SECURITY CODE FOR USE IN CARD BASED TRANSACTIONS
14	Granted	IT	2017-08-24	17847093.6	2020-09-23	EP 3507756	GENERATION OF A TEMPORARY CARD SECURITY CODE FOR USE IN CARD BASED TRANSACTIONS
15	Granted	LI	2017-08-24	17847093.6	2020-09-23	EP 3507756	GENERATION OF A TEMPORARY CARD SECURITY CODE FOR USE IN CARD BASED TRANSACTIONS
16	Granted	LU	2017-08-24	17847093.6	2020-09-23	EP 3507756	GENERATION OF A TEMPORARY CARD SECURITY CODE FOR USE IN CARD BASED TRANSACTIONS
17	Granted	MT	2017-08-24	17847093.6	2020-09-23	EP 3507756	GENERATION OF A TEMPORARY CARD SECURITY CODE FOR USE IN CARD BASED TRANSACTIONS
18	Granted	NO	2017-08-24	17847093.6	2020-09-23	EP 3507756	GENERATION OF A TEMPORARY CARD SECURITY CODE FOR USE IN CARD BASED TRANSACTIONS
19	Granted	SE	2017-08-24	17847093.6	2020-09-23	EP 3507756	GENERATION OF A TEMPORARY CARD SECURITY CODE FOR USE IN CARD BASED TRANSACTIONS
20	Granted	CN	2017-08-24	201780061551.0	2023-03-07	ZL201780061551.0	GENERATION AND VERIFICATION OF A TEMPORARY CARD SECURITY CODE FOR USE IN CARD BASED TRANSACTIONS
21	Granted	HK	2017-08-24	62020001207.3	2023-05-05	HK 40011721	GENERATION AND VERIFICATION OF A TEMPORARY CARD SECURITY CODE FOR USE IN CARD BASED TRANSACTIONS
22	Granted	US	2017-08-24	16/328,515	2022-01-04	US 11,216,817	GENERATION AND VERIFICATION OF A TEMPORARY CARD SECURITY CODE FOR USE IN CARD BASED TRANSACTIONS
23							
24	**Patent family 2**						
25	Dead	SE	2018-07-06	1850858-0			REGAINING AN ORIGINAL CARD SECURITY CODE USED IN A CARD BASED TRANSACTION
26	Dead	WO	2019-06-19	PCT/EP2019/066274			REGAINING AN ORIGINAL CARD SECURITY CODE USED IN A CARD BASED TRANSACTION
27	Granted	EP	2019-06-19	19735228.9	2025-03-19	EP 3818486	REGAINING AN ORIGINAL CARD SECURITY CODE USED IN A CARD BASED TRANSACTION
28	Granted	CH	2019-06-19	19735228.9	2025-03-19	EP 3818486	REGAINING AN ORIGINAL CARD SECURITY CODE USED IN A CARD BASED TRANSACTION
29	Granted	ES	2019-06-19	19735228.9	2025-03-19	EP 3818486	REGAINING AN ORIGINAL CARD SECURITY CODE USED IN A CARD BASED TRANSACTION
30	Granted	GB	2019-06-19	19735228.9	2025-03-19	EP 3818486	REGAINING AN ORIGINAL CARD SECURITY CODE USED IN A CARD BASED TRANSACTION
31	Granted	IE	2019-06-19	19735228.9	2025-03-19	EP 3818486	REGAINING AN ORIGINAL CARD SECURITY CODE USED IN A CARD BASED TRANSACTION
32	Granted	UP	2019-06-19	19735228.9	2025-03-19	EP 3818486	REGAINING AN ORIGINAL CARD SECURITY CODE USED IN A CARD BASED TRANSACTION
33	Granted	CN	2021-01-06	201980045481.9	2024-12-13	ZL201980045481.9	REGAINING AN ORIGINAL CARD SECURITY CODE USED IN A CARD BASED TRANSACTION
34	Granted	HK	2021-08-02	62021035891.2	2025-05-23	HK 40046200	REGAINING AN ORIGINAL CARD SECURITY CODE USED IN A CARD BASED TRANSACTION
35	Dead	US	2021-01-04	17/257,826			REGAINING AN ORIGINAL CARD SECURITY CODE USED IN A CARD BASED TRANSACTION
36							
37	**Patent family 3**						
38	Granted	SE	2019-09-27	SE 1951093-2	2024-02-27	SE 545 872	GENERATION AND VERIFICATION OF A TEMPORARY AUTHENTICATION VALUE FOR USE IN A SECURE TRANSMISSION
39	Dead	PC	2020-09-24	PCT/SE2020/050900			GENERATION AND VERIFICATION OF A TEMPORARY AUTHENTICATION VALUE FOR USE IN A SECURE TRANSMISSION
40	Pending	EP	2020-09-24	20869471.1			GENERATION AND VERIFICATION OF A TEMPORARY AUTHENTICATION VALUE FOR USE IN A SECURE TRANSMISSION
41	Pending	EP	2020-09-24	25202504.4			GENERATION AND VERIFICATION OF A TEMPORARY AUTHENTICATION VALUE FOR USE IN A SECURE TRANSMISSION
42	Pending	CN	2020-09-24	202080082088.X			GENERATION AND VERIFICATION OF A TEMPORARY AUTHENTICATION VALUE FOR USE IN A SECURE TRANSMISSION
43	Pending	UA	2020-09-24	A202201330			GENERATION AND VERIFICATION OF A TEMPORARY AUTHENTICATION VALUE FOR USE IN A SECURE TRANSMISSION
44	Granted	US	2020-09-24	17/754,140	2024-01-02	US 11,863,548	GENERATION AND VERIFICATION OF A TEMPORARY AUTHENTICATION VALUE FOR USE IN A SECURE TRANSMISSION
45	Pending	SE	2020-09-24	2351494-6			GENERATION AND VERIFICATION OF A TEMPORARY AUTHENTICATION VALUE FOR USE IN A SECURE TRANSMISSION
46	Dead	US	2020-09-24	18/535,990			GENERATION AND VERIFICATION OF A TEMPORARY AUTHENTICATION VALUE FOR USE IN A SECURE TRANSMISSION

Commercialization Options

- Sale: All or individual patent families
- Licensing:
  - Exclusive, non-exclusive or field-of-use licensing
  - Worldwide territory available
  - Flexible commercial models: per-transaction, per-active user, per-card, or hybrid
- Technical onboarding support and knowledge transfer available

Next Steps

- Technical concept and solution session (under NDA)
- Commercial terms discussion and license/sale execution

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