

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
09 April 2020 (09.04.2020)



(10) International Publication Number
WO 2020/072690 A1

(51) International Patent Classification:

G07F 7/12 (2006.01) G06Q 20/38 (2006.01)
G06Q 20/40 (2006.01)

(21) International Application Number:

PCT/US2019/054353

(22) International Filing Date:

02 October 2019 (02.10.2019)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

62/740,352 02 October 2018 (02.10.2018) US
16/205,119 29 November 2018 (29.11.2018) US
16/591,309 02 October 2019 (02.10.2019) US

(71) Applicant: CAPITAL ONE SERVICES, LLC [US/US];
1680 Capital One Drive, McLean, VA 22102 (US).

(72) Inventors: OSBORN, Kevin; 49 Hillside Road, Newton
Highlands, MA 02461 (US). RULE, Jeffrey; 3906 Laird
Place, Chevy Chase, MD 20815 (US). CHIGURUPATI,
Srinivasa; 5804 Teal Court, Long Grove, IL 60047 (US).

(74) Agent: KASNEVICH, Andrew, D. et al.; Hunton Andrews
Kurth LLP, 2200 Pennsylvania Ave, NW, Washington, DC
20037 (US).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ,

CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO,
DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN,
HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP,
KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME,
MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ,
OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA,
SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN,
TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ,
UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ,
TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,
EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV,
MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM,
TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
KM, ML, MR, NE, SN, TD, TG).

Published:

— with international search report (Art. 21(3))

(54) Title: SYSTEMS AND METHODS FOR CRYPTOGRAPHIC AUTHENTICATION OF CONTACTLESS CARDS

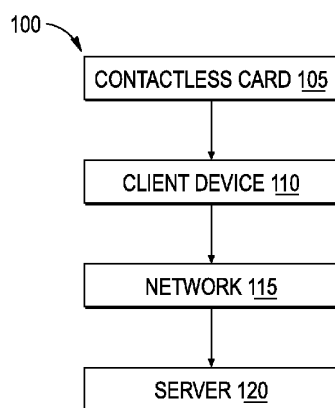


FIG. 1A

(57) Abstract: Example embodiments of systems and methods for data transmission between transmitting and receiving devices are provided. In an embodiment, each of the transmitting and receiving devices can contain a master key. The transmitting device can generate a diversified key using the master key, protect a counter value and encrypt data prior to transmitting to the receiving device. The receiving device can generate the diversified key based on the master key and can decrypt the data and validate the protected counter value using the diversified key.

WO 2020/072690 A1