

WHAT IS CLAIMED IS:

- 1 1. A method comprising:
2 receiving, by an access device with a single universal kernel comprising a
3 plurality of interaction functionalities and a plurality of sub-kernels, from a user device,
4 data comprising a kernel identifier identifying a requested kernel of a plurality of kernels;
5 determining, by the access device with the single universal kernel, a first
6 sub-kernel of the plurality of sub-kernels based on the kernel identifier; and
7 processing, by the access device with the single universal kernel, an
8 interaction according to a first interaction functionality of the plurality of interaction
9 functionalities corresponding to the first sub-kernel.
- 1 2. The method of claim 1, wherein the user device is a security card,
2 the access device is a security card reader.
- 3 3. The method of claim 1, wherein the user device is a personal
4 identification card, the access device is a personal identification card reader, and the
5 method further comprises sending, to the user device, data associated with a user of
6 the user device.
- 1 4. The method of claim 1, wherein the requested kernel is the single
2 universal kernel, the first sub-kernel of the plurality of sub-kernels is a universal sub-
3 kernel, and the first interaction functionality is a universal functionality corresponding to
4 the universal sub-kernel.
- 1 5. The method of claim 1, wherein the requested kernel is a previous
2 kernel different than the single universal kernel, the first sub-kernel of the plurality of
3 sub-kernels is a previous sub-kernel, and the first interaction functionality is a previous
4 functionality corresponding to the previous sub-kernel.
- 1 6. The method of claim 1, further comprising determining that the data
2 received from the user device does not comprise a universal kernel tag.
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1 7. The method of claim 1, further comprising receiving, by the access
2 device with a single universal kernel comprising a plurality of interaction functionalities
3 and a plurality of sub-kernels, from a user device, interaction data for processing the
4 interaction in a format compatible with the first interaction functionality.

1 8. The method of claim 7, further comprising converting the
2 interaction data from a format compatible with the first interaction functionality to a
3 format compatible with a second interaction functionality.

1 9. The method of claim 1, wherein the data comprising the kernel
2 identifier is received through radio frequency identification (RFID).

1 10. The method of claim 1, wherein the user device is a mobile
2 electronic device and the data comprising the kernel identifier is received through near
3 field communication (NFC).

1 11. An access device comprising:
2 a processor;
3 a single universal kernel comprising a plurality of interaction functionalities
4 and a plurality of sub-kernels; and
5 a computer-readable medium coupled to the processor, the computer-
6 readable medium comprising code, executable by the processor, to cause:
7 receiving, by the access device, from a user device, data comprising a
8 kernel identifier identifying a requested kernel of a plurality of kernels;
9 determining, by the access device, a first sub-kernel of the plurality of sub-
10 kernels based on the kernel identifier; and
11 processing, by the access device, an interaction according to a first
12 interaction functionality of the plurality of interaction functionalities corresponding to the
13 first sub-kernel.

1 12. The access device of claim 11, wherein processing the interaction
2 comprises generating a cryptogram.

1 13. The access device of claim 11, wherein processing the interaction
2 comprises routing, from the user device to a server device communicatively coupled to
3 the access device, interaction data for the interaction.

1 14. The access device of claim 13, further comprising code which,
2 when executed by the processor, causes receiving, by the access device, from the
3 server device, an indication to approve the routed interaction.

1 15. The access device of claim 13, further comprising code which,
2 when executed by the processor, causes receiving, by the access device, from the
3 server device, an indication to deny the routed interaction and responsively terminating
4 the interaction.

1 16. A method of comprising:
2 sending, by a user device to an access device with a single universal
3 kernel comprising a plurality of interaction functionalities and a plurality of sub-kernels,
4 data comprising a kernel identifier identifying a requested kernel of a plurality of kernels,
5 wherein the access device determines a first sub-kernel of the plurality of sub-kernels
6 based on the kernel identifier;
7 responsive to sending the data, receiving by the user device, a request for
8 interaction data; and
9 sending, by the user device to the access device with the single universal
10 kernel, the interaction data, the interaction data corresponding to a first interaction
11 functionality of the plurality of interaction functionalities corresponding to the first sub-
12 kernel.

1 17. The method of claim 16, wherein the requested kernel is the single
2 universal kernel, the first sub-kernel of the plurality of sub-kernels is a universal sub-
3 kernel, and the first interaction functionality is a universal functionality corresponding to
4 the universal sub-kernel.

1 18. The method of claim 16, wherein the requested kernel is a previous
2 kernel different than the single universal kernel, the first sub-kernel of the plurality of

3 sub-kernels is a previous sub-kernel, and the first interaction functionality is a previous
4 functionality corresponding to the previous sub-kernel.

1 19. The method of claim 16, wherein the interaction data comprises a
2 credential from the user device.

1 20. The method of claim 16, wherein the user device is in the form of a
2 card.

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