CLAIMS:

1. A method of printing, including:

providing a print job for a hardware printer, wherein the print job includes print data for printing a document and is in a print format;

sending the print job to a virtual printer;

reformatting the print job from the print format to an intermediate format using the virtual printer,

sending the print job in the intermediate format from the virtual printer to a security feature service via a Transport Layer Security network protocol;

embedding an optical security feature into the print job in the intermediate format independently of a user that provides the print job using the security feature service, the optical security feature being dynamically generated during run-time;

reformatting the print job with the embedded optical security feature from the intermediate format to the print format;

sending the print job with the embedded optical security feature from the security feature service to the virtual printer via the Transport Layer Security network protocol;

sending the print job with the embedded optical security feature in the print format from the virtual printer to a hardware printer; and

printing the document based on the print job with the embedded optical security feature in the print format using the hardware printer, wherein the printed document includes the print data and the embedded optical security feature.

2. The method of claim 1, wherein the embedded optical security feature in the printed document is visible.

3. The method of claim 1, wherein the embedded optical security feature in the printed document is invisible.

4. The method of any one of the preceding claims, wherein the print format is printer job language, and the intermediate format is not printer job language.

5. The method of claim 4, wherein the intermediate format is Postscript or Portable Document Format.

6. The method of any one of the preceding claims, wherein the print format is suitable for the hardware printer and unsuitable for the security feature service, and the intermediate format is suitable for the security feature service and unsuitable for the hardware printer.

7. The method of claim 6, wherein the hardware printer is a laser printer or an inkjet printer.

8. The method of any one of the preceding claims, further including:

reformatting the print job with the embedded optical security feature from the intermediate format to the print format using the security feature service; and

sending the print job with the embedded optical security feature in the print format from the security feature service to the virtual printer.

9. The method of any one of the preceding claims, further including:

sending the print job with the embedded optical security feature in the intermediate format from the security feature service to the virtual printer, and

reformatting the print job with the embedded optical security feature from the intermediate format to the print format using the virtual printer.

10. The method of any one of the preceding claims, further including providing the print job using a commercial off-the-shelve software application that lacks the virtual printer.

11. The method of claim 10, wherein the software application is a word processor or a spreadsheet.

12. The method of any one of the preceding claims, further including embedding the optical security feature into the print job independently of the print data.

13. The method of any one of the preceding claims, further including embedding the optical security feature into the print job independently of the hardware printer.

14. The method of any one of the preceding claims, further including excluding printing any print job using the virtual printer.

15. The method of any one of the preceding claims, further including, excluding printing any print job using the hardware printer without using the virtual printer and the selected feature service, thereby preventing printing a document without an embedded optical security feature using the hardware printer.

16. The method any one of the preceding claims, further including:

providing an operating system;

installing a software application in the operating system;

installing the virtual printer in the operating system;

providing the print job using the software application;

sending the print job to the virtual printer using the operating system;

sending the print job from the virtual printer to the security feature service using

the operating system;

sending the print job from the security feature service to the virtual printer using the operating system; and

sending the print job from the virtual printer to the hardware printer using the operating system.

17. The method of claim16, wherein the operating system is a desktop operating system.

18. The method of claim17, wherein the operating system is any one of the following: WINDOWS, LINUX and MACINTOSH.

19. The method of any one of the preceding claims, further including:

providing a network that includes network printers, wherein the network printers include the hardware printer,

identifying available printers from the network printers;

selecting the hardware printer from the available printers; and

providing the print job for the hardware printer in response to selecting the hardware printer.

20. A method of printing, including:

providing a print job for a hardware printer in response to a user interfacing with a software application, wherein the print job includes print data for printing a document and is in a print format; then

sending the print job to a virtual printer, then

reformatting the print job from the print format to an intermediate format using the virtual printer; then

sending the print job in the intermediate format from the virtual printer to a security feature service via a Transport Layer Security network protocol; then

embedding an optical security feature into the print job in the intermediate format independently of the user that provides the print job using the security feature service, the optical security feature being dynamically generated during run-time and wherein the intermediate format is suitable for the security feature service and the print format is unsuitable for the security feature service;

reformatting the print job with the embedded optical security feature from the intermediate format to the print format;

sending the print job with the embedded optical security feature from the security feature service to the virtual printer via the Transport Layer Security network protocol, then

sending the print job with the embedded optical security feature in the print format from the virtual printer to a hardware printer; and then

printing the document based on the print job with the embedded optical security feature in the print format using the hardware printer, wherein the printed document includes the print data and the embedded optical security feature, the print format is suitable for the hardware printer and the intermediate format is unsuitable for the hardware printer.

CLAIMS

1. A method of printing, comprising:

providing a print job for a hardware printer, wherein the print job includes print data for printing a document and is in a print format;

sending the print job to a virtual printer;

reformatting the print job from the print format to an intermediate format using the virtual printer;

sending the print job in the intermediate format from the virtual printer to a security feature service;

embedding an optical security feature into the print job in the intermediate format independently of a user that provides the print job using the security feature service, the optical security feature being dynamically generated during run-time;

reformatting the print job with the embedded optical security feature from the intermediate format to the print format;

sending the print job with the embedded optical security feature from the security feature service to the virtual printer;

sending the print job with the embedded optical security feature in the print format from the virtual printer to a hardware printer; and

printing the document based on the print job with the embedded optical security feature in the print format using the hardware printer, wherein the printed document includes the print data and the embedded optical security feature.

2. The method of claim 1, wherein the embedded optical security feature in the printed document is visible.

3. The method of claim 1, wherein the embedded optical security feature in the printed document is invisible.

4. The method of claim 1 wherein the print format is printer job language, and the intermediate format is not printer job language.

5. The method of claim 4, wherein the intermediate format is Postscript.

6. The method of claim 4, wherein the intermediate format is Portable Document Format.

7. The method of claim 1, wherein the print format is suitable for the hardware printer and unsuitable for the security feature service, and the intermediate format is suitable for the security feature service and unsuitable for the hardware printer.

8. The method of claim 7, wherein the hardware printer is a laser printer.

9. The method of claim 7, wherein the hardware printer is an inkjet printer.

10. The method of claim 1, further comprising:

reformatting the print job with the embedded optical security feature from the intermediate format to the print format using the security feature service; and

sending the print job with the embedded optical security feature in the print format from the security feature service to the virtual printer.

11. The method of claim 1, further comprising:

sending the print job with the embedded optical security feature in the intermediate format from the security feature service to the virtual printer; and

reformatting the print job with the embedded optical security feature from the intermediate format to the print format using the virtual printer.

12. The method of claim 1, further comprising:

sending the print job from the virtual printer to the security feature service and from the security feature service to the virtual printer using a first transmission link; and

sending the print job from the virtual printer to the hardware printer using a second transmission link.

13. The method of claim 12, wherein the first transmission link uses TCP/IP protocol and the second transmission link uses TCP/IP protocol.

14. The method of claim 12, wherein the first transmission link uses TCP/IP protocol and the second transmission link does not use TCP/IP protocol.

15. The method of claim 12, wherein the first transmission link includes the Internet and the second transmission link does not include the Internet.

16. The method of claim 12, wherein the second transmission link includes a USB cable and the first transmission link does not include a USB cable.

17. The method of claim 1, further comprising providing the print job using a commercial off-the-shelve software application that lacks the virtual printer.

18. The method of claim 17, wherein the software application is a word processor.

19. The method of claim 17, wherein the software application is a spreadsheet.

20. The method of claim 1, further comprising embedding the optical security feature into the print job independently of the print data.

21. The method of claim 1, further comprising embedding the optical security feature into the print job independently of the hardware printer.

22. The method of claim 1, further comprising excluding printing any print job using the virtual printer.

23. The method of claim 1, further comprising, excluding printing any print job using the hardware printer without using the virtual printer and the selected feature service, thereby preventing printing a document without an embedded optical security feature using the hardware printer.

24. The method of claim 1, further comprising:

providing an operating system;

installing a software application in the operating system;

installing the virtual printer in the operating system;

providing the print job using the software application;

sending the print job to the virtual printer using the operating system;

sending the print job from the virtual printer to the security feature service using the operating system;

sending the print job from the security feature service to the virtual printer using the operating system; and

sending the print job from the virtual printer to the hardware printer using the operating system.

25. The method of claim 24, wherein the operating system is a desktop operating system.

26. The method of claim 25, wherein the operating system is WINDOWS.

27. The method of claim 25, wherein the operating system is LINUX.

28. The method of claim 25, wherein the operating system is MACINTOSH.

29. The method of claim 1, further comprising:

providing a network that includes network printers, wherein the network printers include the hardware printer;

identifying available printers from the network printers;

selecting the hardware printer from the available printers; and

providing the print job for the hardware printer in response to selecting the hardware printer.

30. A method of printing, comprising:

providing a print job for a hardware printer in response to a user interfacing with a software application, wherein the print job includes print data for printing a document and is in a print format; then

sending the print job to a virtual printer; then

reformatting the print job from the print format to an intermediate format using the virtual printer; then

sending the print job in the intermediate format from the virtual printer to a security feature service; then

embedding an optical security feature into the print job in the intermediate format independently of the user that provides the print job using the security feature service, the optical security feature being dynamically generated during run-time and wherein the intermediate format is suitable for the security feature service and the print format is unsuitable for the security feature service;

reformatting the print job with the embedded optical security feature from the intermediate format to the print format;

sending the print job with the embedded optical security feature from the security feature service to the virtual printer; then

sending the print job with the embedded optical security feature in the print format from the virtual printer to a hardware printer; and then

printing the document based on the print job with the embedded optical security feature in the print format using the hardware printer, wherein the printed document includes the print data and the embedded optical security feature, the print format is suitable for the hardware printer and the intermediate format is unsuitable for the hardware printer.

31. The method of claim 30, including embedding the optical security feature into the print job independently of the print data and the hardware printer.

32. The method of claim 30, including:

providing an operating system, wherein the operating system is a desktop operating system;

installing the software application in the operating system, wherein the software application is a commercial off-the-shelve word processor or spreadsheet that lacks the virtual printer;

installing the virtual printer in the operating system;

providing the print job using the software application;

sending the print job to the virtual printer using the operating system;

sending the print job from the virtual printer to the security feature service using the operating system and a first transmission link;

sending the print job from the security feature service to the virtual printer using the operating system and the first transmission link; and

sending the print job from the virtual printer to the hardware printer using the operating system and a second transmission link, wherein the hardware printer is a laser printer or an inkjet printer.