



US008031844B1

(12) **United States Patent**  
**Ho et al.**

(10) **Patent No.:** **US 8,031,844 B1**  
(45) **Date of Patent:** **Oct. 4, 2011**

(54) **COMMUNICATION SESSIONS FOR A  
COMMERCIAL TRANSACTION USING  
TELEPHONE WITH A PRINTER**

(75) Inventors: **Chi Fai Ho**, Palo Alto, CA (US); **Shin  
Cheung Simon Chiu**, Palo Alto, CA  
(US)

(73) Assignee: **TP Lab, Inc.**, Palo Alto, CA (US)

(\* ) Notice: Subject to any disclaimer, the term of this  
patent is extended or adjusted under 35  
U.S.C. 154(b) by 1458 days.

(21) Appl. No.: **11/500,755**

(22) Filed: **Aug. 7, 2006**

(51) **Int. Cl.**  
**H04M 11/00** (2006.01)

(52) **U.S. Cl.** ..... **379/90.01; 379/93.12**

(58) **Field of Classification Search** ..... **379/90.01,  
379/110.01, 93.07, 93.12; 455/556.1, 557**

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2003/0032410 A1\* 2/2003 Saraswat ..... 455/414  
2004/0127251 A1\* 7/2004 Thakkar et al. .... 455/552.1  
2005/0231761 A1\* 10/2005 Pineau ..... 455/557  
2006/0274724 A1\* 12/2006 Landschaft et al. .... 370/352

\* cited by examiner

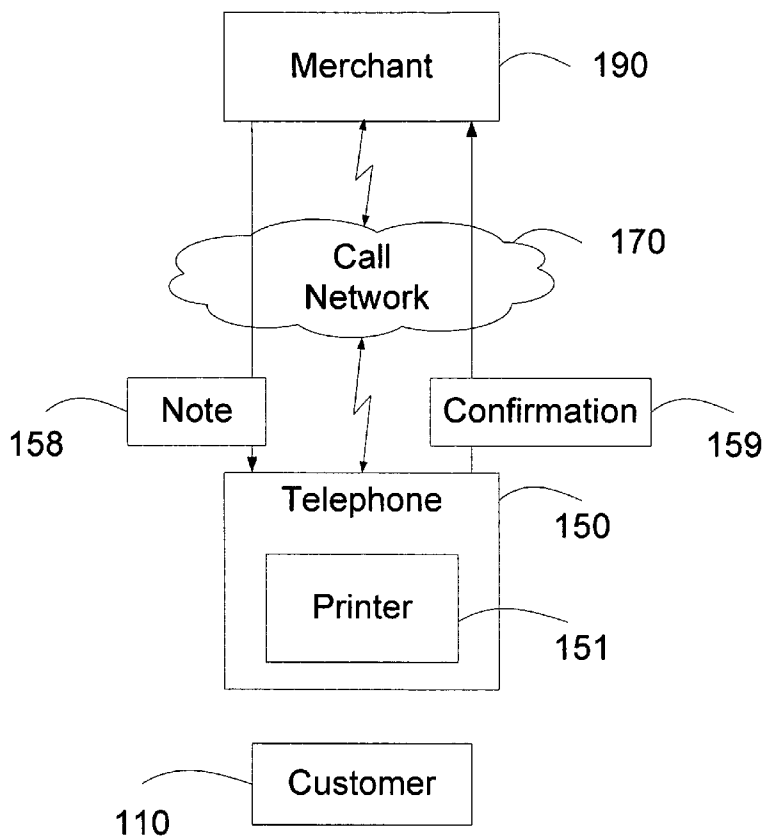
*Primary Examiner* — Stella Woo

(74) *Attorney, Agent, or Firm* — North Shore Patents, P.C.;  
Michele Liu Baillie

(57) **ABSTRACT**

A method and system for providing a transaction using a telephone with a printer, includes: establishing a plurality of communications sessions between a first party and a second party to the transaction, where the first party comprises the telephone with the printer; conducting the transaction over a first communication session; and receiving a note by the first party from the second party over a second communication session, wherein the note comprises information about the transaction. In one embodiment, the first and second communication sessions exist simultaneously. In one embodiment, the first communication session is a voice session, and the second communication session is a data session. The note is then printed using the telephone with the printer, and a confirmation is sent from the first party to the second party to confirm the printing of the note.

**18 Claims, 4 Drawing Sheets**



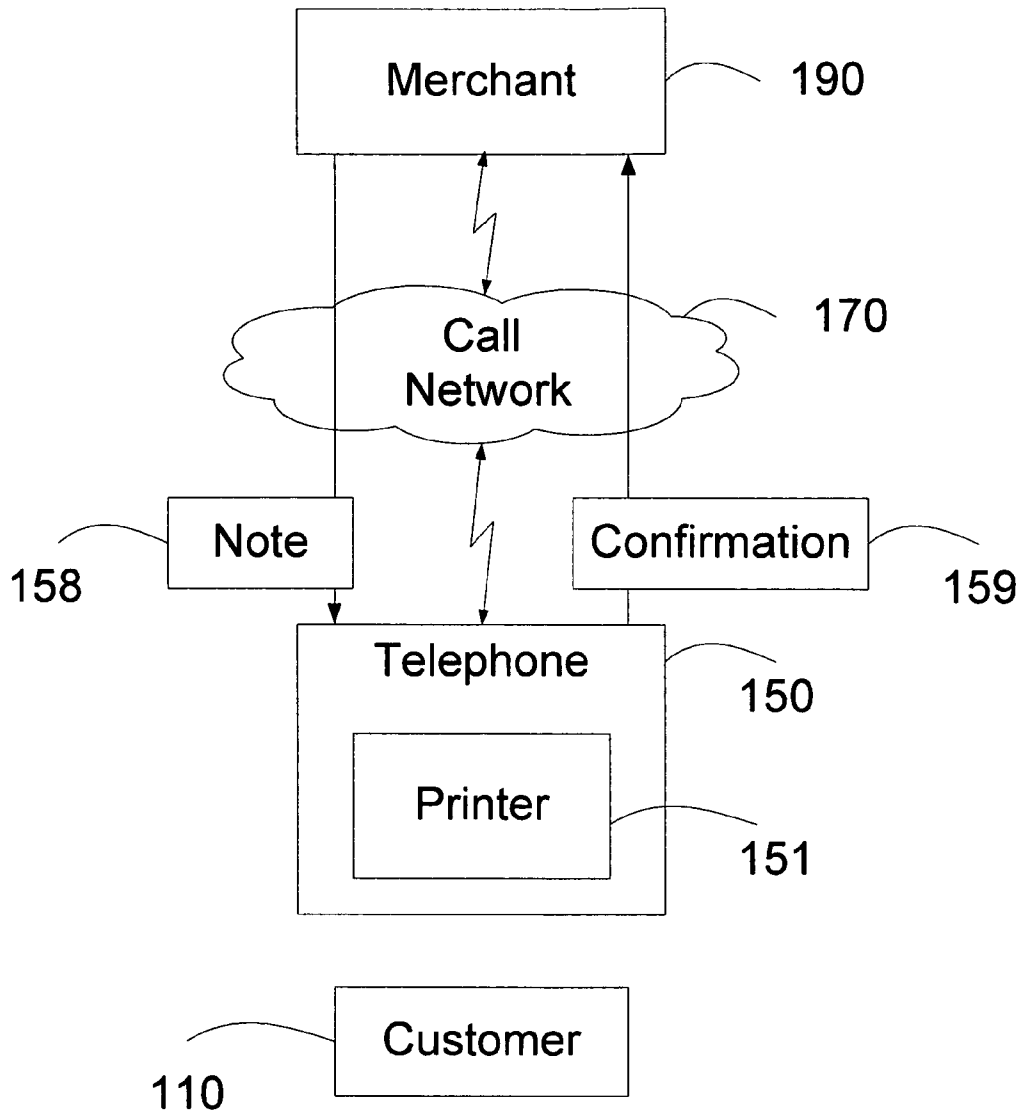


Figure 1

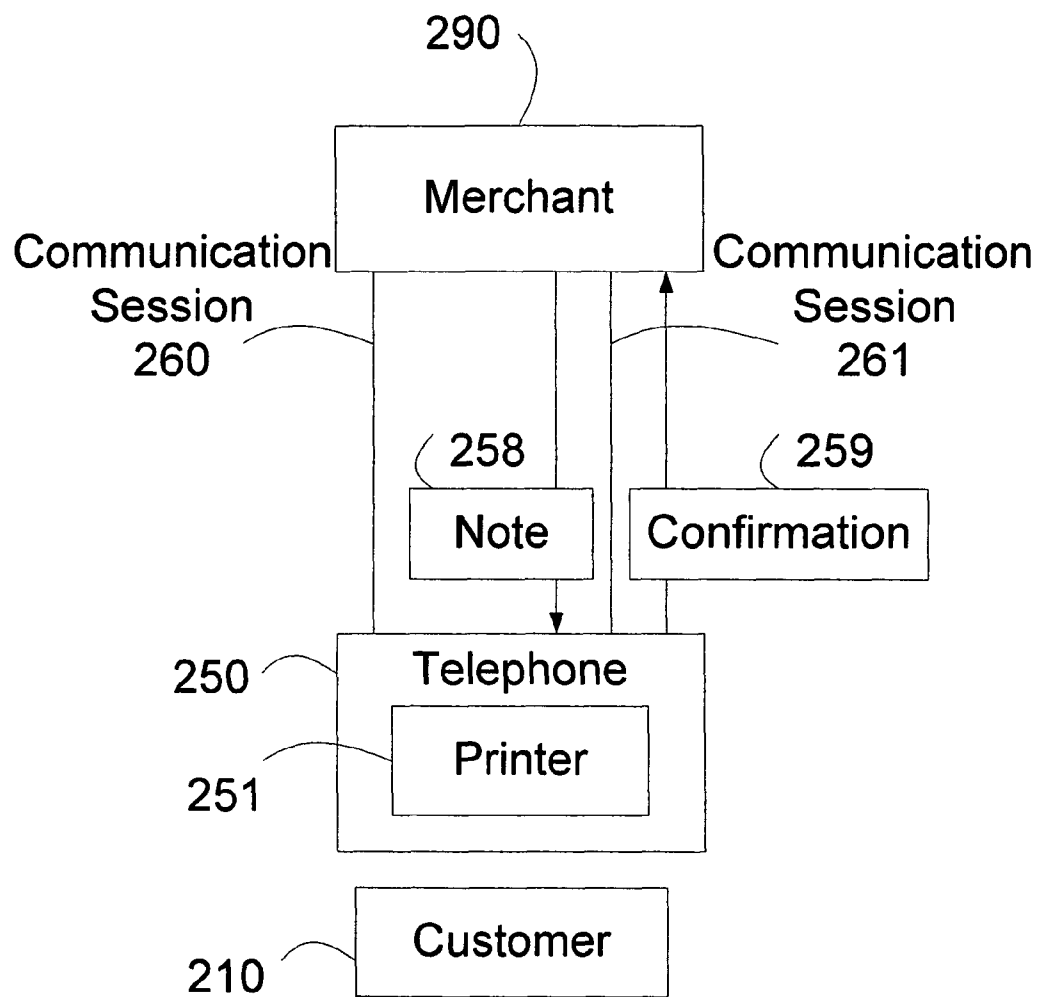


Figure 2

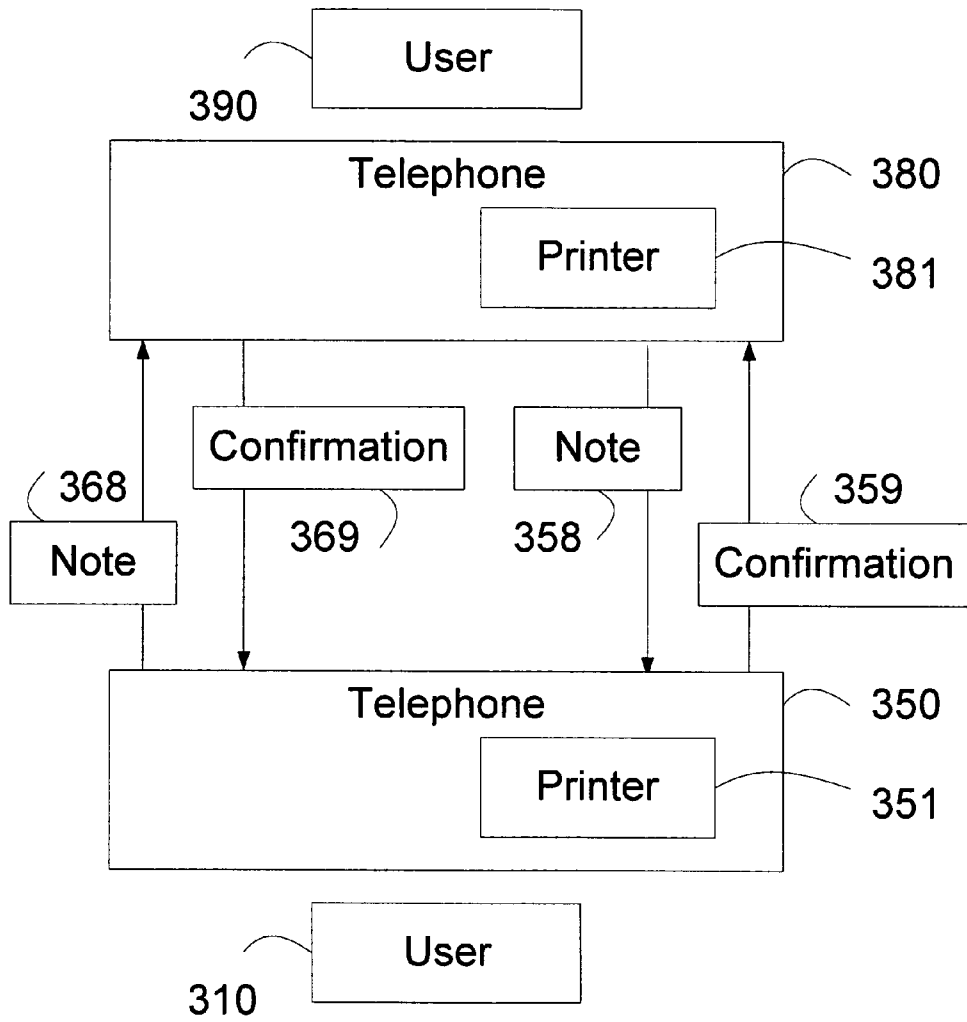


Figure 3

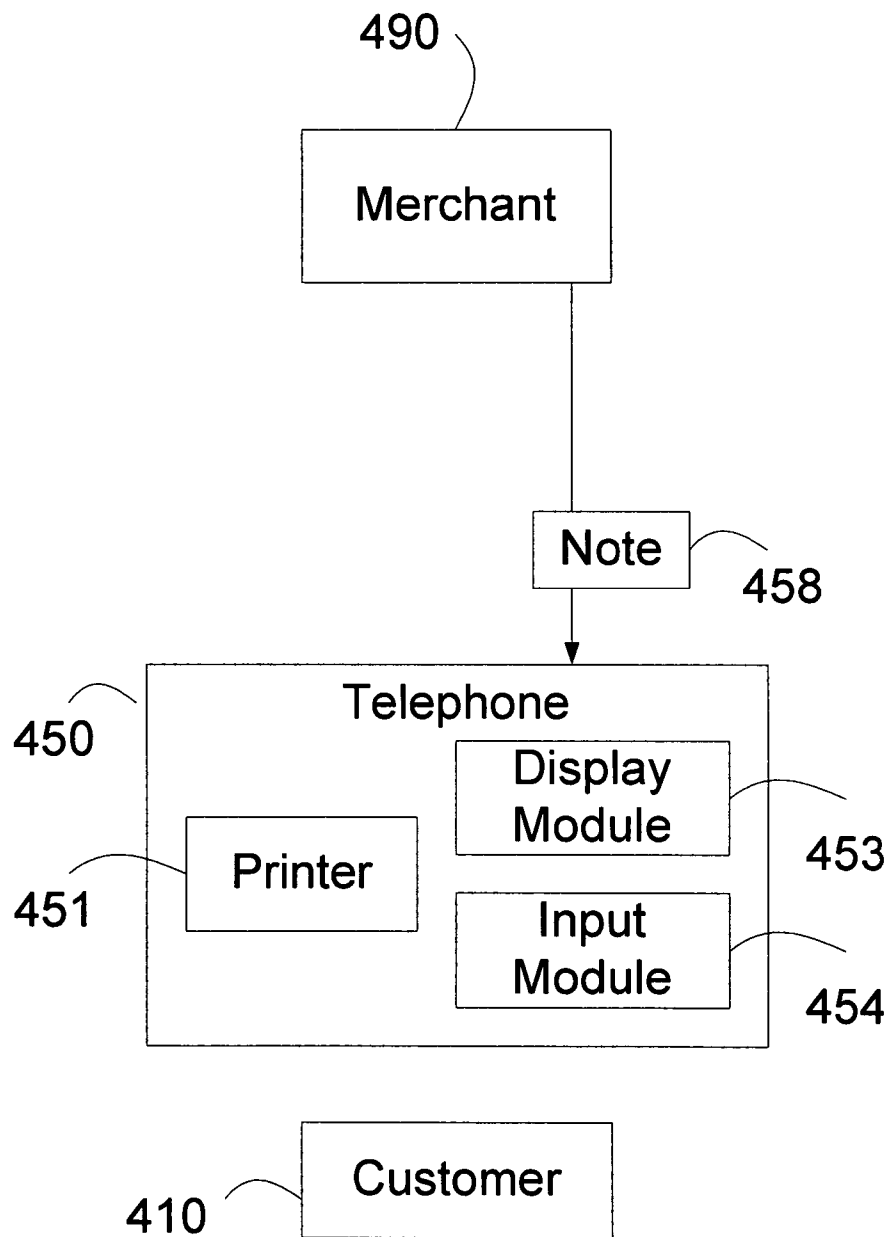


Figure 4

1

# COMMUNICATION SESSIONS FOR A COMMERCIAL TRANSACTION USING TELEPHONE WITH A PRINTER

## BACKGROUND

### 1. Field

This invention relates generally to telecommunications, and more specifically to an apparatus and a method for a telephone with a printer.

### 2. Related Art

A user uses a telephone for communication, from causal voice conversation to commercial transactions with a merchant, such as ordering a product, purchasing a ticket for a movie, a concert, or a flight, making a payment, securing a hotel or cruise ship reservation, or making an doctor's appointment.

These commercial transactions are conducted over verbal communications without a printed record during the transaction; and are based on assumptions of trust by the user, by the merchant, or by both. When errors occur, it is extremely difficult to retrace the transaction in order to resolve the discrepancy between the customer and the merchant.

In an example, John uses a telephone to order a camera from a consumer electronic company at a 20% discount. During the transaction, he verbally authorizes the company to charge his credit card for the discounted amount. A month later, John finds out from his credit card statement that he has been charged the full price for the camera. Outraged, John calls and complains about the discrepancy, but can provide no proof that the discount is indeed offered during the phone call.

There are commercial transactions that require a printed record in order to redeem a product or service. For example, a commercial transaction involves a movie ticket, a concert ticket, a flight boarding pass, or a hotel reservation record. In many instances, the timely possession of the record is important to the commercial value of the goods.

In an example, Grace and her friend want to do lunch and see a movie after lunch. Grace calls a box office to purchase several tickets for the movie. After completing the purchase, the box office tells Grace that the electronic tickets will be sent as an email to her email account; and she can bring the printed tickets to the cinema. After waiting for one and half hour, Grace receives the email and prints the tickets. By then she and her friend has already missed the lunch hour.

The above discussion illustrates a need for a telephone to print a record for a transaction conducted during a phone call.

## SUMMARY

A method and system for providing a transaction using a telephone with a printer, includes: establishing a plurality of communications sessions between a first party and a second party to the transaction, where the first party comprises the telephone with the printer; conducting the transaction over a first communication session; and receiving a note by the first party from the second party over a second communication sessions, wherein the note comprises information about the transaction. In one embodiment, the first and second communication sessions exist simultaneously. In one embodiment, the first communication session is a voice session, and the second communication session is a data session. The note is then printed using the telephone with the printer, and a confirmation is sent from the first party to the second party to confirm the printing of the note.

2

## BRIEF DESCRIPTION OF DRAWINGS

FIG. 1 illustrates a telephone with a printer.

FIG. 2 illustrates a process for telephone to conduct a commercial transaction call.

FIG. 3 illustrates a process for telephone to conduct a business-to-business transaction call.

FIG. 4 illustrates a process for telephone to display a received note prior to printing during a commercial transaction call.

## DETAILED DESCRIPTION

FIG. 1 illustrates a telephone with a printer.

Telephone **150** connects to a call network **170**. Call network **170** includes a public voice network, such as the Public Switched Telephone Network (PSTN), a Global System for Mobile Communications (GSM) network, or a public Voice over IP (VoIP) network. In one embodiment, call network **170** includes a private voice network, such as a corporate voice network or a corporate VoIP network. In one embodiment, call network **170** includes a public data network such as the Internet. In one embodiment, call network **170** includes a private data network such as a corporate virtual private network (VPN) or a home network. In one embodiment, call network **170** includes an Instant Messaging based voice network.

Customer **110** uses telephone **150** to conduct a call with a merchant **190** over call network **170**. In one embodiment, customer **110** makes the call to merchant **190**. In one embodiment, customer **110** receives the call from merchant **190**. In one embodiment, merchant **190** includes a person. In one embodiment, merchant **190** includes a customer service representative at a call center. In one embodiment, merchant **190** includes a voice application, such as an Interactive Voice Response (IVR) application.

During the call, customer **110** and merchant **190** communications over a plurality of communication sessions between telephone **150** and merchant **190**. In one embodiment, a communication session is a voice communication session. In one embodiment, a communication session is a data communication session.

Customer **110** and merchant **190** conduct a commercial transaction over the plurality of communication sessions.

During the commercial transaction, telephone **151** receives a note **158** from merchant **190** over a communication session. Note **158** records information about the commercial transaction.

Note **158** has a content that fits onto a small size paper. A small size paper is smaller than a normal letter size paper, such as an ISO 216 B6 (125 mm×176 mm) size paper, an ISO 216 A5 (148 mm×210 mm) size paper, an ISO 216 C6 (114 mm×162 mm) size paper, a North American index card (4 inches×6 inches) size paper, a Japan Industrial Standard (JIS) B-6 (128 mm×182 mm) size paper, or a pamphlet size paper.

In one embodiment, the commercial transaction is the purchase of a product or a service, such as a movie ticket, a sport ticket, a concert ticket, a subscription, a camera, or a tennis racket. In one embodiment, the commercial transaction is a stock purchase or sale transaction. In one embodiment, the commercial transaction is a service reservation, such as a hotel reservation, a doctor's appointment, or a cruise ship reservation. In one embodiment, the commercial transaction is a service call, a customer complaint, a medical advice, such as a pre-surgery instruction, or a medication side-effect revelation.

In one embodiment, note **158** is a purchase receipt, a shipment tracking number, a bank transaction receipt. In one embodiment, note **158** is a concert ticket, a movie ticket or a sport event ticket in barcode format, such as 2-dimensional Portable Data File 417 (PDF417) matrix code format. In one embodiment, note **158** is a boarding pass, a hotel reservation number or a dental appointment record. In one embodiment, note **158** is a medical disclosure, a service estimate, a price quote, or a product defect disclosure.

Telephone **150** includes a printer **151**. Printer **151** prints note **158** onto a small size paper. In one embodiment, after printing note **158**, telephone **150** sends a confirmation **159** to merchant **190**, indicating that note **158** has been printed.

In one embodiment, telephone **150** attaches to printer **151** over a universal serial bus (USB) connection, a parallel port connection, or a wireless Bluetooth connection.

FIG. 2 illustrates a process for telephone to conduct a commercial transaction call.

A customer **210** is using telephone **250** to conduct a commercial transaction call with a merchant **290**. In one embodiment, customer **210** and merchant **290** are conducting the commercial transaction over a first communication session **260**. In one embodiment, the first communication session **260** is a voice communication session.

Telephone **250** receives a note **258** from merchant **290** over the call. Note **258** records information about the commercial transaction.

In one embodiment, telephone **250** receives note **258** over a second communication session **261**. Communication session **261** is a data communication session.

In one embodiment, communication session **261** uses Web technologies. In one embodiment, merchant **290** includes a Web server and telephone **250** includes a Web client. Telephone **250** receives a notification from merchant **290** for the retrieval of note **258**.

In one embodiment, merchant **290** sends the notification to telephone **250** over the first communication session **260**. In one embodiment, the first communication session **260** includes a Session Initiation Protocol (SIP) session. Merchant **290** sends the notification to telephone **250** in a SIP INFO message over the first communication session **260**. Telephone **250** extracts the notification from the SIP INFO message. SIP INFO message is described in IETF RFC 3261 "SIP: Session Initiation Protocol".

In a different embodiment, merchant **290** sends the notification to telephone **250** using a messaging method over an additional communication session, such as a short message or an instant messaging session. In one embodiment, the short message is delivered via a Short Message Service (SMS). Telephone **250** extracts the notification from the short message.

The notification includes a Web universal resource location (URL) for the retrieval of note **258**. Telephone **250** establishes the second communication session **261** with merchant **290** and sends a Hypertext Transfer Protocol (HTTP) request to merchant **290** over the second communication session **261**, using the information in the notification. Telephone **250** receives an HTTP response from merchant **290** over the second communication session **261**. The HTTP response includes note **258**. Telephone **250** extracts note **258** from the HTTP response.

In one embodiment, communication session **261** uses a file transfer technology, such as the File Transfer Protocol (FTP). Telephone **250** includes an FTP client and merchant **290** includes an FTP server. Telephone **250** establishes the second communication session **261** with merchant **290** and sends a RETRIEVE (RETR) command to request for note **258** using

the information in the notification. Telephone **250** receives note **258** in a response of the RETR command from merchant **290** over the second communication session **261**. FTP is described in IETF RFC 959 "File Transfer Protocol".

In other embodiments, a file transfer session uses Secure Shell File Transfer Protocol (SFTP), Secure Copy Protocol (SCP), or Unix to Unix Copy Protocol (UUCP).

Printer **251** prints the received note **258**. In one embodiment, printer **251** prints note **258** after telephone **250** receives note **258** in the entirety. In one embodiment, printer **251** prints a portion of note **258** after telephone **250** receives the portion of note **258**.

In one embodiment, after printing note **258**, telephone **250** sends a confirmation **259** to merchant **290**, indicating that note **258** has been printed. In one embodiment, telephone **250** digitally signs confirmation **259** before sending confirmation **259**. In one embodiment, telephone **250** prompts customer **210** before sending confirmation **259**. In one embodiment, telephone **250** sends confirmation **259** in an HTTP POST request to merchant **290**. In one embodiment, the HTTP POST request includes a digital signature.

In one embodiment, while telephone **250** is receiving note **258** over the second communication session **261**, customer **210** continues to communicate with merchant **290** over the first communication session **260**.

In one embodiment, after printer **251** prints note **258**, customer **210** and merchant **290** continue to communicate over the first communication session **260**.

FIG. 3 illustrates a process for telephone to conduct a business-to-business transaction call.

A first user **310** is using first telephone **350** to conduct a business-to-business transaction call with a second user **390** using telephone **380**. Telephone **380** includes printer **381**. First user **310** and first telephone **350** play the role of a first merchant. Second user **390** and second telephone **380** play the role of a second merchant. First user **310** and second user **390** are conducting a business-to-business transaction during the call.

In one embodiment, first user **310** plays the role of a customer as illustrated in FIG. 2. Telephone **350** receives a note **358** from telephone **380** and printer **351** prints the received note **358**. In one embodiment, telephone **350** receives note **358** from telephone **380** using Web technologies such as HTTP or FTP as illustrated in FIG. 2. Note **358** records information about the business-to-business transaction. In one embodiment, telephone **350** sends a confirmation **359** to telephone **380**, indicating that note **358** has been printed.

In one embodiment, the second user **390** plays the role of a customer as illustrated in FIG. 2. Telephone **350** sends a note **368** to telephone **380**. In one embodiment, telephone **350** sends note **368** to telephone **380** using Web technology such as HTTP or FTP as illustrated in FIG. 2. Note **368** records information about the business-to-business transaction. In one embodiment, telephone **350** receives a confirmation **369** from telephone **380**, indicating that note **368** has been printed.

FIG. 4 illustrates a process for telephone to display a received note prior to printing during a commercial transaction call.

Customer **410** is using telephone **450** to conduct a commercial transaction call with merchant **490**.

During the commercial transaction, telephone **450** receives a note **458** from merchant **490**.

In one embodiment, telephone **450** includes a display module **453**. In one embodiment, display module **453** includes a graphical display screen. In one embodiment, the dimension of the graphical display screen is 6 inches horizontal by 4 inches vertical. In one embodiment, the dimension of the

5

graphical display screen is 125 mm horizontal by 88 mm vertical. In one embodiment, the graphical display screen has a diagonal dimension of 2 inches.

Telephone 450 displays note 458 on display module 453. In one embodiment, telephone 450 displays note 458 after telephone 450 receives note 458 in the entirety. In one embodiment, telephone 450 displays a portion of note 458 after telephone 450 receives the portion. In one embodiment, telephone 450 displays a textual or graphical representation of note 458.

In one embodiment, telephone 450 includes an input module 454. In one embodiment, input module 454 includes a stylus, a pointing device, or navigation keys. Customer 410 uses input module 454 to initiate printing note 458, such as pressing a navigation key. Printer 451 prints note 458.

In one embodiment, customer 410 uses input module 454 to select a portion of note 458 for printing. Printer 451 prints the selected portion of note 458. In one embodiment, printer 451 prints the portion of note 458 that is displayed on display module 453.

In one embodiment, a commercial transaction is a business transaction within a corporation. In one embodiment, the business transaction is an inter-departmental transaction. In one embodiment, the business transaction is an internal business service transaction such as human resource service, information technology (IT) service, payroll service, benefit enrollment service, travel arrangement service, or facility request service.

In one embodiment, telephone connects to printer over a data network. In one embodiment, the data network is a home data network. In one embodiment, the data network is a corporate data network. In one embodiment, the data network includes a wired network, such as an Ethernet network. In one embodiment, the data network includes a wireless network, such as a WiFi network.

In one embodiment, a note includes additional business information, such as a business telephone number, a business address, opening-hours for a business, a business card, a map, a driving direction, a restaurant menu, a product description or picture, a charity pledge, or a discount coupon.

We claim:

1. A method for a transaction using a telephone with a printer, comprising:

- (a) establishing a plurality of communication sessions between a telephone of a first party and a call center of a second party, wherein the telephone comprises the printer;
- (b) establishing a Session Initiation Protocol (SIP) voice communication session of the plurality of communication sessions between the telephone and the call center;
- (c) conducting a transaction between the telephone and the call center over the SIP voice communication session;
- (d) receiving a notification by the telephone in a SIP INFO message over the SIP voice communication session;
- (e) extracting the notification from the SIP INFO message by the telephone;
- (f) establishing a data communication session of the plurality of communication sessions between the telephone and the call center using information in the extracted notification, wherein the voice SIP and the data communication sessions exist simultaneously; and
- (g) receiving a note by the telephone from the call center over the data communication session while simultaneously the telephone and the call center continues to communicate over the SIP voice communication session, wherein the note comprises information about the transaction.

6

2. The method of claim 1, further comprising:

(h) printing the note using the telephone comprising the printer.

3. The method of claim 2, further comprising:

(i) sending a confirmation from the telephone to the call center to confirm the printing of the note.

4. The method of claim 2, wherein the telephone attaches to the printer over a universal serial bus, wherein the printing (h) comprises:

(h1) sending the note from the telephone to the printer over the universal serial bus; and

(h2) printing the note using the printer.

5. The method of claim 2, wherein the printing (h) comprises:

(h1) printing the note using the telephone comprising the printer, while the telephone and the call center simultaneously continues to communicate over the SIP voice communication session.

6. The method of claim 5, wherein the printing (h) further comprises:

(h2) continuing to communicate over the SIP voice communication session by the telephone and the call center after the printer prints the note.

7. The method of claim 1, wherein the establishing (f) and the receiving (g) comprises:

(f1) receiving a notification by the telephone from the call center over the SIP voice communication session;

(f2) establishing the data communication session between the telephone and the call center using information in the extracted notification; and

(g1) extracting the note received from the call center over the data communication session by the telephone while simultaneously the telephone and the call center continues to communicate over the SIP voice communication session.

8. The method of claim 1, wherein the call center comprises a telephone of the second party, wherein the SIP voice communication session and the data communication session are established between the telephone of the first party and the telephone of the second party.

9. The method of claim 1, wherein the SIP voice communication session and the data communication session are established over a data network, wherein the data network comprises a public Voice over IP network or an Instant Messaging based voice network.

10. A system, comprising:

a telephone comprising a printer; and

a call center, wherein a plurality of communication sessions are established between the telephone and the call center,

wherein a Session Initiation Protocol (SIP) voice communication session of the plurality of communication sessions is established between the telephone and the call center, and a transaction between the telephone and the call center is conducted over the SIP voice communication session,

wherein a notification in a SIP INFO message is received by the telephone over the SIP voice communication session,

wherein the notification is extracted from the SIP INFO message by the telephone,

wherein a data communication session of the plurality of communication sessions is established between the telephone and the call center using information in the extracted notification,

wherein the voice and the data communication sessions exist simultaneously, and



7

wherein a note from the call center is received by the telephone over the data communication session while simultaneously the telephone and the call center continues to communicate over the SIP voice communication session, wherein the note comprises information about the transaction.

11. The system of claim 10, wherein the telephone prints the note using the printer.

12. The system of claim 11, wherein the telephone sends a confirmation to the call center to confirm the printing of the note.

13. The system of claim 11, wherein the telephone attaches to the printer over a universal serial bus, wherein the note is sent from the telephone to the printer over the universal serial bus and the printer prints the note.

14. The system of claim 11, wherein the telephone comprising the printer prints the note while simultaneously the telephone and the call center continues to communicate over the SIP voice communication session.

15. The system of claim 14, wherein the telephone and the call center simultaneously continues to communicate over the SIP voice communication session after the printer prints the note.

8

16. The system of claim 10, wherein the telephone receives a notification from the call center over the SIP voice communication session, wherein the data communication session is established using information in the extracted notification, and wherein the telephone extracts the note over the data communication session while simultaneously the telephone and the call center continues to communicate over the SIP voice communication session.

17. The system of claim 10, wherein the call center comprises a telephone of the second party, wherein the SIP voice communication session and the data communication session are established between the telephone of the first party and the telephone of the second party.

18. The system of claim 10, wherein the SIP voice communication session and the data communication session are established over a data network, wherein the data network comprises a public Voice over IP network or an Instant Messaging based voice network.

\* \* \* \* \*