

## SERVICE BUREAU CALLER ID COLLECTION WITH ISDN BRI

The present application is a continuation of U.S. patent application, Ser. No. 08/912,859, filed Aug. 18, 1997 (now U.S. Pat. No. 5,937,409), which is a continuation of U.S. patent application Ser. No. 08/581,101, filed Dec. 29, 1995 (abandoned).

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### TECHNICAL FIELD

A microfiche appendix having one (1) microfiche with thirty-two (32) frames is included in the present application.

This invention relates to the use of ISDN Basic Rate Interface (BRI) technology by businesses. In particular, this invention relates to the use of Caller ID technology to track customer information and other marketing information.

### BACKGROUND

The technology of Caller ID is potentially important to businesses because it provides important marketing information about telephone customers. However, telecommunications technology at the customer premises is generally not equipped to receive Caller ID. While single-line solutions to capturing Caller ID are plentiful, corporations and all but the smallest businesses are not able to benefit from single-line devices. In practice, most businesses own some sort of telephone switch on premises. This presents a problem because Caller ID is not received and passed along with calls in these switches. While this problem could be overcome with a new switch built to such purpose, this type of switch would have to be purchased as a replacement for an existing switch, which in all other respects is a perfectly useful and operational device.

Furthermore, Caller ID, in and of itself, is not very useful to a business. The value of a caller's phone number to a business accrues only when data about the owner of the number is known.

Data indexed by phone number is available from a variety of sources. Phone indexed data increases in accuracy (and thus value) as multiple data sources are searched. Professional data source companies sell information based on volume discount. Access to their databases requires on-line links and special software. Programming to each data company's interface is also a requirement. The equipment upgrades, data procurement, linking, and programming are too expensive to be implemented by most small to medium businesses.

### BRIEF DESCRIPTION OF DRAWINGS

FIG. 1 is a block diagram of the hardware associated with the use of the present invention.

FIG. 2 is a block diagram of a service bureau used in conjunction with the present invention.

FIG. 3 is a block diagram illustrating the processes used in the personal computer within the service bureau.

FIG. 4 is a block diagram of a system for using the information gathered in conjunction with the present invention.

FIG. 5 is a block diagram showing an embodiment of the invention using remote call forwarding.

FIG. 6 is a block diagram of the present invention used in conjunction with a call distributor system.

### DISCLOSURE OF THE INVENTION

The collection of Caller ID data, matching of Caller ID data to databases, generation of reports and statistics based on the data is best performed in a service bureau. The invention below describes such a service bureau from ISDN Basic Rate Interface technology. The advantages of this method are numerous: 1) Caller ID is a basic service of ISDN BRI; 2) ISDN BRI is widely available; 3) ISDN BRI is tariffed for sale; 4) ISDN BRI interface devices are commercially available; 5) calls delivered via ISDN BRI can be transferred to any destination telephone number; 6) ISDN BRI transfers are performed in under one ring cycle. The last two of these advantages are critical for building a service bureau from any telecommunications technology.

The embodiment described comprises ISDN BRI lines from a central office, a personal computer, and ISDN BRI interface device. Implicit in the descriptions is the use of a multitasking operating system. The embodiment is described in terms of processes and messages but there is no reason why a single tasking system with a monolithic program design, or other program and operating system design methods could not accomplish the same result.

Referring to FIG. 1, a Service Bureau **103** is designed using ISDN BRI ports (**102**) from a public telephone network **101**. Referring to FIG. 2, these ports are connected to ISDN BRI devices such as ISDN BRI ISA cards for the IBM PC or AT&T 8510 or AT&T 7506 phones (**201**) with RS232 device control adapters (**207**). Software control and monitoring of the messaging from the ISDN protocol is required for access to the Caller ID and destination directory number information.

Referring to FIG. 1 and FIG. 2, in one embodiment of the invention, Customers (**100**) call a directory number advertised by a Business (**104**). The system includes lines/channels **105** to business **104**. The telephone number resides on an ISDN BRI port (**201**) of the Service Bureau (**103**). Calls coming into the Service Bureau result in messages sent from the ISDN Phone (**201**) having a plurality of buttons, for example buttons **210a** and **210b**, through an RS232 cable (**207**) to a personal computer (**202**). The PC **202** can include a printer **206** and includes a hard disk **203**. The system includes a modem **204**, a database vendor host **205**, a network **208** and a server as shown in FIG. 2. The ISDN phone acts to interpret ISDN lower layer protocols, such as Q.931, into an extended "Hayes" protocol. This translation is not necessary for the operation of the invention. Direct control of the lower ISDN protocols could yield the same result.

ISDN BRI devices contain "button" definitions. These are also called Call Appearances. Each button on the phone may have a directory number associated with it. This is the button which alerts on the phone when an incoming call is presented. These buttons can be arranged into groups as small as one per directory number cut may include multiple buttons assigned to the same directory number. The buttons may also have inbound only or outbound only assignments. Multiple button groupings are useful for handling higher traffic directory numbers since each button can hold a ringing call.

Referring to FIG. 3, ISDN Control Processes (**301**) in the PC (**202**) read Caller ID and the button number of the