

Description

BACKGROUND OF THE INVENTION

The present invention relates to data transmission systems and devices and, in particular, relates to data transmission over public switched telephone networks and various devices for carrying this out. The invention is directed to an improved overall combination for transmitting data between a transmitter and a receiver through a system which involves the use of public switched telephone networks. The invention also includes processes for carrying this out as well as particular devices for efficiently carrying out the process.

The transmission of information between sources continues to grow at a rapid rate and companies recognize the importance in having the capability to receive information and transmit information to other parties efficiently. This transmission of information is illustrated in facsimile transmission between parties where both printed and graphic information are transmitted easily. Other forms of data transmission include electronic mail, however, electronic mail normally requires the receiver to check his electronic "mailbox" and only once it is checked can he then receive the information.

Other examples of systems for transmitting of information include the telex system, however, this system requires dedicated transmission lines and particular skills for transmitting of the information. Although the telex system has been in place for many years, facsimile transmission is rapidly eroding the usage of telex and greatly decreasing the importance of telex. This rapid increase in facsimile transmission is possibly due to the simple manner in which the information is transmitted and the mode of transmission via the telephone and the public switched telephone network. Only very limited knowledge of a facsimile machine is required and the system is extremely user friendly.

The problem with facsimile transmission is that it operates best with a dedicated telephone line and the rate of transmission of the information is determined by the particular facsimile machine and the quality of the connection between the transmitter and the receiver. In cases of local calls, the telephone lines are normally sufficient to allow the transmitter to operate at full speed, however, in long distance calls, the quality of the line falls. The facsimile machines automatically adjust and reduce the speed of transmission to ensure the information is properly received. Thus, the facsimile machine operates possibly at its highest speed on a local call where there is no additional charge for time and at its slowest speed on long distance calls where the transmitter is paying for connect time. The public switched telephone network is also a

system designed for voice transmission and the facsimile machine is not using all the capability of that system in transmitting the data. The transmission of pure data is simpler and specialized systems have been designed for the transmission of this data at higher rates of speed while also providing error correction.

European Patent Application No. 0 119 843 (Fujitsu Limited) discloses a system for connecting a group of channels, in an ordered manner, between a terminal which is or is acting as a sending terminal and a terminal which is or is acting as a receiving terminal, via a digital communications network.

European Patent Application No. 0 194 491 (International Standard Electric Corporation) discloses a process intermediary for connection as an intermediary between a device capable of transmitting data by means of an instructing signal over a telephone communication system and such telephone communication system, the process intermediary comprising:

means for identifying and processing such instructing signal originating from the data transmitting device to selectively redirect the instructing signal and any following data to a particular location for further processing.

There remains a need to allow the effective transmission of data between a transmitter and a receiver combining the advantages of the public switched telephone network and the data transmission systems. These data transmission systems are typically referred to as "packet switched data networks".

SUMMARY OF THE INVENTION

According to a first aspect of the present invention, there is provided a process intermediary for connection as an intermediary between a device capable of transmitting data by means of an instructing signal over a telephone communication system and such telephone communication system, the process intermediary comprising:

means for identifying and processing such instructing signal originating from the data transmitting device to selectively redirect the instructing signal and any following data to a particular location for further processing,

characterised in that the means for identifying and processing the instructing signal is adapted to determine whether the instructing signal includes a code corresponding to a particular type of telephone link and, if so, to temporarily store the instructing signal and to cause a telephone communication connection to the particular location to be established, whereafter the instructing signal and the following data is transmitted to the particu-

lar location.

Preferably the process intermediary is characterised in that the particular type of telephone link is a long distance telephone link.

This device operates in a manner that the transmitter can operate in its conventional manner and no or very little additional instructions are required for transmitting of the information.

According to a second aspect of the invention there is provided a method of processing data originating from a first data transmitting and receiving device and transmitted over a telephone communication system for receipt at a particular telephone number by a compatible data transmitting and receiving device comprising:

monitoring transmissions originating from the data transmitting device and selectively interrupting any transmissions to the communication system in a manner not detected by the first data transmitting and receiving device upon recognition of a particular type of telephone call, and

rerouting such call to a different predetermined number for transmission of all such data.

BRIEF DESCRIPTION OF THE DRAWINGS

Preferred embodiments of the invention are shown in the drawing, wherein:

Figure 1 is a block diagram of the communication network;

Figure 2 shows the process intermediary device;

Figure 3 is a logic diagram showing the various steps and logic of the present method, and

Figure 4 illustrates a modified apparatus for use in the case of a non-dedicated line.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The concept of the communication system can best be understood with respect to Figure 1. All transmissions involve the public switched telephone network generally shown as 2. In this case, a transmitter 4 is shown operatively connected to the process intermediary 6 which reviews the signal produced by the transmitter 4 and distinguishes, in this case, between a local call and a long distance call. In the case of a local call, the process intermediary allows the normal transmission to occur, that being a connection between the public switched telephone network 2 and the transmitter 4 with this public switched telephone network 2 forming an operative connection between the transmitter 4 and the local receiver 8. In the case of a long distance transmission, the process intermediary 6 identifies such a signal and causes a different connection to be made. The process intermediary 6 forms an operative link via the pub-

lic switched telephone network 2 to the data network generally shown as 10. Once this link has been made, the signal originating from the transmitter 4 is transmitted to a computer node of the data network 10. The data network 10 transmits the signal, including the long distance identification code of the long distance receiver 12, through the data network to preferably the closest local station of the data network 10. The data network 10 then completes a further communication with the public switched telephone network, for example by a local call, and causes a connection between the data network 10 and the long distance receiver 12. The data network which has stored the signal when it is received at the local point then transmits the signal to the long distance receiver 12.

In contrast to what would normally occur, two local calls have been made, one between the transmitter 4 and the data network 10 via the process intermediary 6, and a second local call between the data network 10 and the long distance receiver 12. The transmission of the information over the long distance has been accomplished by the data network 10 which, in fact, is basically sitting in parallel with the public switched telephone network. Thus, data which is transmitted by transmitter 4 for a long distance communication is routed to a data network which can more efficiently transmit this information. This information is received by the data network 10 and perhaps stored on disk and then transmitted through the data network for receipt at the other end or the appropriate location in a data network by a computer having the capability to place outgoing calls. The data network 10 will have appropriate error correction for data transmission, and the transmission over the long distance is more efficient than the conventional manner.

To understand the conventional process, a signal is produced by conventional transmitter 14 and, via the public switched telephone network, is operatively connected to the long distance receiver 12 whereafter the transmission of information occurs through the public switched telephone network and at the expense of a long distance telephone charge essentially based on time. Therefore, at the present point in time, conventional transmission of data from a facsimile machine, for example, to a receiver such as another facsimile machine only involves public switched telephone network whereas the present system proposes a further link via a data network for the more efficient transmission of information.

The process intermediary 6 is shown in greater detail in Figure 2. The process intermediary 6 includes an input 20 from the transmitter such as a facsimile machine and an output 22 which allows connection to the public switched telephone network (PSTN). The process intermediary 6 also in-

cludes a power source generally indicated as 24.

If signals from the transmitter are passed through the input 20 and are sensed by a dual tone multi-frequency receiver (DTMF Rx) 26 with this signal being reviewed by the micro processor 28 to determine whether this is a local or a long distance telephone communication, for example. Given that the signal is not a long distance signal, the transmission continues in its normal manner through the closed switch K1(NC) 30. This switch is normally closed and allows direct connection from the transmitter to the public switched telephone network. Given that the micro processor determines that this is a signal requiring particular routing, switch 30 is opened via the switch control 32. At the same time, switch K1(NO) 34 is closed and a signal is sent to the transmitter which, in essence, is a false signal indicating that the connection to the public switched telephone network is still in progress. The original signal, which in the case of a long distance call would be the long distance code, the area code and the particular telephone number, is stored in the random access memory generally shown as 36. The micro processor 28 then via the dual tone multi-frequency transmitter 38 (DTMF Tx) transmits the call to the public switched telephone network by closing switch K2(NO) 40. This telephone call will be to the data network generally shown as 10 in Figure 1. Once this connection has been made, information identifying the particular process intermediary 6 is sent to the data network and this code is pulled from the non-volatile random access memory generally shown as 42. Once this signal has been transmitted, the long distance number and the particular telephone number for which the signal was originally destined is pulled from the random access memory 36 and sent to the data network. Once the required information has been sent to the data network, the process intermediary 6 forms a direct connection by opening switch 40 and switch 34 and closing switch 30 such that the data network is now connected to the transmitter. The data network will then provide the transmitter with the appropriate signal (clear to send signal) indicating that it is ready to receive the message and the transmitter now incorrectly believes that a direct connection has been made between the transmitter and the destined receiver. Therefore, the data transmitter will transmit the signal in its normal manner. The read only memory 44 of the process intermediary 6 allows for program logic and transistor transistor logic 46 allows the micro processor to make the appropriate actuations of switches 30, 34 and 40. All connections between the various components of the process intermediary are shown via the bus 48.

Thus, it can be appreciated from a review of Figure 2 that the process intermediary 6 does not

affect the normal operation of the transmitter 4 and the operator of that transmitter need have no knowledge of the manner in which the signals are being processed. In effect, this redirection of the signal occurs automatically and is transparent to the sender. Furthermore, the installation of this device is extremely simple, merely requiring a plug-in type jack from the transmitter and the conventional plug-in type connection to the public switched telephone network.

As can be appreciated, this is particularly beneficial for facsimile machines, although other forms of transmitters and receivers are possible. The rapid acceptance of facsimile machines has created a need to appropriately process the data signals of these machines in a more efficient manner without departing from the user convenience of such machines. Although the system has been described and requires certain completions, this can occur very rapidly and as such, there is really no appreciable time delay in the transmission of the signal between the transmitter and the receiver. The data network would have a computer with a number of ports for which the process intermediary is already programmed to direct the signal to and at the other end of the data network, a similar arrangement would be in place where the data network would then transmit via the public switched telephone network the signal to the destined receiver.

The logic flow chart for a facsimile transmission via the process intermediary is shown in Figure 3. As can be appreciated, depending upon the particular type of transmitter and receiver, various modifications may be required for their particular requirements.

The following is an overview of the operation of a facsimile machine connected with the process intermediary:

1. Operator presses dial on telefax and the telefax goes off hook as the process intermediary in its deenergized states directly connects the public switched telephone network to the facsimile machine. A number is then entered into the facsimile machine and from the first numbers dialed the process intermediary determines whether it is a local or long distance call. If it is a local call, the process intermediary does not interrupt the transmission between the facsimile and the public switched telephone network and the transmission would follow the conventional practise. If the process intermediary determines it is a long distance call, the telefax is disconnected from the public switched telephone network and the process intermediary provides an off hook current to the telefax such that the machine believes the connection with the public switched telephone network is still in

place or about to be in place. The facsimile then continues to dial the remaining digits of the telephone number for which the transmission is destined and the process intermediary stores the number.

At this point the facsimile is still disconnected from the public switched telephone network and the process intermediary has stored the number and is providing the facsimile with an off hook current. The facsimile has dialed the number of the receiving telefax and is awaiting the "clear to send" signal from the receiving telefax. The process intermediary has gone to an off hook position relative to the public switched telephone network.

2. The process intermediary causes a connection to be made with the data transmission network via the public switched telephone network. This connection is made via a telephone number stored in memory in the process intermediary. Once this connection is made, the process intermediary sends its unique serial number to the computer node of the data process network. Following this, the process intermediary sends the telephone number of the receiving facsimile machine captured and stored by the process intermediary when dialed by the transmitting facsimile machine. After this information has been transmitted, the process intermediary returns to its deenergized state which directly connects the facsimile machine to the public switched telephone network which is now connected to the data transmission network. The originating facsimile machine is still awaiting the "clear to send" tone. The computer node at the data transmission network now sends the "clear to send" tone to the transmitting telefax machine. This results in the transmitting machine being placed in a "ready" state with the documents then being transmitted in the normal manner. The data transmission system initially stores and then appropriately routes this information through the data transmission network to the appropriate computer node near the receiving facsimile machine. It then, by means of the public switched telephone network, makes a connection with the receiving facsimile and transmits the information much in the manner of facsimile machine to facsimile machine.

Figure 4 illustrates a different variation with respect to improving facsimile transmissions by not requiring a dedicated line while still efficiently receiving transmissions. Figure 4 shows a common collection source such as a data communication network 100 which can receive signals 102 from many locations and transmit them through the data communication network. At each of the local receiving nodes, a transmitter 104 provides the capa-

bility of transmitting a signal or incorporating a signal in a transmitted signal, such as a broadcast signal, which will identify the code of a particular facsimile machine. For example, this identification code could be provided in a side band of a conventional broadcast signal much in the manner disclosed in United States Patent No. 4,713,837.

Each of the separate facsimile machines 106 will include broadcast receiving means 108 for monitoring the particular broadcast and determining whether its unique code is included in that broadcast signal. Once its code is identified, this indicates that a transmission destined for it has been received and the facsimile machine will then, by an intermediary 110, similar to process intermediary 6, seize the non-dedicated line when it is available and place a call to the appropriate computer node of the data transmission network 100 and, upon completion of this call, identify itself in the manner of process intermediary 6 whereafter the data communication network 100 can then transmit the signal to the facsimile machine 106. The intermediary 110, in combination with broadcast receiving means, allow the facsimile machine 106 to share a non-dedicated line efficiently. All transmissions are received and stored by the communication network 100 and this includes transmissions transmitted directly to the computer node of the communication network or transmissions at least partially transmitted by the communication network in the manner described in Figures 1 through 3. It is only the procedure for the final transmission to the receiver from the node which changes. This modification, to allow receiver 106 to function efficiently on a non-dedicated line, can be incorporated within new receivers or can be incorporated in a separate stand alone unit for existing receivers. Thus, broadcast receiving means 108 can be made integral with intermediary 110 for use with existing receivers such as facsimile machines.

Thus, the need for a dedicated line is avoided and the cost associated with the dedicated line is avoided. Furthermore, the requirement for a full and complete broadcast network is not required as these identification codes can be incorporated in existing broadcast signals.

A facsimile or other receiver adapted in the manner of Figure 4 will receive all messages, however, the actual transmission to the facsimile machine will be delayed depending upon the availability of the non-dedicated line. The user is assured that even simultaneous transmissions to it, which in the conventional manner could not be completed, will be received by the data communication network and then these messages will be subsequently forwarded to the particular facsimile machine as time allows. The facsimile machine is always alerted to the presence of a transmission

destined for it by a non-telephone communication link whereafter that facsimile machine via automatic dialing techniques and equipment makes a connection with the appropriate source having the signal stored and identified for the particular facsimile machine.

The broadcast or non-telephone communication link can take many forms and any form which actuates or alerts the receiver in a manner to allow the machine to share a telephone line is sufficient.

Both of the above systems teach modified processes whereby a data transmission network on its own or in combination with other elements can improve the transmission of data between one facsimile machine and another or one data transmitter and another data receiver which information otherwise would be transmitted via the public switched telephone network. The availability, convenience and ease of using the public switched telephone network is maintained, while improving the signal quality in at least some applications. Other advantages are also possible as previously described.

A third improvement in the service can be provided by the data transmission network in that, general information can be stored and available upon request. For example, if the user, a facsimile machine, wished information on the Dow Jones, they could dial a particular number which the process intermediary would recognize is a further particular signal and make an appropriate connection with a computer node of the data transmission network. This data transmission network would then recognize the number as a request for the latest stock or listings of the Dow Jones, for example, or possibly a weather report or flight arrivals or other information, all of which could have their own codes, and then transmit this information back to the facsimile machine. Thus, further transmission of common information is available upon demand. Other services possible via the system would be the ability to send one telefax message to a host of receivers. Again, a special code could be developed whereby that particular subscriber has already previously identified addresses of people to receive common messages and upon transmission of that code to the data communication network it will be then distributed through the data communication network, resulting in transmission to each of the predetermined addresses. This avoids the problem and duplication of transmissions between each individual facsimile machine.

A particular simple manner of transmitting a signal to a facsimile machine having a non-dedicated line would be to have that user identify a particular node of the data communication network followed by his own telephone number or code and the transmitter would then dial the first number followed by the code of the receiver. The transmit-

ting facsimile machine would transmit all numbers, although the first portion would be used for transmission to the particular node. This facsimile machine and the public switched telephone network does not use the following numbers, although each facsimile machine is designed to transmit up to 32 digits. Therefore, this additional identification code will be transmitted and, when subsequently received, it is used for contacting the receiver for which the signal is destined. In order to ensure the subsequent numbers are received, the pause key can be used to provide a time gap for the data network to be connected.

Claims

1. A process intermediary (6) for connection as an intermediary between a device (4) capable of transmitting data by means of an instructing signal over a telephone communication system and such telephone communication system, (2) the process intermediary comprising:
 - means (28) for identifying and processing such instructing signal originating from the data transmitting device to selectively redirect the instructing signal and any following data to a particular location for further processing, characterised in that the means (28) for identifying and processing the instructing signal is adapted to determine whether the instructing signal includes a code corresponding to a particular type of telephone link and, if so, to temporarily store the instructing signal and to cause a telephone communication connection to the particular location to be established, whereafter the instructing signal and the following data is transmitted to the particular location.
2. A process intermediary (6) as claimed in claim 1, characterised in that wherein the particular type of telephone link is a long distance telephone link.
3. A process intermediary (6) as claimed in claim 1 or claim 2, characterised in that means (28) are included for sending a dummy signal to the transmitting device (4) indicating that a telephone communication link originally established for transmitting the data is still present whereby redirection of the transmission occurs automatically and separate and apart from the data transmitting device.
4. A process intermediary (6) as claimed in claim 1, claim 2 or claim 3, characterised in that it includes, for the redirection of the information to be accomplished, means (44), (46) for com-



destined for it by a non-telephone communication link whereafter that facsimile machine via automatic dialing techniques and equipment makes a connection with the appropriate source having the signal stored and identified for the particular facsimile machine.

The broadcast or non-telephone communication link can take many forms and any form which actuates or alerts the receiver in a manner to allow the machine to share a telephone line is sufficient.

Both of the above systems teach modified processes whereby a data transmission network on its own or in combination with other elements can improve the transmission of data between one facsimile machine and another or one data transmitter and another data receiver which information otherwise would be transmitted via the public switched telephone network. The availability, convenience and ease of using the public switched telephone network is maintained, while improving the signal quality in at least some applications. Other advantages are also possible as previously described.

A third improvement in the service can be provided by the data transmission network in that, general information can be stored and available upon request. For example, if the user, a facsimile machine, wished information on the Dow Jones, they could dial a particular number which the process intermediary would recognize is a further particular signal and make an appropriate connection with a computer node of the data transmission network. This data transmission network would then recognize the number as a request for the latest stock or listings of the Dow Jones, for example, or possibly a weather report or flight arrivals or other information, all of which could have their own codes, and then transmit this information back to the facsimile machine. Thus, further transmission of common information is available upon demand. Other services possible via the system would be the ability to send one telefax message to a host of receivers. Again, a special code could be developed whereby that particular subscriber has already previously identified addresses of people to receive common messages and upon transmission of that code to the data communication network it will be then distributed through the data communication network, resulting in transmission to each of the predetermined addresses. This avoids the problem and duplication of transmissions between each individual facsimile machine.

A particular simple manner of transmitting a signal to a facsimile machine having a non-dedicated line would be to have that user identify a particular node of the data communication network followed by his own telephone number or code and the transmitter would then dial the first number followed by the code of the receiver. The transmit-

ting facsimile machine would transmit all numbers, although the first portion would be used for transmission to the particular node. This facsimile machine and the public switched telephone network does not use the following numbers, although each facsimile machine is designed to transmit up to 32 digits. Therefore, this additional identification code will be transmitted and, when subsequently received, it is used for contacting the receiver for which the signal is destined. In order to ensure the subsequent numbers are received, the pause key can be used to provide a time gap for the data network to be connected.

Claims

1. A process intermediary (6) for connection as an intermediary between a device (4) capable of transmitting data by means of an instructing signal over a telephone communication system and such telephone communication system, (2) the process intermediary comprising:

means (28) for identifying and processing such instructing signal originating from the data transmitting device to selectively redirect the instructing signal and any following data to a particular location for further processing,

characterised in that the means (28) for identifying and processing the instructing signal is adapted to determine whether the instructing signal includes a code corresponding to a particular type of telephone link and, if so, to temporarily store the instructing signal and to cause a telephone communication connection to the particular location to be established, whereafter the instructing signal and the following data is transmitted to the particular location.

2. A process intermediary (6) as claimed in claim 1, characterised in that wherein the particular type of telephone link is a long distance telephone link.

3. A process intermediary (6) as claimed in claim 1 or claim 2, characterised in that means (28) are included for sending a dummy signal to the transmitting device (4) indicating that a telephone communication link originally established for transmitting the data is still present whereby redirection of the transmission occurs automatically and separate and apart from the data transmitting device.

4. A process intermediary (6) as claimed in claim 1, claim 2 or claim 3, characterised in that it includes, for the redirection of the information to be accomplished, means (44), (46) for com-



- pleting a telephone connection with the particular location and upon completion of the connection for transmission of at least the original instructing signal to the location and thereafter allowing direct communication between the location and the data transmitting device (4).
5. A process intermediary (6) as claimed in any preceding claim, characterised in that the process intermediary is adapted for transmission in addition of a code identifying the process intermediary with the instructing signal.
 6. A process intermediary (6) as claimed in any preceding claim, characterised in that it includes means (30), (32) for stopping normal onwards transmission of the instructing signal if it is of the particular type.
 7. A process intermediary (6) as claimed in any preceding claim, characterised in that the data transmitting device (4) is a facsimile machine.
 8. A process intermediary (6) as claimed in claim 7, characterised in that said facsimile machine includes a separate non-telephone communication channel for actuating the facsimile machine and causing it to selectively place an outgoing call over the public switched telephone network (2) to the particular location.
 9. A plurality of process intermediaries (6) as claimed in any preceding claim, characterised in that they are in combination with
 - a plurality of data receivers each having a unique identification code,
 - a plurality of data transmitters (4) adapted to transmit signals to particular receivers (8), (12),
 - a telephone system (2) adapted to operatively connect one of the data transmitters (4) to a particular one of the data receivers (8) identified by its identification code,
 - a data transmission system (10) adapted to receive the signal, transmit the signal through itself to a particular point and thereafter transmit the signal via the telephone system (2) to the appropriate data receiver (12) and that each process intermediary (6) is associated with its one of the data transmitters and located between its data transmitter and the telephone system.
 10. The combination as claimed in claim 9, characterised in that the data transmission system includes a computer means for receipt of the signal.
 11. A method of processing data originating from a first data transmitting and receiving device (4) and transmitted over a telephone communication system (2) for receipt at a particular telephone number by a compatible data transmitting and receiving device characterised in that the method comprises:
 - monitoring transmissions originating from the data transmitting device (4) and selectively interrupting any transmissions to the communication system in a manner not detected by the first data transmitting and receiving device upon recognition of a particular type of telephone call, and
 - rerouting such call to a different predetermined number for transmission of all such data.
 12. A method as claimed in claim 11, characterised in that the method also includes transmission with the rerouted data of a code identifying the first data transmitting device.
 13. A method as claimed in claim 11 or claim 12, characterised in that upon interruption of the transmission to the communication system, a false signal is transmitted to the first data transmitting device (4) incorrectly indicating that the data is being transmitted in the exact manner specified by the first device.
 14. A method as claimed in claim 11, claim 12 or claim 13, characterised in that the method includes rerouting of the transmission to a different number for subsequent transmission over a dedicated data communication system (10).
 15. A method as claimed in claim 11, claim 12, claim 13 or claim 14, characterised in that a code identifying the source of the data transmission is transmitted in advance of the instructing signal and prior to authorization that the data transmission can begin.

Patentansprüche

1. Eine Prozeß-Vermittlung (6) zum Anschluß als eine Vermittlung zwischen einem Gerät (4), das in der Lage ist Daten zu übertragen mittels eines Anweisungssignales über ein Fernsprechverbindungs-System, und einem derartigen Fernsprechverbindungs-System (2), wobei die Prozeß-Vermittlung aufweist:
 - Mittel (28) zur Identifikation und zur Verarbeitung eines derartigen Anweisungssignales, welches von einem Datenübermittlungsgerät herührt zum ausgewählten Weitersenden des An-



- weisungssignales und irgendwelcher folgenden Daten an eine spezielle Stelle zur weiteren Verarbeitung,
dadurch gekennzeichnet, daß Mittel (28) zur Identifizierung und zum Verarbeiten des Anweisungssignals geeignet sind zu bestimmen, ob das Anweisungssignal einen zu einer speziellen Art von Fernsprechverbindungen korrespondierenden Code enthält und, so der Fall, zeitweise das Anweisungssignal zu speichern und zu bewirken, daß eine Fernsprechverbindung zu der speziellen Stelle erstellt wird, wonach das Anweisungssignal und die folgenden Daten zu der speziellen Stelle übermittelt werden.
2. Eine Prozeß-Vermittlung (6) nach Anspruch 1, dadurch gekennzeichnet, daß darin die spezielle Art der Telefonverbindung eine Fernverbindung ist.
3. Eine Prozeß-Vermittlung (6) nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß ein Mittel (25) zum Senden eines Scheinsignales zum Übertragungsgerät (4) vorgesehen ist, welches anzeigt, daß eine ursprünglich eingerichtete Fernsprechverbindung zum Übertragen der Daten noch vorhanden ist, wobei das Weitersenden der Übertragung automatisch geschieht und gesondert und getrennt von dem Datenübertragungsgerät.
4. Eine Prozeß-Vermittlung (6) nach Anspruch 1, 2 oder 3, dadurch gekennzeichnet, daß sie, zum Durchführen des Weitersendens der Information, Mittel (44,46) beinhaltet zur Vervollständigung einer Fernmeldeverbindung mit der speziellen Stelle und nach Vervollständigung der Verbindung zur Übertragung von mindestens des originalen Anweisungssignales zu der Stelle und zur danach anschließenden Freigabe des direkten Verkehrs zwischen der Stelle und dem Datenübertragungsgerät (4).
5. Eine Prozeß-Vermittlung (6) nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß die Prozeß-Vermittlung dazu angepaßt ist, zusätzlich einen die Prozeß-Vermittlung identifizierenden Code mit dem Anweisungscode zu übertragen.
6. Eine Prozeß-Vermittlung (6) nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß sie Mittel (30,32) beinhaltet zur Beendigung einer Weiterübertragung des Anweisungssignals, wenn es von dem speziellen Typ ist.
7. Eine Prozeß-Vermittlung (6) nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß das Datenübertragungsgerät (4) ein Telefaxgerät ist.
8. Eine Prozeß-Vermittlung (6) nach Anspruch 7, dadurch gekennzeichnet, daß das Telefaxgerät einen speziellen nicht-telefonischen Übertragungskanal beinhaltet, um das Telefaxgerät in Gang zu setzen und es dazu zu bewegen, ausgewählt einen ausgehenden Ruf über das öffentliche Fernsprechnet (2) zu der speziellen Stelle einzuleiten.
9. Eine Vielzahl von Prozeß-Vermittlungen (6), gemäß einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß sie verbunden sind mit einer Vielzahl von Datenempfängern mit jeweils einem eigenen Identifikationscode, einer Vielzahl von Datensendern (4), welche dazu geeignet sind, Signale an spezielle Empfänger (8,12) zu übertragen, einem Telefonsystem (2), welches dazu angepaßt ist, wirksam einen der Datenüberträger (4) an speziell einen der Datenempfänger (8) zu verbinden, welcher durch seinen Identifikationscode identifiziert ist, ein Datenübertragungssystem (10), welches dazu geeignet ist, das Signal zu empfangen, das Signal durch sich selbst zu einem speziellen Punkt zu übertragen und anschließend das Signal über ein Fernsprechesystem (2) zu einem geeigneten Datenempfänger (12) zu übertragen, und daß jede Prozeß-Vermittlung (6) assoziiert ist mit einem ihrer Datenüberträger und angeordnet ist zwischen ihrem Datenüberträger und dem Fernsprechesystem.
10. Die Kombination wie beansprucht in Anspruch 9, dadurch gekennzeichnet, daß das Datenübertragungssystem ein Computermittel zum Empfang des Signales beinhaltet.
11. Ein Verfahren zur Verarbeitung von Daten, welche von einem ersten Datensende- und -empfangsgerät (4) herrühren und über ein Fernmeldesystem (2) zum Empfang unter einer speziellen Telefonnummer durch ein kompatibles Datenübertragungs- und Empfangsgerät übertragen werden, dadurch gekennzeichnet, daß das Verfahren beinhaltet:
Überwachen der Sendungen, welche vom Datensendegerät (4) herrühren, und ausgewähltes Unterbrechen irgendwelcher Sendungen an das Fernmeldesystem nach Erkennung eines speziellen Typs von Telefonanruf, derartig, daß dies nicht von dem ersten Datenübertragungs-



und Empfangsgerät bemerkt wird, und Umleiten solch eines Anrufes an eine andere, vorher bestimmte Nummer zur Übertragung aller dieser Daten.

12. Ein Verfahren nach Anspruch 11, dadurch gekennzeichnet, daß das Verfahren weiterhin beinhaltet die Übertragung eines Identifikationscodes des ersten Datenübertragungsgerätes mit den umgeleiteten Daten.
13. Ein Verfahren nach Anspruch 11 oder 12, dadurch gekennzeichnet, daß zur Unterbrechung der Übertragung an das Fernmeldesystem ein Fehlersignal an das erste Datenübertragungsgerät übertragen wird, welches unrichtigerweise anzeigt, daß die Daten in exakt der vom ersten Gerät spezifizierten Weise übertragen worden sind.
14. Ein Verfahren nach Anspruch 11, 12 oder 13, dadurch gekennzeichnet, daß das Verfahren beinhaltet die Umleitung der Übertragung zu einer anderen Nummer für eine nachfolgende Übertragung über ein spezielles Datenübertragungssystem (10).
15. Ein Verfahren nach Anspruch 11, 12, 13 oder 14, dadurch gekennzeichnet, daß ein Code zur Identifizierung der Quelle der Datenübertragung vor dem Anweisungssignal und vor der Ermächtigung, daß die Datenübertragung beginnen kann, übertragen wird.

Revendications

1. Dispositif intermédiaire de traitement (6), destiné à être connecté en tant que dispositif intermédiaire entre un dispositif (4), apte à émettre des données sur un système de communication téléphonique au moyen d'un signal d'instruction, et un tel système de communication téléphonique (2), le dispositif intermédiaire de traitement comprenant des moyens (28) servant à identifier et traiter un signal d'instruction provenant du dispositif émetteur de données en réacheminant de manière sélective le signal d'instruction et les données éventuelles suivantes vers un emplacement particulier en vue d'un traitement ultérieur, caractérisé en ce que les moyens (28) servant à identifier et traiter le signal d'instruction sont agencés de façon à déterminer si le signal d'instruction contient ou non un code correspondant à un type particulier de liaison téléphonique et, dans l'affirmative, à mettre temporairement le signal d'instruction en mémoire et provoquer une connexion de communication téléphonique à

destination de l'emplacement particulier, à la suite de quoi le signal d'instruction et les données suivantes sont transmises à cet emplacement particulier

2. Dispositif intermédiaire de traitement (6) suivant la revendication 1, caractérisé en ce que le type particulier de liaison téléphonique est une liaison téléphonique à longue distance.
3. Dispositif intermédiaire de traitement (6) suivant l'une des revendications 1 et 2, caractérisé en ce qu'il est prévu des moyens (28) servant à envoyer au dispositif émetteur (4) un signal fictif indiquant qu'une liaison de communication téléphonique initialement établie pour émettre les données est encore présente, de sorte qu'une réorientation de l'émission s'effectue d'une manière automatique et séparée et en dehors du dispositif émetteur de données.
4. Dispositif intermédiaire de traitement (6) suivant l'une des revendications 1 à 3, caractérisé en ce qu'il comprend, pour le réacheminement des données qui est à effectuer, des moyens (44), (46) servant à faire s'achever une connexion téléphonique avec l'emplacement particulier et, une fois la connexion achevée, à transmettre vers cet emplacement au moins le signal d'instruction initial, puis à permettre une communication directe entre l'emplacement et le dispositif émetteur de données (4).
5. Dispositif intermédiaire de traitement (6) suivant l'une quelconque des revendications précédentes, caractérisé en ce que le dispositif intermédiaire de traitement est agencé de façon à émettre en sus, avec le signal d'instruction, un code identifiant le dispositif intermédiaire de traitement.
6. Dispositif intermédiaire de traitement (6) suivant l'une quelconque des revendications précédentes, caractérisé en ce qu'il comprend des moyens (30), (32) servant à interrompre une transmission normale du signal d'instruction vers l'avant s'il est du type particulier considéré.
7. Dispositif intermédiaire de traitement (6) suivant l'une quelconque des revendications précédentes, caractérisé en ce que le dispositif émetteur de données (4) est un télécopieur.
8. Dispositif intermédiaire de traitement (6) suivant la revendication 7, caractérisé en ce que le télécopieur comporte un canal de communi-



cation non-téléphonique séparé servant à mettre en service le télécopieur et à lui faire placer de manière sélective un appel de départ sur le réseau téléphonique commuté public (2) à destination de l'emplacement particulier.

9. Ensemble de plusieurs dispositifs intermédiaires de traitement (6) suivant l'une quelconque des revendications précédentes, caractérisé en ce qu'ils sont combinés à plusieurs récepteurs de données, possédant chacun un code d'identification unique, à plusieurs émetteurs de données (4), agencés de façon à émettre des signaux à destination des récepteurs particuliers (8), (12), à un système téléphonique (2), agencé de façon à connecter de manière fonctionnelle l'un des émetteurs de données (4) à l'un, particulier, des récepteurs de données (8) qui est identifié par son code d'identification, et à un système de transmission de données (10), agencé de façon à recevoir le signal, à transmettre le signal par son propre intermédiaire vers un point particulier, puis à transmettre le signal par l'intermédiaire du système téléphonique (2) à destination du récepteur de données (12) approprié, et en ce que chaque dispositif intermédiaire de traitement (6) est associé à celui des émetteurs de données qui lui est propre et est situé entre son émetteur de données et le système téléphonique.

10. Ensemble combiné suivant la revendication 9, caractérisé en ce que le système de transmission de données comprend des moyens à fonction d'ordinateur servant à la réception du signal.

11. Procédé de traitement de données qui proviennent d'un premier dispositif émetteur et récepteur de données (4) et qui sont transmises sur un système de communication téléphonique (2) pour être reçues à un numéro particulier de téléphone, au moyen d'un dispositif émetteur et récepteur de données qui est compatible, caractérisé en ce qu'il consiste à surveiller les émissions provenant du dispositif émetteur de données (4), à interrompre de manière sélective les émissions éventuelles à destination du système de communication, d'une manière qui n'est pas détectée par le premier dispositif émetteur et récepteur de données, lors de la reconnaissance d'un type particulier d'appel téléphonique, et à réacheminer un tel appel vers un numéro préfixé différent en vue d'une transmission de toutes les données considérées.

12. Procédé suivant la revendication 11, caractérisé en ce qu'il comporte aussi la transmission, avec les données reacheminées, d'un code identifiant le premier dispositif émetteur de données.

13. Procédé suivant l'une des revendications 11 et 12, caractérisé en ce que, lors d'une interruption de la transmission vers le système de communication, il est transmis au premier dispositif émetteur de données (4) un faux signal indiquant d'une manière incorrecte que les données sont transmises de la manière exacte spécifiée par le premier dispositif.

14. Procédé suivant l'une des revendications 11 à 13, caractérisé en ce qu'il comporte une réorientation de l'émission vers un numéro différent en vue d'une transmission suivante sur un système de communication de données (10) spécialement affecté.

15. Procédé suivant l'une des revendications 11 à 14, caractérisé en ce qu'un code identifiant la source de l'émission de données est transmis en avance vis-à-vis du signal d'instruction et avant une autorisation permettant à la transmission de données de commencer.