(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 206 156 B1

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
11.05.2005 Bulletin 2005/19

(51) Int Cl.[7]: **H04Q 7/38**

(21) Application number: **01309458.6**

(22) Date of filing: **08.11.2001**

(54) **Communication method for switching between terminals sharing the same number**

Kommunikationsverfahren zum Schalten zwischen Teilnehmern, die sich dieselbe Rufnummer teilen

Procédé de communication pour la commutation entre terminaux qui partagent le même numéro d'appel

(84) Designated Contracting States:
DE FI FR GB IT

(30) Priority: **10.11.2000 JP 2000343887**

(43) Date of publication of application:
15.05.2002 Bulletin 2002/20

(73) Proprietor: **NTT DoCoMo, Inc.**
Tokyo 100-6150 (JP)

(72) Inventors:
- **Kikuta, Yoko**
  Yokohama-shi, Kanagawa 222-0031 (JP)
- **Yabusaki, Masami**
  Kashiwa-shi, Chiba 277-0084 (JP)

(74) Representative:
Beresford, Keith Denis Lewis et al
BERESFORD & Co.
16 High Holborn
London WC1V 6BX (GB)

(56) References cited:
EP-A- 0 495 692
EP-A- 1 033 898
WO-A-94/29992

EP 1 206 156 B1

Description

[0001] The present invention relates to a mobile communication method and a mobile communication system wherein, in the case of sharing a plurality of mobile terminals for users, a call being communicated can be switched and transferred to another available mobile terminal.

[0002] With the recent spread of mobile communications, users have become more and more opportunities to use a plurality of mobile terminals as required.

[0003] For example, a plurality of mobile terminals for business and personal communications, or a vehicle-mounted high-power terminal and a light and small mobile terminal, or a PC card type data communication terminal and a mobile terminal with a voice function can be used as required.

[0004] With a conventional mobile communication system, a user can use the same telephone number for a plurality of mobile terminals to which the user is subscribed (Japanese Patent Application Laid-open No. 11-234748).

[0005] However, switching operations for mobile terminals are limited to one from a mobile terminal that is unavailable during the switching operation, and switching operations from an available mobile terminal are not permitted.

[0006] Further, switching operations for mobile terminals are limited to only while all of the mobile terminals are being controlled during non-communicating.

[0007] As a result, the following problems may occur.

[0008] First, to allow a plurality of mobile terminals to use the same telephone number, the device numbers of desired mobile terminals must be registered preliminarily in a database in a service control station.

[0009] Furthermore, while a user under such a contract that the same telephone number can be communicated by using a plurality of the mobile terminals, if it has become difficult to continue the communication due to the exhaustion of batteries in the mobile terminal or worsened conditions for radio wave propagation, then in spite of the plurality of mobile terminals available for the same telephone number, the user cannot continue the communication by switching a call being communicated by this mobile terminal to another mobile terminal because the switching operation is not permitted while one of the mobile terminals is used for the communication.

[0010] EP-A-1033898 discloses a system for enabling calls to be transferred between terminal system parts such as a GSM-handset, a DECT-handset and a PC. A switch connected to the terminals via a network, such as a GSM network, includes a memory means 61 in which a number of destination codes are stored in a table for each terminal and for each user. Thus, a user is able to preset preferred terminals to enable them to be alerted to incoming calls.

[0011] WO 94/29992 discloses a call screening service in which a service mode connected to a host switch at the local exchange carrier is programmed with each subscriber's profile in order to direct calls to the chosen subscriber's alerting service.

[0012] It is an object of the present invention to provide a mobile communication method and a mobile communication system wherein, when it becomes difficult to continue the communication while a user is communicating by using one mobile terminal, a user can switch a call being communicated to another terminal available for the same number to continue the communication, thus improving the user's convenience.

[0013] According to a first aspect of the present invention, there is provided a mobile communication method for controlling transfer switching for communication between a plurality of mobile terminals sharing the same number used by the same subscriber, the method comprising the steps of:

detecting a mobile terminal among said other terminals sharing the same number used by the same subscriber;
transmitting a transfer request for switching to the detected mobile terminal sharing the same number used by the same subscriber;
determining whether or not to switch a transfer to any of the mobile terminals sharing the same number used by the same subscriber;
authenticating, if it is determined that the transfer is to be switched, the detected mobile terminal, which received the transmitted transfer request, based on an authentication request received from the detected mobile terminal;
transmitting a transfer request for an information rewrite request to a communication control station when the result of the authentication is affirmative; and
performing a process of switching the transfer to said authenticated mobile terminal based on said transfer switching request outputted from one mobile terminal among the plurality of mobile terminals sharing the same number used by the same subscriber.

[0014] According to a second aspect of the present invention, there is provided a mobile communication system for controlling transfer switching for communication between a plurality of mobile terminals sharing the same number used by the same subscriber, any one of said plurality of mobile terminals comprising:

detection means for detecting a mobile terminal among said other terminals sharing the same number used by the same subscriber;
transfer request means for transmitting a transfer request for switching to the detected mobile terminal sharing the same number used by the same subscriber;

determination means for determining whether or not to switch a transfer to any of the mobile terminals sharing the same number used by the same subscriber;
authentication means for authenticating, if it is determined that the transfer is to be switched, the detected mobile terminal, which received the transmitted transfer request, based on an authentication request received from the detected mobile terminal; and
rewrite request means for transmitting a transfer request for an information rewrite request to a communication control station when the result of the authentication is affirmative,
said communication control station comprising:

transfer switching means for performing a process of switching the transfer to said authenticated mobile terminal based on said transfer switching request outputted from one mobile terminal among the plurality of mobile terminals sharing the same number used by the same subscriber.

[0015] According to a third aspect of the present invention, there is provided a communication control station for controlling transfer switching for communication between a plurality of mobile terminals sharing the same number used by the same subscriber,
the station comprising:

storage means for storing switching request information concerning a transfer switching request corresponding to said each mobile terminal sharing the same number used by the same subscriber;
determination means for determining whether an authenticating mobile terminal or another authenticated mobile terminal has provided an output; and
control means for performing a transfer switching process based on said switching request information stored in said storage means when it is determined that said another authenticated mobile terminal has provided an output.

[0016] According to a fourth aspect of the present invention, there is provided a terminal device for controlling transfer switching for communication between other mobile terminals sharing the same number used by the same subscriber, the terminal device comprising:

detection means for detecting a mobile terminal among said other mobile terminals sharing the same number used by the same subscriber;
transfer request means for transmitting a transfer request for switching to the detected mobile terminal sharing the same number used by the same subscriber;
determination means for determining whether or not to switch a transfer to any of the mobile terminals sharing the same number used by the same subscriber;
authentication means for authenticating, if it is determined that the transfer is to be switched, the detected mobile terminal, which received the transmitted transfer request, based on an authentication request received from the detected mobile terminal; and
rewrite request means for transmitting a transfer request for an information rewrite request to a communication control station when the result of the authentication is affirmative.

[0017] The above and other objects, effects, features and advantages of the present invention will become more apparent from the following description of embodiments thereof taken in conjunction with the accompanying drawings.

Figs. 1A and 1B are block diagrams showing the entire configuration of a mobile communication system as a first embodiment of the present invention;
Fig. 2 is an explanatory representation showing the configuration of a database included a service control station;
Fig. 3 is a flow chart showing an example of a process in the case of performing a transfer request during communication from a source mobile terminal to a network; and
Fig. 4 is a flow chart showing an example of a process in the case of performing a transfer request during communication from a destination mobile terminal to a network according to a second embodiment of the present invention.

[0018] Embodiments of the present invention will be described below in detail with reference to the drawings.

[First Example]

[0019] First, a first embodiment of the present invention will be described with reference to Figs. 1 to 3.

(Summary)

[0020] The present invention relates to a mobile communication system composed of one or more terminals that can share the same number and a service control apparatus having a storage area storing the device numbers of the one or more terminals and locational information corresponding to one number, wherein a call being communicated by using one of the terminals is switched and transferred to another terminal available for the same number.

[0021] That is, when one of the terminals is communicating, authentication process is performed between the communicated terminal and another terminal avail-

able for the same number to switch the call. In other words, when one of the terminals is communicating, another terminal available for the same number can be detected automatically to switch the call being communicated.

(Specific Example)

[0022] A specific example will be described below.

(System Configuration)

[0023] First, the configuration of the system will be described.

[0024] Figs. 1A and 1B show an example of the configuration of a mobile communication system according to the present invention.

[0025] This mobile communication system is composed of mobile terminals 1 to 3, base stations 11 to 14, switching stations 21 to 22, a service control station 30, and a communication line 40 that connects these components together.

[0026] The mobile terminals 1 to 3 are used by the same subscriber and are imparted with individual device numbers MSI1, MSI2, and MSI3 as well as a common telephone number MSN, respectively.

[0027] In this case, the mobile terminal 1 is mounted in a vehicle, the mobile terminal 2 is portable, and the mobile terminal 3 is integrated with a data communication card.

[0028] In the following description, in which the same telephone number can be shared by a plurality of mobile terminals, users will be referred to as "multiple terminal subscribers".

[0029] As shown in Fig. 1B, the mobile terminals 1 to 3 include a detection portion 51, a transfer portion 52 and an authentication portion 53.

[0030] The detection portion 51 has a function that detects a terminal available for the same number (ex. the same telephone number).

[0031] The transfer portion 52 has a function that performs a transfer request to the detected terminal available for the same number.

[0032] The authentication portion 53 has a function that performs an authentication request based on said transfer request received from said terminal available for the same number.

[0033] The mobile terminals 1 to 3 support short-distance radio communications using bluetooth waves (very weak radiowaves) or the like and can communicate directly with each other.

[0034] The base stations 11 to 14 are installed at predetermined intervals and have a function of communicating a mobile terminal in a radio zone formed by each station.

[0035] The switching stations 21 and 22 accommodate a plurality of base stations and communicate with slave base stations and other switching stations to connect calls to the mobile terminals 1 to 4.

[0036] Reference numeral 30 denotes a service control station internally having a database (DB) 31. This station 30 provides various pieces of information referring to the mobile terminals for the switching stations 21 to 22.

[0037] As shown in Figs. 1A and 1B, the service control station includes a storage portion 31a having the database 31, a determination portion 32 and a control portion 33.

[0038] The storage portion 31a has a function, that stores a switching request information (see availability flag in Fig. 2) concerning the transfer switching request corresponding to each terminal sharing the same number.

[0039] The determination portion 32 has a function that determines whether an authenticating terminal or an another authenticated terminal has provided an output.

[0040] The control portion 33 has a function that performs, if it is determined that the another terminal has provided an output, a process of switching the transfer based on the switching request information stored in the storage portion 31a.

[0041] Fig. 2 shows the contents of data stored in the database 31 within the service control station 30.

[0042] A reference numeral 41 denotes a telephone number storage portion that stores subscribers' telephone numbers. A reference numeral 42 denotes a device number storage portion that stores one or more device numbers corresponding to one telephone number. A reference numeral 43 denotes a location information portion that stores the numbers of areas in which the mobile terminal corresponding to each the device number is present. A reference numeral 44 denotes an availability flag that stores "1" if the mobile terminal is available and stores "0" if the mobile terminal is unavailable.

[0043] Here, a mobile terminal set to "1", indicating that it is available, is one of the group of mobile terminals to which the same telephone number is assigned. The other mobile terminals are set to "0", indicating that they are unavailable.

[0044] The device number storage portion 42 stores the device numbers MSI1, MSI2, and MSI3, corresponding to the three mobile terminals 1 to 3, to which the telephone number MSN1 is assigned. The location information section 43 stores location information (terminal-located area numbers) A11, A12, and A13 on each mobile terminal corresponding to the device numbers MSI1, MSI2, and MSI3. In the availability flags 44 corresponding to the device numbers MSI1, MSI2, and MSI3, the one corresponding to the device number MSI1 is set to "1" indicating available, whereas the other mobile terminals are set to "0" indicating unavailable.

(System Operation)

[0045] Now, an operation of this system will be described. (1) If a source terminal performs a transfer request

[0046] The case in which a source terminal performs a transfer request will be described below.

[0047] Fig. 3 is a sequence diagram showing the case in which while a user A is communicating by using the mobile terminal 1 (hereafter referred to as the "mobile terminal A1"), a transfer request is performed from the mobile terminal A1 being used to a mobile communication network.

[0048] The user A is a multiple terminal subscriber and can use the mobile terminals A1, A2, and A3, to which the telephone number MSN1 is assigned. The mobile terminals A1, A2, and A3 have the device numbers MSI1, MSI2, and MSI3, respectively.

[0049] While the mobile terminal A1 of the user A and the mobile terminal B1 of the user B (hereafter referred to as a "mobile terminal B1") are communicating (step S1), if the mobile terminal A1 has become the difficulty continuing the communication due to the exhaustion of batteries, it autonomously detects the exhaustion and warns the user A of the difficulty by activating an alarm, displaying a character message on a liquid crystal screen, or lighting a warning lamp (step S2).

[0050] The mobile terminal A1 detects the mobile terminal A2, which is located around and is available for continuing the current communication, among the mobile terminals A2 and A3 which can be used with the same telephone number MSN1 (step S3). The mobile terminal A1 then transmits a transfer request to the mobile terminal A2 (step S4).

[0051] In this case, means for selecting the mobile terminal A2 may be either a method of allowing the mobile terminal A1 to autonomously detect the mobile terminal A2 or a method of allowing the user A, who has been warned of the exhaustion, to intentionally select the mobile terminal A2.

[0052] Upon receiving the transfer request from the mobile terminal A1, the mobile terminal A2 transmits the device number MSI2 to the mobile terminal A1 to perform an authentication request (step S5).

[0053] If the result of the authentication is affirmative, the mobile terminal A1 notifies the mobile terminal A2 of this result (step S6) and performs a transfer request to the switching station 21 so that the device number MSI1 is changed to the device number MSI2 (step S7).

[0054] Upon receiving the transfer request from the mobile terminal A1, the switching station 21 transmits an information rewrite request of the device number of the terminal being used to the service control station 30 (step S8).

[0055] The service control station 30 determines whether or not this subscriber is being communicated (step S9). If the subscriber is being communicated, the service control station 30 assumes that the transfer can be permitted, and then rewrites the availability flag in the database 31 (step S10). The service control station 30 then sets the availability state of the device number MSI2 to "1", and transmits an information rewrite response to the switching station 21 (step S11).

[0056] This process sets the availability state of the mobile terminal A2 having the device number MSI2 to "1", indicating that the terminal is available, while setting the availability state of the mobile terminal A1 having the device number MSI1, which has been communicating, to "0", indicating that the terminal is unavailable.

[0057] Upon receiving the information rewrite response from the service control station 30, the switching station 21 performs a transfer process from the mobile terminal A1 to the mobile terminal A2 (step S12), and then transmits a transfer request response to the mobile terminal A2 (step S13).

[0058] This process clears a call setup with the mobile terminal A1 and performs a call setup with the mobile terminal A2, thus establishing communications between the mobile terminal B1 and the mobile terminal A2 (step S14).

[0059] Further, at step S9, if this subscriber is not communicating when the service control station 30 receives the information rewrite request based on a transfer, the service control section 30 determines that the transfer process is not to be permitted and then transmits an information rewrite response to the switching station 21 (step S15). The switching station 21, which has been notified that the transfer process is not to be permitted, transmits a transfer request reject signal to the mobile terminal A1 to stop the transfer process (step S16).

[0060] In the above description, it is assumed that the user is a multiple terminal subscriber, but a user who is not a multiple terminal subscriber can perform the switching and transferring process by directly rewriting the device number MSI in the device number storage portion instead of rewriting the availability flag in the database 31 of the service control station 30.

[0061] As described above, by performing the authentication process and the switching process, if a user can use the same telephone number available for a plurality of mobile terminals, even if it has become difficulties continuing the communication due to the exhaustion of batteries, worsened conditions for radiowave propagation, a change in surrounding environments caused by movement, or the like while one of the mobile terminals is communicating, the user can continue a call being communicated by transferring the call to another available mobile terminal.

[Second Example]

[0062] Next, a second embodiment of the present invention will be described with reference to Fig. 4. Description of the same components as those in the first example is omitted, and they are denoted by the same

reference numerals.

[0063] This is an example in which a destination terminal performs a transfer request. The configuration of this system is the same as that of the system shown in Figs. 1A and 1B for the above-described first example, and description thereof is thus omitted.

[0064] A process that the destination terminal performs a transfer request will be described below with reference to Fig. 4.

[0065] Fig. 4 shows an example of a sequence that while the user A is communicating by using the mobile terminal A1, the destination terminal performs a transfer request.

[0066] The user A is a multiple terminal subscriber and can use the mobile terminals A1, A2, and A3, to which the telephone number MSN1 is assigned. The mobile terminals A1, A2, and A3 have the device numbers MSI1, MSI2, and MSI3, respectively.

[0067] While the mobile terminal A1 of the user A and the mobile terminal B1 of the user B are communicating (step S31), if the mobile terminal A1 has become difficulty continuing the communication due to the exhaustion of batteries, it autonomously detects the exhaustion and warns the user A of the difficulty by activating an alarm, displaying a character message on a liquid crystal screen, or lighting a warning lamp (step S32).

[0068] The user A, who has been warned of the exhaustion, selects the mobile terminal A2 as one for continuing the current communication, among the mobile terminals A2 and A3 which can be used with the same telephone number MSN1 (step S33). The user A transmits a transfer request to the mobile terminal A2 (step S34).

[0069] In this case, means for selecting the mobile terminal A2 may be either a method of allowing the user A, who has been warned of the exhaustion, to intentionally select the mobile terminal A2 or a method of allowing the mobile terminal A1 to autonomously detect the mobile terminal A2.

[0070] Upon receiving the transfer request, the mobile terminal A2 makes an authentication request to the mobile terminal A1 (step S35).

[0071] The mobile terminal A1 performs an authentication process and transmits an authentication response to the mobile terminal A2 (step S36).

[0072] Once the authentication has been achieved, the mobile terminal A2 transmits a transfer request to the switching station 21 for a transfer process (step S37).

[0073] Upon receiving the transfer request from the mobile terminal A2, the switching station 21 transmits an information query request of the subscriber to the service control station 30 (step S38).

[0074] Upon receiving this request, the service control station 30 determines whether or not this subscriber is permitted in contracts of multiple terminals concerning the telephone number MSN1 (step S39). If the subscriber is permitted in contracts of multiple terminals, then the service control section 30 shifts to a subsequent determination process.

[0075] If this subscriber is permitted in contracts of multiple terminals concerning the telephone number MSN1, then the service control section 30 determines whether or not other mobile terminals except the mobile terminal A2, which has transmitted the transfer request, are being communicated, among all the mobile terminals A1 to A3 associated with the telephone number MSN1.

[0076] If the service control section 30 determines that any of the mobile terminals except the mobile terminal A2 is being communicated, it assumes that the transfer is to be permitted, and then rewrites the availability flag in the database 31 (step S41) to set it to "1", indicating that this terminal can be used for the terminal MSI2. Then, the service control section 30 transmits an information query response to the switching station 21.

[0077] This process sets the availability state of the mobile terminal A2 having the device number MSI2 to "1", indicating that the terminal is available, while setting the availability state of the mobile terminal A1 having the device number MSI1, which has been being communicated, to "0", indicating that the terminal is unavailable.

[0078] However, when it has been determined whether or not any of the mobile terminals except the mobile terminal A2 is being communicated, further, in the case of identifying the mobile terminal is being communicated, the information concerning all the mobile terminals that can share the same telephone number is stored previously in the database 31, and then when an information concerning a transfer request is transmitted from the mobile terminal A2, the stored information is referred, thus identifying the mobile terminal being communicated.

[0079] If it has been determined that the subscriber is permitted in contrasts of multiple terminals and that other terminals (in this case, the mobile terminal A1) of the subscriber is being communicated, the switching station 21, which has received the information query response, transfers the call being communicated from the mobile terminal A1 to the mobile terminal A2 (step S43).

[0080] After ascertaining that the communication with the mobile terminal A1 has ended, the switching station 21 transmits a transfer request response to the mobile terminal A2 (step S44).

[0081] When the mobile terminal A2 receives the transfer request response from the switching station 21, communications between the mobile terminal A2 of the user A and the mobile terminal B1 of the user B are established (step S45).

[0082] If the subscriber is not permitted in contrasts of multiple terminals concerning the telephone number MSN1 or the mobile terminals except the mobile terminal A2, which has performed the transfer request, are not being communicated, then the service control station 30 communicates this state to the switching station 21 as an information query response (step S46). Upon

receiving this response, the switching station 21 rejects a call transfer and then transmits a transfer request reject response to the mobile terminal A2 (step S47).

[0083] In this example, the timing for detecting a transfer is regarded as when the batteries are exhausted, but this may be based on any factor that the mobile terminal has difficulty in continuing the communication such as worsened radiowave conditions.

[0084] As the timing for performing a transfer autonomously by the mobile terminal, not only detecting the difficulty of the communication continuation but also detecting a more appropriate terminal nearby can also be performed. For example, when the user gets in a car while communicating with a portable mobile terminal, this terminal detects a high-power vehicle-mounted mobile telephone, or while the user is communicating data by using a single portable mobile terminal, this terminal detects a car navigation system.

[0085] Further, the present invention is not limited to sounds, but a similar concept is applicable to data communications such as distribution of texts, images, or animated images.

[0086] As an application for multimedia communications, when a transmitter or the service control station 30 is provided with connection service information on the current call and a receiver is notified of the connection service information. Therefore, for example, when animated images are to be transmitted, on condition that the available mobile terminal can deal with only sound communications, the mobile terminal can autonomously alter itself.

[0087] As described above, according to the present invention, any one of the plurality of terminals sharing the same number determines whether or not to switch a transfer to another terminal sharing the same number. If it determines that the transfer is to be switched, it authenticates one terminal among the other terminals sharing the same number, and then outputs a transfer switching request according to the authenticated terminal to the communication control station. The communication control station performs a transfer switching process concerning the authenticated terminal based on the transfer switching request outputted by the first terminal. Consequently, when the user can use the same number with a plurality of mobile terminals, if one of the mobile terminals has the difficulty of continuing the communication or the user desires to continue the communication by using another mobile terminal, then the call being communicated can be continued by allowing a second mobile terminal with which the communication is to be continued to make a transfer request or allowing the communicating terminal to autonomously make a transfer request to the second terminal. Therefore, the user's convenience can be improved.

[0088] Further, in the conventional transfer services to another number communication charges not only at the source terminal but also from the source terminal to the destination terminal are imposed. However, according to the present invention, the switch and transfer process is performed by using the same number to avoid communication charges associated with this process, thereby achieving convenient and economical communications.

[0089] The present invention has been described in detail with respect to preferred embodiments, and it will now be apparent from the foregoing to those skilled in the art that changes and modifications may be made without departing from the invention in its broader aspect, and it is the intention, therefore, in the apparent claims to cover all such changes and modifications.

Claims

1. A mobile communication method for controlling transfer switching for communication between a plurality of mobile terminals (1, 2, 3) sharing the same number used by the same subscriber, the method comprising the steps of:

   detecting a mobile terminal among said other terminals sharing the same number used by the same subscriber;
   transmitting a transfer request for switching to the detected mobile terminal sharing the same number used by the same subscriber (S4);
   determining whether or not to switch a transfer to any of the mobile terminals sharing the same number used by the same subscriber (S2; S32);
   authenticating, if it is determined that the transfer is to be switched, the detected mobile terminal, which received the transmitted transfer request, based on an authentication request received from the detected mobile terminal (S5; S6);
   transmitting a transfer request (S7) for an information rewrite request to a communication control station (30) when the result of the authentication is affirmative; and
   performing a process of switching the transfer to said authenticated mobile terminal (A2) based on said transfer switching request outputted from one mobile terminal among the plurality of mobile terminals sharing the same number used by the same subscriber (S14; S45).

2. The mobile communication method as claimed in claim 1, wherein if said one mobile terminal (A1) is communicating, this mobile terminal (A1) automatically authenticates one of the other mobile terminals on condition that another authenticated terminal (A2) sharing the same number instead of an authenticating terminal (A1) communicates with a terminal (B1) used by another subscriber, and

said authenticating mobile terminal (A1) outputs a transfer switching request (S7) according to said another authenticated mobile terminal (A2) to said communication control station (30).

3. The mobile communication method as claimed in claim 1, wherein if said one mobile terminal (A1) is communicating, this mobile terminal (A1) automatically authenticates one of the other mobile terminals on condition that another authenticated terminal (A2) sharing the same number instead of an authenticating terminal (A1) communicates with a terminal (B1) used by another subscriber, and

said another authenticated mobile terminal (A2) outputs a transfer switching request (S37) according to the authenticated mobile terminal (A2) to said communication control station (30).

4. The mobile communication method as claimed in any one of claims 1 to 3,

wherein said communication control station (30) further comprises the steps of:

storing switching request information concerning the transfer switching request corresponding to each said mobile terminal (1, 2, 3) sharing the same number;
determining whether said authenticating mobile terminal (A1) or said another authenticated mobile terminal (A2) has provided an output; and
performing, if it is determined that said another authenticated mobile terminal (A2) has provided an output, a process of switching the transfer based on said stored switching request information corresponding to each said mobile terminal (S14; S45).

5. A mobile communication system for controlling transfer switching for communication between a plurality of mobile terminals (1, 2, 3) sharing the same number used by the same subscriber, any one of said plurality of mobile terminals (1, 2, 3) comprising:

detection means (51) for detecting a mobile terminal among said other terminals sharing the same number used by the same subscriber;
transfer request means (52) for transmitting a transfer request for switching to the detected mobile terminal sharing the same number used by the same subscriber;
determination means (51) for determining whether or not to switch a transfer to any of the mobile terminals sharing the same number used by the same subscriber;
authentication means (53) for authenticating, if it is determined that the transfer is to be switched, the detected mobile terminal, which received the transmitted transfer request, based on an authentication request received from the detected mobile terminal; and
rewrite request means for transmitting a transfer request (S7) for an information rewrite request to a communication control station (30) when the result of the authentication is affirmative,
said communication control station (30) comprising:

transfer switching means (21, 22) for performing a process of switching the transfer to said authenticated mobile terminal (A2) based on said transfer switching request outputted from one mobile terminal among the plurality of mobile terminals sharing the same number used by the same subscriber.

6. The mobile communication system as claimed in claim 5, said authentication means (53) is structured as:

if said one mobile terminal is communicating, this mobile terminal automatically authenticates one of the other mobile terminals on condition that another authenticated terminal (A2) sharing the same number instead of an authenticating terminal (A1) communicates with a terminal used by another subscriber (B1), and
said output means (52) is structured as:

said authenticating mobile terminal outputs a transfer switching request according to said another authenticated mobile terminal (A2) to said communication control station (30).

7. The mobile communication system as claimed in claim 5, said authentication means (53) is structured as:

if said one mobile terminal is communicating, this mobile terminal automatically authenticates one of the other mobile terminals on condition that another authenticated terminal (A2) sharing the same number instead of an authenticating terminal (A1) communicates with a terminal used by another subscriber (B1), and
said output means is structured as:

said another authenticated mobile terminal outputs a transfer switching request according to the authenticated mobile terminal (A2) to said communication control station (30).

8. The mobile communication system as claimed in any one of claims 5 to 7,

wherein said communication control station (30) further comprises:

storage means (31a) for storing switching request information concerning the transfer switching request corresponding to said each mobile terminal (1, 2, 3) sharing the same number;
determination means (32) for determining whether said authenticating mobile terminal (A1) or said another authenticated mobile terminal (A2) has provided an output; and
control means (33) for performing, if it is determined that said another authenticated mobile terminal has provided an output, a transfer switching process based on said switching request information corresponding to said each mobile terminal stored in said storage means (31a).

9. A communication control station for controlling transfer switching for communication between a plurality of mobile terminals sharing the same number used by the same subscriber,

the station (30) comprising:

storage means (31a) for storing switching request information concerning a transfer switching request corresponding to said each mobile terminal (1, 2, 3) sharing the same number used by the same subscriber;
determination means (32) for determining whether an authenticating mobile terminal (A1) or another authenticated mobile terminal (A2) has provided an output; and
control means (33) for performing a transfer switching process based on said switching request information stored in said storage means (31a) when it is determined that said another authenticated mobile terminal has provided an output.

10. The communication control station as claimed in claim 9, wherein said switching request information stored in said storage means (31a) includes the same number shared among the mobile terminals (1, 2, 3), a device number (42), location information (43) and an availability flag (44),

wherein the same number is shared so that another authenticated terminal (A2) sharing the same number instead of an authenticating terminal (A1) communicates with a terminal used by another subscriber, and

the location information (43) and the availability flag (44) correspond to the device number (42).

11. A terminal device for controlling transfer switching for communication between other mobile terminals sharing the same number used by the same subscriber, the terminal device comprising:

detection means (51) for detecting a mobile terminal among said other mobile terminals sharing the same number used by the same subscriber;
transfer request means (52) for transmitting a transfer request for switching to the detected mobile terminal sharing the same number used by the same subscriber;
determination means (51) for determining whether or not to switch a transfer to any of the mobile terminals sharing the same number used by the same subscriber;
authentication means (53) for authenticating, if it is determined that the transfer is to be switched, the detected mobile terminal, which received the transmitted transfer request, based on an authentication request received from the detected mobile terminal; and
rewrite request means for transmitting a transfer request for an information rewrite request to a communication control station (30) when the result of the authentication is affirmative.

12. The terminal device as claimed in claim 11, wherein the authenticating terminal device transmits said transfer request for said information rewrite request to the communication control station (30).

13. The terminal device as claimed in claim 11, wherein the authenticated terminal device transmits said transfer request for said information rewrite request to the communication control station (30).

Patentansprüche

1. Mobilkommunikationsverfahren zur Steuerung einer Übergabevermittlung zur Kommunikation zwischen einer Vielzahl von Mobilendgeräten (1, 2, 3), die sich die gleiche Nummer teilen, die von dem gleichen Teilnehmer verwendet wird, mit den Schritten:

Erfassen eines Mobilendgeräts unter den anderen Endgeräten, die sich die gleiche Nummer teilen, die von dem gleichen Teilnehmer verwendet wird;
Übertragen einer Übergabeanforderung zur Vermittlung zu dem erfassten Mobilendgerät, das die gleiche Nummer teilt, die von dem gleichen Teilnehmer verwendet wird (S4);
Bestimmen, ob eine Übergabe zu einem der Mobilendgeräte, die sich die gleiche Nummer

teilen, die von dem gleichen Teilnehmer verwendet wird, zu vermitteln ist oder nicht (S2; S32);

Authentisieren des erfassten Mobilendgeräts, das die übertragene Übergabeanforderung empfangen hat, basierend auf einer von dem erfassten Mobilendgerät aus empfangenen Authentisierungsanforderung, falls bestimmt wird, dass die Übergabe zu vermitteln ist (S5; S6);

Übertragen einer Übergabeanforderung (S7) für eine Informationsumschreibanforderung an eine Kommunikationssteuerstation (30), wenn das Ergebnis der Authentisierung positiv ist; und

Durchführen eines Vorgangs zum Vermitteln der Übergabe zu dem authentisierten Mobilendgerät (A2) basierend auf der Übergabevermittlungsanforderung, die von einem Mobilendgerät unter der Vielzahl von Mobilendgeräten, die sich die gleiche Nummer teilen, die von dem gleichen Teilnehmer verwendet wird, ausgegeben wird (S14; S45).

2. Mobilkommunikationsverfahren gemäß Anspruch 1, bei dem, falls das eine Mobilendgerät (A1) gerade kommuniziert, dieses Mobilendgerät (A1) automatisch eines der anderen Mobilendgeräte unter der Bedingung authentisiert, dass an Stelle eines authentisierenden Endgeräts (A1) ein anderes, authentisiertes Endgerät (A2), das die gleiche Nummer teilt, mit einem von einem anderen Teilnehmer verwendeten Endgerät (B1) kommuniziert, und

das authentisierende Mobilendgerät (A1) eine Übergabevermittlungsanforderung (S7) gemäß dem anderen, authentisierten Mobilendgerät (A2) an die Kommunikationssteuerstation (30) ausgibt.

3. Mobilkommunikationsverfahren gemäß Anspruch 1, bei dem, falls das eine Mobilendgerät (A1) gerade kommuniziert, dieses Mobilendgerät (A1) automatisch eines der anderen Mobilendgeräte unter der Bedingung authentisiert, dass an Stelle eines authentisierenden Endgeräts (A1) ein anderes, authentisiertes Endgerät (A2), das die gleiche Nummer teilt, mit einem von einem anderen Teilnehmer verwendeten Endgeräts (B1) kommuniziert, und

das andere, authentisierte Mobilendgerät (A2) eine Übergabevermittlungsanforderung (S37) gemäß dem authentisierten Mobilendgerät (A2) an die Kommunikationssteuerstation (30) ausgibt.

4. Mobilkommunikationsverfahren gemäß einem der Ansprüche 1 bis 3,

wobei die Kommunikationssteuerstation (30) zusätzlich die Schritte aufweist:

Speichern von Vermittlungsanforderungsinformationen Bezug auf die Übergabevermittlungsanforderung entsprechend jedem der Mobilendgeräte (1, 2, 3), die sich die gleiche Nummer teilen;

Bestimmen, ob das authentisierende Mobilendgerät (A1) oder das andere, authentisierte Mobilendgerät (A2) eine Ausgabe bereitgestellt hat; und

Durchführen eines Vorgangs zum Vermitteln der Übergabe basierend auf den gespeicherten Vermittlungsanforderungsinformationen entsprechend jedem der Mobilendgeräte, falls bestimmt wird, dass das andere, authentisierte Mobilendgerät (A2) eine Ausgabe bereitgestellt hat (S14; S45).

5. Mobilkommunikationssystem zur Steuerung einer Übergabevermittlung zur Kommunikation zwischen einer Vielzahl von Mobilendgeräten (1, 2, 3), die sich die gleiche Nummer teilen, die von dem gleichen Teilnehmer verwendet wird, wobei jedes der Vielzahl von Mobilendgeräten (1, 2, 3) aufweist:

eine Erfassungseinrichtung (51) zum Erfassen eines Mobilendgeräts unter den anderen Endgeräten, die sich die gleiche Nummer teilen, die von dem gleichen Teilnehmer verwendet wird;

eine Übergabeanforderungseinrichtung (52) zum Übertragen einer Übergabeanforderung zur Vermittlung zu dem erfassten Mobilendgerät, das die gleiche Nummer teilt, die von dem gleichen Teilnehmer verwendet wird;

eine Bestimmungseinrichtung (51) zum Bestimmen, ob eine Übergabe zu einem der Mobilendgeräte, die sich die gleiche Nummer teilen, die von dem gleichen Teilnehmer verwendet wird, zu vermitteln ist oder nicht;

eine Authentisierungseinrichtung (53) zum Authentisieren des erfassten Mobilendgeräts, das die übertragene Übergabeanforderung empfangen hat, basierend auf einer von dem erfassten Mobilendgerät aus empfangenen Authentisierungsanforderung, falls bestimmt wird, dass die Übergabe zu vermitteln ist; und

eine Umschreibeanforderungseinrichtung zum Übertragen einer Übergabeanforderung (S7) für eine Informationsumschreibanforderung an eine Kommunikationssteuerstation (30), wenn das Ergebnis der Authentisierung positiv ist,

wobei die Kommunikationssteuerstation (30) aufweist:

eine Übergabevermittlungseinrichtung (21, 22) zum Durchführen eines Vorgangs zum Vermitteln der Übergabe zu dem authentisierten Mobilendgerät (A2) basierend auf der Übergabevermittlungsanforderung, die von einem Mobilendgerät unter der Vielzahl von Mobilendgeräten, die sich

die gleiche Nummer teilen, die von dem gleichen Teilnehmer verwendet wird, ausgegeben wird.

6. Mobilkommunikationssystem gemäß Anspruch 5, wobei die Authentisierungseinrichtung (53) wie folgt strukturiert ist:

falls das eine Mobilendgerät gerade kommuniziert, authentisiert dieses Mobilendgerät automatisch eines der anderen Mobilendgeräte unter der Bedingung, dass an Stelle eines authentisierenden Endgeräts (A1) ein anderes, authentisiertes Endgerät (A2), das die gleiche Nummer teilt, mit einem von einem anderen Teilnehmer verwendeten Endgerät (B1) kommuniziert, und
wobei die Ausgabeeinrichtung (52) wie folgt strukturiert ist:

das authentisierende Mobilendgerät gibt eine Übergabevermittlungsanforderung gemäß dem anderen, authentisierten Mobilendgerät (A2) an die Kommunikationssteuerstation (30) aus.

7. Mobilkommunikationssystem gemäß Anspruch 5, wobei die Authentisierungseinrichtung (53) wie folgt strukturiert ist:

falls das eine Mobilendgerät gerade kommuniziert, authentisiert dieses Mobilendgerät automatisch eines der anderen Mobilendgeräte unter der Bedingung, dass an Stelle eines authentisierenden Endgeräts (A1) ein anderes, authentisiertes Endgerät (A2), das die gleiche Nummer teilt, mit einem von einem anderen Teilnehmer verwendeten Endgerät (B1) kommuniziert, und
wobei die Ausgabeeinrichtung wie folgt strukturiert ist:

das andere, authentisierte Mobilendgerät gibt eine Übergabevermittlungsanforderung gemäß dem authentisierten Mobilendgerät (A2) an die Kommunikationssteuerstation (30) aus.

8. Mobilkommunikationssystem gemäß einem der Ansprüche 5 bis 7,
wobei die Kommunikationssteuerstation (30) zusätzlich aufweist:

eine Speichereinrichtung (31a) zum Speichern von Vermittlungsanforderungsinformationen in Bezug auf die Übergabevermittlungsanforderung entsprechend jedem der Mobilendgeräte (1, 2, 3), die sich die gleiche Nummer teilen;

eine Bestimmungseinrichtung (32) zum Bestimmen, ob das authentisierende Mobilendgerät (A1) oder das andere, authentisierte Mobilendgerät (A2) eine Ausgabe bereitgestellt hat; und
eine Steuereinrichtung (33) zum Durchführen eines Übergabevermittlungsvorgangs basierend auf den jedem Mobilendgerät entsprechenden Vermittlungsanforderungsinformationen, die in der Speichereinrichtung (31a) gespeichert sind, falls bestimmt wird, das das andere, authentisierte Mobilendgerät eine Ausgabe bereitgestellt hat.

9. Kommunikationssteuerstation zur Steuerung einer Übergabevermittlung zur Kommunikation zwischen einer Vielzahl von Mobilendgeräten, die sich die gleiche Nummer teilen, die von dem gleichen Teilnehmer verwendet wird,
wobei die Station (30) aufweist:

eine Speichereinrichtung (31a) zum Speichern von Vermittlungsanforderungsinformationen in Bezug auf eine Übergabevermittlungsanforderung entsprechend jedem der Mobilendgeräte (1, 2, 3), die sich die gleiche Nummer teilen, die von dem gleichen Teilnehmer verwendet wird:

eine Bestimmungseinrichtung (32) zum Bestimmen, ob ein authentisierendes Mobilendgerät (A1) oder ein anderes, authentisiertes Mobilendgerät (A2) eine Ausgabe bereitgestellt hat; und
eine Steuereinrichtung (33) zum Durchführen eines Übergabevermittlungsvorgangs basierend auf den in der Speichereinrichtung (31a) gespeicherten Vermittlungsanforderungsinformationen, wenn bestimmt wird, dass das andere, authentisierte Mobilendgerät eine Ausgabe bereitgestellt hat.

10. Kommunikationssteuerstation gemäß Anspruch 9, bei der die in der Speichereinrichtung (31a) gespeicherten Vermittlungsanforderungsinformationen die gleiche Nummer, die unter den Mobilendgeräten (1, 2, 3) geteilt wird, eine Gerätenummer (42), eine Aufenthaltsinformation (43) und ein Verfügbarkeitskennzeichen (44) umfassen,
wobei die gleiche Nummer derart geteilt wird, dass ein anderes, authentisiertes Endgerät (A2), das die gleiche Nummer teilt, an Stelle eines authentisierenden Endgeräts (A1) mit einem von einem anderen Teilnehmer verwendeten Endgerät kommuniziert, und
die Aufenthaltsinformation (43) und das Verfügbarkeitskennzeichen (44) der Gerätenummer (42) entsprechen.

11. Endgerätevorrichtung zur Steuerung einer Übergabevermittlung zur Kommunikation zwischen anderen Mobilendgeräten, die sich die gleiche Nummer teilen, die von dem gleichen Teilnehmer verwendet wird, wobei die Endgerätevorrichtung aufweist:

eine Erfassungseinrichtung (51) zum Erfassen eines Mobilendgeräts unter den anderen Mobilendgeräten, die sich die gleiche Nummer teilen, die von dem gleichen Teilnehmer verwendet wird;
eine Übergabeanforderungseinrichtung (52) zum Übertragen einer Übergabeanforderung zur Vermittlung zu dem erfassten Mobilendgerät, das die gleiche Nummer teilt, die von dem gleichen Teilnehmer verwendet wird;
eine Bestimmungseinrichtung (51) zum Bestimmen, ob eine Übergabe zu einem der Mobilendgeräte, die sich die gleiche Nummer teilen, die von dem gleichen Teilnehmer verwendet wird, zu vermitteln ist oder nicht;
eine Authentisierungseinrichtung (53) zum Authentisieren des erfassten Mobilendgeräts, das die übertragene Übergabeanforderung empfangen hat, basierend auf einer von dem erfassten Mobilendgerät aus empfangenen Authentisierungsanforderung, falls bestimmt wird, dass die Übergabe zu vermitteln ist; und
eine Umschreibanforderungseinrichtung zum Übertragen einer Übergabeanforderung für eine Informationsumschreibeanforderung an eine Kommunikationssteuerstation (30), wenn das Ergebnis der Authentisierung positiv ist.

12. Endgerätevorrichtung gemäß Anspruch 11, bei der die authentisierende Endgerätevorrichtung die Übergabeanforderung für die Informationsumschreibeanforderung an die Kommunikationssteuerstation (30) überträgt.

13. Endgerätevorrichtung gemäß Anspruch 11, bei der die authentisierte Endgerätevorrichtung die Übergabeanforderung für die Informationsumschreibeanforderung an die Kommunikationssteuerstation (30) überträgt.

Revendications

1. Procédé de communication mobile pour commander la commutation de transfert pour la communication entre une pluralité de terminaux (1, 2, 3) mobiles partageant le même numéro utilisé par le même abonné, le procédé comprenant les étapes consistant à :

détecter un terminal mobile parmi les autres terminaux partageant le même numéro utilisé par le même abonné ;
émettre une requête de transfert pour la commutation sur le terminal mobile détecté partageant le même numéro utilisé par le même abonné (S4) ;
déterminer s'il faut ou non commuter un transfert sur l'un quelconque des terminaux mobiles partageant le même numéro utilisé par le même abonné (S2 ; S32) ;
authentifier, s'il est déterminé que le transfert doit être commuté, le terminal mobile détecté qui a reçu la requête de transfert émise, sur la base d'une requête d'authentification reçue en provenance du terminal mobile détecté (S5 ; S6) ;
émettre une requête de transfert (S7) d'une requête de réécriture d'informations vers une station (30) de commande de communication, lorsque le résultat de l'authentification est affirmatif ; et
exécuter un traitement de commutation du transfert sur le terminal (A2) mobile authentifié, sur la base de la requête de commutation de transfert émise en sortie d'un terminal mobile parmi la pluralité de terminaux mobiles partageant le même numéro utilisé par le même abonné (S14 ; S45).

2. Procédé de communication mobile suivant la revendication 1, dans lequel si le terminal (A1) mobile est en cours de communication, ce terminal (A1) mobile authentifie automatiquement l'un des autres terminaux mobiles, à condition qu'un autre terminal (A2) authentifié partageant le même numéro, à la place d'un terminal (A1) mobile authentifiant, communique avec un terminal (B1) utilisé par un autre abonné, et

le terminal (A1) mobile authentifiant émet en sortie une requête de commutation de transfert (S7) suivant l'autre terminal (A2) mobile authentifié, vers la station (30) de commande de communication.

3. Procédé de communication mobile suivant la revendication 1, dans lequel si le terminal (A1) mobile est en cours de communication, ce terminal (A1) mobile authentifie automatiquement l'un des autres terminaux mobiles, à condition qu'un autre terminal (A2) authentifié partageant le même numéro, à la place d'un terminal (A1) authentifiant, communique avec un terminal (B1) utilisé par un autre abonné, et

l'autre terminal (A2) mobile authentifié émet en sortie une requête de commutation de transfert (S37) suivant le terminal (A2) mobile authentifié, vers la station (30) de commande de communication.

4. Procédé de communication mobile, suivant l'une quelconque des revendications 1 à 3,

dans lequel la station (30) de commande de communication comprend en outre, les étapes consistant à :

mémoriser des informations de requête de commutation concernant la requête de commutation de transfert correspondant à chaque terminal (1, 2, 3) mobile partageant le même numéro ;
déterminer si le terminal (A1) mobile authentifiant ou un autre terminal (A2) mobile authentifié a fourni une sortie ; et
exécuter, s'il est déterminé que l'autre terminal (A2) mobile authentifié a fourni une sortie, un traitement de commutation du transfert, sur la base des informations de requête de commutation mémorisées correspondant à chaque terminal mobile (S14 ; S45).

5. Système de communication mobile pour commander la commutation de transfert pour la communication entre une pluralité de terminaux (1, 2, 3) mobiles partageant le même numéro utilisé par le même abonné, un terminal quelconque parmi la pluralité de terminaux (1, 2, 3) mobiles comprenant :

un moyen (51) de détection, destiné à détecter un terminal mobile parmi les autres terminaux partageant le même numéro utilisé par le même abonné ;
un moyen (52) de requête de transfert, destiné à émettre une requête de transfert pour la commutation sur le terminal mobile détecté partageant le même numéro utilisé par le même abonné ;
un moyen (51) de détermination, destiné à déterminer s'il faut ou non commuter un transfert sur l'un quelconque des terminaux mobiles, partageant le même numéro utilisé par le même abonné ;
un moyen (53) d'authentification, destiné à authentifier, s'il est déterminé que le transfert doit être commuté, le terminal mobile détecté qui a reçu la requête de transfert émise, sur la base d'une requête d'authentification reçue en provenance du terminal mobile détecté ; et
un moyen de réécriture de requête, destiné à émettre une requête de transfert (S7) d'une requête de réécriture d'informations vers une station (30) de commande de communication, lorsque le résultat de l'authentification est affirmatif ; et
la station (30) de commande de communication comprenant :

un moyen (21, 22) de commutation de transfert, destiné à effectuer un traitement de commutation du transfert sur le terminal (A2) mobile authentifié, sur la base de la requête de commutation de transfert émise en sortie d'un terminal mobile parmi la pluralité de terminaux mobiles partageant le même numéro utilisé par le même abonné.

6. Système de communication mobile suivant la revendication 5, dans lequel le moyen (53) d'authentification est structuré de telle sorte que :

si le terminal mobile est en cours de communication, ce terminal mobile authentifie automatiquement l'un des autres terminaux mobiles, à condition qu'un autre terminal (A2) authentifié partageant le même numéro, à la place d'un terminal (A1) mobile authentifiant, communique avec un terminal (B1) utilisé par un autre abonné, et
le moyen (52) de sortie est structuré de telle sorte que :

le terminal mobile authentifiant émet en sortie une requête de commutation de transfert suivant l'autre terminal (A2) mobile authentifié, vers la station (30) de commande de communication.

7. Système de communication mobile suivant la revendication 5, dans lequel le moyen (53) d'authentification est structuré de telle sorte que :

si le terminal mobile est en cours de communication, ce terminal mobile authentifie automatiquement l'un des autres terminaux mobiles, à condition qu'un autre terminal (A2) authentifié partageant le même numéro, à la place d'un terminal (A1) authentifiant, communique avec un terminal (B1) utilisé par un autre abonné, et le moyen de sortie est structuré de telle sorte que :

l'autre terminal mobile authentifié émet en sortie une requête de commutation de transfert suivant le terminal (A2) mobile authentifié, vers la station (30) de commande de communication.

8. Système de communication mobile, suivant l'une quelconque des revendications 5 à 7,

dans lequel la station (30) de commande de communication comprend en outre :

un moyen (31 a) de mémorisation, destiné à mémoriser des informations de requête de commutation concernant la requête de commutation de transfert correspondant à chaque terminal (1, 2, 3) mobile partageant le même numéro ;

un moyen (32) de détermination, destiné à déterminer si le terminal (A1) mobile authentifiant ou l'autre terminal (A2) mobile authentifié a émis une sortie ; et

un moyen (33) de commande pour exécuter, s'il est déterminé que l'autre terminal mobile authentifié a fourni une sortie, un traitement de commutation de transfert, sur la base des informations de requête de commutation correspondant à chaque terminal mobile, mémorisées dans le moyen (31 a) de mémorisation.

9. Station de commande de communication pour commander la commutation de transfert pour la communication entre une pluralité de terminaux mobiles partageant le même numéro utilisé par le même abonné,

la station (30) comprenant :

un moyen (31 a) de mémorisation, destiné à mémoriser des informations de requête de commutation concernant une requête de commutation de transfert correspondant à chaque terminal (1, 2, 3) mobile partageant le même numéro utilisé par le même abonné ;

un moyen (32) de détermination, destiné à déterminer si un terminal (A1) mobile authentifiant ou un autre terminal (A2) mobile authentifié a émis une sortie ; et

un moyen (33) de commande pour exécuter un traitement de commutation de transfert, sur la base des informations de requête de commutation, mémorisées dans le moyen (31 a) de mémorisation, lorsqu'il est déterminé que l'autre terminal mobile authentifié a fourni une sortie.

10. Station de commande de communication suivant la revendication 9, dans laquelle les informations de requête de commutation, mémorisées dans le moyen (31 a) de mémorisation, comprennent le même numéro partagé par les terminaux (1, 2, 3) mobiles, un numéro (42) de dispositif, une information (43) de position et un indicateur (44) de disponibilité,

dans laquelle le même numéro est partagé de manière à ce qu'un autre terminal (A2) authentifié partageant le même numéro, à la place d'un terminal (A1) authentifiant, communique avec un terminal utilisé par un autre abonné, et

l'information (43) de position et l'indicateur (44) de disponibilité correspondent au numéro (42) de dispositif.

11. Dispositif de terminal pour commander la commutation de transfert pour la communication entre d'autres terminaux mobiles partageant le même numéro utilisé par le même abonné, le dispositif de terminal comprenant :

un moyen (51) de détection, destiné à détecter un terminal mobile parmi les autres terminaux mobiles partageant le même numéro utilisé par le même abonné ;

un moyen (52) de requête de transfert, destiné à émettre une requête de transfert pour la commutation sur le terminal mobile détecté partageant le même numéro utilisé par le même abonné ;

un moyen (51) de détermination, destiné à déterminer s'il faut ou non commuter un transfert sur l'un quelconque des terminaux mobiles partageant le même numéro utilisé par le même abonné ;

un moyen (53) d'authentification, destiné à authentifier, s'il est déterminé que le transfert doit être commuté, le terminal mobile détecté qui a reçu la requête de transfert émise, sur la base d'une requête d'authentification reçue en provenance du terminal mobile détecté ; et

un moyen de réécriture de requête, destiné à émettre une requête de transfert d'une requête de réécriture d'informations vers une station (30) de commande de communication, lorsque le résultat de l'authentification est affirmatif.

12. Dispositif de terminal suivant la revendication 11, dans lequel le dispositif de terminal authentifiant émet la requête de transfert de la requête de réécriture d'informations vers la station (30) de commande de communication.

13. Dispositif de terminal suivant la revendication 11, dans lequel le dispositif de terminal authentifié émet la requête de transfert de la requête de réécriture d'informations vers la station (30) de commande de communication.

FIG.1A

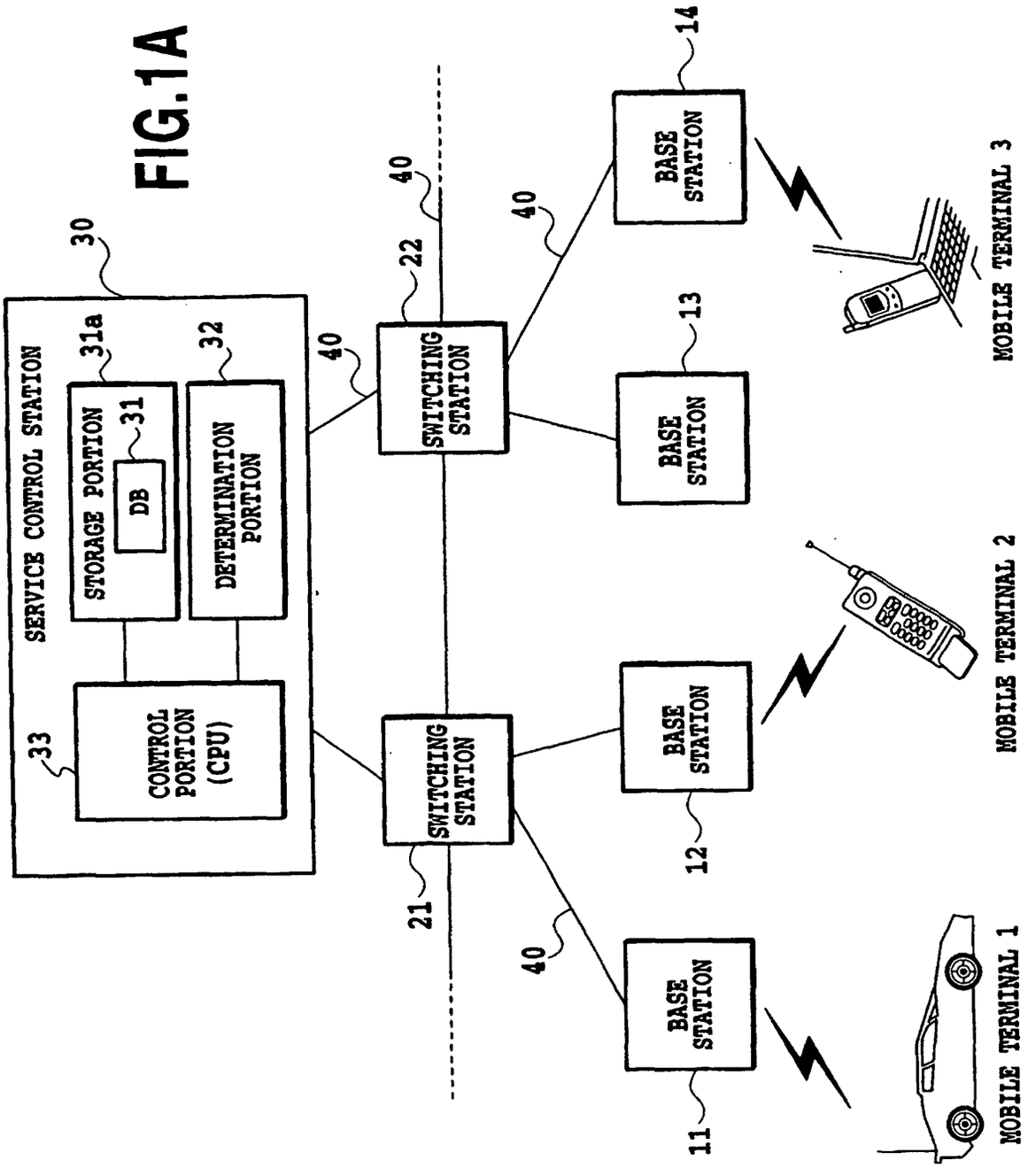
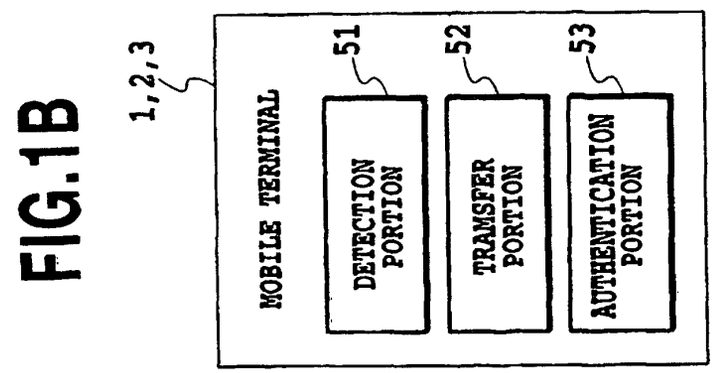

SERVICE CONTROL STATION
30
STORAGE PORTION
31a
DB
31
DETERMINATION PORTION
32
CONTROL PORTION (CPU)
33
40
SWITCHING STATION
22
SWITCHING STATION
21
40
40
40
BASE STATION
14
BASE STATION
13
BASE STATION
12
BASE STATION
11
MOBILE TERMINAL 3
MOBILE TERMINAL 2
MOBILE TERMINAL 1

FIG.1B


1,2,3
MOBILE TERMINAL
51
DETECTION PORTION
52
TRANSFER PORTION
53
AUTHENTICATION PORTION

41 TELEPHONE NUMBER	42 DEVICE NUMBER	43 LOCATION INFORMATION	44 AVAILABILITY FLAG
MSN1	MSI1	A11	1
	MSI2	A12	0
	MSI3	A13	0

FIG.2

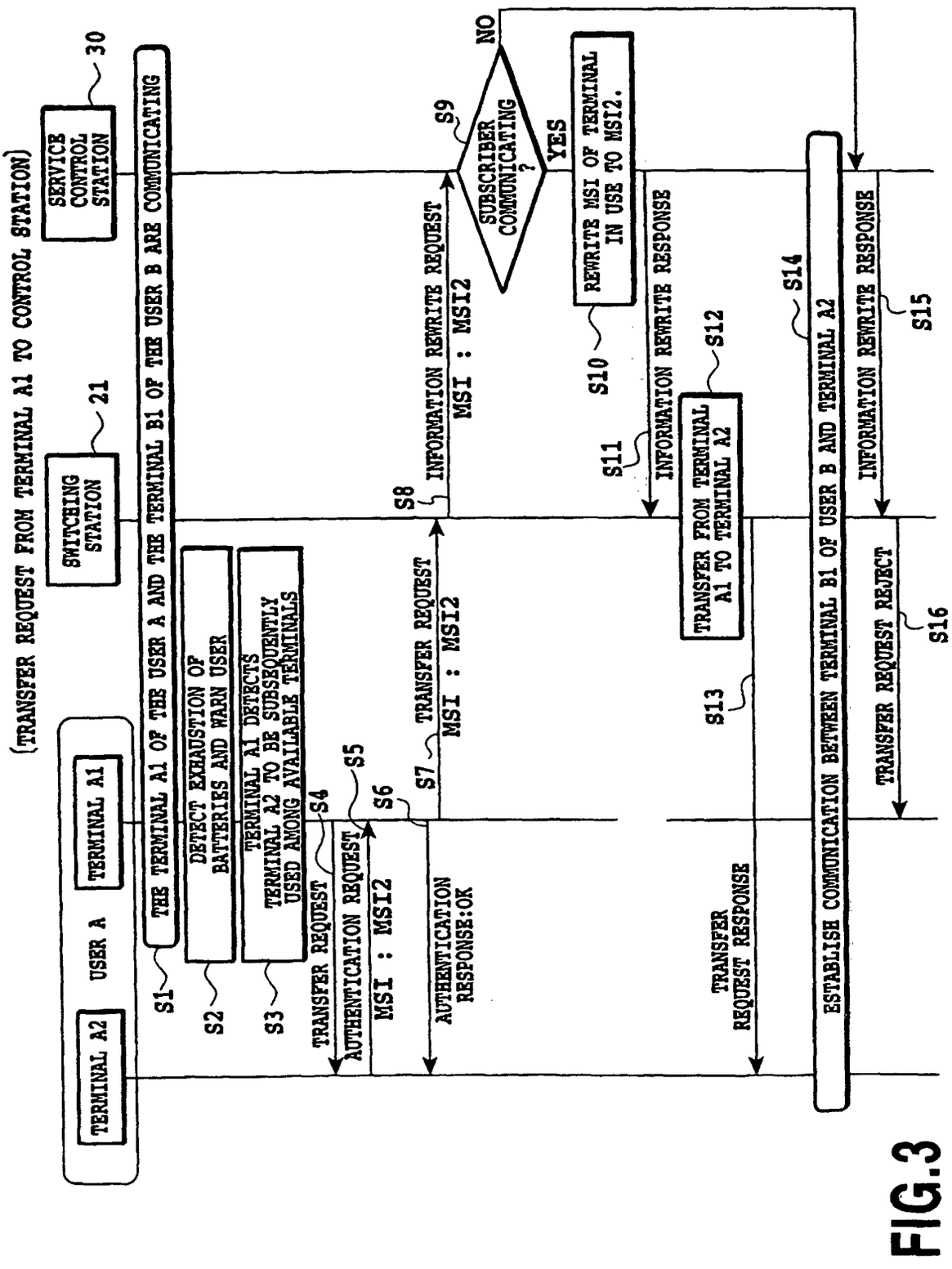

(TRANSFER REQUEST FROM TERMINAL A1 TO CONTROL STATION)
USER A
TERMINAL A1
TERMINAL A2
SWITCHING STATION
21
SERVICE CONTROL STATION
30
THE TERMINAL A1 OF THE USER A AND THE TERMINAL B1 OF THE USER B ARE COMMUNICATING
S1
DETECT EXHAUSTION OF BATTERIES AND WARN USER
S2
TERMINAL A1 DETECTS TERMINAL A2 TO BE SUBSEQUENTLY USED AMONG AVAILABLE TERMINALS
S3
TRANSFER REQUEST
S4
AUTHENTICATION REQUEST
MSI : MSI2
S5
S6
AUTHENTICATION RESPONSE:OK
S7
TRANSFER REQUEST
MSI : MSI2
S8
INFORMATION REWRITE REQUEST
MSI : MSI2
S9
SUBSCRIBER COMMUNICATING ?
NO
YES
REWRITE MSI OF TERMINAL IN USE TO MSI2.
S10
S11
INFORMATION REWRITE RESPONSE
TRANSFER FROM TERMINAL A1 TO TERMINAL A2
S12
S13
TRANSFER REQUEST RESPONSE
S14
ESTABLISH COMMUNICATION BETWEEN TERMINAL B1 OF USER B AND TERMINAL A2
INFORMATION REWRITE RESPONSE
S15
TRANSFER REQUEST REJECT
S16

FIG.3

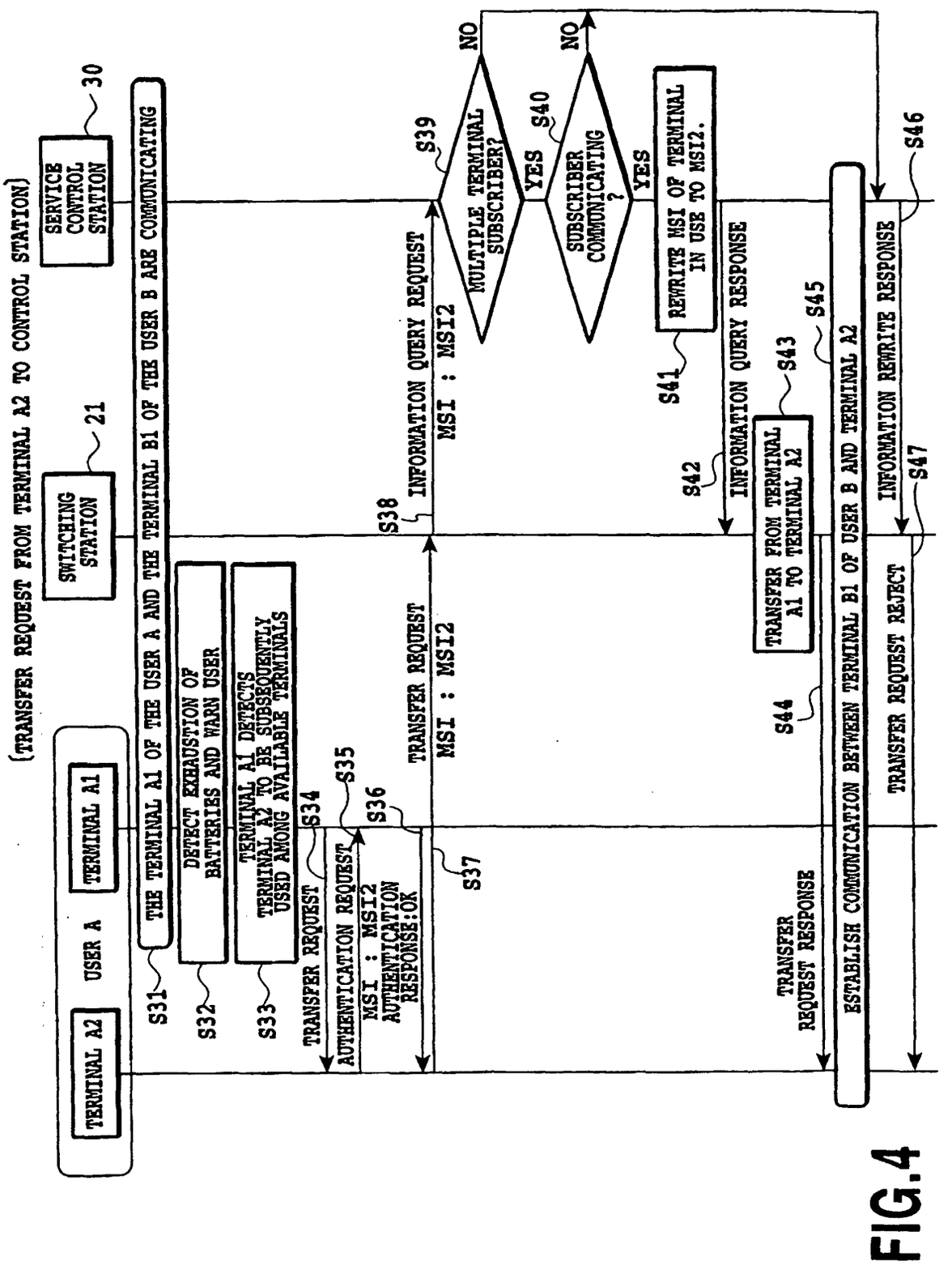

(TRANSFER REQUEST FROM TERMINAL A2 TO CONTROL STATION)
USER A
TERMINAL A1
TERMINAL A2
SWITCHING STATION
21
SERVICE CONTROL STATION
30
THE TERMINAL A1 OF THE USER A AND THE TERMINAL B1 OF THE USER B ARE COMMUNICATING
S31
DETECT EXHAUSTION OF BATTERIES AND WARN USER
S32
TERMINAL A1 DETECTS TERMINAL A2 TO BE SUBSEQUENTLY USED AMONG AVAILABLE TERMINALS
S33
TRANSFER REQUEST
S34
AUTHENTICATION REQUEST
S35
MSI : MSI2
AUTHENTICATION RESPONSE:OK
S36
TRANSFER REQUEST
MSI : MSI2
S37
S38
INFORMATION QUERY REQUEST
MSI : MSI2
S39
MULTIPLE TERMINAL SUBSCRIBER?
NO
YES
S40
SUBSCRIBER COMMUNICATING ?
NO
YES
S41
REWRITE MSI OF TERMINAL IN USE TO MSI2.
S42
INFORMATION QUERY RESPONSE
S43
TRANSFER FROM TERMINAL A1 TO TERMINAL A2
S44
TRANSFER REQUEST RESPONSE
S45
ESTABLISH COMMUNICATION BETWEEN TERMINAL B1 OF USER B AND TERMINAL A2
S46
INFORMATION REWRITE RESPONSE
S47
TRANSFER REQUEST REJECT

FIG.4