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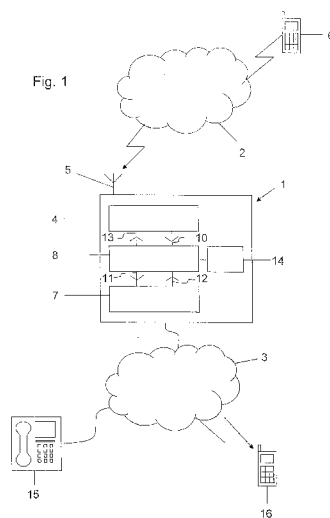
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(54) Title: IMPROVEMENTS IN OR RELATING TO TELECOMMUNICATIONS



(57) Abstract: A communications system comprising a first handset (6) adapted to communicate with an interface device (1) over a first communications network (2), the interface device (1) comprising a first call handling element (4) adapted to handle a call received from the first handset (6) over the first communication network (2), a control element (8) and a second call handling element (7) adapted to be connected to a second communication network (3) different to the first communication network (2), the control element (8) adapted to provide the first handset (6) with access to the second communications network (3), via the interface device (1) such that the first handset (6) can pass signalling information to the second communications network to initiate a call between the interface device (1) and a destination handset (15, 16) over the second communication network (3).

IMPROVEMENTS IN OR RELATING TO TELECOMMUNICATIONS

This invention relates to a communications network interface device and,
5 in particular, relates to a telecommunications network interface device for
connecting a first telecommunications network to a second, different,
telecommunications network. It also relates to a method of connecting a
call between a first communications network and a second, different
communications network. It also relates to a communications system.

10

In the field of telecommunications, telephone exchanges are used to
connect callers through a circuit to allow communication between the
callers. Operators of telephone services gain competitive advantage by
offering customers discounted rates, and free telephone calls to certain
15 destinations, for example local destinations, or at certain times, for
example evenings and weekends. Mobile telephones offer the advantage
of making calls from a location that is not fixed. However, the costs of
making calls using a mobile telephone are typically higher than those
from a fixed landline. Although many mobile telephone services offer a
20 particular allowance of free minutes of national calls, this is paid for by a
high monthly subscription charge.

In order to take advantage of lower call rates from fixed residential
landlines, while keeping the mobility advantages of mobile telephones,
25 apparatus is known to provide call bridging functionality. US 6 128 375
describes a stand-alone apparatus that provides remote control of custom
calling services, including call bridging. The apparatus enables, for
example, users to charge their personal calls to their residential phone
when away from their home residence. The apparatus is connected to the
30 analogue 2-wire subscriber loop interface from the local telephone carrier
of the phone residence. A user is able to dial their home phone, program

the apparatus, such that the apparatus initiates a three way call from the landline at the home to a third destination. The call is then charged to the account of the home telephone number. In this way, a mobile telephone user or a user in a hotel can call their home phone number and make even
5 an international call using the discounted or lower standard rates offered by their home telephone number account. The apparatus disclosed in this document is particularly useful on any United States telephone network which permits the receiver of a call to initiate a three way call wherein the receiver is then subsequently charged for the second leg of the call to
10 the third destination. In the United Kingdom and many other countries, three way calling can only be set up and charged to the initiator of the original call.

According to a first aspect of the invention, we provide a communications
15 network interface device comprising:

- a first call handling element adapted to be connected to a first communications network;

- a second call handling element adapted to be connected to a second communications network which is different to the first communications
20 network; and

- a control element adapted to connect a call received by the first call handling element to the second call handling element such that signalling information received via the first call handling element can be used to initiate a call on the second communications network.

25

This is advantageous as it allows a user to call the interface device via a first communications network such as mobile network and then place calls via the second communications network such a fixed line residential network at a reduced cost and without the need to set up a three way call.
30 Instead, the interface device provides a link between a first call and a distinct second call. This keeps costs to a minimum as the call over the

first network is between only two parties and the call over the second network is between only two parties. The interface device, which is a subscriber to both the first and second communications network, provides a simple and efficient link between the two different networks.

5

The first communications network may comprise a mobile telephone network. The mobile telephone network may comprise a network based on the GSM standard or the UMTS standard. This permits the user of the interface device to be mobile.

10

The second communications network may comprise a public switch telephone network (PSTN). This is advantageous as the cost of making calls over a fixed landline network is typically cost effective, particularly when taking advantage of a call plan that includes free calls.

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The interface device may be adapted to pass the signalling information received via the first call handling element to the second telecommunications network unmodified. This is advantageous as the interface device does not require specialised apparatus to initiate a call on the second telecommunications network. Preferably, the interface device is adapted to receive DTMF tones generated by a user's telephone, that are received by the first call handling device and adapted to be passed to the second call handling device are used to initiate a call on the second communications network.

25

Preferably, the control element is adapted to identify the caller of a call received by the first call handling element and to only allow a connection between the first communications network and the second communications network if the caller is a predetermined caller. This is advantageous as it ensures that only those authorised people can obtain access to the second communications network via the interface device and therefore incur

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charges to an account associated with the interface device and the second communications network.

Preferably the control element identifies the caller using caller line
5 identification (CLI) information received from the first telecommunications network. Alternatively, the control element may be arranged to prompt the caller for a identification code which is checked against a predetermined code stored in the interface device.

10 Preferably, the control element is adapted to instruct the second call handling element to provide access to the second communications network prior to connecting the audio streams of the first call handling element and the second call handling element. This is advantageous as the “hook” is lifted on the second communication network before the audio
15 connection is made thereby preventing the caller hearing crackles, pops and other interference noises caused by the connections being made.

Preferably, the second call handling element is adapted to also receive calls from the second communication network and wherein the interface
20 device is adapted to initiate a call using the first call handling element to a predetermined telephone number and provide an audio link between the second call handling element and the first call handling element. This is advantageous as calls received by the interface device can be forwarded to a predetermined number. Preferably, the first call handling element of
25 the interface device is adapted to establish a call with a handset of the predetermined telephone number prior to the call received by the second call handling element being answered. This is advantageous as the caller to the interface device hears no interruption in the ringback tone until the interface device provides the audio link to the predetermined number, by
30 which point, a conversation can be conducted. This is advantageous as there is no indication to the caller that the call is being forwarded, which

is sometimes inadvertently indicated by pauses in the ringback tone and/or changes in the ringback tone as the call is routed over several communications networks, for example. This feature may form an aspect of the invention independent of the first aspect.

5

According to a second aspect of the invention we provide a communications network interface device comprising

a first call handling element adapted to be connected to a first communications network;

10 a second call handling element adapted to be connected to a second communications network which is different to the first communications network;

a control element adapted to initiate a call using the first call handling element to a predetermined telephone number on receipt of a call
15 by the second call handling element; and

then being adapted to provide an audio link between the first and second call handling elements.

Preferably the control element is adapted to provide the audio link after
20 the initiated call has been answered.

According to a third aspect of the invention we provide a method of connecting a call between a first communications network and a second communications network which is different to the first communications
25 network using a communications network interface device wherein the method comprises the steps of:

- a) answering a call from a first communications network;
- b) providing a connection between the first communications network and the second communications network;
- 30 c) forwarding signalling information received from the first communications network during the call to the second communications

network, wherein the signalling information is information suitable for initiating a call on the second communications network.

This is advantageous as the method allows a caller to access their home
5 telephone account which operates over the second communications network via the different first communications network which typically comprise a mobile telephone network.

Preferably the method includes the step of; verifying that the caller has
10 permission to access the second communications network. The verification may comprise using caller line identification and comparing the identified telephone number to a list of stored, authorised telephone numbers. Alternatively, the verification may occur after the call has been answered by way of receiving an identification code and checking whether
15 or not the code corresponds to a predetermined code stored in the interface device.

Preferably the signalling information forwarded in step (c) is unmodified by the interface device. Preferably, the signalling information comprises
20 DTMF tones.

Preferably step (b) comprises the steps of placing the second communications network in a condition to receive dialling information and then providing an audio link between the first and second
25 communications network. This avoids the sounds associated with connections being made, such as lifting the hook, from being heard by the caller, which improves the user experience.

Preferably the method includes the step (d) of monitoring the status of the
30 call conducted over the first communications network and, when the end of the call is detected, closing the connection to the second

communications network. Thus, the method automatically places the second communication network "on hook" once the call over the first network is completed.

5 According to a fourth aspect of the invention we provide a communications system comprising a first handset adapted to communicate with an interface device over a first communications network, the interface device comprising a first call handling element adapted to handle the call received from the first handset over the first
10 communication network, a control element and a second call handling element adapted to be connected to a second communication network different to the first communication network, the control element adapted to provide the first handset with access to the second communications network, via the interface device such that the first handset can pass
15 signalling information to the second communications network to initiate a call between the interface device and a destination handset over the second communication network.

This is advantageous as the first handset communicates with the interface
20 device by way of a standard (i.e. non three-way) two party call and the interface device provides a link to a second, standard two party call between the interface device and the destination handset. Thus, the interface device provides a connection between two separate two-party calls, therefore avoiding the need to make an expensive and difficult to
25 set up three way-call.

Preferably the signalling information comprises DTMF tones generated by the first handset.

30 Preferably the control element is adapted to provide a connection between the incoming audible signal line from the first communications network

and the outgoing audible signal line of the second communications network as well as a connection between the incoming audible signal line from the second communication network and the outgoing audible signal line of the first communications network.

5

Preferably the interface device is adapted to forward the dial tone of the second communications network to the first handset when the call between the first handset and the interface device is established. This is advantageous because as soon as the interface device answers the call
10 from the first handset, the first handset has immediate access to place a call on the second communication network.

Preferably the first handset is adapted to receive a destination telephone number, establish a call between the first handset and the interface
15 device, detect the dial tone of the second communications network and provide signalling information comprising the destination telephone number to the second communication network over the call established between the first handset and the interface device. This is advantageous as the process that is carried out is hidden from the user and it appears to
20 them that the call is connected as if they were calling the destination telephone directly. The first handset automatically routes the call via the interface device.

According to a fifth aspect of the invention, we provide a method of
25 establishing a call over a communications system, the communications system comprising a first handset adapted to communicate over a first communications network, and an interface device having means to communicate over the first communications network and a second, different communications network, the method comprising the steps of;

- 30 a) receiving a destination telephone number by the first handset;
 b) initiating a first call to the interface device;

c) answering the first call by the interface device;

d) sending signalling information representative of the destination telephone number from the first handset to initiate a call on the second communication network.

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Preferably steps (a), (b) and (d) are performed by a software tool loaded onto a mobile telephone, which comprises the first handset. Preferably the software comprises a tool which receives the destination number from a phone book database of the mobile telephone.

10

Preferably the tool performs the step of looking up the destination number in a database of number types, selecting a number type and referencing the number type against a database of call tariffs for at least the first communication network and the second communication network and
15 selecting which network upon which to place the call. Thus, if using the second communication network is cheaper, the method proceeds to step (b), but if using the first communication network is cheaper, the call is placed on the first network and the method does not proceed to step (b).

20

Preferably the method includes the step of verifying the identity of a user of the first handset. This may be by caller line identification of the first handset or by receiving an identification code from the user.

25

Preferably the first handset is adapted to perform the following step before step (d); listening for the dial tone of the second communication network, received via the interface device. This is advantageous as the first handset can be programmed to listen for the audible dial tone before sending the signalling information. This ensures
30 that a call is successfully initiated on the second communications network.

Preferably, the interface device provides an audio link between the first communication network and the second communication network and step (d) is performed over the audio link.

5

There now follows by way of example only a detailed description of the invention with reference to the accompanying drawings, in which:

Figure 1 shows an embodiment of a communications network interface device; and

10

Figure 2 shows a flow chart which represents the method of operation of the interface device shown in Figure 1.

15 Figure 1 shows a communications network interface device 1 adapted to be connected to a first communications network 2 and also a second, different, communications network 3. In this embodiment the first communications network 2 comprises a mobile telecommunications network and the second communications network comprises a fixed line telecommunications network. The interface device 1 is located at a user's residence and is connected to the fixed line communications network 3 that is associated with the residence. Accordingly, the user is a subscriber to the fixed-line network and therefore has an account with the fixed line network provider that supplies services over the second

20 telecommunications network. Typically, the fixed line network provider offers call packages that give the user free or discounted rates to many different destination numbers. These destination numbers may include other fixed line telephones, mobile telephones, international destinations, or special rate services such as those beginning 0870, 0845, 0800, 0808,

25 or 09 etc.

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The interface device 1 includes a first call handling element 4 which provides the interface device 1 with access to the first communications network 2. The first call handling element 4 comprises a subscriber identity module (SIM) card and associated circuitry. The interface device
5 1 is therefore subscribed to and able to communicate with the first communications network 2 via the call handling element 4 and an antenna 5.

The user communicates with the interface device 1 using a first handset 6
10 which comprises a mobile telephone adapted to connect to the first communications network 2. This is advantageous as if the first handset 6 and the interface device 1 both have access to the same mobile communication network 2 then the rates to make calls between them are typically low or even free of charge. An example of such a tariff is the
15 “Family Tariff” offered by Vodafone in the United Kingdom, which allows free calls between a group of telephone numbers on the Vodafone network for a small subscription charge. It will, of course, be appreciated that the first handset 6 may comprise a mobile telephone which operates with a different mobile operator than that of the interface
20 device 1. Even in this instance low call rates may still be available.

The interface device 1 also includes a second call handling element 7 which provides access to the second communications network 3. As the second communications network 3 is a fixed line network, the second call
25 handling element 7 may comprise standard telephony circuitry as found in a standard fixed line telephone that allows it to receive a dial tone, relay audible information and receive incoming calls from the fixed line network 3, as will be known to those skilled in the art. The network provider of the fixed line network 3 typically offers low call rates
30 compared to mobile network providers. An example of such a tariff is the “Unlimited Anytime Plan” offered by BT in the United Kingdom.

The interface device 1 also includes a control element 8 which provides a connection between the first communications network 2 and the second communications 3 via their respective call handling elements 4 and 7. The connection formed by the control element 8 is an audio connection that permits audible information received on a first incoming audible signal line 10 from the first communications network to be passed to a second outgoing audible signal line 11 to the second communication network 3. Further, it provides a connection between a second incoming audible signal line 12 from the second communications network 3 to a first outgoing audible signal line 13 to the first communications network 2. Thus, the second outgoing audible signal line 11 comprises the line that would normally be connected to the microphone of a standard fixed line telephone. Similarly, the second incoming audible signal line 12 comprises a line normally connected to the ear piece of a standard fixed line telephone. The first incoming audible line 10 and first outgoing audible line 13 will be combined by the first call handling element 4 in accordance with the appropriate mobile telephone standard as will be known to those skilled in the art.

20

The control element is associated with a memory 14. The memory 14 is adapted to store information that can be used to verify the identity of the user or a user's telephone handset. In this embodiment, the memory is adapted to store at least one telephone number, the telephone number belonging to the first handset of the user. The control element 8 can then compare the telephone number received via caller line identification to the telephone numbers listed in the memory 14 to verify the identity of the user and therefore decide whether or not they are authorized to access the second communication network. Alternatively, the memory may be adapted to store an identification code, which can be compared to a code

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entered into the first handset and communicated to the interface device by DTMF tones.

The second call handling element 7 is adapted to also receive calls from the second communication network 3, such as from handsets 15 or 16. The control element 8 is configured to forward calls received by the second call handling element 7 to the first handset 16 using the first call handling element 4 and first communication network 2. In particular, when the second call handling element receives a call from the second communication network 2, the control means is adapted to instruct the first call handling element to initiate a call to a predetermined telephone number (e.g. the telephone number of the first handset 6). The control means is adapted to wait until the first handset 6 answers, and thus a call is established between the interface device 1 and the handset 6, before it instructs the first call handling element 7 to answer the call and provides an audio link between the second call handling element 7 and the first call handling element 4.

With reference to Figure 2, an example of a method of operation of the interface device 1 will now be described. In this embodiment the user has installed software on the first handset 6, which is programmed with the telephone number of the first call handling element 4. The software allows access to the handset's phonebook to make selection of a destination number simple. It also provides instructions to the handset to make the process of making the call via the interface device 1 transparent to a user.

At step 20 the user enters a destination telephone number into the first handset 6. In this embodiment, the first handset 6 belongs to the user and its telephone number is known to the interface device 1. The destination telephone number may belong to a fixed line telephone 15 or a mobile

telephone 16, for example. The user then provides the instruction to the handset to call the destination number.

The functionality at the handset 6 may be provided by a software application tool or “app”. The app is loaded into the handset’s memory and executed by a processor. The app provides a user with access to a phonebook of the handset, as they would be familiar with. However, when the user instructs the app to dial the selected destination number, the app first places a call on the first network 2 to the interface device 1 via the first call handling element 4, as discussed below in relation to step 21.

At step 21 the first handset 6 instructs the mobile network 2 to initiate a call between it and the interface device 1. Accordingly, the first handset 6 dials the telephone number associated with the SIM card of the first call handling element 4. The first handset 6 operates on the same mobile network as the interface device and therefore the mobile network operator typically offers low cost or free calls between the first handset 6 and interface device 1. The “Family Tariff” offer available on the Vodafone network in the United Kingdom is particularly suited for use with this system as calls between up to four users are free of charge.

At step 22 the first call handling element 4 answers the request to commence a call from the mobile network 2 and a two-party call between the first handset 6 and the interface device 1 is established.

At step 23 the control element 8 processes caller line identification information from the first call handling unit 4 which identifies the handset 6 by its associated telephone number. Control element 8 is then adapted to refer to the memory 14 to confirm whether or not the telephone number of the handset 6 is authorised to access the fixed line

network 3. The interface device 1 includes means to program it with at least one telephone number that is authorised to access the fixed line network. This may be provided by a button which can be pressed when the desired user handset 6 calls the interface device 1 and which causes
5 the memory 14 to store the telephone number of the first handset 6. In this embodiment, the memory 14 can store up to four different telephone numbers that are authorised to access the second communications network 3. It will be appreciated that more or less numbers could be stored by the memory 14, as the implementation of the device requires.

10

If the telephone number of the handset calling the interface device 1 is not recognised by the control element 8, the method proceeds to step 24 in which a message is played to the user informing them that they do not have authorisation to access the fixed line network 3.

15

If the control means 8 determines that the first handset 6 is authorised to access the fixed line network 3, it proceeds to step 25 in which it instructs the second call handling element to provide access to the second communications network by “lifting the hook” prior to an audio
20 connection being made between the first and second call handling elements. The making of the audio connection comprises connecting the first call handling element 4 and the second call handling element 7 via the first and second incoming and outgoing audible signal lines 10, 11, 12 and 13. Accordingly, the dial tone of the fixed line network 3 can be
25 received by the first handset 6 via the second call handling element 7, the second incoming audible signal line 12, the connection means 8, the first outgoing audible signal line 13, the first call handling element 4, the antenna 5 and the mobile network 2.

30 Step 23 may be performed prior to step 22. Then, if the number is not recognised, the call is established as per step 22 followed by the playing

of the message as per step 24. If the number is authorised, the call is established as per step 22 and then the method proceeds to step 25.

At step 26, the first handset 6 is adapted to detect the dial tone of the fixed line network 3. The destination number entered at step 20 can then be sent to the fixed line network 3 by sending DTMF tones from the first handset 6 via the mobile network 2, antenna 5, first call handling element 4, first incoming audible signal line 10, control element 8, second outgoing audible signal line 11, and second call handling element 7. Thus, the DTMF tones pass via the audio connection unmodified to the second communications network to place the call thereon. Alternatively, the first handset 6 may be adapted to be send the DTMF tones representative of the destination number after a predetermined length of time.

15

At step 27, the user of the first handset 6 can hear the ringback tone generated by the second communication network as they wait for the handset 15 of the destination number to be answered. Once the user of the destination handset 15 answers, a two-party call is established over the fixed line network 3 between the interface device 1 and the second handset 15.

At step 28 a conversation can be conducted between the user of the first handset 6 and the user of the destination handset 15 as normal. It is transparent to the experience of a user that the call comprises two legs of a) a first two-party call between the first handset 6 and the interface device 1 over the mobile network 2 and b) a second two-party call between the interface device 1 and the second handset 15 over the fixed line network 3. However, significant cost savings can be achieved by the user. Thus, the user is able to initiate a first call over the mobile network 2 at a preferable rate with the interface device 1. The interface device 1 is

able to establish a call between it and the second handset 15 for a preferable rate over the fixed line network 3. The user is able to easily and conveniently make a call to the destination handset 15 at a significantly reduced cost.

5

The control element 8 then monitors the first call handling element 4 to detect the end of the call between the handset 6 and the interface device 1. When it detects the end of the call it instructs the second call handling element to close access to the second network, by placing it “on
10 hook” for example. The interface device 1 then waits for a call to be received via the first and second call handling elements 4, 7.

It will be appreciated that at step 24 the user may alternatively be presented with alternative options such as access to an answering machine
15 that records messages received via the fixed line network 3, or the like.

Further at step 20 the user may enter the telephone number associated with the first call handling element 4 of the interface device 1 and then, at step 26, enter the destination number using the keypad of the first handset
20 6 or by playing a pattern of DTMF tones recalled from the phone book of the first handset 6.

In the present embodiment, the first communications network is a mobile network and the second, different communications network is a fixed line
25 network. It will be appreciated however that the invention allows a user to make cheaper calls by providing access to the second network, which may have a better tariff for making certain calls, when compared to making the call using the first network. Thus, the “difference” between the first communications network and second communications network
30 may solely be the call tariff that applies to the use of that network.

In a further embodiment, the “app” on the user’s handset may include a number type database and a tariff database. The number type database comprises a table of destination numbers or number prefixes and number types. The tariff database contains a table of number types and costs for
5 calls placed on the first network and second network. When the user selects a destination number, the “app” uses the number type database to work out what type of call it is. For example, if the number begins 01...or 02...., the number is a fixed line number (in the UK), if it begins 00...., it will be an international call. The “app” then looks up the call
10 type of the destination number in the tariff database to determine which of the tariffs of the first or second networks provides the cheapest call cost. The “app” then places the call on the first network direct from the handset 6 or on the second network via the interface device as set out in Figure 2.

CLAIMS

1. A communications network interface device comprising:
a first call handling element (4) adapted to be connected to a first
5 communications network(2);
a second call handling element (7) adapted to be connected to a
second communications network (3) which is different to the first
communications network (2); and
a control element (8) adapted to connect a call received by the first
10 call handling element to the second call handling element such that
signalling information received via the first call handling element can be
used to initiate a call on the second communications network.
2. A communications network according to claim 1, in which the first
15 communications network (2) comprises a mobile telephone network.
3. A communications network according to claim 1 or claim 2, in
which the second communications network (3) comprises a public switch
telephone network (PSTN).
20
4. A communications network according to any preceding claim, in
which the interface device (1) is adapted to pass the signalling
information received via the first call handling element (4) to the second
telecommunications network (2) unmodified.
- 25
5. A communications network according to any preceding claim, in
which the interface device (1) is adapted to receive DTMF tones
generated by a user's telephone (6), that are received by the first call
handling element (4) and adapted to be passed to the second call handling
30 device (7) are used to initiate a call on the second communications
network.

6. A communications network according to any preceding claim, in which the control element (8) is adapted to identify the caller of a call received by the first call handling element (4) and to only allow a
5 connection between the first communications network (2) and the second communications network (3) if the caller is a predetermined caller.

7. A communications network according to claim 6, in which the control element (8) identifies the caller using caller line identification
10 (CLI) information received from the first telecommunications network (2).

8. A communications network according to claim 6, in which the control element (8) is arranged to prompt the caller for a identification
15 code which is checked against a predetermined code stored in the interface device (1).

9. A communications network according to any preceding claim, in which the control element (8) is adapted to instruct the second call
20 handling element (7) to provide access to the second communications network (3) prior to connecting the audio streams of the first call handling element (4) and the second call handling element (7).

10. A communications network according to any preceding claim, in
25 which the second call handling element (7) is adapted to also receive calls from the second communication network (3) and wherein the interface device (1) is adapted to initiate a call using the first call handling element (4) to a predetermined telephone number and provide an audio link between the second call handling element (7) and the first call
30 handling element (4).

11. A communications network according to any preceding claim, in which the first call handling element (4) of the interface device (1) is adapted to establish a call with a handset (16) of the predetermined telephone number prior to the call received by the second call handling
5 element being answered.

12. A method of connecting a call between a first communications network (2) and a second communications network (3) which is different to the first communications network using a communications network
10 interface device (1) wherein the method comprises the steps of:

- a) answering a call from a first communications network (2);
- b) providing a connection between the first communications network (2) and the second communications network (7);
- c) forwarding signalling information received from the first
15 communications network (2) during the call to the second communications network (3), wherein the signalling information is information suitable for initiating a call on the second communications network.

13. A method according to claim 12, in which the method includes the
20 step of; verifying that the caller has permission to access the second communications network (3).

14. A method according to claim 12, in which the signalling information forwarded in step (c) is unmodified by the interface
25 device (1).

15. A method according to any of claims 12 to 14, in which step (b) comprises the steps of placing the second communications network (3) in a condition to receive dialling information and then providing an audio
30 link between the first and second communications network.

16. A method according to any of claims 12 to 15, in which the method includes the step (d) of monitoring the status of the call conducted over the first communications network (2) and, when the end of the call is detected, closing the connection to the second communications
5 network (3).

17. A communications system comprising a first handset (6) adapted to communicate with an interface device (1) over a first communications network (2), the interface device (1) comprising a first call handling
10 element (4) adapted to handle a call received from the first handset (6) over the first communication network (2), a control element (8) and a second call handling element (7) adapted to be connected to a second communication network (3) different to the first communication network (2), the control element (8) adapted to provide the first
15 handset (6) with access to the second communications network (3), via the interface device (1) such that the first handset (6) can pass signalling information to the second communications network to initiate a call between the interface device (1) and a destination handset (15, 16) over the second communication network (3).

20

18. A communications system according to claim 17, in which the signalling information comprises DTMF tones generated by the first handset (6).

25 19. A communications system according to claim 17, in which the control element (8) is adapted to provide a connection between the incoming audible signal line (10) from the first communications network and the outgoing audible signal line (11) of the second communications network as well as a connection between the incoming audible signal
30 line (12) from the second communication network and the outgoing audible signal line (13) of the first communications network.

20. A communications system according to claim 17, in which the interface device (1) is adapted to forward the dial tone of the second communications network (3) to the first handset (6) when the call between
5 the first handset (6) and the interface device (1) is established.

21. A communications system according to any of claims 17 to 20, in which the first handset (6) is adapted to receive a destination telephone number, establish a call between the first handset (6) and the interface
10 device (1), detect the dial tone of the second communications network (3) and provide signalling information comprising the destination telephone number to the second communication network over the call established between the first handset (6) and the interface device (1).

15 22. A method of establishing a call over a communications system, the communications system comprising a first handset (6) adapted to communicate over a first communications network (2), and an interface device (1) having means to communicate over the first communications network and a second, different communications network, the method
20 comprising the steps of;

a) receiving a destination telephone number by the first handset;
b) initiating a first call to the interface device (1);
c) answering the first call by the interface device (1);
d) sending signalling information representative of the destination
25 telephone number from the first handset (6) to initiate a call on the second communication network (3).

23. A method according to claim 22, in which steps (a), (b) and (d) are performed by a software tool loaded onto a mobile telephone (6), which
30 comprises the first handset.

24. A method according to claim 23, in which the method includes the step of receiving the destination number from a phone book database of the mobile telephone.

5 25. A method according to claim 23 or claim 24, in which the tool performs the step of looking up the destination number in a database of number types, selecting a number type and referencing the number type against a database of call tariffs for at least the first communication network and the second communication network and selecting which
10 network upon which to place the call.

26. A method according to claim 22, in which the method includes the step of verifying the identity of a user of the first handset (6).

15 27. A method according to any of claims 22 to 26, in which the first handset (6) is adapted to perform the following step before step (d);
listening for the dial tone of the second communication network (3), received via the interface device (1).

20 28. A method according to any of claims 22 to 27, in which the interface device (1) provides an audio link between the first communication network and the second communication network and step (d) is performed over the audio link.

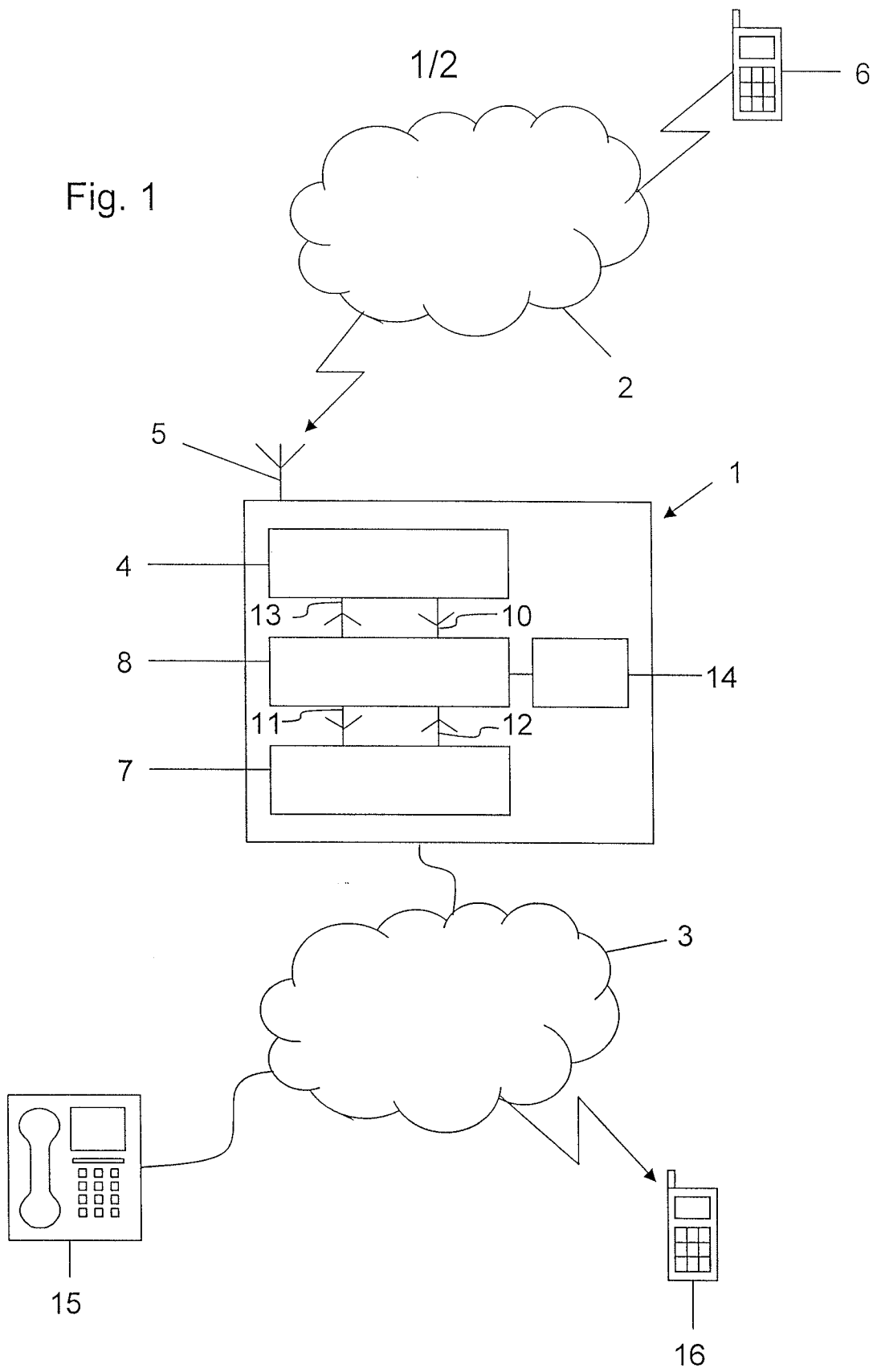
25 29. A communications network interface device comprising
a first call handling element (4) adapted to be connected to a first communications network (2);
a second call handling element (7) adapted to be connected to a
second communications network (3) which is different to the first
30 communications network (2);

a control element (8) adapted to initiate a call using the first call handling element to a predetermined telephone number on receipt of a call by the second call handling element; and

5 then being adapted to provide an audio link between the first and second call handling elements.

30. A communications network interface device according to claim 29, in which the control element (8) is adapted to provide the audio link after the initiated call has been answered.

Fig. 1



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Fig. 2

