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Title of invention:
Communication method and related device

Applicant:
Huawei Technologies Co., Ltd.

Headword:
Hole-punching packet/HUAWEI

Relevant legal provisions:
EPC Art. 83, 84

Keyword:
Sufficiency of disclosure - all requests (no)
Clarity - all requests (no)

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Case Number: T 0509/25 - 3.5.05

D E C I S I O N
of Technical Board of Appeal 3.5.05
of 29 January 2026

Appellant: (Applicant)	Huawei Technologies Co., Ltd. Huawei Administration Building, Bantian, Longgang District, Shenzhen, Guangdong 518129 (CN)
Representative:	Gill Jennings & Every LLP The Broadgate Tower 20 Primrose Street London EC2A 2ES (GB)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 20 December 2024 refusing European patent application No. 20830956.7 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chair	K. Bengi-Akyürek
Members:	P. Tabery
	J. Hoppe

Summary of Facts and Submissions

I. The appeal lies from the decision of the examining division to refuse the present application.

The examining division found that the claimed subject-matter, according to all claim requests, extended beyond the content of the application as filed (Article 123(2) EPC), was insufficiently disclosed (Article 83 EPC) and lacked clarity (Article 84 EPC).

II. With its statement of grounds of appeal, the appellant requested that the decision under appeal be set aside and that the present application be granted based on the **main request** or, as an auxiliary measure, based on one of **auxiliary requests 1 to 3**, all filed with the statement of grounds of appeal, or that the case be remitted to the examining division if the board was minded to refuse the application for lack of novelty or inventive step.

III. In a communication under Article 15(1) RPBA, the board gave its preliminary opinion on the appeal according to which the appeal was likely to be dismissed.

IV. The appellant replied to the board's preliminary opinion by providing counter-arguments. It then indicated that it will not be attending the scheduled oral proceedings and withdrew its request for oral proceedings.

V. The scheduled oral proceedings were then cancelled.

VI. Claim 1 of the **main request** reads as follows (board's labelling):

"A communication method, comprising:

(a) listening (106), by a symmetric device, on N local public ports of the symmetric device, wherein N is a natural number greater than 1; and

(b) when the symmetric device receives a hole punching packet from the N local public ports,

(c) sending (107), by the symmetric device, a response packet to a cone device based on the hole punching packet, so that the symmetric device establishes a communication connection to the cone device, wherein the hole punching packet is sent by the cone device, and the response packet carries a first network information mapping relationship,

(d) wherein the symmetric device is a terminal device that uses an Internet service through a base station,

(e) wherein the cone device is a terminal device that uses an Internet service through a wireless access point;

wherein before the listening, by a symmetric device, on N local public ports, the method further comprises:

(f) sending (103), by the symmetric device, a first connection establishment request packet to a signalling server, wherein the first connection establishment request packet carries first network information,

(g) wherein the signalling server sends a second network information mapping relationship to the cone device based on the first network information;

wherein before the sending, by the symmetric device, a first connection establishment request packet to a signalling server, the method further comprises:

(h) sending (101), by the symmetric device, a first registration packet to the signalling server, wherein the first registration packet carries the second network information mapping relationship, and the second network information mapping relationship comprises second network information;

wherein:

(i) the first network information mapping relationship comprises a first public IP address of the symmetric device and a first public port number of the symmetric device;

(j) the second network information mapping relationship comprises a second public IP address of the symmetric device and a second public port number of the symmetric device;

(k) the first network information comprises a user identity ID of a user of the cone device, a media access control, MAC, address of the cone device, or a user name of the user of the cone device; and

(l) the second network information comprises a user identity ID of a user of the symmetric device, a media access control, MAC, address of the symmetric device, or a user name of the user of the symmetric device."

Claim 1 of **auxiliary request 1** differs from claim 1 of the main request in that it further specifies that, in step 107 (feature c)), the "*response packet [is sent] directly to a cone device [...] so that the symmetric device establishes a direct communication connection to the cone device*" (appellant's emphases). Moreover, the following features were added to claim 1 (board's labelling):

(m) "the symmetric device is a terminal device that uses an Internet service through a base station; wherein

(n) the cone device is [a] terminal device that uses an Internet service through a wireless access point."

Claim 1 of **auxiliary request 2** differs from claim 1 of auxiliary request 1 in that it recites, in feature c), a "cone NAT device" and a "symmetric NAT device" instead of referring to a "cone device" and a "symmetric device" (appellant's emphases).

Claim 1 of **auxiliary request 3** differs from claim 1 of auxiliary request 2 in that, at some places, recites a "cone device" and a "symmetric device" instead of referring to a "cone NAT device" and a "symmetric NAT device", thereby reverting some of the amendments presented with auxiliary request 2.

Reasons for the Decision

1. The present application concerns a solution to the problem of NAT (network address translation) traversal using a hole-punching packet.

2. Main request

2.1 Clarity (Article 84 EPC)

2.1.1 The board holds that the terms "**symmetric device**" and "**cone device**" used throughout the present claims do not possess a fixed, well-established meaning in the relevant art and their technical meaning is not self-evident.

2.1.2 The appellant argued that it was clear from claim 1 that the "symmetric device" was merely a terminal device that used an Internet service through a *base station*, and that the "cone device" was simply a terminal device that used an Internet service through a *wireless access point*.

2.1.3 The board disagrees. To the skilled reader in the field of data communications, the terms "symmetric device" and "cone device" appear to be descriptive, i.e. they appear to imply further limitations beyond those defined in features (d) and (e) respectively. As these potential further limitations are not self-evident to the skilled reader, an explanation about the further limitations implied by the terms "symmetric" and "cone" would have been expected. However, claim 1 neither specifies what is "symmetric" about the "symmetric device" nor what kind of "cone" the "cone device" might possess. For the sake of argument, the board observes that also the description does not specify these apparent implicit limitations.

2.1.4 The board notes that the present description discloses, in an embodiment, that the "symmetric device" is behind a "symmetric NAT" (see page 10, lines 23-25: "*Because the mobile network is mainly the symmetric NAT, a terminal device that uses an Internet service through the base station may be referred to as a symmetric device.*"). That the "symmetric device" is behind a "symmetric NAT", is however not claimed. Rather, claim 1 explicitly refers to a "symmetric device" having public ports, i.e. not using any NAT.

2.1.5 In consequence, the terms "symmetric device" and "cone device" render the present claims unclear.

2.1.6 Moreover, in **feature (c)** of claim 1, the wording "*wherein the hole punching packet is sent by the cone device*" raises doubts as to whether an actual step of sending the "hole punching packet" is limiting the subject-matter of claim 1.

2.1.7 For these reasons, claim 1 lacks clarity (Article 84 EPC).

2.2 Insufficiency of disclosure (Article 83 EPC)

2.2.1 The description as filed defines the "symmetric device" at page 10, lines 23-25, as follows:

> "Because the mobile network is mainly the symmetric NAT, a terminal device that uses an Internet service through the base station may be referred to as a symmetric device."

The "symmetric NAT" is further specified in the original description at page 10, lines 6-13.

2.2.2 Yet, the description as filed provides at page 12, lines 4-6, another - albeit implicit - explanation of the term "symmetric device":

> "[...] the second network information mapping relationship includes a **public IP address** 202.20.65.4 **of the symmetric device** and a public port number 4097 of the symmetric device." (board's emphasis).

According to this other definition, the "symmetric device" possesses a "public IP address". Since this in turn implies that no NAT for using Internet services is

needed, this second definition however contradicts the first one.

2.2.3 In view of this manifest contradiction, the present description fails to provide a coherent teaching such that the skilled person could implement what is defined in claim 1 over its whole scope without undue burden. Evidently, in the case of the "symmetric device" possessing a public IP address, even devices located behind a NAT may contact the "symmetric device" directly. In that case, a "hole punching packet" is of no use. However, the "symmetric device" having "public ports" in combination with the use of a "hole punching packet" is claimed in features (a) and (b) of claim 1. The board notes that, when implementing an invention as claimed, the skilled person would not ignore features of a claim at will.

2.2.4 The board does not subscribe to the appellant's argument that, for the claimed method to work as intended, "*[t]here is no need for a NAT gateway to be present*". Rather, the term "hole punching packet" of feature (b) already implies the use of a NAT gateway, because this is where the so-called "holes" are actually punched in. The board understands that these "holes" are not relating to actual holes, but to particular mappings of public and private IP/port pairs for a double NAT traversal.

2.2.5 The board is also not convinced by the appellant's argument, provided in reply to the above objections, that there would be "no contradiction". This argument is insufficiently reasoned, since it fails to explain *why* the specific passages of the description cited by the board could be interpreted in a way that is not contradictory.

2.2.6 For these reasons, the present application fails to sufficiently disclose the invention as defined in claim 1 such that it may be carried out by a skilled person.

2.3 In view of the above, the main request is not allowable under Articles 83 and 84 EPC.

3. Auxiliary request 1

3.1 The objections raised in points 2.1 and 2.2 above with respect to clarity (Article 84 EPC) and insufficiency of disclosure (Article 83 EPC) also apply to **auxiliary request 1**.

3.2 In consequence, auxiliary request 1 is not allowable (at least) under Articles 83 and 84 EPC, either.

4. Auxiliary requests 2 and 3

4.1 **Auxiliary request 2** was filed for the first time with the statement of grounds of appeal. **Auxiliary request 3** is identical to auxiliary request 2 considered in the decision under appeal.

4.2 The amendments according to auxiliary requests 2 and 3 do not affect the board's conclusion as to clarity and insufficiency of disclosure set out in point 2.1 and 2.2 above. Notably, the actual limitations implied by the terms "symmetric device" and "cone device" are not clarified by the new terminology "symmetric NAT device" and "cone NAT device".

4.3 In that regard, the appellant did not argue otherwise and merely referred to the arguments set out for the main request.

4.4 In consequence, irrespective of admittance considerations, auxiliary requests 2 and 3 are not allowable under Articles 83 and 84 EPC for the same reasons as set out for the main request.

5. With no allowable claim request on file, the appeal must be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chair:

B. Brückner K. Bengi-Akyürek

Decision electronically authenticated