The examination is being carried out on the **following application documents**

Description, Pages

3-70	filed in electronic form on	27-06-2019
1, 2, 2a, 71	filed in electronic form on	05-05-2020

Claims, Numbers

1-23	filed in electronic form on	05-07-2021

Drawings, Sheets

1/10-10/10	filed in electronic form on	27-06-2019

1 The following document D1 is referred to in this communication; the numbering will be adhered to in the rest of the procedure:

D1 EP 2 595 344 A2 (HUAWEI TECH CO LTD [CN]) 22 May 2013 (2013-05-22)

2 While the Applicant's observations submitted with the amended claims (letter of 05-07-2021) have been carefully considered, the Examining Division is of the opinion, that the subject-matter of **the independent claims 1, 8, 12, 19 and 23** still does not fulfill the requirements of Article 84 EPC and does not fulfill the requirements of Articles 52(1) and 56 EPC.

It is maintained, that the subject-matter of **claims 1, 8, 12 and 19** is so unclear, that a meaningful and efficient assessment of inventive step appears only be possible after these claims are rendered clear by the Applicant through further amendments.

The details of all the objections can be found in the following under items 3 to 5 of this communication:

3 The application does not meet the requirements of Article 84 EPC, because **claims 1, 8, 12 and 19** are still not clear.

3.1 The expressions "fault tracing detection" and "initiating fault detection" used in **independent claims 1, 8, 12 and 19** leave the reader in doubt as to the meaning of the technical features to which they refer (it is not clear which faults are exactly to be detected resp. traced and how such a fault detection is actually achieved only by obtaining just one ID of an SF node?; why is such a request packet sent?; **claim 1** only defines an ID of the SF node, but what about the other nodes on the path?), thereby rendering the definition of the subject-matter of said claims unclear (Article 84 EPC and Guidelines F-IV-4.1 and F-IV-4.3).

It is not clear for the person skilled in the art, that by the method steps defined in claim 1 (even though an order of service function nodes is now defined) a fault in a planned processing order of the service function nodes shall and actually can be determined.

It appears, that in best case it can only be determined, whether "the ID of the SF node" obtained in the "fault tracing detection response packet" is included in the intended "order of the plurality of service function nodes of the service chain" or not. Apparently, no other faults may be detected. Hence, it appears, that there are essential features missing to define this specific scenario. Furthermore it is entirely unclear, what the feature "determining, by the SFE, to communicate with a service function, SF, node" contributes to this "fault tracing/ detection" (see point 3.2 of this communication).

Therefore **claims 1, 8, 12 and 19** do not meet the requirements of Article 84 EPC in that the matter for which protection is sought is not defined. The claims attempt to define the subject-matter in terms of the result to be achieved.

3.2 Moreover, the features "determining, by the SFE, to communicate with a service function, SF, node" and "obtaining, by the SFE, an ID of the SF node" used in **independent claims 1 and 12** are vague and leave the reader in doubt as to the meaning of the technical features to which they refer (it is vague and unclear, whether the SFE and SF node are actually communicating, how they are communicating and what is the purpose resp. outcome of that communication; in addition it is not clear, from where the SFE obtains the ID of the SF), thereby rendering the definition of the subject-matter of said claims unclear (Article 84 EPC and Guidelines F-IV-4.1 and F-IV-4.3).

3.3 **Claims 8 and 19** do not meet the requirements of Article 84 EPC in that the matter for which protection is sought is not defined. The claims attempt to define the subject-matter in terms of the result to be achieved. Such a definition is only allowable under the conditions elaborated in the Guidelines F-IV, 4.10. In this

instance, however, such a formulation is not allowable because it appears possible to define the subject-matter in more concrete terms, viz. in terms of how the effect is to be achieved.

Claims 8 and 19 define "determining, by the device for initiating fault detection, that forwarding between the SFE and the SF node is normal based on the received ID of the SF node", without specifying how is actually achieved only by obtaining just one ID of an SF node?

It appears, that in best case it can only be determined, whether "the ID of the SF node" obtained in the "fault tracing detection response packet" is included in the intended "order of the plurality of service function nodes of the service chain" or not. Apparently, no other faults may be detected and "normal" operation only with respect to the "order of service function nodes" may be determined. Hence, it appears, that there are essential features missing to define this specific scenario. In this context it is also pointed out, that **independent claims 8 and 19** (in contrast to independent claims 1 and 12) do not refer to any "communication between the SFE and the SF node", which appears as essential to the definition of the invention.

4 The present application does not meet the requirements of Article 52(1) EPC, because the subject-matter of **the independent claims 1, 8, 12, 19 and 23**, as far as they can be understood, does not involve an inventive step in the sense of Article 56 EPC.

4.1 Document D1 (see in particular: paragraphs 1-11, 65-88, 103; claims 6-10; Figure 3), which is considered to represent the most relevant state of the art with respect to the subject-matter of **claim 1**, discloses **(the references in parentheses applying to this document)**:

A service chain fault detection method **('fault detection method': paragraph 7; claims 6-10)**, wherein the service chain comprises a plurality of service function nodes, and a packet passes through according to an order of the plurality of service function nodes, **('an MPLS ring network is an MPLS LSP transport ring network constructed by means of logical structure mapping, where a group of nodes form a closed ring, each node is connected through a bidirectional communication facility to two adjacent nodes, each node in the ring may serve as a ring ingress node or may also serve as a ring egress node, and the transport directions are opposite; each direction includes working and protective ring channels, and provides redundant bandwidth or redundant network devices or both; in this manner, after the**

network becomes invalid or deteriorates, distributed services are able to automatically recover; to be simple, in the MPLS ring network scenario, paths are rings, and services may be transferred clockwise or counterclockwise; that is, two paths are able to protect each other; if a path in one direction is interrupted, the protective path in the opposite direction continues to transfer services to meet the objective that single-point link faults in a ring do not affect services'; "an order of the plurality of service function nodes" is considered, if not directly, at least implicitly given in an 'MPLS ring network' as disclosed in D1: paragraphs 1-11; claims 6-10; Figure 3), wherein the method comprises:

obtaining, by a service forwarding entity, SFE, a first fault tracing detection request packet, and determining, by the SFE, to communicate with a service function, SF, node, wherein the first fault tracing detection request packet comprises a path identifier, ID, and the path ID is used to identify a path of a service chain **('initiate a fault detection request packet; determine a ring LSP FEC corresponding to the fault detection request packet, and encapsulate the ring LSP FEC into the fault detection request packet; the ring LSP FEC specifically includes the ring ingress node address, the ring egress node address and a ring identity'; the 'ring identity' in D1 is understood as a possible "path ID"; 'send the fault detection request packet along to downstream nodes'; a 'downstream node' in D1 is understood as an "SFE"; the aforementioned features of claim 1 are considered to be at least implicitly disclosed in D1: paragraphs 65-88)**;

obtaining, by the SFE, an ID of the SF node; sending, by the SFE, a **first** fault tracing detection response packet to a device for initiating fault detection, wherein the first fault tracing detection response packet comprises the path ID and the ID of the **SF** node **('the control plane queries a downstream information mapping table of the ring LSP FEC to acquire downstream information of LSR2, which includes the address of the downstream node LSR3 and the outgoing label, encapsulates the downstream information of LSR2 into a fault detection reply packet, and returns the fault detection reply packet, Tracert echo reply, to LSR1; the fault detection reply packet includes information of LSR2 and information of LSR3; LSR1 determines, according to the returned information of LSR2 and information of LSR3, that the LSR2 node of the ring LSP has no fault, and determines that the next node of LSR2 is LSR3'; e.g. 'LSR3' in this particular scenario in D1 is understood as a possibility of an "SF"; 'encapsulate the ring LSP FEC into a fault detection reply packet, and send the fault detection reply packet**

after encapsulation to the ring ingress node 31'; the aforementioned features of claim 1 are considered, if not directly, at least implicitly disclosed in D1: paragraphs 65-88, 103).

4.2 The subject matter of **claim 1** differs (only the underlined feature) from the method of D1 in that "after the obtaining, by the SFE, the first fault tracing detection request packet, the method further comprises: sending, by the SFE, a **second** fault tracing detection response packet to the device for initiating fault detection, wherein the second fault tracing detection response packet comprises an ID of the **SFE** and the path ID", which is not explicitly disclosed in D1, however not considered to contribute anything towards an inventive step for the following reason. The proposed solution is considered an obvious, even trivial possibility for the person skilled in the art, which he would choose according to circumstances, namely depending on the requirements of operation and maintenance and/or network design, without exercise of an inventive skill. Moreover, the additional feature also does not result in an additional surprising technical effect.

Therefore the subject-matter of **claim 1** does not involve an inventive step and does not satisfy the criterion set forth in Articles 52(1) and 56 EPC.

4.3 The same objection of lack of inventive step also applies to **independent claims 8, 12, 19 and 23**, which essentially contain or should contain the corresponding combination of features as defined by claim 1.

Claims 8, 12, 19 and 23 are thus also not allowable under Articles 52(1) and 56 EPC for the same reasons set out above with respect to claim 1.

5 It is not at present apparent which part of the application could serve as a basis for a new, allowable claim. Should the Applicant nevertheless regard some particular matter as patentable, an independent claim should be filed taking account of Rule 43(1) EPC. The Applicant should also indicate in the letter of reply the difference of the subject-matter of the new claim vis-à-vis the state of the art and the significance thereof, preferably using the problem-solution approach.

Moreover when filing an amended set of claims, the Applicant is requested to also take the following remarks into account:

5.1 New independent claims should be drafted in the two-part form in accordance with Rule 43(1) EPC.

5.2 When filing amended claims the Applicant should at the same time bring the description into conformity with the amended claims **in particular in compliance with the Guidelines F-IV 4.3(iii), F-IV 4.4 and C-V 1.1.0: in order to meet the requirement of Article 84 EPC, that the claims have to be supported by the description, all embodiments of the description should fall into the scope of the claim set. Other embodiments should either be excised or it should be stated that they do not fall into the scope of the claim set ("... does not fall under the invention"). A mere renaming of such other embodiments, such as for instance "examples" or "aspects" is not sufficient.**

Care should be taken during revision, especially of the introductory portion and any statements of problem or advantage, not to add subject-matter which extends beyond the content of the application as originally filed (Article 123(2) EPC).

Further the attention of the Applicant is drawn to the fact that amended claims may not relate to unsearched subject-matter (Rule 137(4) EPC).

5.3 In order to facilitate the examination of the conformity of the amended application with the requirements of Article 123(2) EPC, the Applicant is requested to clearly identify the amendments carried out, irrespective of whether they concern amendments by addition, replacement or deletion, and **to indicate the passages of the application as filed on which these amendments are based**.