

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ERICSSON INC.
Petitioner,

v.

KONINKLIJKE KPN N.V.
Patent Owner.

Case IPR2024-00237
U.S. Patent 11,259,336

**DECLARATION OF DR. ZYGMUNT J. HAAS,
IN SUPPORT OF PETITION FOR *INTER PARTES* REVIEW
OF U.S. PATENT NO. 11,259,338**

TABLE OF CONTENTS

I.	Introduction	1
II.	Qualifications and Professional Experience	2
III.	Relevant Legal Standards.....	6
IV.	SUMMARY of the '338 Patent.....	8
	A. The '338 Patent.....	8
	B. The '338 Patent's Prosecution History	12
V.	Level of Ordinary Skill in the Art	14
VI.	Claim Construction	15
	A. “intercepting [. . .] a connection setup request”	17
VII.	Summary of the Prior Art.....	19
	A. <i>Summary of Ostrup</i> (EX1004).....	19
	B. Summary of <i>23.401</i> (EX1005).....	21
	C. Summary of <i>Ahmad</i> (EX1006).....	22
VIII.	Ground 1: CLAIMS 1, 8-12, and 14 ARE OBVIOUS OVER <i>Ostrup</i> (EX1004) IN LIGHT OF <i>23.401</i> (EX1005)	25
	A. Motivation to Combine <i>Ostrup</i> with <i>23.401</i>	25
	B. Reasonable Expectation of Success.....	28
	C. Claim 1	29
	1. 1[p] A method for assisting in handling of connection setup requests in a telecommunications network, the method comprising	29
	2. 1[a] intercepting, by a node, a connection setup request from a user equipment (UE) to a control node of a radio	

	access network (RAN) part of the telecommunications network.....	32
3.	1[b] identifying, by the node, from the connection setup request, a service for which the connection setup is requested	36
4.	1[c] determining, by the node, that the identified service is not an emergency service	37
5.	1[d] determining, by the node, whether the connection setup request is to be fulfilled based at least on information comprising available resources in a network access point (NAP) serving the UE that are not reserved for premium services	40
6.	1[e] a determination being a positive determination if, at the NAP serving the UE, there is sufficient unused resource capacity that is not reserved for the connection setup requests for the one or more premium services ...	44
7.	1[f] passing, by the node, the connection setup request for further processing within the telecommunications network only upon positive determination.	45
D.	Claim 8. The method according to claim 1, further comprising providing an indication to the UE of whether the connection setup request was determined to be fulfilled.....	48
E.	Claim 9	51
1.	9[p] A computer program product, stored on a computer-readable non-transitory storage medium, comprising software code portions configured for, when executed in a computer, carrying out a method comprising:	51
2.	9[a] intercepting, by a node, a connection setup request from a user equipment (UE) to a control node of a radio access network (RAN) part of the telecommunications network.....	53

3.	9[b] identifying, by the node, from the connection setup request, a service for which the connection setup is requested	53
4.	9[c] determining, by the node, that the identified service is not an emergency service	53
5.	9[d] determining, by the node, whether the connection setup request is to be fulfilled based at least on information comprising available resources in a network access point (NAP) serving the UE that are not reserved for premium services	53
6.	9[e] a determination being a positive determination if, at the NAP serving the UE, there is sufficient unused resource capacity that is not reserved for the connection setup requests for the one or more premium services; and	53
7.	9[f] passing, by the node, the connection setup request for further processing within the telecommunications network only upon positive determination.	53
F.	Claim 10	54
1.	10[p] A data structure stored in a non-transitory computer-readable storage medium of a node, the data structure comprising at least:	54
2.	10[a] an indication of a resource capacity of a network access point (NAP) reserved for connection setup requests for one or more premium services	56
3.	10[b] an indication of an amount of resources currently used by the NAP for the one or more premium services	57
4.	10[c] an indication of an amount of resources currently used by the NAP for services that do not belong to the one or more premium services	58

5.	10[d] the data structure, used by the node, to determine whether the connection setup requests are to be fulfilled based at least on information comprising available resources in the NAP serving the UE that are not reserved for premium services	59
6.	10[e] a determination being a positive determination if, at the NAP serving the UE, there is sufficient unused resource capacity that is not reserved for the connection setup requests for the one or more premium services ...	60
7.	10[f] passing, by the node, the connection setup request for further processing within the telecommunications network only upon positive determination	60
G.	Claim 11	60
1.	11[p] A node comprising:	60
2.	11[a] a computer readable storage medium having computer readable program code embodied therewith, and.....	61
3.	11[b] a processor coupled to the computer readable storage medium, wherein responsive to executing the computer readable program code, the processor is configured to perform executable operations comprising:	62
4.	11[c] intercepting a connection setup request from a user equipment (UE) to a control node of a radio access network (RAN) part of a telecommunications network	63
5.	11[d] identifying, from the connection setup request, a service for which the connection setup is requested	63
6.	11[e] determining that the identified service is not an emergency service;	64
7.	11[f] determining whether the connection setup request is to be fulfilled based at least on information comprising available resources in the network access point (NAP)	

	serving the UE that are not reserved for premium services,.....	64
8.	11[g] a determination being a positive determination if, at the NAP serving the UE, there is sufficient unused resource capacity that is not reserved for the connection setup requests for the one or more premium services;..	64
9.	11[h] passing the connection setup request for further processing within the telecommunications network only upon positive determination.....	64
H.	Claim 13	64
1.	Claim 13[p] The node according to claim 11, wherein:	64
2.	Claim 13[a] the node is communicatively connected to a computer-readable storage medium storing a data structure comprising at least:	65
3.	Claim 13[b] an indication of a resource capacity of a network access point (NAP) reserved for connection setup requests for one or more premium services;.....	65
4.	Claim 13[c] an indication of an amount of resources currently used by the NAP for the one or more premium services;.....	65
5.	Claim 13[d] an indication of an amount of resources currently used by the NAP for services that do not belong to the one or more premium services;.....	65
6.	Claim 13[e] the information regarding resource use within the NAP serving the UE comprises at least a portion of information stored on the computer-readable storage medium.	66
I.	Claim 14	66
1.	14[p] A system comprising:.....	66
2.	14[a] A node comprising:	67

3. 14[b] a computer readable storage medium having computer readable program code embodied therewith: 68
4. 14[c] a processor coupled to the computer readable storage medium, wherein responsive to executing the computer readable program code, the processor configured to perform executable operations comprising: 68
5. 14[d] intercepting a connection setup request from a user equipment (UE) to a control node of a radio access network (RAN) part of a telecommunications network 68
6. 14[e] identifying, from the connection setup request, a service for which the connection setup is requested 68
7. 14[f] determining that the identified service is not an emergency service 68
8. 14[g] determining whether the connection setup request is to be fulfilled based at least on information comprising available resources in the network access point (NAP) serving the UE that are not reserved for premium services 68
9. 14[h] a determination being a positive determination if, at the NAP serving the UE, there is sufficient unused resource capacity that is not reserved for the connection setup requests for the one or more premium services; and 68
10. 14[i] passing the connection setup request for further processing within the telecommunications network only upon positive determination; and 69
11. 14[j] a computer-readable storage medium storing a data structure comprising at least: 69
12. 14[k] an indication of a resource capacity of a network access point (NAP) reserved for connection setup requests for one or more premium services; 69

13.	14[l] an indication of an amount of resources currently used by the NAP for the one or more premium services; and.....	69
14.	14[m] an indication of an amount of resources currently used by the NAP for services that do not belong to the one or more premium services.	69
IX.	Ground 2: CLAIMS 2-7 and 13 ARE OBVIOUS OVER <i>Ostrup</i> (EX1004) IN LIGHT OF 23.401 (EX1005) and <i>AHMAD</i> (ex1006)	69
J.	Motivation to Combine <i>Ostrup</i> with 23.401 and <i>Ahmad</i>	69
K.	Reasonable Expectation of Success.....	72
L.	Claim 2. The method according to claim 1, wherein the determination of whether the connection setup request is to be fulfilled is further based on one or more agreements with one or more service providers regarding resource capacity in an access network part of the telecommunications network	74
M.	Claim 3. The method according to claim 2, wherein the one or more agreements comprise reservation, at the NAP serving the UE, of a predefined resource capacity for connection setup requests for one or more premium services.	78
N.	Claim 4. The method according to claim 3, wherein the predefined resource capacity is set as a percentage of the total resource capacity of the NAP.....	79
O.	Claim 5. The method according to claim 3, wherein the predefined resource capacity is set as a predefined amount of the total resource capacity of the NAP, the predefined amount being less than the total resource capacity of the NAP.	82
P.	Claim 6. The method according to claim 3, wherein the predefined resource capacity is dynamically adjusted.	84
Q.	Claim 7	86
1.	7[a] The method according to claim 3, further comprising: determining that the identified service is not one of the one or more premium services.....	86

-
2. 7[b] optionally, determining that the identified service is not one of one or more additional premium services.... 87

X. Conclusion.....89

EXHIBIT LIST^{1,2}

Exhibit No.	Description
1001	U.S. Patent No. 11,259,338 to Strijkers et al. (“the ’338 Patent”)
1002	Prosecution File History for the ’338 Patent
1003	Curriculum Vitae of Dr. Zygmunt Haas
1004	International Pub. No. WO 2012/150882 to <i>Ostrup</i> et al. (“ <i>Ostrup</i> ”)
1005	3GPP TS 23.401 v.12.6.0 (“23.401”)
1006	U.S. Patent Pub. No. US 2013/0303114 to Ahmad et al. (“ <i>Ahmad</i> ”)
1007	Oxford American Dictionary, 2010.

¹ The Exhibit List was provided by counsel.

² Citations to patents are made by column and line cites, citations to patent publications are made by paragraph number, and citations to other exhibits are made to the page number of the document itself.

I, Zygmunt J. Haas, do hereby declare as follows:

I. INTRODUCTION

1. I am making this declaration at the request of Petitioner Ericsson, Inc. in the *Inter Partes* Review of U.S. Patent No. 11,259,338 (“the ’338 Patent”).

2. I am being compensated for my work in this matter at my current standard hourly rate. I am also being reimbursed for reasonable and customary expenses associated with my work and testimony in this investigation. My compensation is not contingent on the outcome of this matter or on the specifics of my testimony.

3. I have been asked to provide my opinions regarding whether claims 1-14 (“the Challenged Claims”) of the ’338 Patent are patentable as they would or would not have been obvious to a person having ordinary skill in the art (“POSITA”) at the time of the invention, in light of the prior art. My conclusion and opinion of my work on this project is that the challenged claims would have been obvious to a POSITA.

4. In forming the opinions expressed below in preparation of this declaration, I have considered:

- the documents listed in the Exhibit List above and Appendices;

- the relevant legal standards, including the standard for obviousness, and any additional authoritative documents as cited in the body of this declaration, all as provided to me by counsel; and
- my own knowledge and experience based upon my work in the field of networking as described below.

5. Unless otherwise noted, all emphasis in any quoted material has been added.

II. QUALIFICATIONS AND PROFESSIONAL EXPERIENCE

6. My complete qualifications and professional experience are described in my *Curriculum Vitae*, a copy of which I was told by counsel is attached as Exhibit 1003. The following is a brief summary of my relevant qualifications and professional experience.

7. I am a Professor and Distinguished Chair in Computer Science at the University of Texas in Dallas. I am also Professor Emeritus at the School of Electrical and Computer Engineering at Cornell University. In addition, I have provided technical consulting services on intellectual property matters, during which I have written expert reports and provided deposition and trial testimony involving, among others, wireless communication technologies.

8. My academic credentials include a Bachelor of Science Degree in Electrical Engineering, *summa cum laude*, from Technion (IIT), Israel, in 1979 and

a Master of Science Degree in Electrical Engineering, *summa cum laude*, from Tel Aviv University, Israel, in 1985. I subsequently authored the thesis titled “Packet Switching in Fiber-Optic Networks” as part of earning my Ph.D. in Electrical Engineering from Stanford University in 1988.

9. I have worked or consulted for about 35 years in the fields of Electrical Engineering and Computer Science. My primary focus has been on communication and networking systems, with an emphasis (among others) on wireless communication networks. I have authored and co-authored numerous technical papers and book chapters related to wireless communication networks. I hold over twenty patents in the fields of high-speed networking, wireless networks, and optical communication/switching. My employment history following my graduation from Stanford University began at the Network Research Department of AT&T Bell Laboratories in 1988. At AT&T Bell Laboratories, I pursued research on wireless communications, mobility management, fast protocols, optical networks, and optical switching. During my tenure at AT&T, I also worked for the AT&T Wireless Center of Excellence, where I investigated various aspects of wireless and mobile networks.

10. In 1995, I joined the faculty of the School of Electrical & Computer Engineering at Cornell University, and with time I was promoted to Full Tenured Professor. At Cornell, I headed the Wireless Networks Lab, which has been a research group with extensive contributions in the area of wireless communication

systems and networks. In 2013, I retired from Cornell with the title of Emeritus Professor, and I joined the Computer Science Department at the University of Texas at Dallas with the title of Professor and Distinguished Chair in Computer Science. At Cornell University and at the University of Texas, I have taught dozens of courses related to computer networking and wireless communications. I have also served on various committees for the benefit of the scientific community.

11. I am a member of a number of professional societies, including the Institute of Electrical and Electronic Engineers (IEEE) and the Association for Computing Machinery (ACM). In 2007, I was elevated to an IEEE Fellow, and in 2022, I was elevated to an ACM Fellow, both well-known distinctions. For example, the total number of IEEE Fellows which are selected in any given year does not exceed 0.1% of the total number of voting members of IEEE. Alike, with respect to the ACM Fellow grade, ACM states that “ACM's most prestigious member grade recognizes the top 1% of ACM members for their outstanding accomplishments in computing and information technology and/or outstanding service to ACM and the larger computing community.” *See* <https://awards.acm.org/fellows>.

12. I have delivered numerous tutorials at major IEEE and ACM conferences. I served as editor of several publications including the IEEE Transactions on Networking, the IEEE Transactions on Wireless Communications, the IEEE Communications Magazine, the Springer “Wireless Networks” journal, the

Elsevier “Ad Hoc Networks” journal, the “Journal of High Speed Networks,” and the Wiley “Wireless Communications and Mobile Computing” journal. I was also a guest editor of *IEEE Journal on Selected Areas in Communications* issues on “Gigabit Networks,” “Mobile Computing Networks,” and “Ad-Hoc Networks.” Finally, I served as the Chair of the IEEE Technical Committee on Personal Communications (TCPC), today known as Wireless Communications Technical Committee (WTC).

13. I have received multiple awards in the field of wireless communications and networks. In 2016, I received the IEEE ComSoc AHSN Recognition Award “for outstanding contributions to securing ad hoc and sensor networks”. In 2012, I received the IEEE ComSoc WTC Recognition Award, which recognizes individuals “for outstanding technical contributions in the field for their service to the scientific and engineering communities.” In 2021, I received the “Best Paper Award” for co-authoring the paper “Engineering a Network in the Sky” from the 35th International Conference on Information Networking, (ICOIN21). In 2012, I received the “Best Paper Award for co-authoring “Collaborating with Correlation for Energy Efficient WSN” directed at Wireless Sensor Networking. I previously received the “Best Paper Award” for co-authoring “Optimal Resource Allocation for UWB Wireless Ad Hoc Networks” directed at personal indoor and mobile radio communications. Finally, in 2003, I received the “Highly Commended Paper Award” for co-authoring

“Performance Evaluation of the Modified IEEE 802.11 MAC for Multi-Channel Multi-Hop Ad Hoc Network,” directed at advanced information networking and applications.

14. Additional information regarding my education, technical experience and publications, including a list of the U.S. patents of which I am an inventor/co-inventor, is included in my *Curriculum Vitae*.

III. RELEVANT LEGAL STANDARDS

15. I am not an attorney, I do not opine on matters of law, and I do not provide any legal opinions in this Declaration. In preparing and expressing my opinions and in considering the subject matter of the '338 Patent, I am relying on certain basic legal principles that counsel has explained to me. These principles are discussed below.

16. I have been informed by counsel that prior art to the '338 Patent includes patents and printed publications in the relevant art that predate the priority date of the alleged invention recited in the '338 Patent.

17. I have been informed by counsel that a patent claim is unpatentable under 35 U.S.C. § 102 if it is anticipated by prior art. I have been informed by counsel that anticipation requires a finding that a single prior art reference discloses each limitation of a claim as the limitations are arranged in the claim. I have been informed by counsel that a prior art reference's disclosures may be express or

inherent. I have been informed by counsel that a limitation is inherently disclosed by a prior art reference if the reference necessarily includes the limitation in question.

18. I have been informed by counsel that a claimed invention is unpatentable under 35 U.S.C. § 103 if the differences between the invention and the prior art are such that the subject matter as a whole would have been obvious at the time the claimed invention was made to a person having ordinary skill in the art to which the subject matter pertains. I have also been informed by counsel that the obviousness analysis takes into account factual inquiries including the level of ordinary skill in the art, the scope and the content of the prior art, and the differences between the prior art and the claimed subject matter. I have been informed by counsel that it is impermissible, within the framework of determining whether a claim is obvious, to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art.

19. I have further been informed by counsel that obviousness concerns whether a POSITA not only could have made but would have been motivated to make the proposed combinations or modifications of prior art to arrive at the claimed invention. I have been informed by counsel that the Supreme Court has recognized several rationales for combining references or modifying a reference to show

obviousness of claimed subject matter. Some of these rationales include the following: (a) combining prior art elements according to known methods to yield predictable results; (b) simple substitution of one known element for another to obtain predictable results; (c) use of a known technique to improve a similar device (method, or product) in the same way; (d) applying a known technique to a known device (method, or product) ready for improvement to yield predictable results; (e) choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success; and (f) some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

IV. SUMMARY OF THE '338 PATENT

A. The '338 Patent

20. The '338 Patent describes methods for handling of connection setup requests in a telecommunications network. EX1001, 1:14-18. The '338 Patent acknowledges that prior solutions exist for determining whether to fulfill a connection setup request requesting establishment of a dedicated connection setup for a particular service in a Long-Term Evolution (LTE) telecommunications network. *Id.*, 1:22-26. The '338 Patent also acknowledges that an existing approach involves a two-step process of first determining whether a subscriber has a right to use the requested service and then determining whether resources are available

within the network to fulfil the request. *Id.*, 1:26-30. The '338 Patent contends that this two-step process “is not necessarily the most efficient approach because it is the radio access network (RAN) part of a telecommunications network, in particular the eNB serving the terminal, that typically presents problems in that the RAN part of the network does not have the resources to fulfil the request, which only becomes apparent in the second step.” *Id.*, 1:39-45.

21. The '338 Patent describes how the “RAN part of a telecommunications network is most prone to congestion.” *Id.*, 2:59-61. The '338 Patent also describes how some of these problems may be reduced or eliminated by intercepting connection setup requests in the RAN so that a determination can be made as to whether the RAN has sufficient resources to handle the request before passing the request on to the core network. *Id.*, 2:19-45. The '338 Patent further describes how part of that determination includes reserving resources exclusively for premium services and determining whether non-premium requests can be fulfilled from non-reserved resources. *Id.* 3:40-51.

22. The '338 Patent issued with 14 claims. The claims include independent claims 1, 9-11, and 14. Claim 1 of the '338 Patent, which is representative, recites:

A method for assisting in handling of connection setup requests in a telecommunications network, the method comprising:

intercepting, by a node, a connection setup request from a user equipment (UE) to a control node of a radio access network (RAN) part of the telecommunications network;

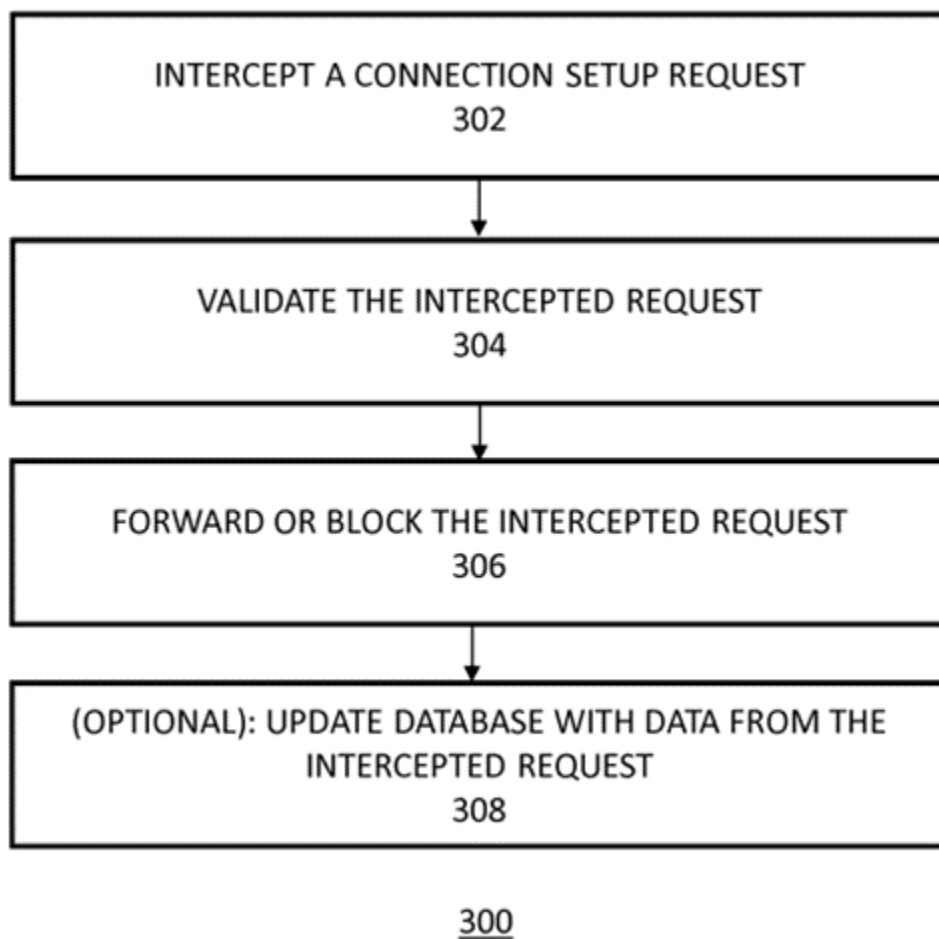
identifying, by the node, from the connection setup request, a service for which the connection setup is requested;

determining, by the node, that the identified service is not an emergency service;

determining, by the node, whether the connection setup request is to be fulfilled based at least on information comprising available resources in a network access point (NAP) serving the UE that are not reserved for premium services, a determination being a positive determination if, at the NAP serving the UE, there is sufficient unused resource capacity that is not reserved for the connection setup requests for the one or more premium services; and

passing, by the node, the connection setup request for further processing within the telecommunications network only upon positive determination.

23. Figure 3 shows an illustrated embodiment of the claimed method, which provides context for the steps recited in claim 1. *Id.*, at Figure 3.



24. At step 302 of Figure 3, “the RAN controller 210 intercepts a connection request from the UE 206, via the NAP serving the UE (i.e., in this example—the eNB 212), to the control node of the RAN part of the telecommunications network (the control node being in this example the MME 214).” *Id.*, 8:63-9:1. “In step 304, the RAN controller 210 analyzes the intercepted request in order to validate it, i.e. to determine whether the request is to be fulfilled.” *Id.*, 9:12-14. Step 304 includes determining whether non-premium services may be fulfilled from among the resources not pre-reserved for premium services. *Id.*, 9:39-

56. “In step 306, if the RAN controller 210 determined in step 304 that the request is to be fulfilled, then the RAN controller 210 passes the request for being processed further in the CN part 204 of the telecommunications network.” *Id.*, 11:37-40. The ’338 Patent recognizes that step 306 “is known in the prior art.” *Id.*, 11:39-40. “[I]n step 308, the RAN controller 210 may, optionally, update the database 218 with the data from the intercepted request.” *Id.*, 11:64-66.

B. The ’338 Patent’s Prosecution History

25. The PCT application that led to the ’338 Patent was filed as a national stage entry in the U.S. on December 17, 2015. EX1002, at 291 (transmittal of application). The Patent Office issued a series of rejections between May 2019 and July 2021, which resulted in a number of amendments to the originally pending claims. *Id.*, 240-243 (May 16, 2019 OA); 231-238 (Oct. 15, 2019 Response to OA); 206-214 (Feb. 6, 2020 Final OA); 186-193 (July 28, 2020 RCE); 170-180 (Aug. 14, 2020 OA); 159-161 (Dec. 14, 2020 Response to OA); 142-153 (March 11, 2021 final OA); 125-135 (June 11, 2021 Response to final OA with AFCP request). After the applicant’s AFCP amendment, the applicant initiated an Examiner interview, after which the Examiner remarked that “it appears the invention is directed to giving preference to ‘premium’ services at a node (eNB).” *Id.*, 122. Nonetheless, the Patent Office issued an Advisory Action on July 7, 2021, indicating that the proposed amendments do not place the application in condition for allowance. *Id.*, 120.

26. Apparently in response to these remarks, Applicant filed a second RCE on July 12, 2021, amending the claims as follows:

A method for assisting in handling of connection setup requests in a telecommunications network, the method comprising:

intercepting, by a node, a connection setup request from a user equipment (UE) to a control node of a radio access network (RAN) part of the telecommunications network;

identifying, by the node, from the connection setup request, a service for which the connection setup is requested;

determining, by the node, that the identified service is not an emergency service;

determining, by the node, whether the connection setup request is to be fulfilled based at least on information **comprising available resources in the network access point (NAP) serving the UE that are not reserved for premium services, a determination being a positive determination if, at the NAP serving the UE, there is sufficient unused resource capacity that is not reserved for the connection setup requests for the one or more premium services regarding resource use within a network access point (NAP) serving the UE**; and

passing, by the node, the connection setup request for further processing within the telecommunications network only upon positive determination.

Id., 99-112 (emphasis in original).

27. After these amendments were filed, the Examiner initiated an interview on July 19, 2021 to discuss the amendments to claims 1, 9, 10, and 11. *Id.*, 90. The Office Action issued a Notice of Allowance on August 13, 2021, which amended claims 1, 9, and 10 to address various formalities and canceled claim 11. *Id.*, 79-89. The Examiner stated in the Notice of Allowance that the “instant invention is

directed towards supporting premium services in a wireless telecommunication network by blocking non-premium traffic and giving preference to premium traffic depending on available capacity.” *Id.*, 87. The Examiner further stated that “[t]he cited prior art discloses access class barring which is used to give priority to a particular class of traffic, however, the instant claims distinguishes.” *Id.* The cited prior art did not include *Ostrup*, which discloses the concepts that the Examiner referenced in the Notice of Allowance. EX1002.

V. LEVEL OF ORDINARY SKILL IN THE ART

28. I have been informed by counsel and I understand that there are multiple factors relevant to determining the level of ordinary skill in the pertinent art, including (1) the levels of education and experience of persons working in the field at the time of the invention; (2) the sophistication of the technology; (3) the types of problems encountered in the field; and (4) the prior art solutions to those problems.

29. A person of ordinary skill in the art (“POSITA”) in the field of the ’338 Patent, as of its earliest possible priority date, which I was instructed by counsel to assume to be December 22, 2014, would have been someone knowledgeable and familiar with the networking arts that are pertinent to the ’338 Patent. It is my opinion that a POSITA would have had a B.S. degree in electrical engineering or similar discipline, with at least two to three years of relevant industry or research

experience, including designing or implementing cellular systems, especially LTE systems. The POSITA would also have had knowledge of the LTE standard, its specifications, and the principles underlying its technical teachings. This definition is approximate. Lack of industry experience may be remedied by additional education, and lack of education may be remedied by additional industry experience. As at the priority date of the '338 Patent, I have had a Ph.D. degree for over 20 years, with numerous years of professional experience, I possessed and exceeded the experience and knowledge of POSITA. Thus, I am qualified to opine on the '338 Patent.

30. For purposes of this Declaration, in general, and unless otherwise noted, my statements and opinions, such as those regarding my experience and the understanding of a POSITA generally (and specifically related to the references I consulted herein) reflect the knowledge that existed in the field as of the priority date of the '338 Patent. Unless otherwise stated, when I provide my understanding and analysis below, it is consistent with the qualifications and knowledge of a POSITA prior to the earliest possible priority date of the '338 Patent of December 22, 2014.

VI. CLAIM CONSTRUCTION

31. I have been informed by counsel that in order to properly evaluate the '338 Patent, the terms of the claims must first be interpreted. I have been informed by counsel that for the purposes of this *inter partes* review, the claims are to be

construed under the so-called *Phillips* standard, under which claim terms are given their ordinary and customary meaning as would have been understood by one of ordinary skill in the art in light of the specification and prosecution history, unless the inventor has set forth a special meaning for a term.

32. Additionally, I have been informed by counsel that claim terms are normally not interpreted in such a way that excludes embodiments disclosed in the specification, except in cases of clear disclaimer in the specification or the prosecution history. I have been further informed by counsel that claim terms only need to be construed to the extent necessary to resolve the obviousness inquiry. Accordingly, in order to construe the claim terms, I have reviewed the entirety of the '338 Patent, as well as its prosecution history.

33. In my opinion, except for the term “intercepting,” all of the claim terms in the '338 Patent should be given their plain and ordinary meaning, as a POSITA would have understood them in light of the specification and the file history of the '338 Patent. Except as otherwise noted, I have applied such a plain and ordinary meaning in my analysis of the claims. I reserve the right to offer additional opinions on claim construction in response to arguments that may be made by Patent Owner.

34. For the purpose of my analysis below, I address the following term: “intercepting [. . .] a connection setup request.”

A. “intercepting [. . .] a connection setup request”

35. A POSITA would have recognized that “intercepting [. . .] a connection setup request” includes “receiving a connection setup request for processing before sending it towards its intended destination,” which is consistent with the ’338 Patent specification and claims’ language. For instance, claims 1 and 9 recite “intercepting, **by a node**³, a connection setup request from a user equipment (UE) **to a control node** of a radio access network (RAN) part of the telecommunications network.” EX1001, at claims 1 and 9. As such, the claimed “node” receives a connection setup request that is intended for a control node. And after “intercepting” the request, the claims require the node to perform several determining steps on the request before “passing . . . the connection setup request **for further processing** within the telecommunications network” if there is a positive determination. EX1001, at claims 1 and 9 (emphasis added). Independent claims 11 and 14 recite “intercepting” in a similar manner. EX1001, at claims 11 and 14.

36. This interpretation of “intercepting” is consistent with the ’338 Patent specification. EX1001. The specification never explicitly defines “intercepting.” *Id.* However, the specification confirms that the node intercepts connection setup requests from UEs that are destined elsewhere. *Id.*, at 2:24-28 (“The method

³ All emphasis is added unless otherwise noted.

includes intercepting a connection setup request from (i.e., sent by) a user equipment (UE) to (i.e., destined for) a control node of a RAN part of the telecommunications network.”). Also, the ’338 Patent describes a RAN controller 210 as intercepting connection setup requests with respect to Figure 2. EX1001, at 8:25-35. While this description does not elaborate on the meaning of “intercepting,” Figure 2 suggests that the RAN controller 210 receives the connection setup request for processing before sending it towards its intended destination. *Id.*, at Figure 2. The specification further states that the RAN controller 210 “may be viewed as a logical entity” and that, while various elements are shown in Figure 2, their functionality “could be implemented in lesser number of individual elements” *Id.*, at 8:25-26, 8:45-48. This suggests that the RAN controller 210’s functionality could be implemented in the eNB, particularly provided that the claim limitation requires intercepting a connection setup request “**from a user equipment (UE)**” and provided that the eNB receives the connection request from the UE. EX001, at claims 1, 9, 11, and 14.

37. In connection with Figure 3, the specification states that “[t]he method 300 may begin with step 302, where the RAN controller 210 **intercepts a connection request from the UE 206, via the NAP serving the UE (i.e., in this example—the eNB 212)**, to the control node of the RAN part of the telecommunications network (the control node being in this example the MME 214).” *Id.*, at 8:63-9:1. Given that the RAN controller 210 may be a logical entity

whose functionality could be implemented in other network elements, as discussed above, and given that the RAN controller 210 intercepts a connection request from the UE **via the eNB** (which receives the request from the UE) from the description of Figure 3, it is consistent to interpret the claimed “intercepting” a connection request as at least including “receiving a connection setup request for processing before sending it towards its intended destination.”

38. This claim construction of the term “intercepting” is also consistent with a dictionary definition of the term “intercepting” at the time of the application that resulted in the ’338 Patent. For instance, the Oxford American Dictionary provides a definition of “interception” as “an act or instance of receiving electronic transmissions before they reach the intended recipient.” EX1007, at 905.

VII. SUMMARY OF THE PRIOR ART

A. *Summary of Ostrup* (EX1004)

39. Similar to the ’338 Patent, *Ostrup* discloses establishing connection requests in a telecommunications network. EX1004, at [00031]-[0034]. *Ostrup* describes a solution for establishing connections for wireless terminals to a base station for privileged sessions in a cell of a cellular network. *Id.*, at [00026]. As soon as it is detected that resources have been seized for a privileged session connection, new resources of the base station are pre-reserved exclusively for privileged sessions to compensate for the seized resources in a dynamic manner. *Id.*, at [00027].

40. *Ostrup*'s process for pre-reserving resources in a base station is shown below in colored annotated Figure 1:

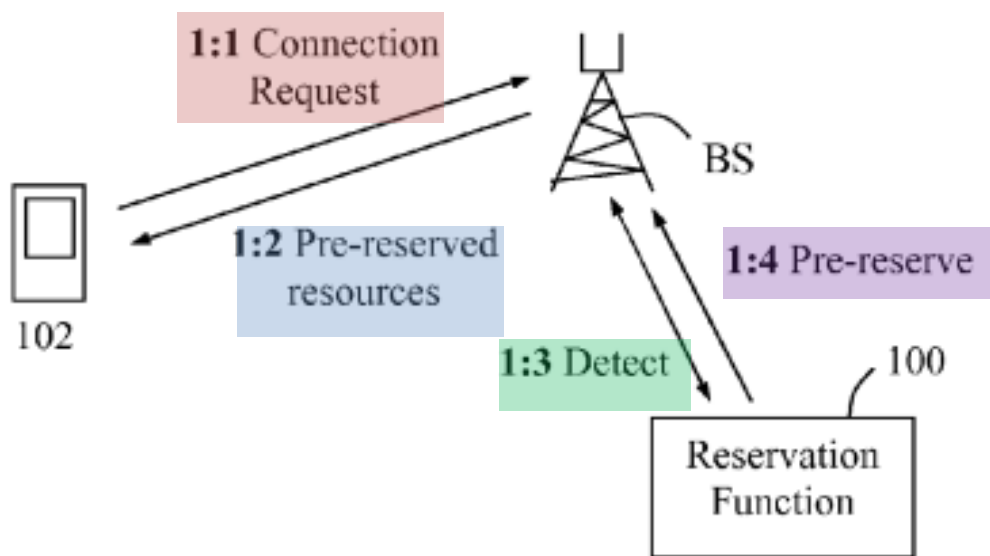


Fig. 1

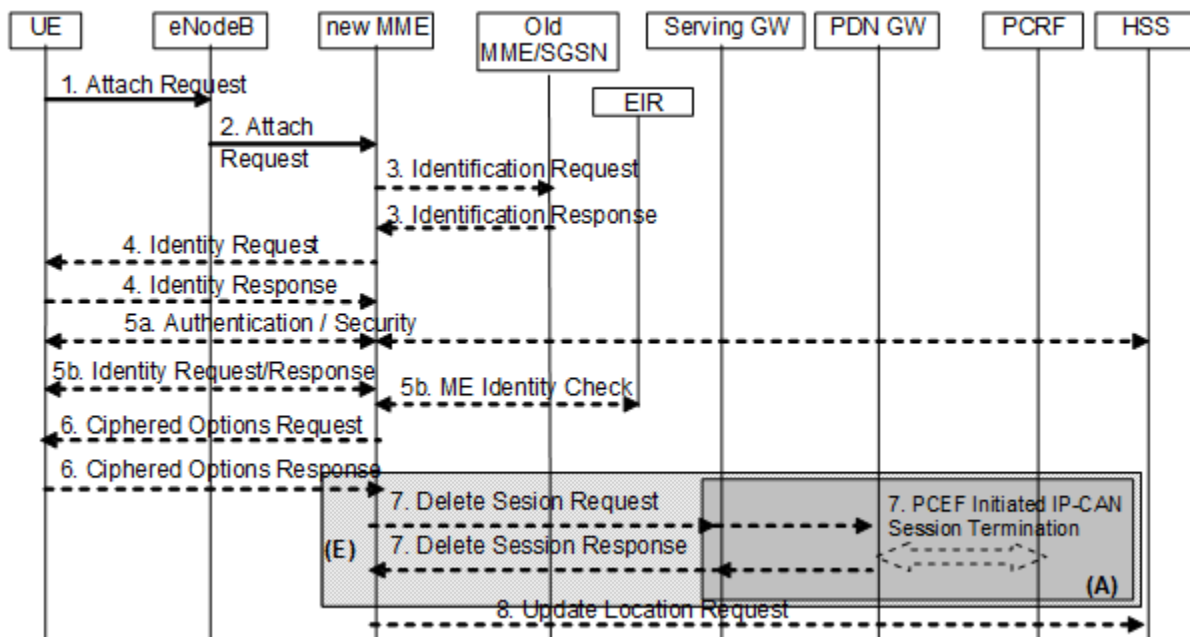
41. As shown in Figure 1 above, *Ostrup* discloses a first action 1.1, where “a wireless terminal 102 makes a connection request for an emergency call, as an example of a privileged session.” *Id.*, [00032]. “In a next action 1:2, the base station BS seizes resources needed for the emergency call from the resources being pre-reserved for privileged sessions, and establishes the connection with the terminal 102 using the seized resources.” *Id.*, [00033] (colored font added). In a further action 1:3, the reservation function 100 detects “that a connection for the emergency call is established for a terminal 102 using the seized pre-reserved resources, i.e. as described for action 1:2 above.” *Id.*, [00034] (colored font added). And in a still

further action 1:4, “the reservation function 100 pre-reserves new resources for the first base station exclusively for privileged sessions in response to the detecting of action 1:3, to compensate for the resources now occupied by the established privileged session connection.” *Id.*, [00036] (colored font added).

B. Summary of 23.401 (EX1005)

42. 23.401 “defines the Stage 2 service description for the Evolved 3GPP Packet Switched Domain - also known as the Evolved Packet System (EPS) in this document.” EX1005, at 11. Section 5.3.2 of 23.401 describes an attach procedure. *Id.*, at 91. The attach procedure may be used when “[a] UE/user needs to register with the network to receive services that require registration.” *Id.*

43. Figure 5.3.2.1-1 (reproduced in part below) illustrates this attach procedure:



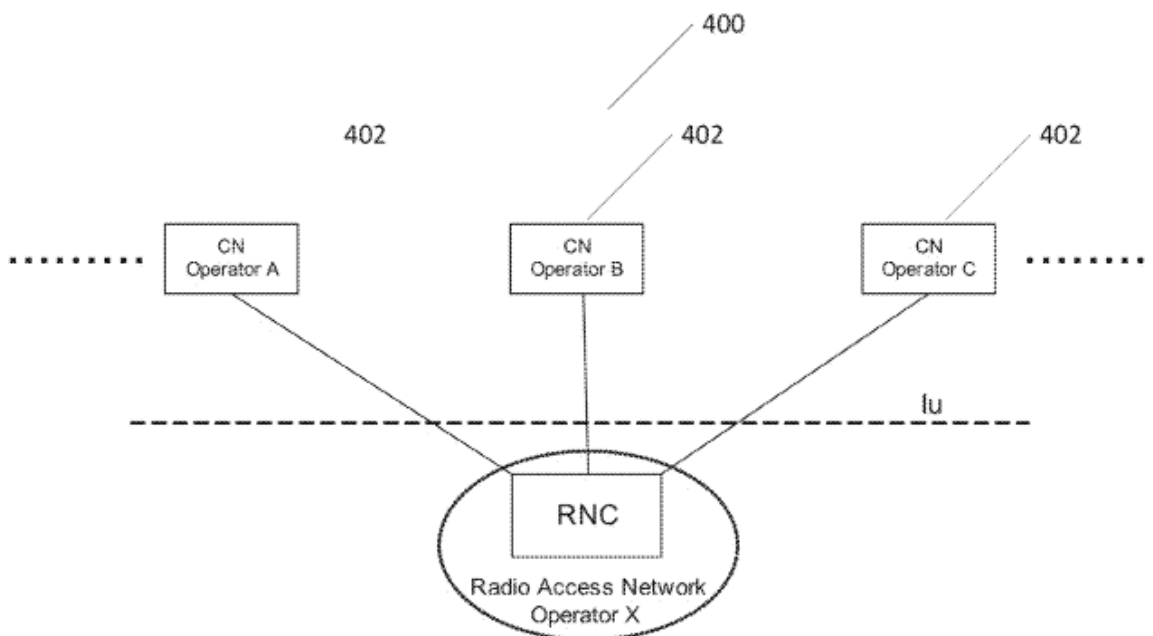
Id., at 93.

44. As shown in step 1 of Figure 5.3.2.1-1, “[t]he UE initiates the Attach procedure by the transmission, to the eNodeB, of an Attach Request [. . .] message together with RRC parameters indicating the Selected Network and the old GUMMEI.” *Id.*, at 94. The old GUMMEI is the old Globally Unique MME Identifier. *Id.*, at 15.

45. In step 2 of Figure 5.3.2.1-1, “[t]he eNodeB derives the new MME from the RRC parameters carrying the old GUMMEI and the indicated Selected Network.” *Id.*, at 94. “The eNodeB forwards the Attach Request message to the new MME contained in a S1-MME control message (Initial UE message) together with the Selected Network, CSG access mode, CSG ID, L-GW address, and TAI+ECGI of the cell from where it received the message to the new MME.” *Id.*, at 94-95.

C. Summary of *Ahmad* (EX1006)

46. *Ahmad* is directed to flexible network sharing. EX1006, at Title. In Figure 4 of *Ahmad*, a diagram is depicted that illustrates an example Multi-Operator Core Network (MOCN) in which multiple Core Network (CN) nodes are connected to a single Radio Network Controller (RNC):



47. EX1006, at Figure 4, [0021], [0094]. *Ahmad* describes how a base station (eNodeB) may replace the RNC in certain embodiments. *Id.*, [0097] (“For E-UTRAN access, FIG. 3 and/or FIG. 4 may apply. However, the MME may replace the SGSN, an eNodeB may replace the RNC, and the S1 reference point may replace the Iu interface.”). *Ahmad* further describes how the resources at the base station may be shared by core network operators. *Id.*, at [0094]: (“The carrier resources in an eNB may be shared by core network operators.”).

48. *Ahmad* explains how an eNodeB hosting operator may allow its resources to be used by other operators. *Id.*, at [0110] (“A network operator may allow its resources to be used by other operators and/or mobile virtual network operators (MVNOs). These resources may be on a carrier level, cell level, eNB level,

and/or Core Network level and are further described herein.”). *Ahmad* further explains how the hosting operator may use network sharing agreements to allocate its resources to the hosted operators. *Id.*, at [0112] (“Static sharing may be a type of network sharing agreement that may take place between a hosting operator and a hosted operator in which the resource allocation may be agreed upon. The hosting operator may provide the agreed-upon resources to the hosted operator.”).

49. *Ahmad* explains that there may be different types of sharing agreements. *Id.*, at [0112]. For example, *Ahmad* describes a type of network sharing agreement based on static sharing. *Id.* As another example, *Ahmad* describes a type of network sharing agreement based on dynamic sharing. *Id.*, at [0113] (“Dynamic sharing may be a type of network sharing agreement in which the allocation of network resources may be changed or switched using manual or automatic OAM procedures between the hosting operator and the hosted operator.”).

50. In addition to allocating eNodeB resources based on network sharing agreements, *Ahmad* describes allocating resource capacity based on priorities. *Id.*, at [0190] (“The requesting operators may be given different priorities, and there may be different operation to distribute the capacity according to the priorities.”).

VIII. GROUND 1: CLAIMS 1, 8-12, AND 14 ARE OBVIOUS OVER *OSTRUP* (EX1004) IN LIGHT OF 23.401 (EX1005)**A. Motivation to Combine *Ostrup* with 23.401**

51. A POSITA would have been motivated to combine *Ostrup* with 23.401, at least because *Ostrup* is intended to be implemented with well-known LTE technology described by 23.401. EX1004, at [00031]. For instance, the POSITA would have been motivated to extend *Ostrup*'s prioritized communication sessions to existing LTE systems, such as the ability to enable access to a cellular network for privileged or prioritized communication sessions, at least because *Ostrup* expressly teaches a POSITA to implement *Ostrup*'s techniques using LTE. *Id.* ("An example of how this solution can be used will now be described with reference to the communication scenario in FIG. 1, where a base station BS provides connections with wireless terminals in a cell, e.g. according to any current communication standard such as the Global System for Mobile communication (GSM), Universal Mobile Telecommunications System (UMTS), Long Term Evolution (LTE), etc.). *Ostrup* also describes the use of an ARP parameter for indicating a privileged session and notes that this parameter is typically used in LTE standards, among others. *Id.*, at [00035] ("The ARP parameter is typically used in Universal Mobile Telecommunications Systems (UMTS) as well as in GSM/EDGE Radio Access Networks (GERAN), Universal Terrestrial Radio Access Networks (UTRAN) and Long Term Evolution (LTE).")

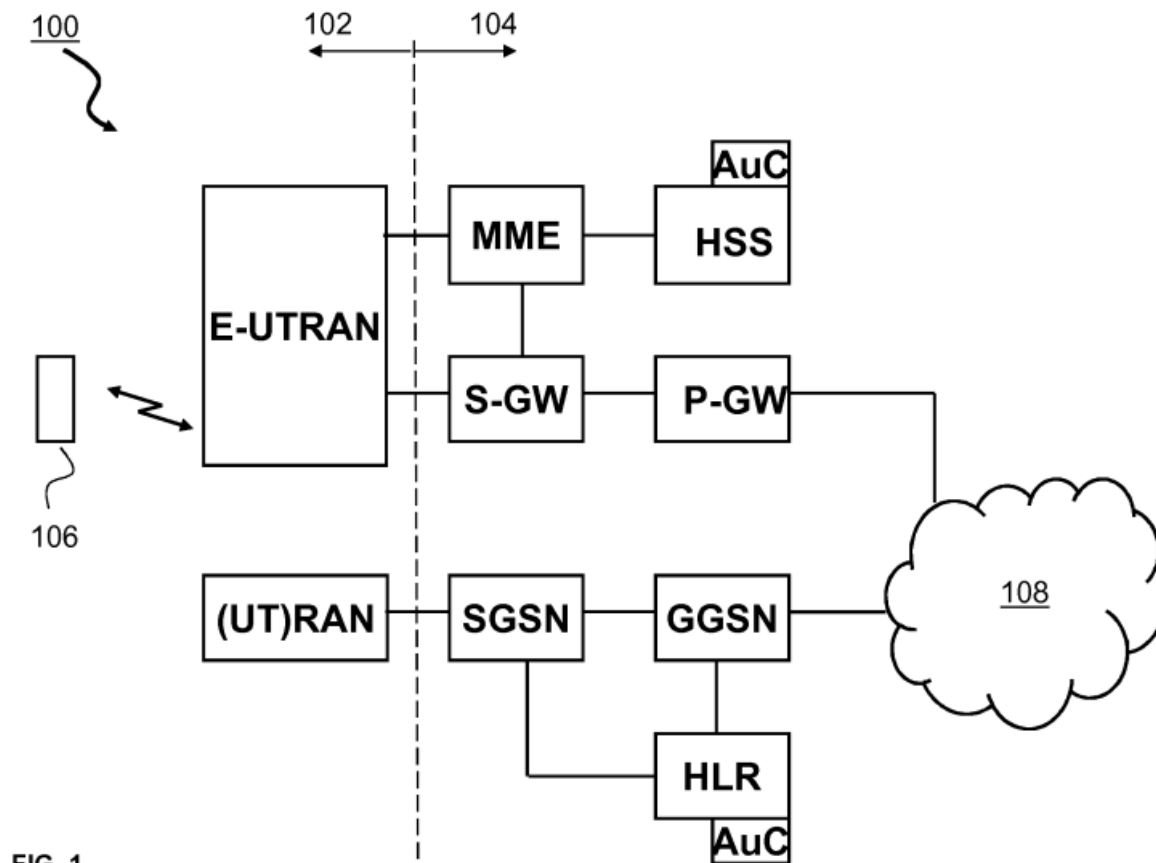
52. A POSITA looking to implement the teachings of *Ostrup* would have needed to use various LTE specifications and references, such as references like 23.401, to implement an LTE-compliant system that utilized *Ostrup*'s teachings. For instance, a POSITA would have looked to 23.401 to understand the technical principles underlying LTE attach procedures. Indeed, a POSITA would have recognized that they must rely upon the teachings and principles of 23.401 to ensure that the combined system would have interoperability among LTE equipment manufactured by various vendors.

53. To implement the actions of *Ostrup*'s Figure 2, a POSITA would have been motivated to follow standard connection establishment procedures as taught by 23.401. For instance, *Ostrup*'s Figure 2 suggests that if the connection request is not privileged, the connection should be established using unreserved resources. EX1004, at [00042]. A POSITA would have looked to 23.401 for direction on how to establish that connection since 23.401 describes the principles underlying the LTE attach procedure, including how “[t]he UE initiates the Attach procedure by the transmission, to the eNodeB, of an Attach Request [. . .] message together with RRC parameters indicating the Selected Network and the old GUMMEI.” EX1005, at 94. 23.401 would have provided the POSITA with the insight on how to utilize the attach procedure in the eNB.

54. The POSITA would also have been motivated to combine *Ostrup* and 23.401 because the Attach Request described in 23.401 is consistent with the connection request described in *Ostrup*. For instance, both *Ostrup*'s connection request and 23.401's Attach Request are used to establish connections in emergency situations. *Ostrup* describes how "a wireless terminal 102 makes a connection request for an emergency call" (EX1004, at [00032]), and 23.401 describes how "[t]he E-UTRAN Initial Attach procedure is used for Emergency Attach by UEs that need to perform emergency services but cannot gain normal services from the network." EX1005, at 91. As another example, *Ostrup*'s connection request and 23.401's Attach Request both describe an association with RRC parameters. *Ostrup* describes how "the connection request may be a Radio Resource Control (RRC) message called 'RRC connection request' or similar, depending on the standard used" (EX1004, at [00032]), and 23.401 describes how "[t]he UE initiates the Attach procedure by the transmission, to the eNodeB, of an Attach Request [. . .] message together with RRC parameters." EX1005, at 94. As such, the Attach Request described in 23.401 is consistent with the connection request described in *Ostrup*.

55. Additionally, the '338 Patent itself shows how the POSITA would have been motivated to look to relevant cellular standards, such as 23.401. The '338 Patent uses several LTE specifications and references to describe and implement an LTE-compliant system that utilizes the '338 Patent's alleged invention. For instance,

the '338 Patent relied on the general architecture of LTE, noting that the upper branch in Figure 1, reproduced below, represents an LTE system:



EX1001, at 7:45-48 and FIG. 1.

56. Moreover, the '338 Patent specifically cites to 23.401 as providing further information of the general architecture of an EPS network. *Id.*, at 7:59-61.

B. Reasonable Expectation of Success

57. A POSITA would have understood that combining *Ostrup* and 23.401 could be accomplished with a reasonable expectation of success at least because LTE

technology, including LTE attach procedures, were well-understood and well-known at the time of the '338 Patent. This understanding and knowledge would have had the predictable result of implementing a wireless telecommunications infrastructure that reserved resources for connection requests.

58. The POSITA would have had a reasonable expectation of success since the combination of references discussed above would have simply involved following the instructions of each reference to allocate resources in an LTE-compliant system. *Ostrup* specifically explains that its techniques are applicable to an LTE system. Thus, it would have taken no more than ordinary skill to successfully create an LTE system according to the attach procedure described in 23.401. EX1004, at [00031], [00035].

C. Claim 1

1. 1[p] A method for assisting in handling of connection setup requests in a telecommunications network, the method comprising

59. I have been informed by counsel that a preamble of a claim may or may not be considered a limitation. To the extent the preamble is limiting, *Ostrup* discloses it. As indicated by its title, *Ostrup* discloses a “[m]ethod and apparatus for enabling privileged access in a cellular network.” EX1004, at Title. *Ostrup* describes its solution as “enabl[ing] establishment of connections for wireless terminals to a base station for privileged sessions in a cell of a cellular network.” *Id.*, at [00026].

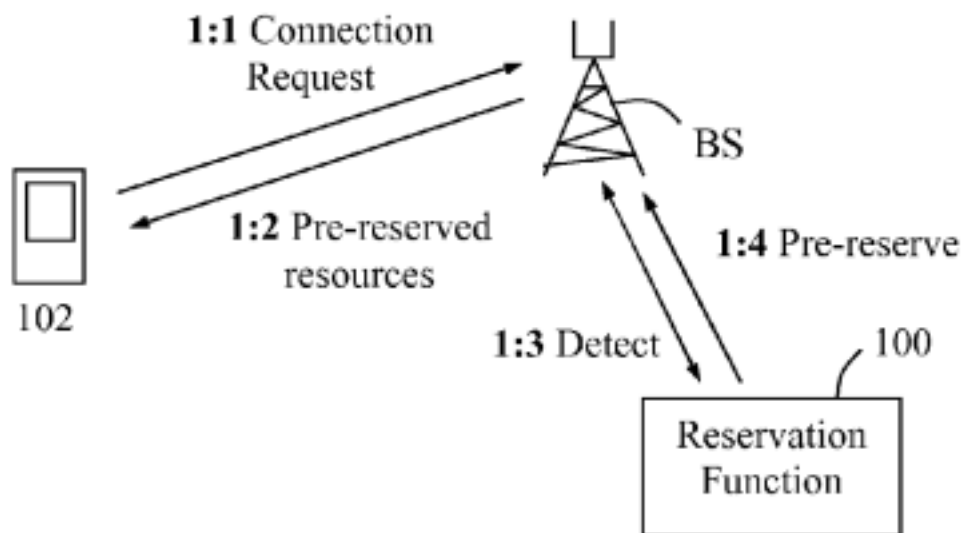


Fig. 1

60. As described with respect to Figure 1 above, “[a] first action 1.1 illustrates that a wireless terminal 102 makes a connection request for an emergency call, as an example of a privileged session.” *Id.*, at [00032]. “In a next action 1:2, the base station BS seizes resources needed for the emergency call from the resources being pre-reserved for privileged sessions, and establishes the connection with the terminal 102 using the seized resources.” *Id.*, at [00033]. The base station illustrated in Figure 1 “provides connections with wireless terminals in a cell, e.g. according to any current communication standard such as the Global System for Mobile communication (GSM), Universal Mobile Telecommunications System (UMTS), Long Term Evolution (LTE), etc.” *Id.*, at [00031]. Accordingly, the base station of *Ostrup* “assists in handling of connection setup requests in a telecommunications network,” as claimed.

61. Additionally, Figure 2 of *Ostrup* discloses “a flow chart illustrating a procedure for handling resources in a base station.” *Id.*, at [00023]. Figure 2 is reproduced below:

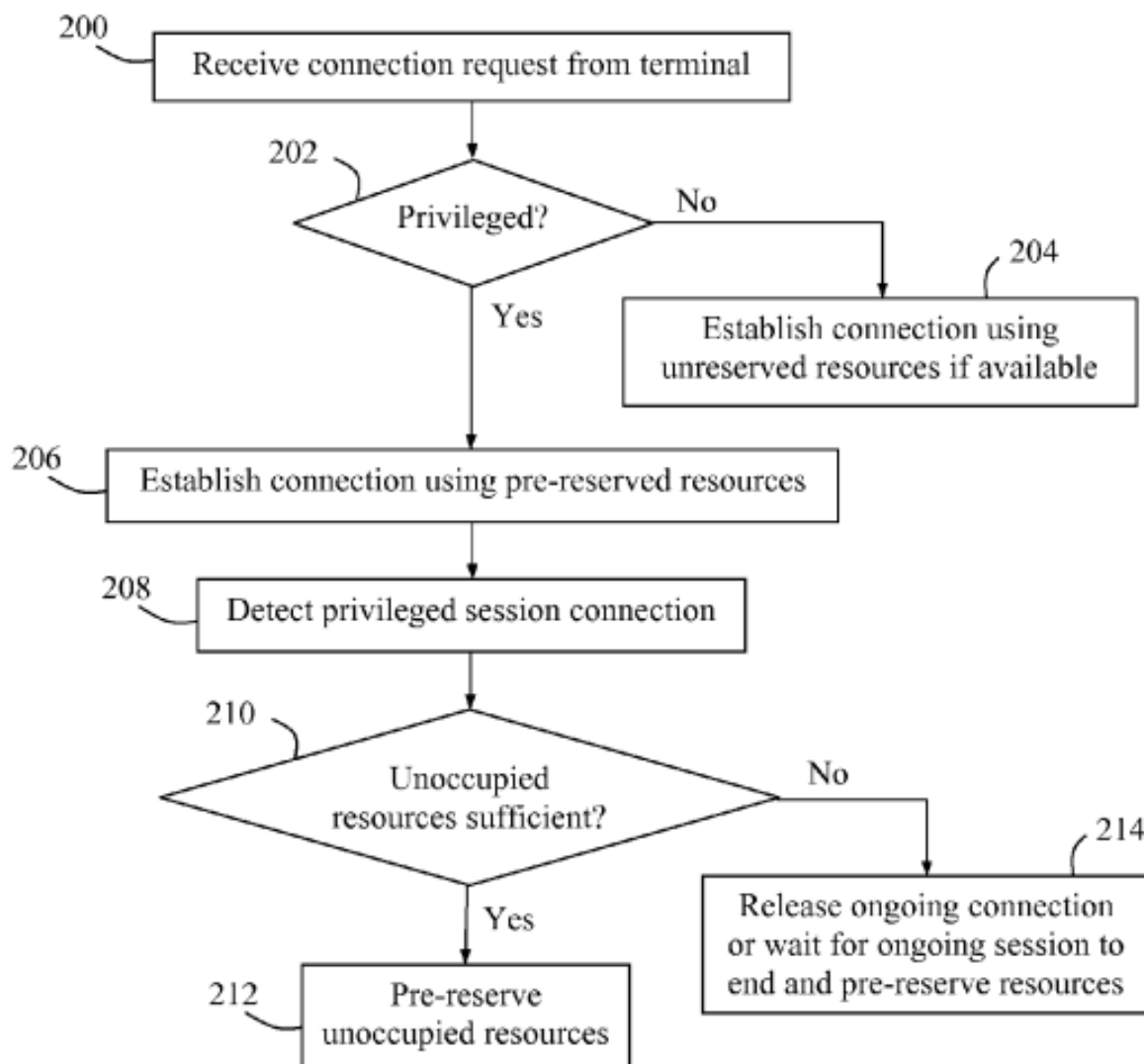


Fig. 2

62. “In a first shown action 200, the base station receives a connection request from a wireless terminal.” *Id.*, at [00042].

63. Accordingly, *Ostrup* discloses actions corresponding to a method for assisting in handling of connection setup requests in a telecommunications network.

2. 1[a] intercepting, by a node, a connection setup request from a user equipment (UE) to a control node of a radio access network (RAN) part of the telecommunications network

64. *Ostrup* in view of 23.401 discloses and renders obvious this claim limitation. As described above in limitation 1[p], Figs. 1 and 2 of *Ostrup* disclose a “base station [that] receives a connection request from a wireless terminal.” *Id.*, at [00042]. *Ostrup*’s base station corresponds to the claimed “node,” *Ostrup*’s connection request corresponds to the claimed “connection setup request,” and *Ostrup*’s wireless terminal corresponds to the claimed “user equipment (UE).” As previously described in Section VIII.A, the Attach Request described in 23.401 is consistent with the connection request described in *Ostrup*. See Section VIII.A.

65. *Ostrup*’s action 200 of receiving a connection request from a terminal, as illustrated in annotated Figure 2 below, is consistent with the construction described in Section VI.A of “intercepting a connection request” to at least include receiving a connection setup request for processing before sending it towards its intended destination. As shown in annotated Figure 2 below, in action 200, *Ostrup*’s base station receives a connection request from a terminal. EX1004, at Figure 2 and [00042]. The base station then processes the request to “determine[] whether the received connection request refers to a privileged session or not” at step 202. *Id.* As

such, the connection request is received “for processing.” Also, as explained above in Section VI.A, the ’338 Patent states that its RAN controller 210 (described as performing the intercepting step) “may be viewed as a logical entity” and that the functionality “could be implemented in lesser number of individual elements,” suggesting that the intercepting functionality could be implemented in the eNB. EX1001, at 8:25-26, 8:45-48.

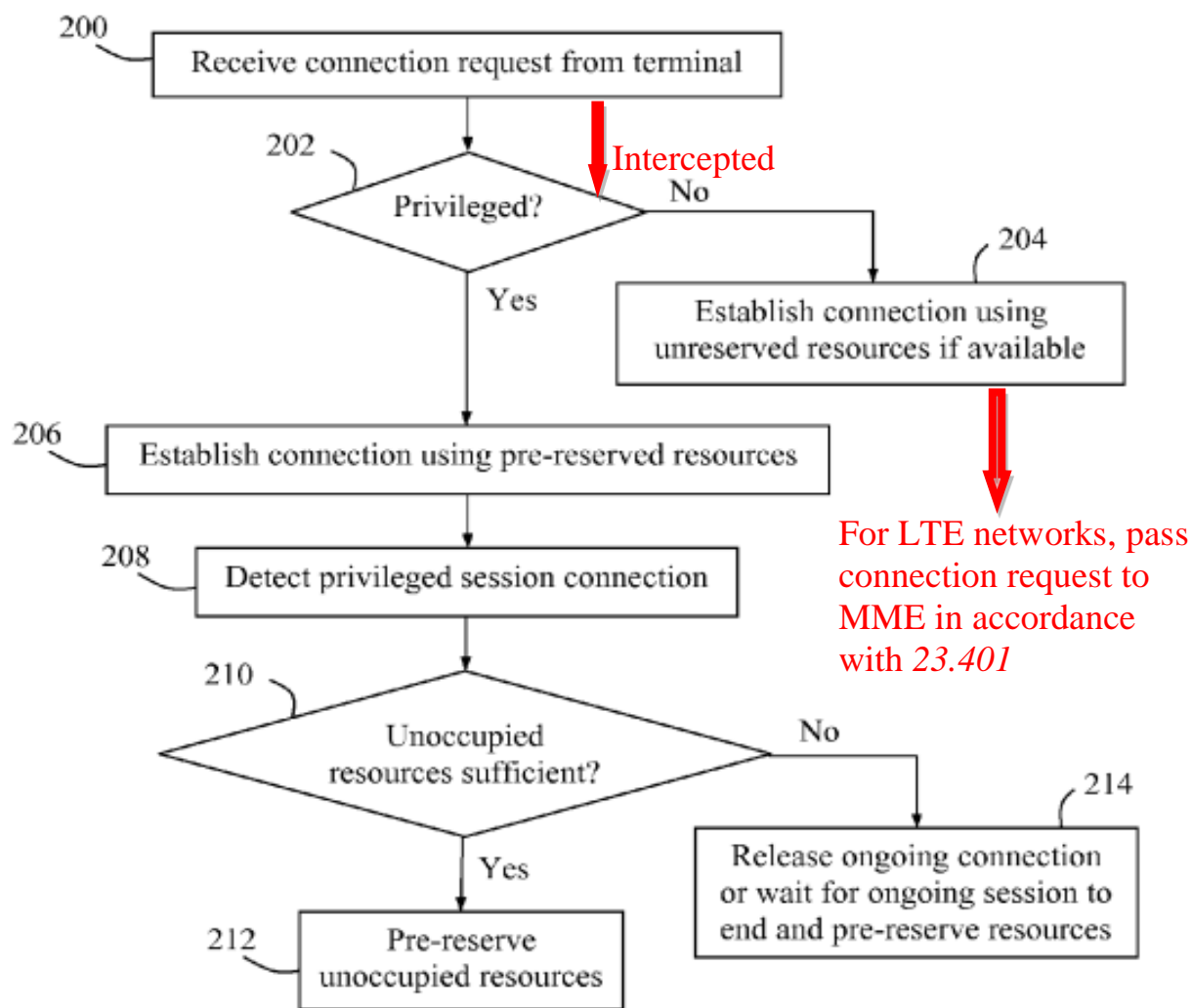
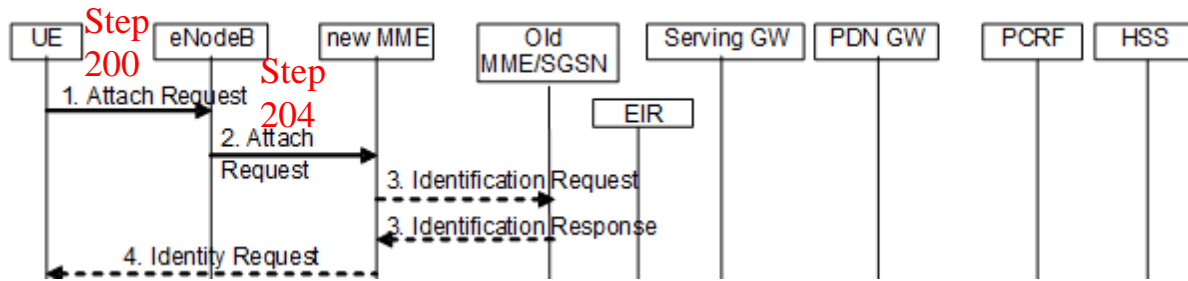


Fig. 2

EX1004, Figure 2 (color annotations added).

66. When implemented in an LTE network, as is contemplated by *Ostrup*, the connection request is intended for an MME, which reads on the claimed “control node of a radio access network (RAN) part of the telecommunications network.” A POSITA would have been motivated to combine *Ostrup* with 23.401 to implement *Ostrup*’s teachings in an LTE network, as described above in Section VIII.A. See Section VIII.A; see also EX1004, at [00031]. A POSITA would have understood in view of 23.401 that the request from the UE received at action 200 in *Ostrup* is directed to the MME of the LTE core network and, if appropriate, is ultimately passed to the MME in the connection process (e.g., action 204).

67. Section 5.3.2 of 23.401 describes an LTE attach procedure. EX1005, pp. 91-102. Figure 5.3.2.1-1 (partially reproduced and annotated below) illustrates this attach procedure. *Id.*, at 93. When implementing *Ostrup*’s connection request in accordance with an LTE attach procedure, 23.401’s UE corresponds to *Ostrup*’s terminal, and 23.401’s eNodeB corresponds to *Ostrup*’s base station. *Ostrup*’s actions 200 and 204, as illustrated above in *Ostrup*’s Figure 2, correspond to steps 1 and 2, respectively, of the LTE attach procedure as illustrated below in color annotated Figure 5.3.2.1-1 of 23.401.



EX1005, at 91-95.

68. As illustrated in step 1, which corresponds to action 200 of *Ostrup*'s Figure 2, "[t]he UE initiates the Attach procedure by the transmission, to the eNodeB, of an Attach Request [. . .] message together with RRC parameters indicating the Selected Network and the old GUMMEI." *Id.*, at 94. As shown in the figure above, the attach request is ultimately intended for the "new MME." The old GUMMEI is the old Globally Unique MME Identifier. *Id.*, at 15. As illustrated in step 2, which corresponds to action 204 of *Ostrup* Figure 2, "[t]he eNodeB derives the new MME from the RRC parameters carrying the old GUMMEI and the indicated Selected Network." *Id.*, 94. "The eNodeB forwards the Attach Request message to the new MME contained in a S1-MME control message (Initial UE message) together with the Selected Network, CSG access mode, CSG ID, L-GW address, and TAI+ECGI of the cell from where it received the message to the new MME." *Id.*, at 94-95.

69. When combining *Ostrup* and 23.401, a POSITA would have thus understood that *Ostrup*'s base station, when implemented in an LTE network, would

behave in accordance with the eNodeB described in 23.401 and would therefore “intercept[], by a node (e.g., BS/eNodeB), a connection setup request (e.g., connection request/attach request) from a user equipment (UE) to a control node (e.g., MME) of a radio access network (RAN) part of the telecommunications network,” as claimed. As such, *Ostrup* in view of 23.401 renders this limitation obvious.

3. 1[b] identifying, by the node, from the connection setup request, a service for which the connection setup is requested

70. *Ostrup* discloses this limitation. *Ostrup* explains how the connection request sent from the wireless terminal to the base station, as shown above at action 200 of Figure 2, may include information that identifies a type of session (a privileged or non-privileged session). EX1004, at [00042] (“In a first shown action 200, the base station receives a connection request from a wireless terminal, corresponding to action 1:1 above. The **base station then determines whether the received connection request refers to a privileged session or not in a following action 202.**”). A POSITA would have understood that the determination of whether the connection request refers to a privileged session or not is made based on the connection request (**from the connection setup request**).

71. *Ostrup*’s determination of a privileged or non-privileged session corresponds to the claimed identification of a service for which the connection setup is requested. For instance, *Ostrup* and the ’338 Patent both describe sessions and

services, respectively, as communication sessions or calls. *See* EX1004, at [0003]; *see also* EX1001, at 3:56-64. *Ostrup* explains how “the term ‘privileged session’ will be used to represent **any call or other communication session** that is deemed to be of higher importance or priority over other non-privileged calls and sessions of no particular importance or priority, referred to as ‘non-privileged sessions’ which thus have no precedence over any other sessions.” EX1004, at [0003]. Likewise, the ’338 Patent describes calls as an example of its services. EX1001, 3:56-64 (“A method of this embodiment may also, optionally, include the step of confirming that the identified service is not one of one or more additional predefined services, such as e.g. emergency calls. Such a further embodiment may be advantageous in that it would still allow the requests for some additional predefined services such as emergency calls to go through as long as requests for premium services can go through.”).

72. As such, *Ostrup* discloses identifying, by the node, from the connection setup request, a service for which the connection setup is requested.

4. 1[c] determining, by the node, that the identified service is not an emergency service

73. *Ostrup* discloses this limitation. As described above in limitation 1[b], *Ostrup* discloses identifying a type of session for which the connection setup is requested. *Ostrup* determines, when identifying the type of session for which the connection setup is requested, whether or not the requested session is an emergency

service. *Ostrup* states that “[t]he base station then determines whether the received connection request refers to a privileged session or not.” EX1004, at [00042].

74. *Ostrup* identifies an emergency call “as an example of a privileged session” and explains how the requested session may be identified as an emergency session:

“A first action 1.1 illustrates that a wireless terminal 102 makes a connection request for an emergency call, as an example of a privileged session. . . . Further, the base station may identify the requested session as being privileged by checking whether an information element in the request called ‘EstablishmentCause’ indicates a privileged session, e.g. ‘EstablishmentCause=emergency’, or similar. The session may also be identified as privileged by a number being called such as an emergency number, e.g. 112 or 911, or by priority information received from a core network, e.g., a parameter called ‘Allocation Retention Priority, ARP’.”

Id., at [00032]; *see also id.*, at [0001], [0003]-[0004].

75. *Ostrup* also explains that a session “is deemed privileged if it is directed to a privileged or prioritized number, such as an emergency number, or if it involves a party being classified as privileged and having priority over others, such as persons working for public safety, medical service, law enforcement, military service, etc.” *Id.*, at [00030].

76. *Ostrup* further describes this limitation with respect to action 202 of

Figure 2 reproduced below:

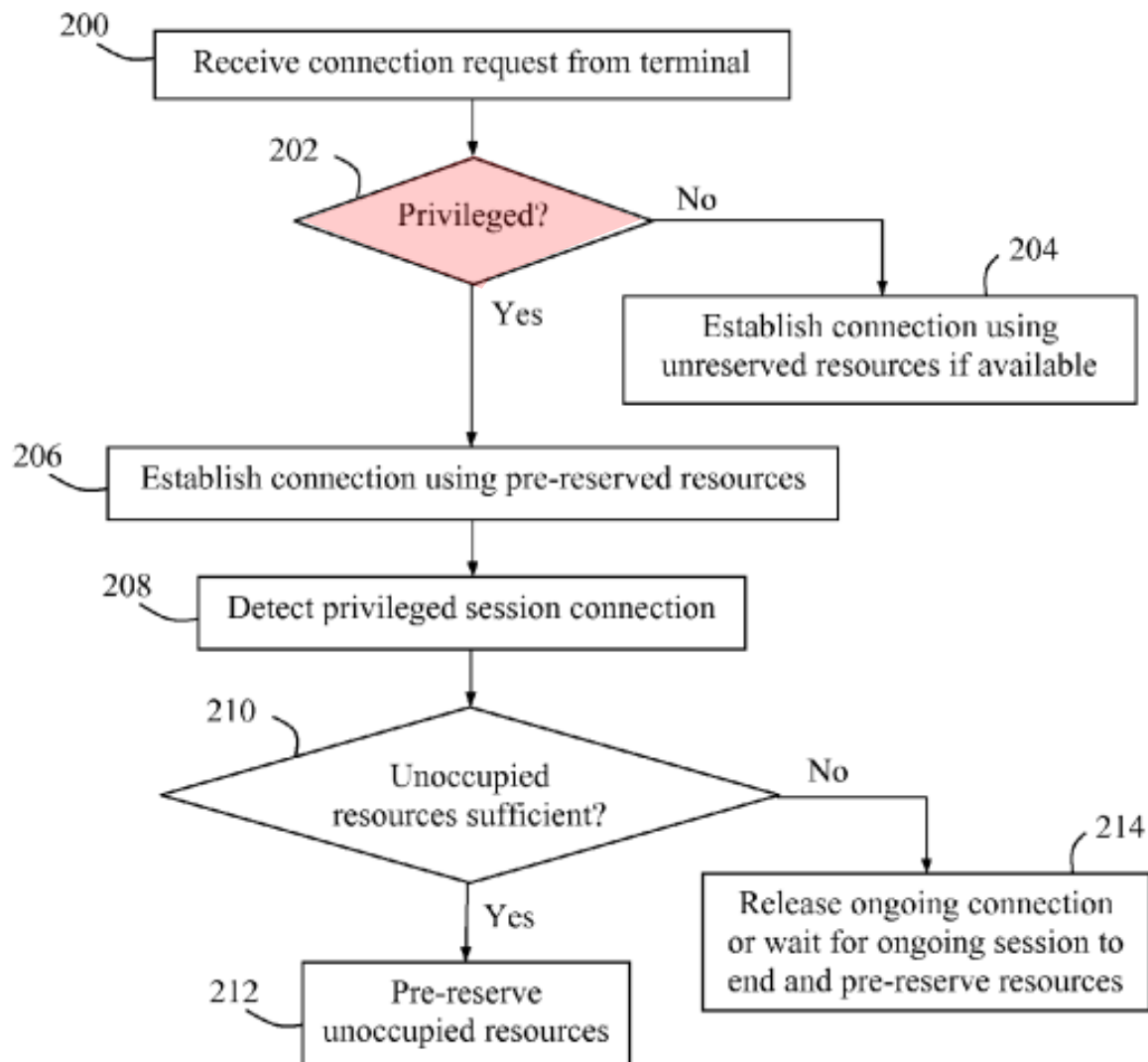


Fig. 2

Id., at Figure 2 (color annotated).

77. Action 202 of *Ostrup* is a decision step for determining whether or not the received connection request refers to a privileged session. *Id.*, at [00042],

[00042]. As mentioned above, *Ostrup* describes an emergency call or a request for emergency service as a privileged session. *Ostrup* explains that if the base station determines that the connection request does not refer to a privileged/emergency session, then the process continues to action 204 where “the base station can establish a connection for the terminal in a further action 204 by using unreserved resources, provided that such resources are currently available for the base station.” *Id.*, at [00042]. Accordingly, because *Ostrup* describes a scenario where its base station determines that the connection request is not one for a privileged session and because *Ostrup* describes an emergency service as a privileged session, *Ostrup* discloses determining, by the node, that the identified service is not an emergency service.

5. 1[d] determining, by the node, whether the connection setup request is to be fulfilled based at least on information comprising available resources in a network access point (NAP) serving the UE that are not reserved for premium services

78. *Ostrup* discloses this limitation. *Ostrup* discloses that the base station “can establish a connection for the terminal in a further action 204 by *using unreserved resources, provided that such resources are currently available for the base station*” after determining that the identified service is not a privileged/emergency service at action 202 (e.g., as discussed above with respect to limitation 1[d]). EX1004, at [00042]. As such, once the base station determines the requested service is not one for a privileged or emergency service, the base station

makes a determination at action 204 of whether to fulfill the connection request “using unreserved resources,” i.e., it does so “provided that such resources are currently available.” *Id.*

79. *Ostrup* describes its reserved resources as those “pre-reserved for at least one privileged session connection,” which suggests that unreserved resources are resources that are not reserved for privileged services. *Id.*, at [00041].

80. *Ostrup* describes its “privileged sessions” in a similar manner to the way the ’338 Patent’s description describes its claimed “premium services.” *Ostrup* explains that “privileged session” represents “any call or other communication session that is deemed to be of higher importance or priority over other non-privileged calls and sessions of no particular importance or priority, referred to as ‘non-privileged sessions’ which thus have no precedence over any other sessions.” *Id.*, at [0003]. *Ostrup* further explains that “a session with a wireless terminal is deemed privileged if it is directed to a privileged or prioritized number, such as an emergency number, or if it involves a party being classified as privileged and having priority over others, such as persons working for public safety, medical service, law enforcement, military service, etc.” *Id.*, at [00030]. Similarly, the ’338 Patent explains that “premium services” are desired to “receive greater attention and effort from the network than non-premium services.” EX1001, at 1:46-52. The ’338 Patent patent also suggests that “premium services” may be allotted certain resources or

resource capacity by a network operator in accordance with an agreement. *Id.*, at 3:12-25. The '338 Patent further describes “premium services” as predefined services. *Id.*, at 9:44-45.

81. Also, the '338 Patent and *Ostrup* each provides an example of a privileged session and a predefined service, respectively, as being an emergency call. For instance, the '338 Patent explains that “the step of confirming that the identified service is not one of one or more additional *predefined services, such as e.g. emergency calls.*” *Id.*, 3:59-60. And *Ostrup* explains how “[s]ome typical examples of *such privileged sessions are emergency calls* [. . .]” EX1004, at [0003]. *Ostrup*’s privileged sessions, therefore, read on the claimed “premium services.”

82. Additionally, the '338 Patent explains that the unreserved resources are available resources “within a network access point (NAP) serving the UE.” EX1001, at 2:34. *Ostrup*’s base station corresponds to the claimed “network access point (NAP)” at least because it is the point at which the UEs access the network. *See* EX1004, at [00026] (“Briefly described, a solution is provided to enable establishment of connections for wireless terminals to a base station for privileged sessions in a cell of a cellular network.”). This is also consistent with the '338 Patent which explains that the NAP “could be e.g., an eNB in an LTE network.” EX1001, at 2:34-36.

83. *Ostrup* explains that its resources can be in the NAP/base station serving the UE. EX1004, at [00029], [00042]. For action 204, *Ostrup* states that the base station establishes a connection provided that unreserved resources are currently available “for the base station.” *Id.*, at [00042]. Also, when discussing its “resources,” *Ostrup* identifies “radio interface bandwidth, transport network bandwidth, hardware equipment in the base station, a communication channel, and a Radio Access Bearer (RAB) element” as examples of resources. *Id.*, at [00029]. A POSITA would have understood that at least these examples of resources would be considered resources “in the base station” since these types of resources would be used by the base station to establish communication sessions. Further, when describing its resources that may be reserved and/or available, *Ostrup* repeatedly refers to them as resources “in” the base station. *Id.*; EX1004, [0010], [0012], [0017], [0054].

84. Additionally, as discussed above in Section VI.A and in the discussion of limitation 1[a], the ’338 Patent describes the claimed node as a “logical entity” and that the functionality “could be implemented in lesser number of individual elements” EX1001, at 8:25-26, 8:45-48; *see also* Sections VI.A, VIII.C.2. It is therefore consistent for the node functionality of claim 1 to be implemented by *Ostrup*’s base station while the claimed resources in a NAP serving the UE to be resources of the base station.

85. As such, through its determination of whether to fulfill the connection request for the non-privileged/non-emergency session based on the availability of resources not reserved for a privileged session, *Ostrup* discloses determining, by the node, whether the connection request is to be fulfilled based at least on information comprising available resources in a network access point (NAP) serving the UE that are not reserved for premium services.

6. 1[e] a determination being a positive determination if, at the NAP serving the UE, there is sufficient unused resource capacity that is not reserved for the connection setup requests for the one or more premium services

86. *Ostrup* discloses this limitation. As explained above for limitation 1[d], *Ostrup* establishes the connection for the non-privileged/non-emergency connection request “by using *unreserved resources, provided that such resources are currently available for the base station.*” *Id.*, at [00042]. *Ostrup*’s “unreserved resources” are resources not reserved for connection setup requests for premium services. *Id.* (“The base station then determines whether the received connection *request refers to a privileged session or not* in a following action 202. *If not, the base station can establish a connection for the terminal in a further action 204 by using unreserved resources . . .*”). A POSITA would have understood that if there are resources that are “currently available” at action 204, then there is sufficient unused resource capacity from among the unreserved resources to complete the connection setup

request. And as explained above in limitation 1[d], the unreserved resources in *Ostrup* are resources at the NAP serving the UE.

87. The claim limitation “a determination being a positive determination” refers to the step “determining . . . whether the connection setup is to be fulfilled” of limitation 1[d]. See Section VIII.C.5. *Ostrup*’s determination that unreserved resources are currently available for the base station is a positive determination by the base station to fulfill the connection setup request as described with respect to 1[d]. See EX1004, at [00042] (“If not, *the base station can establish a connection for the terminal in a further action 204 by using unreserved resources, provided that such resources are currently available for the base station.*”).

88. As such, *Ostrup* discloses a determination being a positive determination if, at the NAP serving the UE (base station), there is sufficient unreserved resource capacity (unreserved resources) not reserved for the connection setup requests for the one or more premium services (privileged sessions).

7. 1[f] passing, by the node, the connection setup request for further processing within the telecommunications network only upon positive determination.

89. *Ostrup* in view of 23.401 renders obvious this limitation. As described above for limitation 1[e], *Ostrup* discloses a determination being a positive determination if there is sufficient unreserved resource capacity at the base

station/NAP serving the UE that is not reserved for the connection setup requests for the one or more premium services. *See* Section VIII.C.6.

90. In regard to Figure 2 below, *Ostrup* discloses that “the base station can establish a connection for the terminal in a further action 204 by using unreserved resources, ***provided that*** such resources are currently available for the base station.” EX1004, at [00042]. *Ostrup*’s “provided that” language suggests that the connection would be made only if the resources are available (and thus would not be made if the resources are not available). Accordingly, *Ostrup*’s “provided that such resources are currently available” language corresponds to the claimed “only upon positive determination” language.

91. Since the solution of *Ostrup* is directed to enabling privileged access in a cellular network, *Ostrup* stated that it is “not necessary to describe [action 204] in more detail” in the reference. *Id.*, at [00042]. However, a POSITA implementing *Ostrup* in an LTE network would have understood that *Ostrup*’s establishing of a connection for the terminal in action 204 would have involved passing the the connection request for further processing.

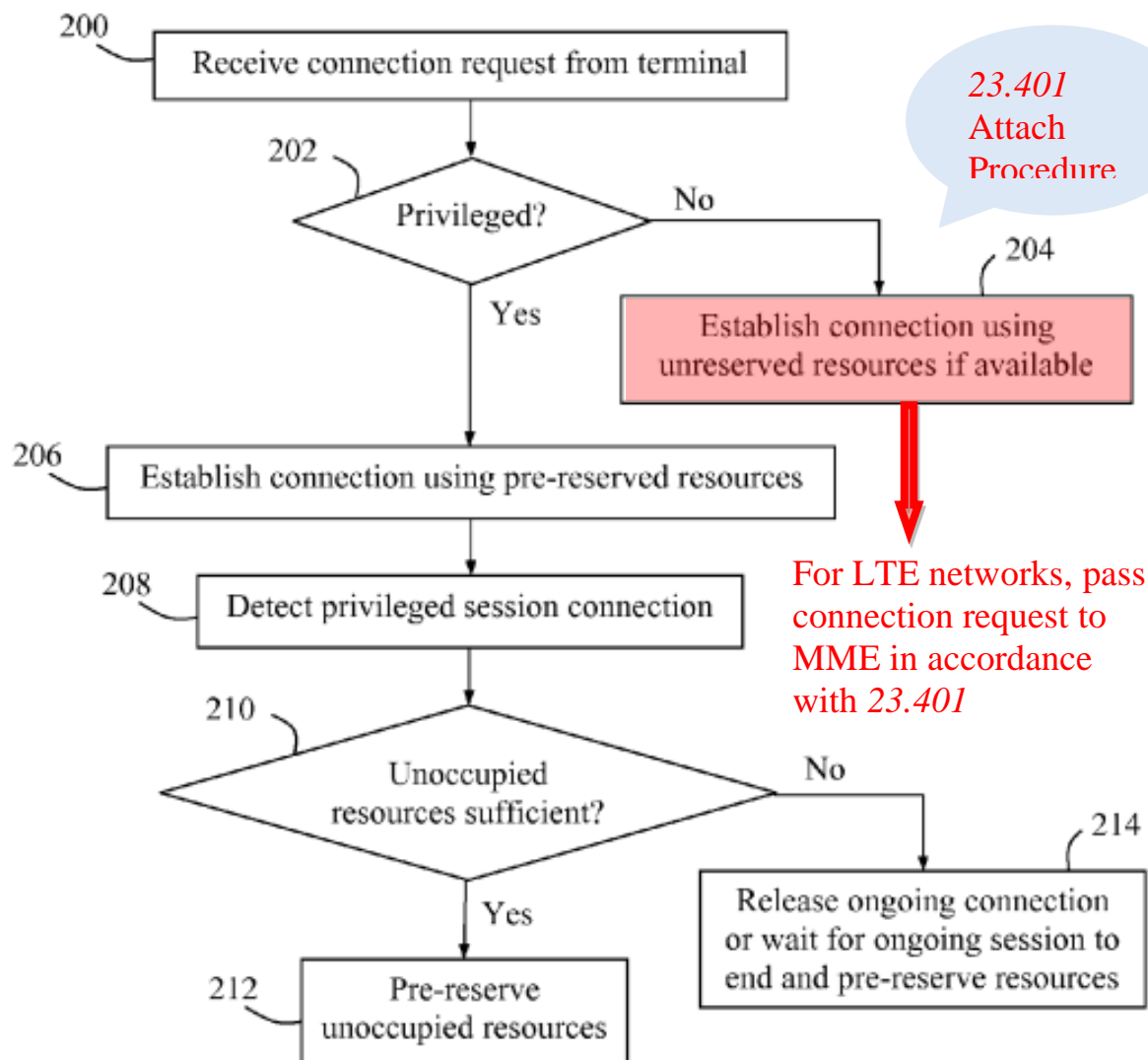
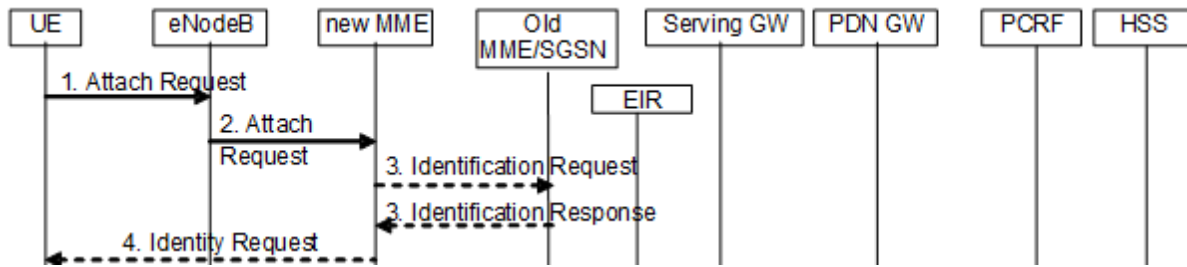


Fig. 2

EX1004, Figure 2 (color annotated).

92. As described in limitation 1[a], 23.401 explains how a connection request is passed on for further processing in an LTE network. See Section VIII.C.2. 23.401's Figure 5.3.2.1-1 illustrates an Attach Request message being sent from the UE to an MME via an eNodeB:



EX1005, at 91-95.

93. 23.401 also explains that the “eNodeB forwards the Attach Request message to new MME” *Id.*, at 94-95.

94. As such, *Ostrup* in view of 23.401 discloses passing, by the node, the connection setup request for further processing within the LTE network provided that the unreserved resources are currently available.

D. Claim 8. The method according to claim 1, further comprising providing an indication to the UE of whether the connection setup request was determined to be fulfilled.

95. *Ostrup* discloses this limitation. The '338 Patent explains that an indication to the UE of whether the connection setup request was determined to be fulfilled may be implicit in that the requested connection will be established:

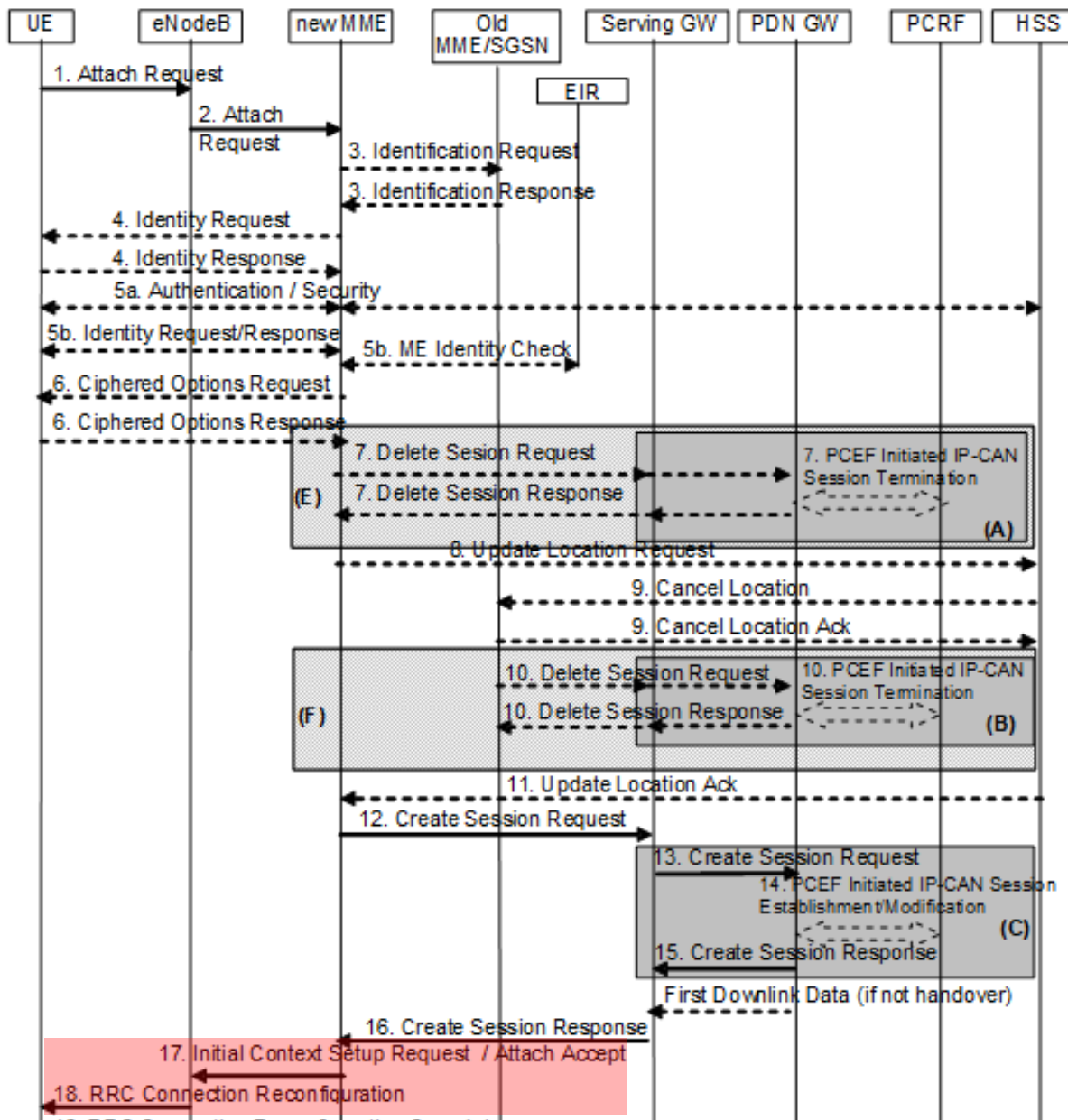
“In an embodiment, the method may also include a step of providing an indication, either explicit or implicit, to the UE 206 of whether the connection setup request was determined to be fulfilled. When the request was determined to be fulfilled, such indication may be implicit in that the requested connection will be established.”

EX1001, at 11:53-58.

96. Similarly, *Ostrup* describes how the base station can establish a connection for the terminal if unreserved resources are currently available for the base station: “If not, the base station can establish a connection for the terminal in a further action 204 by using unreserved resources, provided that such resources are currently available for the base station.” EX1004, at [00042].

97. As such, through the base station establishing the connection with the terminal, *Ostrup* discloses that the base station provides an indication to the terminal of whether the connection setup request was determined to be fulfilled.

98. *Ostrup* in view of 23.401 also renders obvious this limitation. With respect to Figure 5.3.2.1-1, which is color annotated and reproduced below, 23.401 states that at step 17, “[t]he new MME sends an Attach Accept [. . .] message to the eNodeB.” EX1005, p. 100. And at step 18, “the Attach Accept message will be sent along to the UE.” *Id.*, at 101. This is an indication to the UE that the connection request was determined to be fulfilled.



EX1005, at 94.

99. Accordingly, when *Ostrup* is implemented in an LTE network in accordance with 23.401, the UE is provided with an indication of whether the connection setup request was determined to be fulfilled.

E. Claim 9

1. 9[p] A computer program product, stored on a computer-readable non-transitory storage medium, comprising software code portions configured for, when executed in a computer, carrying out a method comprising:

100. Claim 9 is a “computer program product” claim that recites identical steps to those of claim 1. *See* Section VIII.C. Similar to claim 1, each of the steps of claim 9 are performed by a node. *Id.* As discussed with respect to these steps in claim 1, it would have been obvious for the base station in the combination of *Ostrup* and 23.401 to perform these steps. *Id.*

101. I have been informed by counsel that a preamble of a claim may or may not be considered a limitation. To the extent the preamble of claim 9 is limiting, the combination of *Ostrup* and 23.401 renders it obvious. When implementing *Ostrup* in an LTE network, it would have been obvious for the base station to include a computer program product, stored on a computer-readable non-transitory storage medium, comprising software code portions configured to, when executed in a computer, carry out the steps of the claims. A POSITA would have understood that typical implementations of base stations, such as base stations used for LTE, relied on and were controlled by processors executing a set of instructions (software code portions), and that the instructions were part of a program (computer program product). A POSITA would have also understood that the program resided in a memory of a computer such as in a Random Access Memory (RAM) (non-transitory

storage medium) and were accessible by the processor (computer-readable). Indeed, the sophistication of protocols, such as those used for LTE, requires the flexibility of software for practical implementation.

102. Further, *Ostrup* discloses a reservation function 400 associated with its base station such that it may be “integrated in the base station.” EX1004, at [00031]. *Ostrup* describes that its reservation function may be configured to perform the actions of Figures 1-3. *Id.*, at [00047].

103. *Ostrup* describes the reservation function as including program modules of a respective computer program comprising code means which, when run by a processor “P” causes the function to perform the described actions. *Id.*, at [00050]. *Ostrup* explains that the computer program may be carried by a computer program product in the form of a memory “M” connected to the processor “P” and that the computer program product or memory M comprises computer readable medium on which the computer program is stored. *Id.*, at [00051]. *Ostrup* therefore discloses its base station as including a computer program product, stored on a computer-readable non-transitory storage medium, comprising software code portions configured to, when executed in a computer, carry out its functionality.

104. As such, *Ostrup* in view of 23.401 renders obvious the computer program product recited in 9[p] to perform the steps of the claim.

-
- 2. 9[a] intercepting, by a node, a connection setup request from a user equipment (UE) to a control node of a radio access network (RAN) part of the telecommunications network**
105. See claim limitation 1[a] above.
- 3. 9[b] identifying, by the node, from the connection setup request, a service for which the connection setup is requested**
106. See claim limitation 1[b] above.
- 4. 9[c] determining, by the node, that the identified service is not an emergency service**
107. See claim limitation 1[c] above.
- 5. 9[d] determining, by the node, whether the connection setup request is to be fulfilled based at least on information comprising available resources in a network access point (NAP) serving the UE that are not reserved for premium services**
108. See claim limitation 1[d] above.
- 6. 9[e] a determination being a positive determination if, at the NAP serving the UE, there is sufficient unused resource capacity that is not reserved for the connection setup requests for the one or more premium services; and**
109. See claim limitation 1[e] above.
- 7. 9[f] passing, by the node, the connection setup request for further processing within the telecommunications network only upon positive determination.**
110. See claim limitation 1[f] above.

F. Claim 10

1. 10[p] A data structure stored in a non-transitory computer-readable storage medium of a node, the data structure comprising at least:

111. I have been informed by counsel that a preamble of a claim may or may not be considered a limitation. Claim 10 is a “data structure” claim. To the extent the preamble of claim 10 is limiting, the combination of *Ostrup* and 23.401 renders it obvious. The preamble requires the data structure to be stored in a non-transitory computer-readable storage medium of a node. As is the case in the application of *Ostrup* and 23.401 to claims 1 and 9 discussed above, the base station in the combination of *Ostrup* and 23.401 satisfies the node of claim 10. *See* Sections VIII.C and VIII.E.

112. It would have been obvious for the base station to include a non-transitory computer-readable storage medium that stores a data structure when implementing *Ostrup* in an LTE network. The ’338 Patent contemplates that the data structure could be stored in a database form. EX1001, at 4:16-18.

113. A POSITA would have understood that typical implementations of base stations, such as base stations used for LTE, relied on and were controlled by processors executing programs which control the operation of the base stations, and which utilize temporary storage (memory) of data structures (e.g., variables, parameters, linear data structures, tree data structures, etc.) needed for the execution

of these programs. A well-known example of such a temporary storage medium is Random Access Memory (RAM) (non-transitory computer-readable storage medium), which is accessible by the processor (computer-readable). Indeed, the sophistication of protocols, such as protocols used for LTE, requires the flexibility of software and stored data structures for practical implementation.

114. In addition, *Ostrup* discloses a reservation function 400 associated with its base station such that it may be “integrated in the base station.” EX1004, at [00031]. *Ostrup* describes the reservation function 400 as including program modules of a respective computer program comprising code means which, when run by a processor “P” causes the function to perform the described actions. *Id.*, at [00050]. *Ostrup* discloses that the computer program may be carried by a computer program product in the form of a memory “M” connected to the processor “P” and that the computer program product or memory M comprises computer readable medium on which the computer program is stored. *Id.*, at [00051]. A POSITA would have understood that *Ostrup*'s memory M comprising a non-transitory computer-readable medium would have included a data structure for storing, retrieving, and organizing data utilized by the base station, including by the processor(s) that control the operation of the base station. Such data structures would have been essential at least to the operation of the software programs of the base station. *Ostrup* thus discloses its base station as including a non-transitory computer-readable storage

medium that stores a data structure. Thus, *Ostrup* in view of 23.401 renders obvious the data structure recited in 10[p].

2. 10[a] an indication of a resource capacity of a network access point (NAP) reserved for connection setup requests for one or more premium services

115. *Ostrup* discloses this limitation. *Ostrup* explains that the reservation function (disclosed as potentially being integrated in its base station) is “adapted to detect that resources, which have been pre-reserved in the first base station exclusively for privileged sessions, are used for establishing a connection for a privileged session for a wireless terminal.” EX1004, at [00011]. *Ostrup* also explains that its reservation function is “adapted to pre-reserve new resources in BS exclusively for privileged sessions in response to said detecting, to compensate for the resources occupied by the established privileged session connection, such that an amount of resources sufficient for enabling at least one subsequent privileged session connection remains pre-reserved in BS.” *Id.*, at [00048]. *Ostrup*’s base station therefore detects an amount of resources for the base station that have been pre-reserved for establishing privileged session connections. *Id.*

116. In order to detect an amount of resources that have been reserved for establishing privileged session connections, one of skill in the art would have understood that *Ostrup*’s base station includes a data structure (as discussed above with respect to 10[p]) that includes an indication of a resource capacity of a network

access point (NAP) reserved for connection setup requests for one or more premium services as claimed. *See* Section VIII.F.1. And as described above in limitation 1[d], *Ostrup's* privileged sessions represent “one or more premium services.” *See* Section VIII.C.5.

3. 10[b] an indication of an amount of resources currently used by the NAP for the one or more premium services

117. *Ostrup* discloses this limitation. *Ostrup* explains that the reservation function (disclosed as potentially being integrated in its base station) is “adapted to detect that resources, which have been pre-reserved in the first base station exclusively for privileged sessions, are used for establishing a connection for a privileged session for a wireless terminal.” EX1004, at [00 11]. *Ostrup* also explains that its reservation function is “adapted to pre-reserve new resources in BS [base station] exclusively for privileged sessions in response to said detecting, to compensate for the resources occupied by the established privileged session connection, such that an amount of resources sufficient for enabling at least one subsequent privileged session connection remains pre-reserved in BS.” *Id.*, at [0 048].

118. In order to be able to pre-reserve new resources such that an amount of resources sufficient for enabling at least one subsequent privileged session connection to remain pre-reserved, one of skill in the art would have understood that *Ostrup's* base station includes a data structure, as discussed above in reference to

10[p], that includes an indication of an amount of resources currently used by the NAP for the one or more premium services. *See* Section VIII.F.1. This is particularly true provided that *Ostrup*'s base station must (according to *Ostrup*) compensate for resources occupied by established privileged sessions to maintain adequate capacity of pre-reserved resources as required. *See* EX1004, at [00048].

4. 10[c] an indication of an amount of resources currently used by the NAP for services that do not belong to the one or more premium services

119. *Ostrup* in view of 23.401 renders obvious this limitation. *Ostrup* explains that “resources are pre-reserved for at least one more privileged session connection even when all resources are currently used in the cell, by releasing an ongoing connection with relatively low activity such as when no or little data has been transmitted lately.” EX1004, at [00028]. Therefore, *Ostrup* discloses an ability by its base station to realize that all of its resources are being used at some time. One of skill in the art would have understood that the ability of the base station to recognize when all of its resources are used also represents an ability of the base station to determine the amount of resources being used at any time, especially considering that resources are typically limited in supply at each base station. EX1004, at [00029] (“All these resources and others are typically in limited supply at each base station of a cellular network.”).

120. Additionally, as discussed above in limitation 10[b], one of skill in the art would have understood that *Ostrup*'s base station includes a data structure that includes an indication of an amount of resources currently used by the NAP for the one or more premium services. *See* Section VIII.F.3.

121. Therefore, given the base station's awareness of the total amount of its resources and that all such resources are being used and given the base station's awareness of the amount of resources currently used for one or more premium services, it would be obvious to one of skill in the art for *Ostrup*'s base station to include a data structure, as discussed above in reference to 10[p], that includes an indication of an amount of resources currently used by the NAP for services that do not belong to the one or more premium services. *See* Section VIII.F.1.

5. 10[d] the data structure, used by the node, to determine whether the connection setup requests are to be fulfilled based at least on information comprising available resources in the NAP serving the UE that are not reserved for premium services

122. Limitation 1[d] above describes how *Ostrup* discloses the node determining whether the connection setup request is to be fulfilled based at least on information comprising available resources in a NAP serving the UE that are not reserved for premium services. *See* Section VIII.C.5.

123. And as further described above in reference to 10[p], the combination of *Ostrup* and 23.401 renders obvious the claimed data structure. *See* Section VIII.F.1. *Ostrup* discloses its reservation function 400 integrated in the base station

and as including program modules of a respective computer program comprising code means which, when run by a processor, causes a function to perform the described actions. EX1004, at [00031], [00050]. It would therefore have been obvious for the data structure rendered obvious by the combination of *Ostrup* and 23.401 to be used by the base station to perform the claimed actions, including the determining step of this limitation.

6. 10[e] a determination being a positive determination if, at the NAP serving the UE, there is sufficient unused resource capacity that is not reserved for the connection setup requests for the one or more premium services

124. See claim limitation 1[e] above.

7. 10[f] passing, by the node, the connection setup request for further processing within the telecommunications network only upon positive determination

125. See claim limitation 1[f] above. And as discussed above in reference to claim limitations 10[p] and 10[d], it would have been obvious for the data structure rendered obvious by the combination of *Ostrup* and 23.401 to be used by the base station to perform the claimed actions, including the passing step of this claim limitation.

G. Claim 11

1. 11[p] A node comprising:

126. I have been informed by counsel that a preamble of a claim may or may not be considered a limitation. To the extent feature 11[p] is limiting, *Ostrup*

discloses it. As described above in reference to limitation 1[a], *Ostrup*'s base station corresponds to the claimed "node." See Section VIII.C.2.

2. 11[a] a computer readable storage medium having computer readable program code embodied therewith, and

127. The combination of *Ostrup* and 23.401 renders obvious this limitation. When implementing *Ostrup* in an LTE network in accordance with 23.401, it would have been obvious for the base station to include a computer readable storage medium having computer readable program code embodied therewith. As would have been obvious and well known to a POSITA, typical implementations of base stations, such as base stations used for LTE, relied on and were controlled by processors executing a set of instructions that were part of a program (computer readable program code). A POSITA would have understood that the program resided in a memory of the computer such as in RAM and were accessible by the processor (computer readable storage medium). Indeed, the sophistication of protocols, such as protocols used for LTE, requires the flexibility of processors executing software for practical implementation.

128. In addition, *Ostrup* discloses a reservation function 400 associated with its base station such that it may be "integrated in the base station." EX1004, at [00031]. *Ostrup* describes that its reservation function may be configured to perform the actions of Figures 1-3. *Id.*, at [00047]. *Ostrup* describes the reservation function 400 as including program modules of a respective computer program comprising

code means which, when run by a processor “P” causes the function to perform the described actions. *Id.*, at [00050]. *Ostrup* discloses that the computer program may be carried by a computer program product in the form of a memory “M” connected to the processor “P” and that the computer program product or memory M comprises computer readable medium on which the computer program is stored. *Id.*, at [00051]. *Ostrup* thus discloses its base station as including a computer readable storage medium having computer readable program code embodied therewith.

129. Therefore, *Ostrup* in view of 23.401 renders obvious limitation 11[a].

3. 11[b] a processor coupled to the computer readable storage medium, wherein responsive to executing the computer readable program code, the processor is configured to perform executable operations comprising:

130. *Ostrup* in view of 23.401 renders obvious this limitation. When implementing *Ostrup* in an LTE network, it would have been obvious for the base station to include a processor coupled to computer readable storage medium, wherein responsive to executing the computer readable program code, the processor is configured to perform the executable operations of the claim. As would have been obvious and well known to a POSITA, typical implementations of base stations, such as those used for LTE, relied on and were controlled by processors executing a set of instructions (executable operations) that were part of a program (computer readable program code). A POSITA would have understood that the program resided in a memory of the computer (e.g., a RAM) and were accessible by the processor

(computer readable storage medium). Indeed, the sophistication of protocols, such as those used for LTE, requires the flexibility of software executed by processors for practical implementation.

131. In addition, as noted above with respect to limitation 11[a], *Ostrup* discloses its base station with a reservation function including program modules of a respective computer program comprising code means which, when run by a processor “P” causes the function to perform the described actions. *See* Section VIII.G.2; *see also* EX1004, at [00050]. *Ostrup* discloses that the computer program may be carried by a computer program product in the form of a memory “M” connected to the processor “P” and that the computer program product or memory M comprises computer readable medium on which the computer program is stored. EX1004, at [00051]. *Ostrup* thus discloses a processor coupled to computer readable storage medium, wherein responsive to executing the computer readable program code, the processor is configured to perform executed operations, including those operations of claim 11 listed below.

4. 11[c] intercepting a connection setup request from a user equipment (UE) to a control node of a radio access network (RAN) part of a telecommunications network

132. *See* claim limitations 11[b] and 1[a] above.

5. 11[d] identifying, from the connection setup request, a service for which the connection setup is requested

133. *See* claim limitations 11[b] and 1[b] above.

6. 11[e] determining that the identified service is not an emergency service;

134. See claim limitations 11[b] and 1[c] above.

7. 11[f] determining whether the connection setup request is to be fulfilled based at least on information comprising available resources in the network access point (NAP)⁴ serving the UE that are not reserved for premium services,

135. See claim limitations 11[b] and 1[d] above.

8. 11[g] a determination being a positive determination if, at the NAP serving the UE, there is sufficient unused resource capacity that is not reserved for the connection setup requests for the one or more premium services;

136. See claim limitations 11[b] and 1[e] above.

9. 11[h] passing the connection setup request for further processing within the telecommunications network only upon positive determination.

137. See claim limitations 11[b] and 1[f] above.

H. Claim 13

1. Claim 13[p] The node according to claim 11, wherein:

138. Claim 11 has been shown to be obvious over *Ostrup* and 23.401. See Section VIII.G above.

⁴ While Claim 11 lacks antecedent basis for “the” network access point (NAP), Petitioner will address limitation 11[f] as if it recited “a” network access point (NAP).

2. Claim 13[a] the node is communicatively connected to a computer-readable storage medium storing a data structure comprising at least:

139. See claim limitations 10[p], 11[p], and 11[a] above, which recite a node with a data structure stored in a computer-readable storage medium.

3. Claim 13[b] an indication of a resource capacity of a network access point (NAP) reserved for connection setup requests for one or more premium services;

140. See claim limitation 10[a] above. Claim 13 depends from claim 11. To the extent the “one or more premium services” are services additional to the “one or more premium services” introduced in claim 11, an indication of resource capacity reserved for requests for one or more additional premium services would have been obvious provided *Ostrup*’s disclosure of various types of privileged sessions as discussed with respect to optional limitation 7[b].

4. Claim 13[c] an indication of an amount of resources currently used by the NAP for the one or more premium services;

141. See claim limitation 10[b] above.

5. Claim 13[d] an indication of an amount of resources currently used by the NAP for services that do not belong to the one or more premium services;

142. See claim limitation 10[c] above.

6. Claim 13[e] the information regarding resource use within the NAP serving the UE comprises at least a portion of information stored on the computer-readable storage medium.

143. *Ostrup* discloses this limitation, which requires the information regarding resource use within the NAP recited in limitation 11[f] to include at least a portion of information stored on the computer-readable storage medium. Notably, claim limitation 11[f] specifically recites “information comprising available resources in the [NAP] serving the UE that are not reserved for premium services,” which is the only “information” in claims 11 or 13 to which claim limitation 13[e] could refer. As explained above in claim limitation 13[a], which references claim limitations 10[p] and 11[a], *Ostrup* in view of 23.401 renders obvious a computer readable medium storing a data structure. As discussed above in claim limitations 10[d] and 11[f], *Ostrup* in view of 23.401 renders obvious the computer readable medium and data structure storing the information comprising available resources in the NAP serving the UE that are not reserved for premium services (*i.e.*, the information regarding resource use within the NAP).

I. Claim 14

1. 14[p] A system comprising:

144. I have been informed by counsel that a preamble of a claim may or may not be considered a limitation. To the extent preamble 14[p] is limiting, the combination of *Ostrup* and 23.401 discloses and renders it obvious. One of skill in

the art would understand that implementing *Ostrup* in an LTE network would include a system. Also, a POSITA would have understood that Figure 1 of *Ostrup*, which includes a wireless terminal, a base station, and a reservation function, illustrates a system:

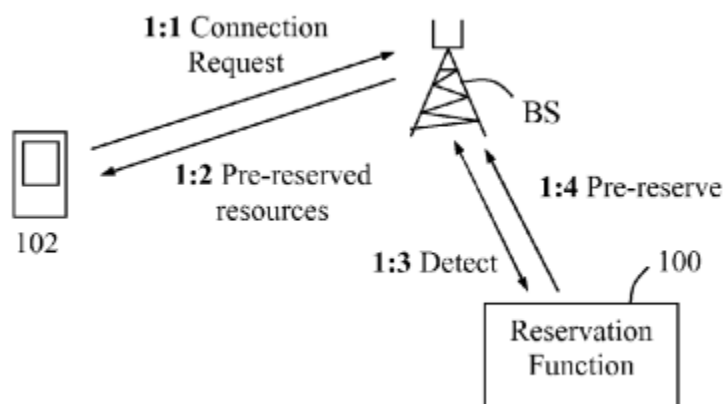


Fig. 1

EX1004, Figure 1.

145. This is consistent with the use of the term “system” in the ‘338 Patent, which explains that aspects of the present invention may take the form of an entirely hardware embodiment, an entirely software embodiment (including firmware, resident software, micro-code, etc.) or an embodiment combining software and hardware aspects “that may all generally be referred to herein as a ‘circuit,’ ‘module’ or ‘**system**.’” EX1001, at 4:55-60. *Ostrup*’s embodiment of Figure 1 combines software and hardware aspects, which the ’338 Patent describes as a system.

2. 14[a] A node comprising:

146. See claim feature 1[p] and claim limitation 11[p] above.

3. 14[b] a computer readable storage medium having computer readable program code embodied therewith:

147. *See* claim limitation 11[a] above.

4. 14[c] a processor coupled to the computer readable storage medium, wherein responsive to executing the computer readable program code, the processor configured to perform executable operations comprising:

148. *See* claim limitation 1[b] above.

5. 14[d] intercepting a connection setup request from a user equipment (UE) to a control node of a radio access network (RAN) part of a telecommunications network

149. *See* claim limitation 11[c] above.

6. 14[e] identifying, from the connection setup request, a service for which the connection setup is requested

150. *See* claim limitation 11[d] above.

7. 14[f] determining that the identified service is not an emergency service

151. *See* claim limitation 11[e] above.

8. 14[g] determining whether the connection setup request is to be fulfilled based at least on information comprising available resources in the network access point (NAP) serving the UE that are not reserved for premium services

152. *See* claim limitation 11[f] above.

9. 14[h] a determination being a positive determination if, at the NAP serving the UE, there is sufficient unused resource capacity that is not reserved for the connection setup requests for the one or more premium services; and

153. *See* claim limitation 11[g] above.

10. 14[i] passing the connection setup request for further processing within the telecommunications network only upon positive determination; and

154. See claim limitation 11[h] above.

11. 14[j] a computer-readable storage medium storing a data structure comprising at least:

155. See claim limitation 10[p] above.

12. 14[k] an indication of a resource capacity of a network access point (NAP) reserved for connection setup requests for one or more premium services;

156. See claim limitation 10[a] above.

13. 14[l] an indication of an amount of resources currently used by the NAP for the one or more premium services; and

157. See claim limitation 10[b] above.

14. 14[m] an indication of an amount of resources currently used by the NAP for services that do not belong to the one or more premium services.

158. See claim limitation 10[c] above.

IX. GROUND 2: CLAIMS 2-7 AND 13 ARE OBVIOUS OVER *OSTRUP* (EX1004) IN LIGHT OF *23.401* (EX1005) AND *AHMAD* (EX1006)

J. Motivation to Combine *Ostrup* with *23.401* and *Ahmad*

159. A POSITA would have been motivated to combine *Ostrup* with *23.401*, as explained above in Ground 1. See Section VIII.A. A POSITA would have been motivated to further combine these references with *Ahmad*.

160. *Ostrup* relates to “enabling privileged access in a cellular network.” EX1004, at Title. *Ostrup* explains how resources of the base station are pre-reserved for privileged sessions. See *id.*, at [00027]. A POSITA would have understood that, at least in some network configurations that involve multiple parties (*e.g.*, hosting and hosted network operators), for a network operator to reserve resources at a base station, there would be a need for an agreement to govern the issues, circumstances, and implications of this reservation. To implement *Ostrup* in an LTE network in view of 23.401, a POSITA would have looked to other references with respect to such agreements.

161. *Ahmad* is directed to “[f]lexible network sharing” and describes sharing of network resources under a sharing contract. EX1006, at Title, Abstract. *Ahmad* describes how a hosting operator can allocate network resources to one or more hosted network operators based on a shared network agreement. *Id.*, at [0112] (“Static sharing may be a type of network sharing agreement that may take place between a hosting operator and a hosted operator in which the resource allocation may be agreed upon.”). The agreement of *Ahmad* would also necessarily include a reservation of the agreed upon resource allocation by the hosting operator, so as not to violate the agreement. *Id.*, at [0142] (“When the RAN node is operating close to its capacity, *e.g.*, close to its allocated resources, admission of a new bearer may

violate the sharing agreement between two or more operators. Policies and/or procedures may be used at the RAN node to avoid such a scenario.”)

162. Thus, *Ahmad* provides an example of an agreement for allocation of resources that would have been beneficial to a POSITA when looking to implement *Ostrup*’s reservation of resources in a cellular network given the need for a network resource agreement to govern issues, circumstances, and implications concerning the resource reservation, such as the amount of resources that need to be reserved and reservation timing. Such an agreement would, for example, identify the quantity and capacity of resources that are reserved. EX1006, at [0123] (“In a network sharing scheme in which both the RAN infrastructure and the spectrum may be shared, the network's capacity to be shared may be expressed in terms of different resource types and/or resource units or a combination of different types of resource.”); *see also id.* at [0166] (“A number of metrics may be used individually or in any combination to express the network capacity and the network slice allocation to hosted operators.”).

163. Also, similar to how *Ostrup* describes prioritizing reserved resources for privileged sessions, *Ahmad* describes distributing resource capacity based on priorities. *Id.*, at [0190] (“The requesting operators may be given different priorities, and there may be different operation to distribute the capacity according to the priorities.”) As applied to *Ostrup*, *Ahmad* describes for a POSITA how to govern the reservation of the predefined resource capacity for connection setup requests for

one or more premium services (*i.e.*, “resource capacity”) available to particular priority levels using network resource sharing agreements.

164. And similar to *Ostrup*, *Ahmad* describes how the sharing of resources may take place in a base station used in LTE networks, such as an eNB. *Id.*, at [0096] (“Network sharing may be used in various scenarios. For example, an operator operator 1 with PLMN ID1 may purchase an eNB and then may rent the eNB to another operator operator2 with PLMN ID2 and still another operator operator3 with PLMN ID3. The eNB may be shared by operator1, operator2, and operator3.”); *see also id.*, at [0047] (“. . . the base station 114 a and the WTRUs 102 a, 102 b, 102 c may implement a radio technology such as Evolved UMTS Terrestrial Radio Access (E-UTRA), which may establish the air interface 115/116/117 using Long Term Evolution (LTE) and/or LTE-Advanced (LTE-A).”

165. Thus, a POSITA would have been motivated to combine *Ahmad* with *Ostrup* and 23.401 when seeking details as to how the network operator in *Ostrup* would implements its resource reservation functionality in an LTE network, such as by using network resource sharing agreements as described by *Ahmad* in flexible network sharing scenarios.

K. Reasonable Expectation of Success

166. A POSITA would have had a reasonable expectation of success in combining *Ostrup* with 23.401, as explained above in Ground 1. *See* Section VIII.A.

A POSITA would have had a reasonable expectation of success when combining these references with *Ahmad*. For instance, similar to how *Ostrup* describes reserving resources in a cellular network, *Ahmad* describes distributing resource capacity based on priorities. EX1006, at [0190] (“The requesting operators may be given different priorities, and there may be different operation to distribute the capacity according to the priorities.”) As applied to *Ostrup*, *Ahmad* teaches the POSITA to govern the reservation of the predefined resource capacity for connection setup requests for one or more premium services (*i.e.*, “resource capacity”) available to particular priority levels using network sharing agreements.

167. A POSITA would have, for example, modified *Ostrup* to establish a network sharing agreement, as described in *Ahmad*, that indicates the amount of resources to be reserved by the resource owner, as described in *Ostrup*. EX1004, [0002], [0006], [00030], [00033]; EX1006 at [0112]-[0114].

168. As another example, a POSITA would have referred to a network sharing agreement, as described in *Ahmad*, when deciding whether a received connection request refers to a privileged session or not. EX1004, at [0002], [0006], [00042]; EX1006 at [0112]-[0114].

169. A POSITA would have had a reasonable expectation of success in making these combinations since these example embodiments merely implement a network sharing agreement as taught by *Ahmad* in *Ostrup*’s resource reservation

functionality which would benefit from an agreement to govern the details of the resource reservation process in flexible network sharing scenarios.

L. Claim 2. The method according to claim 1, wherein the determination of whether the connection setup request is to be fulfilled is further based on one or more agreements with one or more service providers regarding resource capacity in an access network part of the telecommunications network

170. *Ostrup* in view of 23.401 and *Ahmad* renders obvious this limitation. Claim 1 has been shown to be obvious over *Ostrup* and *Ahmad*. See Section VIII.C. And as described above with respect to claim limitations 1[d] and 1[e], *Ostrup* discloses determining whether a connection setup request is to be fulfilled based on information comprising available resources in a NAT not reserved for premium services. See Sections VIII.C.4 and VIII.A.C.6. *Ostrup* describes using unreserved resources provided that such resources are currently available for the base station. *Id.*

171. *Ostrup* explains how network operators control the supply of resources in an access network:

“the number of simultaneous communication sessions with terminals in a specific area of a cell being served by a base station, is limited due to a **limited supply of communication resources** in the network. These restrictions primarily refer to bandwidth allocated for radio communication in the cell but may also pertain to various equipment

available in the base station for providing the radio communication.

Network operators typically control the radio communication in their cells by allocating a certain amount of bandwidth to individual cells.”

EX1004, at [0002].

172. *Ostrup* further explains how “each resource may logically be controlled by a ‘resource owner’ or the like.” *Id.*, at [00030]. *Ostrup* also describes how certain parties have priority over other parties. *See id.* (“a session with a wireless terminal is deemed privileged [. . .] if it involves a party being classified as privileged and having priority over others, such as persons working for public safety, medical service, law enforcement, military service, etc.”); *see also id.*, at [00039] (“The base station may thus have a function that assigns a priority to each ongoing privileged session in the cell, e.g. by setting a highest priority for calls by medical service personnel, a lower priority for calls by food supply personnel, and so forth.”).

173. It would have been obvious to the POSITA that the reservation of resources disclosed by *Ostrup* would have been based on agreements with one or more service providers. For instance, the network operator of the network implementing *Ostrup*’s resource reservation functionality would be a service provider given the operator’s provision of network services.

174. Additionally, the privileged or priority parties providing public safety, medical, law enforcement, or military services as described by *Ostrup* would also be service providers. In order to implement the resource reservation functionality of *Ostrup*, it would have been obvious to have a resource reservation agreement between or among the network operator (a type of service provider) and the providers of the privileged or priority services benefitting from the reservation of resources (a type of service provider).

175. Likewise, *Ahmad* describes a relationship between a hosting RAN operator (a type of service provider) and one or more hosted network providers that provide services to subscribers (a type of service provider). EX1006, at [0110] (“As used in this disclosure, **a network operator may also be** referred to as a RAN operator, a hosting operator, or **a hosting RAN operator.**”); *see also id.*, at [0166] (“For example, a hosted operator may be allocated two million APN-AMBR of 54 MBps non-GBR for an APN that may correspond to an **on-demand movie service.** The **hosted operator may then serve two million subscribers**, assuming each subscriber may have one PDN connection to that site at a time.”). Since the hosting RAN operator provides services (e.g., network resources) to the hosted network providers, and the hosted network providers provide services (e.g., on-demand movie services) to subscribers, both the hosting RAN operator and the hosted network providers are service providers. *Ahmad*’s characterization of the hosted

operator serving on-demand movie service subscribers is similar to the ‘338 Patent’s characterization of service providers as Over-The-Top (OTT) service providers. EX1001, at 9:51-56, 10:15-17.

176. *Ahmad* also describes sharing agreements and policies for network RAN resources. EX1006, at [0112]. *Ahmad* further explains how a sharing agreement for resource allocation between a hosting operator and a hosted operator may take place. *Id.* (“Static sharing may be a type of network sharing agreement that may take place between a hosting operator and a hosted operator in which the resource allocation may be agreed upon.”).

177. Therefore, in light *Ahmad*’s teachings of agreements for resource sharing between a network RAN operator and hosted operator that serves subscribers, it would have been obvious to have agreements in place for the reservation of resources between *Ostrup*’s network operator and its providers of priority or privileged services. Such agreements would be based on network resource capacity and would govern the policies and issues surrounding *Ostrup*’s resource reservation functionality for its priority service providers. The motivation to combine *Ahmad* with *Ostrup* and 23.401 is further discussed above in Section VIII.A.

178. Provided the obviousness of an agreement with one or more service providers for *Ostrup*’s reservation of resources, it would have been obvious to a

POSITA that when *Ostrup* determines whether to fulfill a connection request using unreserved resources provided that they are currently available at the base station (*e.g.*, as described above with respect to limitations 1[d] and 1[e]), this determination is further based on one or more agreements with one or more service providers regarding resource capacity in an access network part of the telecommunications network. These agreements, for example, would identify the quantity and capacity of resources that are reserved and, as a result, which are not reserved. Also, given that the base station is a network access point, resource capacity in the base station is resource capacity in an access network part of the telecommunications network.

179. Therefore, *Ostrup* in view of 23.401 and *Ahmad* renders obvious a determination of whether the connection setup request is to be fulfilled further based on one or more agreements with one or more service providers regarding resource capacity in an access network part of the telecommunications network.

M. Claim 3. The method according to claim 2, wherein the one or more agreements comprise reservation, at the NAP serving the UE, of a predefined resource capacity for connection setup requests for one or more premium services.

180. *Ostrup* in light of 23.401 and *Ahmad* renders obvious this limitation. Claim 2 has been shown to be obvious over *Ostrup*, 23.401, and *Ahmad*. See Section IX.L. It would have been obvious to the POSITA that the reservation of network resources disclosed by *Ostrup* would have been based on agreements with one or more service providers, as explained for claim 2 above. *Ahmad* specifically

describes sharing agreements and policies for network RAN resources between service providers to manage resource capacity. *See* Section IX.L; *see also* EX1006, at [0012], [0123], [0142], [0166]. And as discussed above with respect to limitation 10[a], *Ostrup's* base station includes an indication of a resource capacity of a network access point (NAP) reserved for connection setup requests for one or more premium services. *See* VIII.F.1.

181. Therefore, it would have been obvious for the agreements upon which *Ostrup's* reservation of resources would be based would comprise reservation, at the NAP serving the UE, of a predefined resource capacity for connection setup requests for one or more premium services. *See* Section IX.J.

N. Claim 4. The method according to claim 3, wherein the predefined resource capacity is set as a percentage of the total resource capacity of the NAP.

182. *Ostrup* in view of 23.401 and *Ahmad* renders obvious this limitation. It would have been obvious to a POSITA that the reservation of network resources disclosed by *Ostrup* would have been based on agreements with one or more service providers, as explained for claim 2 above. *See* Section IX.L. And it would have been obvious for the agreements upon which *Ostrup's* reservation of resources would be based would comprise reservation, at the NAP serving the UE, of a predefined resource capacity for connection setup requests for one or more premium services, as explained for claim 3 above. *See* Section IX.M.

183. Claim 4 recites that the predefined resource capacity is set as a percentage of total resource capacity of the NAP. *Ostrup* explains that if additional privileged session connections are established by using pre-reserved resources, *Ostrup*'s resource reservation functionality can "ensure that there are always enough resources pre-reserved and readily available for at least one more privileged session connection until all resources are exhausted in the cell." EX1004, at [00027]. All resources corresponds to the claimed "total resource capacity."

184. *Ahmad* describes how network resource sharing agreements can be based on a fixed percentage allocation of network resources. EX1006, at [0119] ("The sharing contract may define a fixed percentage allocation of network resources that may not be modified without a change in the contract."). *Ahmad* further explains that "[a] number of metrics may be used individually or in any combination to express the network capacity and the network slice allocation to hosted operators. One metric may be a number of GBR bearers that may be available, or a percentage of the total GBR bearers that may be available for each defined GBR data rate, QC1, and ARP (downlink, uplink)." *Id.*, at [0166]. Provided the disclosure of network resource agreements governing sharing of resources between service providers based on percentage allocation of resources and given *Ostrup*'s accounting for both pre-reserved resources and total resource capacity of the cell, it would have been obvious to a POSITA for the reservation of predefined resource capacity for

connection setup requests for one or more premium services in the agreements with one or more service providers to be set as a percentage of total resource capacity at the NAP. *See* Section IX.J. Setting the reserved resource capacity as a percentage of the total resource capacity allows the network operator to share resources with multiple service providers according to the same allocation. *See* EX1006, at [0140] (“When resource sharing is dedicated and allocated, different network nodes, e.g., RAN nodes, may need to be informed about the resource sharing percentage or appropriation between different operators so that RAN resources may be shared according to the same allocation.”). Setting the reserved resource capacity as a percentage of the total resource capacity also ensures that the resources in the base station are utilized effectively for serving sessions in the cell. *See* EX1004, at [00012] (“It is an advantage that resources in the base station can thus be utilised effectively for serving sessions in the cell, which can provide much additional capacity in a network with numerous cells as compared to conventional pre-reservation procedures.”). Setting the reserved resource capacity as a percentage of the total capacity also ensures relative consistency of the reservations over time, even as use dynamically changes.

O. Claim 5. The method according to claim 3, wherein the predefined resource capacity is set as a predefined amount of the total resource capacity of the NAP, the predefined amount being less than the total resource capacity of the NAP.

185. *Ostrup* in view of 23.401 and *Ahmad* renders obvious this limitation. It would have been obvious to the POSITA that the reservation of network resources disclosed by *Ostrup* would have been based on agreements with one or more service providers, as explained in claim 2 above. Section IX.L. And it would have been obvious for the agreements upon which *Ostrup*'s reservation of resources would be based would comprise reservation, at the NAP serving the UE, of a predefined resource capacity for connection setup requests for one or more premium services, as explained for claim 3 above, Section IX.M. *Ostrup* explains that if additional privileged session connections are established by using pre-reserved resources, *Ostrup*'s resource reservation functionality can "ensure that there are always enough resources pre-reserved and readily available for at least one more privileged session connection until all resources are exhausted in the cell." EX1004, at [00027]. The reference to "all resources" corresponds to the claimed "total resource capacity." Also, *Ahmad* discloses how network resource allocation may be expressed as a predefined amount. *See, e.g.*, EX1006, at [0166] ("A number of metrics may be used individually or in any combination to express the network capacity and the network slice allocation to hosted operators. One metric may be a number of GBR [guaranteed bit rate] bearers that may be available, or a percentage of the total GBR

bearers that may be available for each defined GBR data rate, QC1, and ARP (downlink, uplink).”).

186. It would have been well understood by the POSITA that the amount of pre-reserved resources for privileged sessions is less than the total resource capacity of the base station. For instance, leaving some resource capacity of the base station unreserved and available for non-privileged sessions would be beneficial to avoid wasting resources since it is unlikely that all of the base station’s resource capacity will be used for privileged sessions at the same time. Also, *Ostrup* itself discloses reserving resources for privileged sessions less than the total resource capacity. For instance, *Ostrup* discloses that if a connection request is not for a privileged session, then the base station can establish a connection by using “unreserved resources.” EX1004, at [00042]. If the resources reserved for privileged sessions amounted to the total resource capacity of the base station, then there would not be any unreserved resources available.⁵

⁵ While *Ostrup* states that the connection using unreserved resources is established provided that unreserved resources are currently available, a POSITA would have understood based on *Ostrup* that unreserved or “free” resources would not be available due to “congestion in the cell.” EX1004, at [00036].

187. As such, *Ostrup* in view of 23.401 and *Ahmad* renders obvious that the reserved predefined resource capacity is set as a predefined amount of the total resource capacity and is less than the total resource capacity of the NAP.

P. Claim 6. The method according to claim 3, wherein the predefined resource capacity is dynamically adjusted.

188. *Ostrup* in view of 23.401 and *Ahmad* renders obvious this limitation. It would have been obvious to a POSITA that the reservation of network resources disclosed by *Ostrup* would have been based on agreements with one or more service providers, as explained for claim 2 above. Section IX.L. And it would have been obvious that the agreements upon which *Ostrup*'s reservation of resources would be based, would comprise reservation at the NAP serving the UE of a predefined resource capacity for connection setup requests for one or more premium services, as explained for claim 3 above. Section IX.M.

189. *Ostrup* also describes how “new resources are pre-reserved in the base station for privileged sessions as soon as it is detected that resources have been seized for a privileged session connection, to compensate for the seized resources in a dynamic manner.” EX1004, at [00012]. *Ostrup* explains a scenario where the reservation of resources is delayed until enough resources become available. *Id.*, at [00036] (“If there are currently not enough free resources available, e.g. due to congestion in the cell, the pre-reservation of new resources may be delayed temporarily until enough resources eventually become available.”). Therefore,

Ostrup discloses that the pre-reserved resource capacity reserved for privileged sessions may be dynamically adjusted based on current use and current availability of resources.

190. Additionally, *Ahmad* describes how the allocation of network resources can be dynamically adjusted in accordance with network sharing agreements among service providers. EX1006, at [0113] (“Dynamic sharing may be a type of network sharing agreement in which the allocation of network resources may be changed or switched using manual or automatic OAM procedures between the hosting operator and the hosted operator.”) *Ahmad* explains how this type of dynamic sharing can occur within a specific time frame. *Id.* (“This type of resource allocation may occur in a time frame of, for example, a few minutes to a few hours.”). The ’338 Patent describes how “the amount of resources reserved for the premium services could be dynamically adjusted based on a schedule (i.e. adjusted depending on the time of the day, day in the week, etc.).” EX1001, at 10:20-23.

191. Therefore, provided *Ostrup*’s disclosure of dynamically adjusting the reserved resource capacity and given *Ahmad*’s disclosure of agreements for dynamically adjusting the shared and reserved resources among service providers, it would have been obvious to a POSITA to dynamically adjust the predefined reserved resource capacity in *Ostrup*. Dynamically adjusting the reserved resource capacity is advantageous in situations where limited resources may be available at the base

station, as described in *Ostrup*. See EX1004, at [00036]. Dynamically adjusting the reserved predefined resource capacity is also beneficial in that it allows flexibility to accommodate the capacity needs of service providers on a real-time basis, as described in *Ahmad* in regard to hosted operators. EX1006, at [0005] (“The network sharing scheme may be flexible enough to accommodate the capacity needs of hosted operators on a real-time basis.”).

Q. Claim 7

1. 7[a] The method according to claim 3, further comprising: determining that the identified service is not one of the one or more premium services

192. *Ostrup* in view of 23.401 and *Ahmad* renders obvious this limitation, which requires determining that the identified service is not one of “the” one or more premium services for which predefined resource capacity was reserved in the agreement. It would have been obvious that the agreements upon which *Ostrup*’s reservation of resources would be based, would comprise reservation at the NAP serving the UE of a predefined resource capacity for connection setup requests for one or more premium services, as explained for claim 3 above. Section IX.M.

193. *Ostrup* discloses that the base station determines that the identified session is not a privileged session, and therefore could not be an emergency service, explained above in claim limitation 1[c]. See Section VIII.C.4. *Ostrup* distinguishes between privileged sessions and non-privileged sessions. EX1004, at [0003] (“the

term ‘privileged session’ will be used to represent any call or other communication session that is deemed to be of higher importance or priority over other non-privileged calls and sessions of no particular importance or priority, referred to as ‘non-privileged sessions’ which thus have no precedence over any other sessions.”).

194. Likewise, the ’338 Patent distinguishes between premium services and non-premium services. EX1001, at 1:50-54 (“premium services receive greater attention and effort from the network than non-premium services, which becomes prominent in case there are not enough resources to fulfil connection setup requests for all of the requested services.”). As such, *Ostrup*’s “privileged sessions” correspond to the claimed “premium services.”

195. As such, provided that it would have been obvious for an agreement to include a reservation of a predefined resource capacity for connection setup requests for *Ostrup*’s privileged sessions, and given *Ostrup*’s disclosure of determining that the identified service is not one of the one or more privileged sessions, *Ostrup* in view of 23.401 and *Ahmad* renders obvious this limitation.

2. 7[b] optionally, determining that the identified service is not one of one or more additional premium services

196. I have been informed by counsel that optional features of a claim may or may not be considered a limitation. In the event that this optional claim feature is considered limiting, *Ostrup* discloses this limitation. As explained in claim limitation 7[a] above, *Ostrup* discloses determining that the identified service is not

one of the one or more premium services for which predefined resource capacity was reserved in the agreement. Section IX.Q.1. This optional limitation recites determining that the identified service is not one of one or more additional premium services.

197. *Ostrup* provides several examples of types of privileged sessions, such as communication sessions from or to parties of particular priority such as persons working for public safety, medical service, law enforcement, and military service. *See* EX1004, at [0003] (“[s]ome typical examples of such privileged sessions are emergency calls when users in the cell dial a specific emergency number, such as 112 or 911, and *communication sessions from or to parties of particular priority such as persons working for public safety and law enforcement, e.g. the police.*”); *see also id.*, at [00030] (“Moreover, a session with a wireless terminal is deemed privileged if it is directed to a privileged or prioritized number, such as an emergency number, or if it involves a party being classified as privileged and having priority over others, such as persons working for public safety, medical service, law enforcement, military service, etc.”); *see also id.*, at [00039]: “The base station may thus have a function that assigns a priority to each ongoing privileged session in the cell, e.g. by setting a highest priority for calls by medical service personnel, a lower priority for calls by food supply personnel, and so forth.”).

198. *Ostrup* explains that “[t]he session may also be identified as privileged by [. . .] priority information received from a core network, e.g. a parameter called ‘Allocation Retention Priority, ARP’.” See Section VIII.C.3; see also EX1004, at [00013].

199. Provided *Ostrup*’s disclosure of various types of privileged sessions to which its functionality could apply, it would have been obvious to a POSITA to utilize an agreement for reservation of predefined resource capacity for one or more privileged session types while also determining that an identified service is not one of one or more other privileged session types or premium services. Any one of *Ostrup*’s privileged session types may refer to the “premium services” of claim 3 and other types of privileged sessions disclosed by *Ostrup* could be the “additional premium services” of optional limitation 7[b].

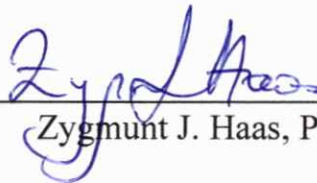
X. CONCLUSION

200. This declaration and my opinions herein are made to the best of my knowledge and understanding, and based on the material available to me, at the time of signing this declaration. I reserve the right to add, delete, or change any of my opinions in this declaration upon becoming aware of new or additional material or information. I declare that all statements made herein on my own knowledge are true and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false

statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 or Title 18 of the United States Code.

Date:

Dec 1, 2023

A handwritten signature in blue ink, appearing to read "Zygmunt J. Haas", written over a horizontal line.

Zygmunt J. Haas, Ph.D