IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION

WSOU INVESTMENTS, LLC d/b/a BRAZOS LICENSING AND DEVELOPMENT, Plaintiff, v. HUAWEI TECHNOLOGIES CO., LTD. and HUAWEI TECHNOLOGIES USA INC. Defendants.	§ § § § § § § § § § §	CASE NO. 6:20-cv-537 **JURY TRIAL DEMANDED**

ORIGINAL COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff WSOU Investments, LLC d/b/a Brazos Licensing and Development ("Brazos" or "Plaintiff"), by and through its attorneys, files this Complaint for Patent Infringement against Defendants Huawei Technologies Co., Ltd. and Huawei Technologies USA Inc. (collectively "Huawei" or "Defendants") and alleges:

NATURE OF THE ACTION

1. This is a civil action for patent infringement arising under the Patent Laws of the United States, 35 U.S.C. §§ 1, et seq., including §§ 271, 281, 284, and 285.

THE PARTIES

2. Brazos is a limited liability corporation organized and existing under the laws of Delaware, with its principal place of business at 605 Austin Ave, Ste 6, Waco, TX 76701.

3. On information and belief, Defendant Huawei Technologies Co., Ltd. is a Chinese corporation that does business in Texas, directly or through intermediaries, with a principal place of business at Bantian, Longgang District, Shenzhen 518129, People's Republic of China.

4. Upon information and belief, Defendant Huawei Technologies USA Inc. is a corporation organized and existing under the laws of Texas that maintains an established place of business at 2391 NE Interstate 410 Loop, San Antonio, TX 78217. Huawei Technologies USA, Inc. is authorized to do business in Texas and may be served via its registered agent, CT Corporation System, 1999 Bryan Street, Suite 900, Dallas, Texas 75201-3136.

5. The Defendants operate under and identify with the trade name "Huawei." Each of the Defendants may be referred to individually as a "Huawei Defendant" and, collectively, Defendants may be referred to below as "Huawei" or as the "Huawei Defendants."

JURISDICTION AND VENUE

6. This is an action for patent infringement which arises under the Patent Laws of the United States, in particular, 35 U.S.C. §§271, 281, 284, and 285.

7. This Court has jurisdiction over the subject matter of this action under 28 U.S.C. §§ 1331 and 1338(a).

8. This Court has specific and general personal jurisdiction over each Huawei Defendant pursuant to due process and/or the Texas Long Arm Statute, because each Huawei

Defendant has committed acts giving rise to this action within Texas and within this judicial district. The Court's exercise of jurisdiction over each Huawei Defendant would not offend traditional notions of fair play and substantial justice because Huawei has established minimum contacts with the forum. For example, on information and belief, Huawei Defendants have committed acts of infringement in this judicial district, by among other things, selling and offering for sale products that infringe the asserted patent, directly or through intermediaries, as alleged herein.

9. Venue in the Western District of Texas is proper pursuant to 28 U.S.C. §§1391 and 1400(b) because Huawei Technologies USA Inc. has committed acts of infringement in this judicial district and has a regular and established places of business in this judicial district and in Texas. As non-limiting examples, on information and belief, Huawei Technologies USA Inc. has sold or offered to sell the Accused Products in this judicial district and has employees or agents that operate Huawei equipment in this judicial district, including at 189 CR 265, Georgetown, TX 78626, 1150 S Bell Blvd, Cedar Park, TX 78613, 1399 S A W Grimes Blvd, Round Rock, TX 78664, 12335 IH 35, Jarrell, TX 76537, 1050 Rabbit Hill Rd, Unit #E, Georgetown, TX 78626, 1602 A W Grimes Blvd, Round Rock, TX 78664, 4120 IH 35 N, Georgetown, TX 78626, 900 CR 272, Leander, TX 78641, 1950 Crystal Falls Pkwy, Leander, TX 78641, 1101 N Industrial Blvd, Round Rock, TX 78681, 506 McNeil Rd, Round Rock, TX 78681, 3210 Chisholm Trail Rd, Round Rock, TX 78681, 112 Roundville Ln, Round Rock, TX 78664, 202 Central Dr W, Georgetown, TX 78628, 3595 E Hwy 29, Georgetown, TX 78626, 1402 W Welch St, Taylor, TX 76574, 3801 Oak Ridge Dr, Round Rock, TX 78681, 1957 Red Bud Ln #B, Round Rock, TX 78664, 6603 S Lakewood Dr, Georgetown, TX 78633, 500 W Front, Hutto, TX 78634.

COUNT ONE - INFRINGEMENT OF U.S. PATENT NO. 7,860,512

10. Brazos re-alleges and incorporates by reference the preceding paragraphs of this Complaint.

11. On December 28, 2010, the United States Patent and Trademark Office duly and legally issued U.S. Patent No. 7,860,512 ("the '512 Patent"), entitled "Method For Managing Radio Resources And Radiosystem." A true and correct copy of the '512 Patent is attached as Exhibit A to this Complaint.

12. Brazos is the owner of all rights, title, and interest in and to the '512 Patent, including the right to assert all causes of action arising under the '512 Patent and the right to any remedies for the infringement of the '512 Patent.

13. Huawei makes, uses, sells, offers for sale, imports, and/or distributes in the United States, including within this judicial district, products such as, but not limited to, Huawei eLTE Integrated access solution (collectively, the "Accused Products").

14. The Accused Products include Huawei eLTE Architecture, which includes DBS3900 Distributed Base Station and eCore9300.

15. The accused product Huawei eLTE Integrated access solution provides industry solutions that have scalable bandwidths and frequency band customization. The eLTE Architecture consists of DBS3900 Distributed Base Station and eCore9300.

Huawei's eLTE integrated access solution offers wireless networking based on cutting-edge 4.5G technology. This solution can be customized by frequency and bandwidth to meet a wide range of enterprise requirements and allows for evolution to 5G. The solution supports a variety of wireless broadband services, such as mobile office, video surveillance, and voice.

DBS3900 Distributed Base Stations

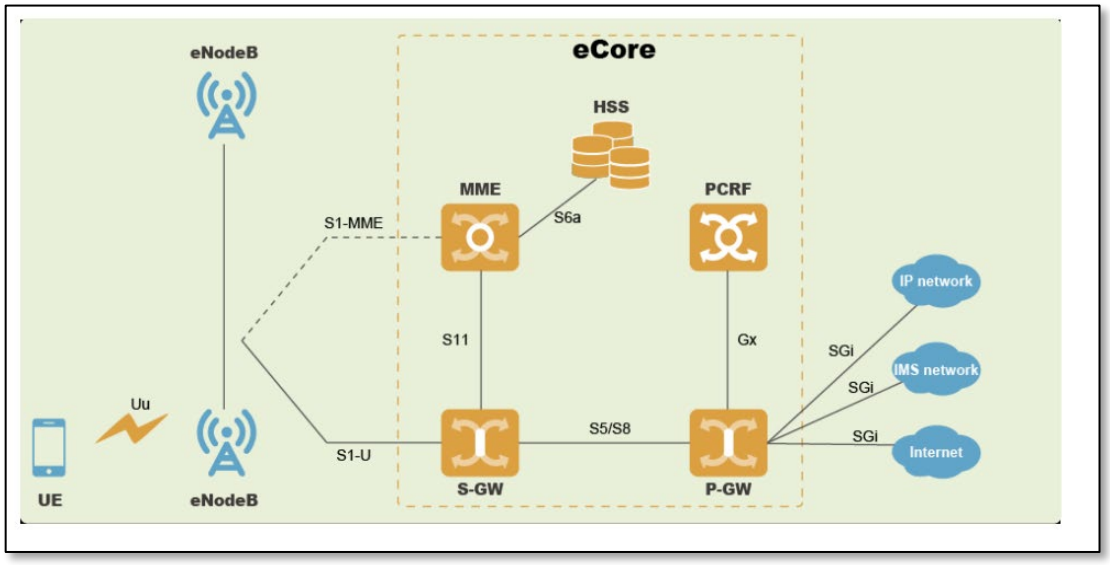
The DBS3900 supports bandwidth up to 100 Mbits/s, and provides higher data transmission rates for users.

eCore9300

eCore is based on a miniaturized hardware platform, supporting broadband access and trunking services via a virtualization feature.

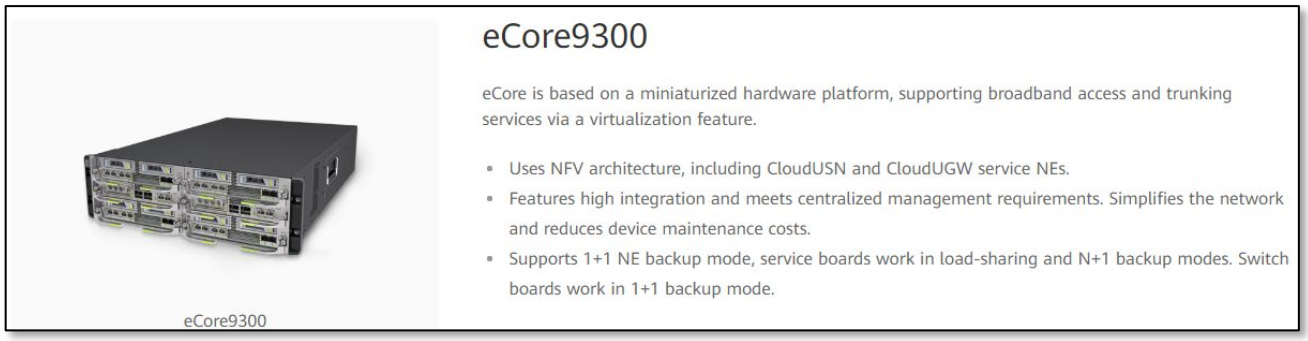
https://e.huawei.com/us/solutions/business-needs/wireless-private-network/broadband-access-new

16. eLTE Architecture comprises of two major components, DBS3900 and eCore 9300. eCore product series include the MME, EPC-UGW, HSS, PCRF and another necessary service NEs.



https://e.huawei.com/se/material/wireless/mccs/1464e39cd04b4b29810f9575b59c161c

17. The accused product consists of eCore9300 (i.e., an apparatus). eCore9300 is a hardware platform, supporting broadband access and trunking services via a virtualization feature. eCore can support up to 3000 eNodeBs.



Product Name	eCore9300
Dimensions (H x W x D)	130.5 mm x 442.0 mm x 675.0 mm
Supported Subscriber Quantity	200,000
Throughput	48 Gbit/s (1,024 bytes per packet)
eNodeB Quantity	3,000
eMBMS Group Quantity	4,000

https://e.huawei.com/en/products/wireless/elte-dsa/network-side-devices/ecore9300

18. eCore Product series are categorized in two parts which are eCore9300 & eCore9100. eCore9300 is majorly used in eLTE.

19. The eCore9300 uses Huawei OSTA5.0 (3 U) as the hardware platform. The OSTA5.0 comprises GPUB9 Board as a service component. GPUB9 board has CPU which uses Intel Broadwell-EP Xeon E5-2600 v4 CPUs (i.e., processor) as service processing units. GPUB9 boards can work in active/standby mode. GPUB9 Board provides Memory for eCore

9300. The memory provides DDR3 memory channels with capacity of 128 GB. The Storage for the board is equivalent to two 800 GB 2.5-inch SSD disks.

Table 4-1 Functions of the GPUB9 board

Function	Description
CPU	Uses two Intel® Broadwell-EP Xeon® E5-2600 v4 CPUs.
Memory	Provides eight DDR3 memory channels. The actual memory capacity is 128 GB.
Storage	Supports two 800 GB 2.5-inch SSD disks.
Internal switching	• Provides two 10GE Base ports for communicating with the Base plane of multi-function switch boards through the backplane. • Provides two 40GE Fabric ports for communicating with Fabric planes.

https://e.huawei.com/se/material/wireless/mccs/1464e39cd04b4b29810f9575b59c161c,

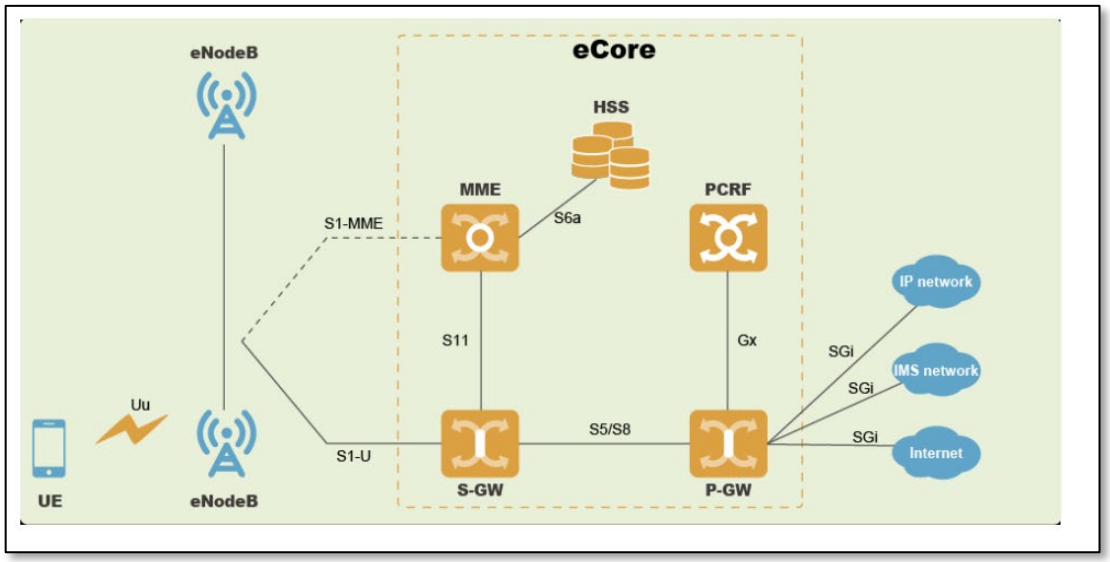
20. OSTA5.0 supports host software (i.e., computer program code) which provides resource management.

4.2.2 Host Software

The host software runs on boards in OSTA5.0 subracks. It provides the following functions: signaling access and processing, call processing, service control, and resource management. In response to specific commands executed by maintenance personnel, the host software also performs the following operations such as data management, device management, alarm management, performance measurement, signaling trace, and CDR management on the host in cooperation with the background software.

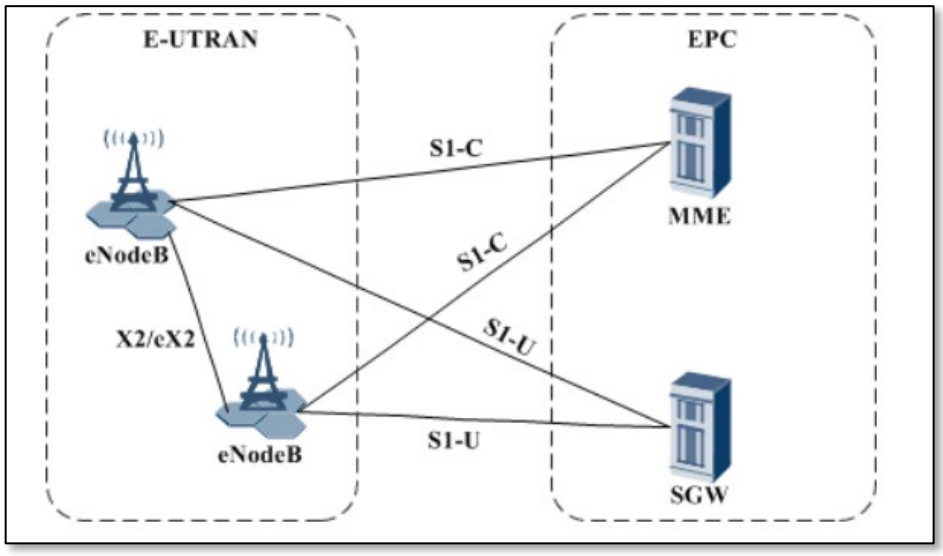
https://e.huawei.com/se/material/wireless/mccs/1464e39cd04b4b29810f9575b59c161c

21. eCore product series include the MME, EPC-UGW, HSS, PCRF and another necessary service NEs.



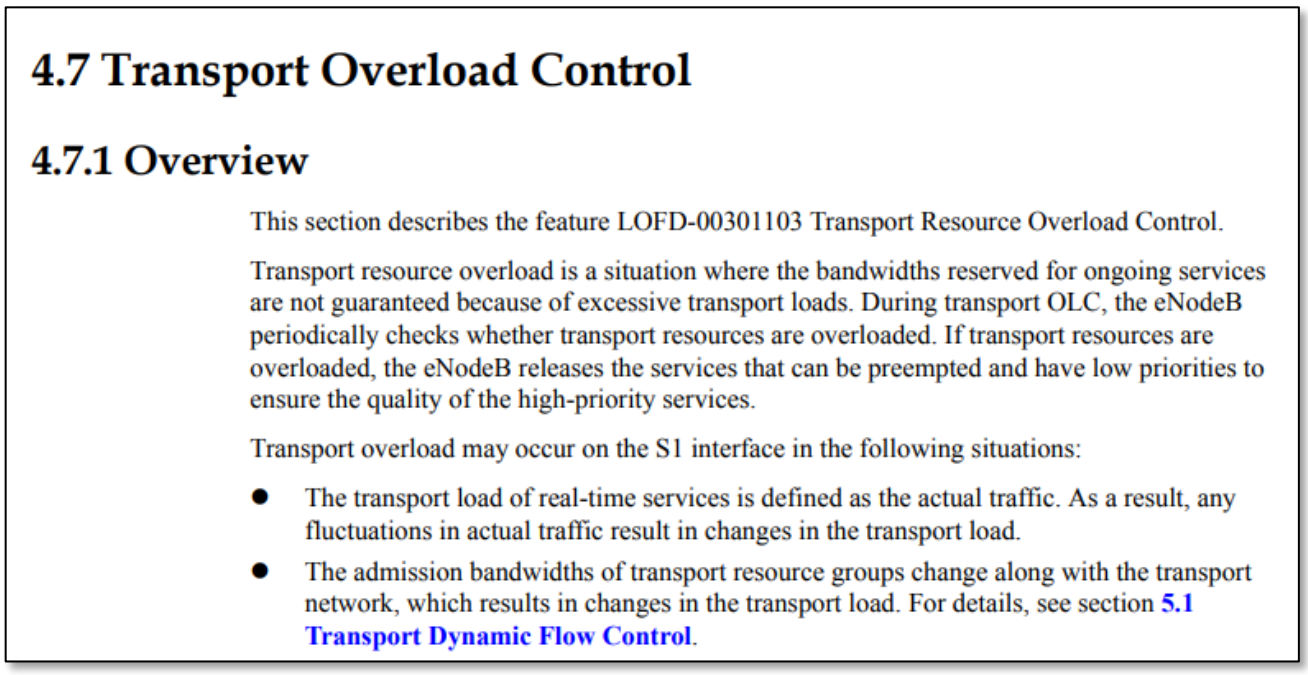
https://e.huawei.com/se/material/wireless/mccs/1464e39cd04b4b29810f9575b59c161c

22. EPC with eNodeB is an S1-C interface.



https://www.scribd.com/doc/298261608/Transport-Resource-Management-ERAN-8-1-01

23. Transport resource overload control occurs at S1 Interface.



4.7 Transport Overload Control

4.7.1 Overview

This section describes the feature LOFD-00301103 Transport Resource Overload Control.

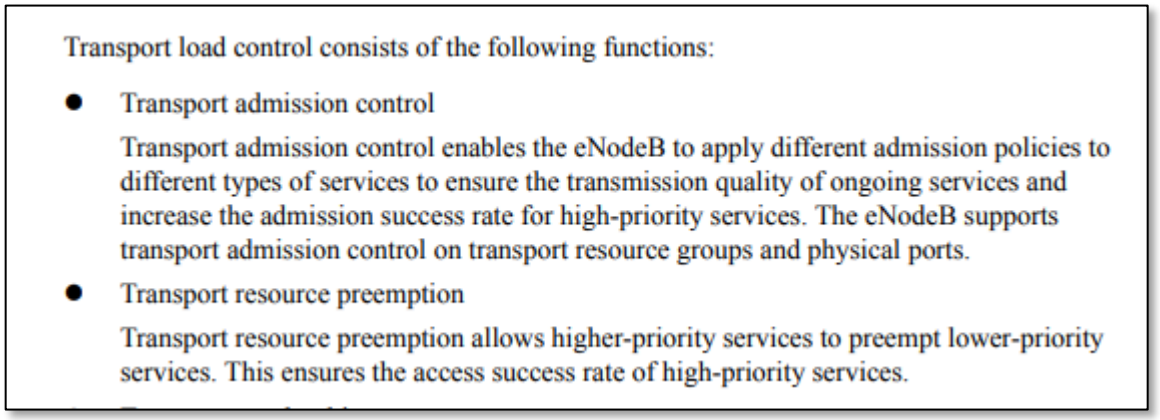
Transport resource overload is a situation where the bandwidths reserved for ongoing services are not guaranteed because of excessive transport loads. During transport OLC, the eNodeB periodically checks whether transport resources are overloaded. If transport resources are overloaded, the eNodeB releases the services that can be preempted and have low priorities to ensure the quality of the high-priority services.

Transport overload may occur on the S1 interface in the following situations:

- The transport load of real-time services is defined as the actual traffic. As a result, any fluctuations in actual traffic result in changes in the transport load.
- The admission bandwidths of transport resource groups change along with the transport network, which results in changes in the transport load. For details, see section **5.1 Transport Dynamic Flow Control**.

https://www.scribd.com/doc/298261608/Transport-Resource-Management-ERAN-8-1-01

24. Huawei eCore9300 with EPC supports Transport resource preemption. Transport Resource preemption allows higher priority services to preempt lower-priority services. (i.e., manage transport network resources).



Transport load control consists of the following functions:

- Transport admission control

  Transport admission control enables the eNodeB to apply different admission policies to different types of services to ensure the transmission quality of ongoing services and increase the admission success rate for high-priority services. The eNodeB supports transport admission control on transport resource groups and physical ports.

- Transport resource preemption

  Transport resource preemption allows higher-priority services to preempt lower-priority services. This ensures the access success rate of high-priority services.

https://www.scribd.com/doc/298261608/Transport-Resource-Management-ERAN-8-1-01

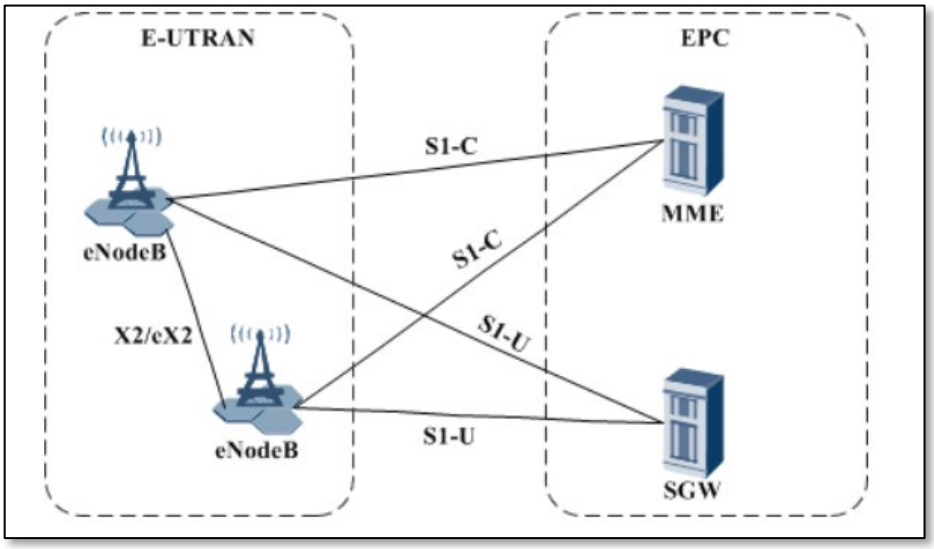
Transport Resource Preemption

Before verifying the transport resource preemption feature, query and set QoS parameters on the EPC.

You can check the S1AP_INITIAL_CONTEXT_SETUP_REQ and S1AP_ERAB_SETUP_REQ messages traced over the S1 interface for EPC-delivered QoS parameters, as shown in **Figure 9-6** and **Figure 9-7**.

https://www.scribd.com/doc/298261608/Transport-Resource-Management-ERAN-8-1-01

25. EPC connects with base stations through S1-C interface. EPC receives transport resource information which is in use for transport resource preemption. See below (i.e., receive transport capacity information on a transport network in a radio system)



https://www.scribd.com/doc/298261608/Transport-Resource-Management-ERAN-8-1-01

Product Models

eCore product series are categorized into the following two types based on the hardware platform:

- Product based on OSTA5.0 (3U) is named: eCore9300.
- Product based on OSTA5.0 (1U) is named: eCore9100.

https://e.huawei.com/se/material/wireless/mccs/1464e39cd04b4b29810f9575b59c161c

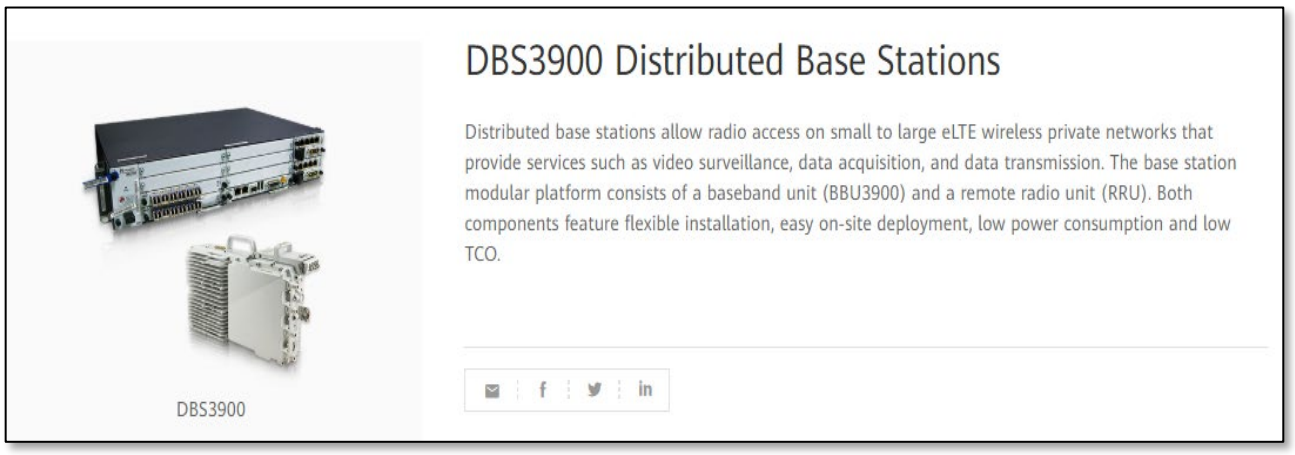
26. The eCore9300 uses Huawei OSTA5.0 (3 U) as the hardware platform. The OSTA5.0 comprises GPUB9 Board as a service component. GPUB9 board has CPU which uses Intel Broadwell-EP Xeon E5-2600 v4 CPUs (i.e., processor) as service processing units.

Table 4-1 Functions of the GPUB9 board

Function	Description
CPU	Uses two Intel® Broadwell-EP Xeon® E5-2600 v4 CPUs.
Memory	Provides eight DDR3 memory channels. The actual memory capacity is 128 GB.
Storage	Supports two 800 GB 2.5-inch SSD disks.
Internal switching	• Provides two 10GE Base ports for communicating with the Base plane of multi-function switch boards through the backplane. • Provides two 40GE Fabric ports for communicating with Fabric planes.

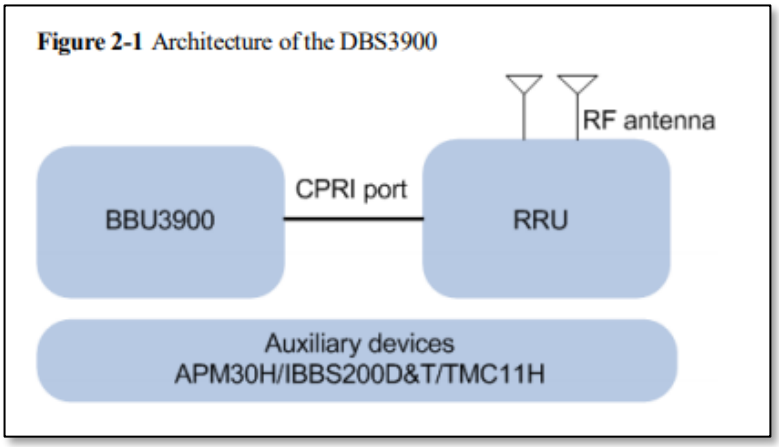
https://e.huawei.com/se/material/wireless/mccs/1464e39cd04b4b29810f9575b59c161c

27. The eLTE Architecture consists of DBS3900 Distributed Base Station which allows radio access on small to large eLTE wireless private network that provides services like video surveillance, data acquisition, etc. The Base station consists of a baseband unit and a remote radio unit.



https://e.huawei.com/en/products/wireless/elte-trunking/network-element/dbs3900

28. The baseband unit is connected with a remote unit that receives and transmits signals.



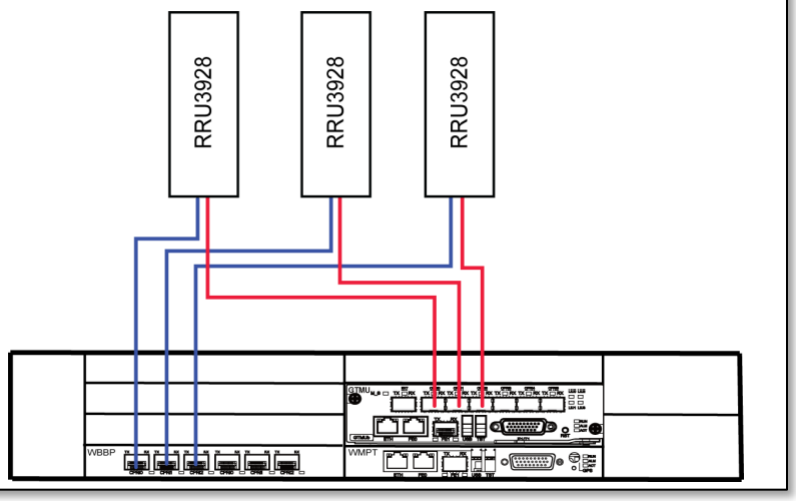
https://www.scribd.com/document/203697649/Dbs3900-Lte-Product-Description,

29. Different RRUs are used depending upon the storage and coverage area. For example, RRU3928 is configured with BBU3900 in DBS3900 as shown in **Error! Reference source not found.**.

A BBU3900 and RRU3928 are connected through a CPRI port using an electrical or optical cable to transmit CPRI signals.

The BBU3900 and the RRU3928 are connected in dual-star topology. In this topology, the CPRI port on the GTMU or UBRI is connected to CPRI0 on the RRU3928, and the CPRI port on the WBBP or LBBP is connected to CPRI1 on the RRU3928, as shown in Figure 1-2.

Figure 1-2 Dual-star topology



https://www.scribd.com/doc/97584371/RRU3928-Description-V1-2

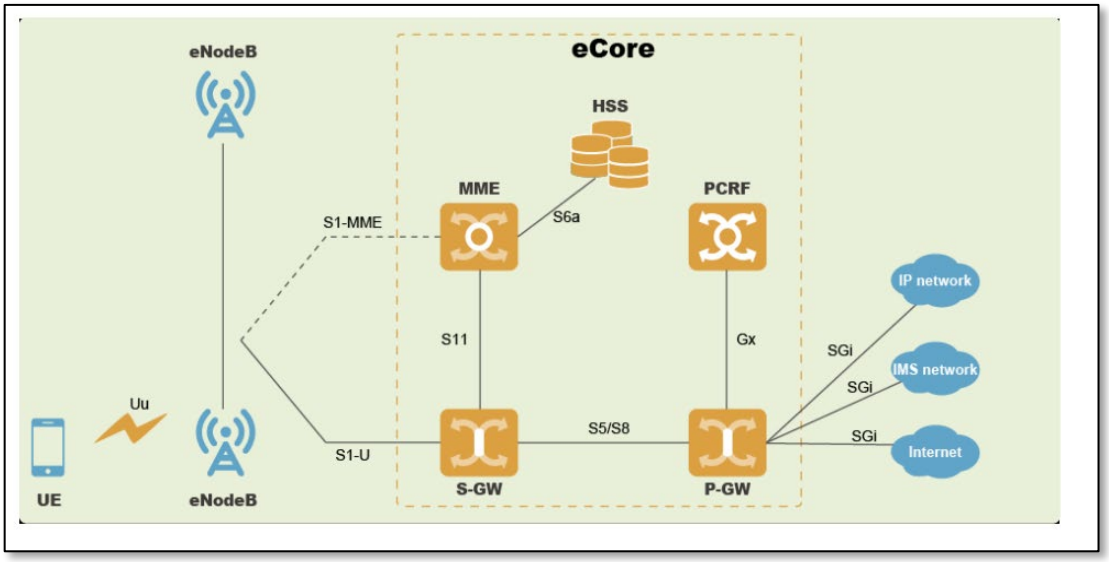
30. RRU 3928 is an outdoor remote radio unit and has a 3928 dual-transmitter (i.e., radio transmission) and dual-receiver structure (i.e., radio reception) which supports higher output power and carrier capacity.

The RRU3928 is an outdoor remote radio unit. It is the radio frequency (RF) part of a distributed base station and can be located near antennas. The RRU3928 can modulate, demodulate, combine, and divide baseband and RF signals. It also processes baseband and RF signal data. With the Software Defined Radio (SDR) technology, the RRU3928 supports the dual-mode operation of any two modes of GSM, UMTS, and LTE through software configuration modification.

RRU3928 has a dual-transmitter and dual-receiver structure, which supports higher output power and carrier capacity.

https://www.scribd.com/doc/97584371/RRU3928-Description-V1-2

31. Huawei accused product architecture comprises a connection between eNodeB and eCore. eCore9300 comprises Host Software which provides resource management (i.e., a radio resource management unit configured to manage the radio resources between at least one base station and the user equipment). eCore in combination with Host Software receives the capacity associated with base stations. (i.e., configured to receive radio capacity information on the radio cell).



https://e.huawei.com/se/material/wireless/mccs/1464e39cd04b4b29810f9575b59c161c

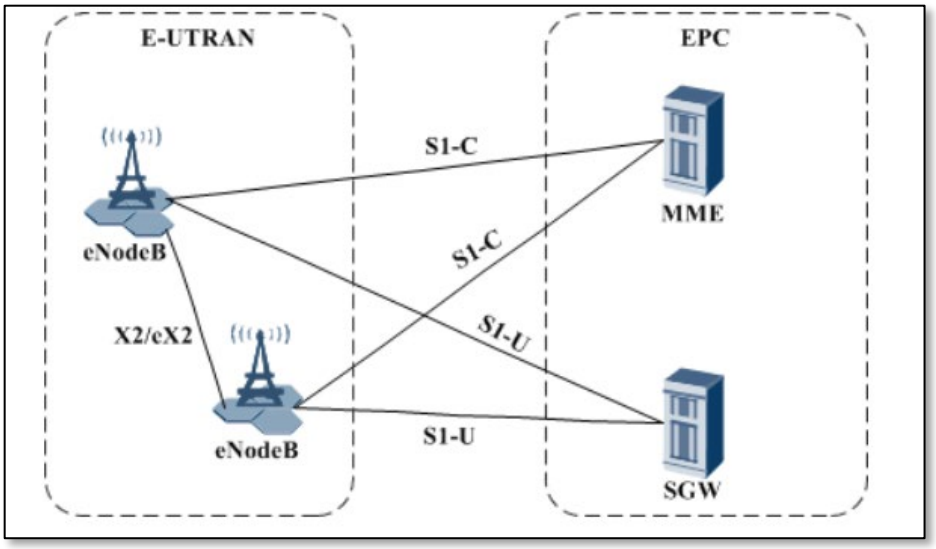
4.2.2 Host Software

The host software runs on boards in OSTA5.0 subracks. It provides the following functions: signaling access and processing, call processing, service control, and resource management. In response to specific commands executed by maintenance personnel, the host software also performs the following operations such as data management, device management, alarm management, performance measurement, signaling trace, and CDR management on the host in cooperation with the background software.

https://e.huawei.com/se/material/wireless/mccs/1464e39cd04b4b29810f9575b59c161c

32. EPC in eCore Architecture provides transport resource management. (i.e., transport resource management unit). S1 is the interface between EPC and eNodeB. Transport capacity is regularly measured on the interface (i.e., transport capacity limit for a radio cell

based on the transport capacity information). If the transport capacity is exceeding, network resources are overloaded, the eNodeB releases the services that can be preempted and have low priorities to ensure the quality of the high priority services (i.e., signal the transport capacity limit to at least one base station to adjust the radio capacity information based on the transport capacity limit). .



https://www.scribd.com/doc/298261608/Transport-Resource-Management-ERAN-8-1-01

Transport load control consists of the following functions:

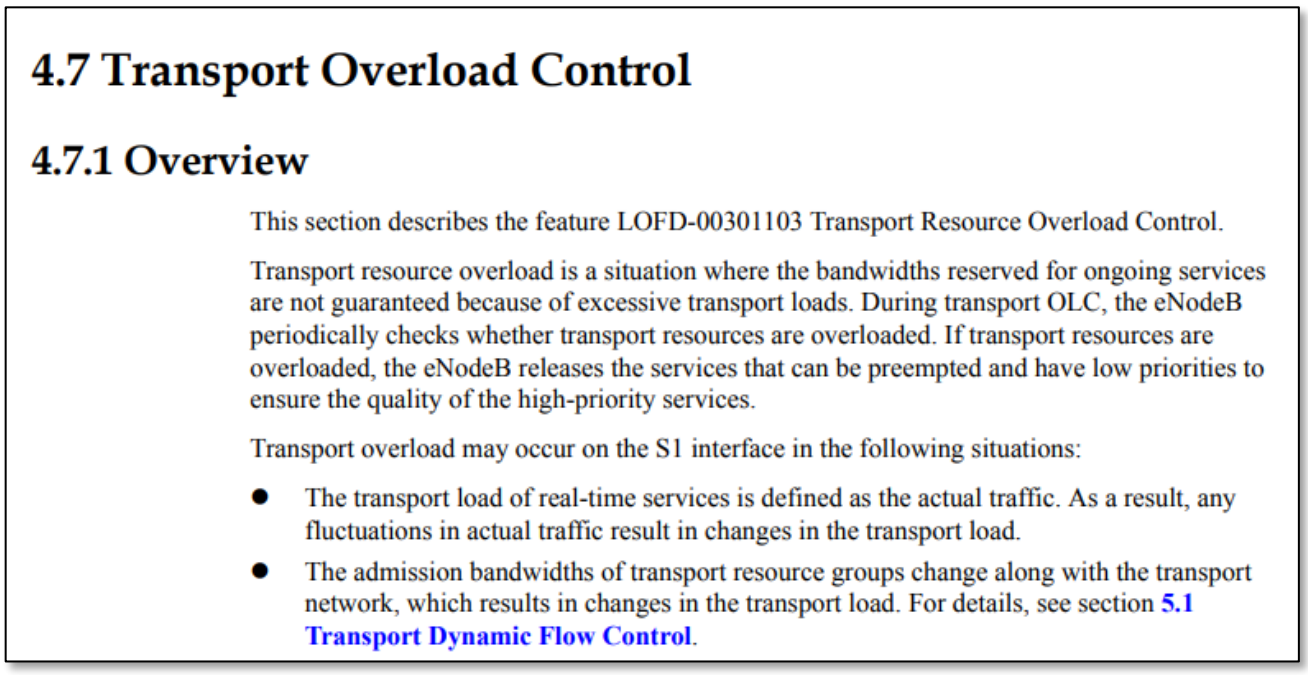
- Transport admission control

  Transport admission control enables the eNodeB to apply different admission policies to different types of services to ensure the transmission quality of ongoing services and increase the admission success rate for high-priority services. The eNodeB supports transport admission control on transport resource groups and physical ports.

- Transport resource preemption

  Transport resource preemption allows higher-priority services to preempt lower-priority services. This ensures the access success rate of high-priority services.

https://www.scribd.com/doc/298261608/Transport-Resource-Management-ERAN-8-1-01



4.7 Transport Overload Control

4.7.1 Overview

This section describes the feature LOFD-00301103 Transport Resource Overload Control.

Transport resource overload is a situation where the bandwidths reserved for ongoing services are not guaranteed because of excessive transport loads. During transport OLC, the eNodeB periodically checks whether transport resources are overloaded. If transport resources are overloaded, the eNodeB releases the services that can be preempted and have low priorities to ensure the quality of the high-priority services.

Transport overload may occur on the S1 interface in the following situations:

- The transport load of real-time services is defined as the actual traffic. As a result, any fluctuations in actual traffic result in changes in the transport load.
- The admission bandwidths of transport resource groups change along with the transport network, which results in changes in the transport load. For details, see section **5.1 Transport Dynamic Flow Control**.

https://www.scribd.com/doc/298261608/Transport-Resource-Management-ERAN-8-1-01

33. Hence, once the capacity is changed, the newly adjusted radio resource capacity is sent to host software to provide resource management again for the eCore Architecture (i.e., to signal the adjusted radio capacity information to the radio resource management unit to manage radio resources of the radio network by using the signaled adjusted radio capacity information).

34. In view of preceding paragraphs, each and every element of at least claim 22 of the ’512 Patent is found in the Accused Products.

35. Huawei has and continues to directly infringe at least one claim of the ’512 Patent, literally or under the doctrine of equivalents, by making, using, selling, offering for sale, importing, and/or distributing the Accused Products in the United States, including within this judicial district, without the authority of Brazos.

36. Huawei has received notice and actual or constructive knowledge of the '512 Patent since at least the date of service of this Complaint.

37. Since at least the date of service of this Complaint, through its actions, Huawei has actively induced product makers, distributors, retailers, and/or end users of the Accused Products to infringe the '512 Patent throughout the United States, including within this judicial district, by, among other things, advertising and promoting the use of the Accused Products in various websites, including providing and disseminating product descriptions, operating manuals, and other instructions on how to implement and configure the Accused Products. Examples of such advertising, promoting, and/or instructing include the documents at:

- https://e.huawei.com/us/solutions/business-needs/wireless-private-network/broadband-access-new
- https://e.huawei.com/se/material/wireless/mccs/1464e39cd04b4b29810f9575b59c161c,
- https://www.scribd.com/doc/298261608/Transport-Resource-Management-ERAN-8-1-01,
- https://e.huawei.com/en/products/wireless/elte-trunking/network-element/dbs3900
- https://www.scribd.com/document/203697649/Dbs3900-Lte-Product-Description
- https://www.scribd.com/doc/97584371/RRU3928-Description-V1-2

38. Since at least the date of service of this Complaint, through its actions, Huawei has contributed to the infringement of the '512 Patent by having others sell, offer for sale, or use the Accused Products throughout the United States, including within this judicial district, with knowledge that the Accused Products infringe the '512 Patent. The Accused Products are especially made or adapted for infringing the '512 Patent and have no substantial non-infringing use. For example, in view of the preceding paragraphs, the Accused Products contain functionality which is material to at least one claim of the '512 Patent.

JURY DEMAND

Brazos hereby demands a jury on all issues so triable.

REQUEST FOR RELIEF

WHEREFORE, Brazos respectfully requests that the Court:

(A) Enter judgment that Huawei infringes one or more claims of the '512 Patent literally and/or under the doctrine of equivalents;

(B) Enter judgment that Huawei has induced infringement and continues to induce infringement of one or more claims of the '512 Patent;

(C) Enter judgment that Huawei has contributed to and continues to contribute to the infringement of one or more claims of the '512 Patent;

(D) Award Brazos damages, to be paid by Huawei in an amount adequate to compensate Brazos for such damages, together with pre-judgment and post-judgment interest for the infringement by Huawei of the '512 Patent through the date such judgment is entered in accordance with 35 U.S.C. §284, and increase such award by up to three times the amount found or assessed in accordance with 35 U.S.C. §284;

(E) Declare this case exceptional pursuant to 35 U.S.C. §285; and

(F) Award Brazos its costs, disbursements, attorneys' fees, and such further and additional relief as is deemed appropriate by this Court.

Dated: June 17, 2020

Respectfully submitted,

/s/ James L. Etheridge

James L. Etheridge
Texas State Bar No. 24059147
Ryan S. Loveless
Texas State Bar No. 24036997
Travis L. Richins
Texas State Bar No. 24061296
ETHERIDGE LAW GROUP, PLLC
2600 E. Southlake Blvd., Suite 120 / 324

Southlake, Texas 76092
Telephone: (817) 470-7249
Facsimile: (817) 887-5950
Jim@EtheridgeLaw.com
Ryan@EtheridgeLaw.com
Travis@EtheridgeLaw.com

COUNSEL FOR PLAINTIFF