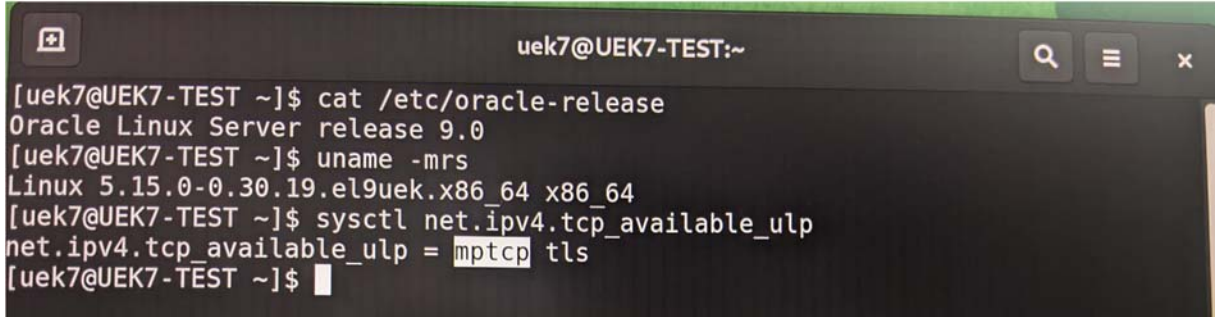


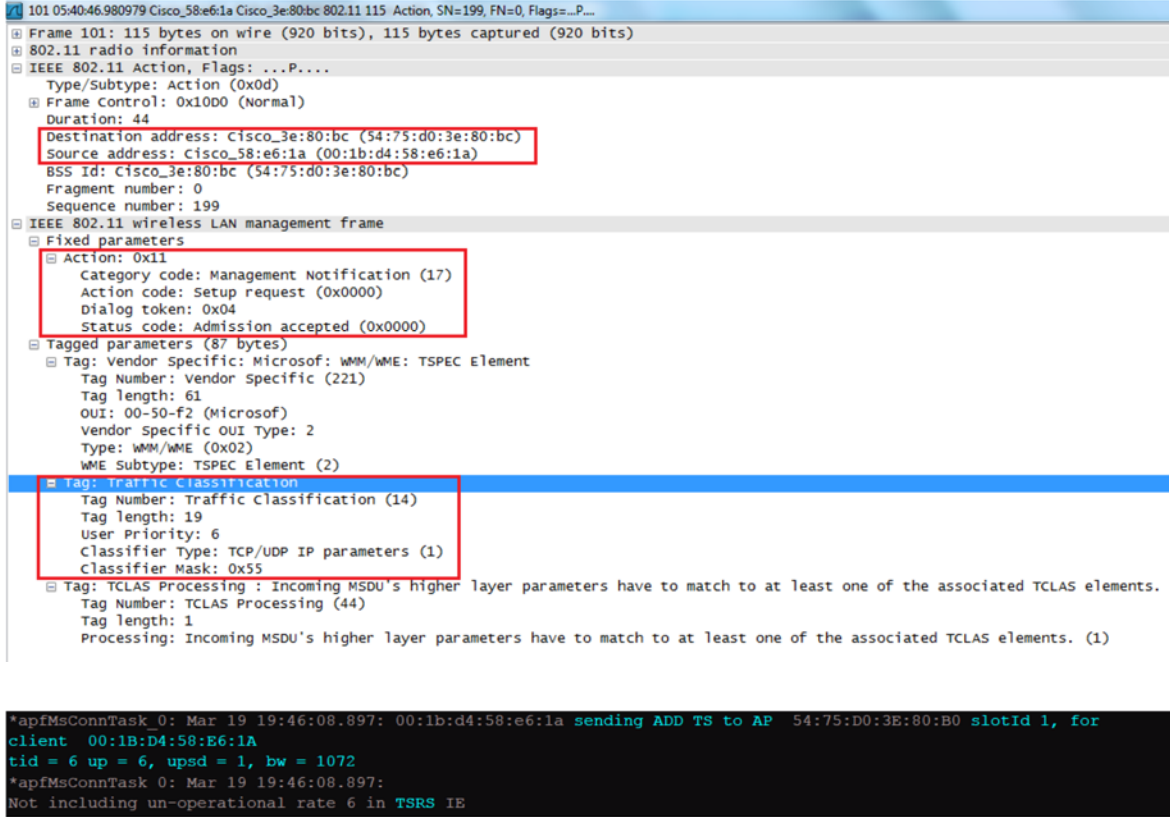
EXHIBIT D

Infringement of U.S. Patent No. 8,228,801 by Oracle MPTCP Products

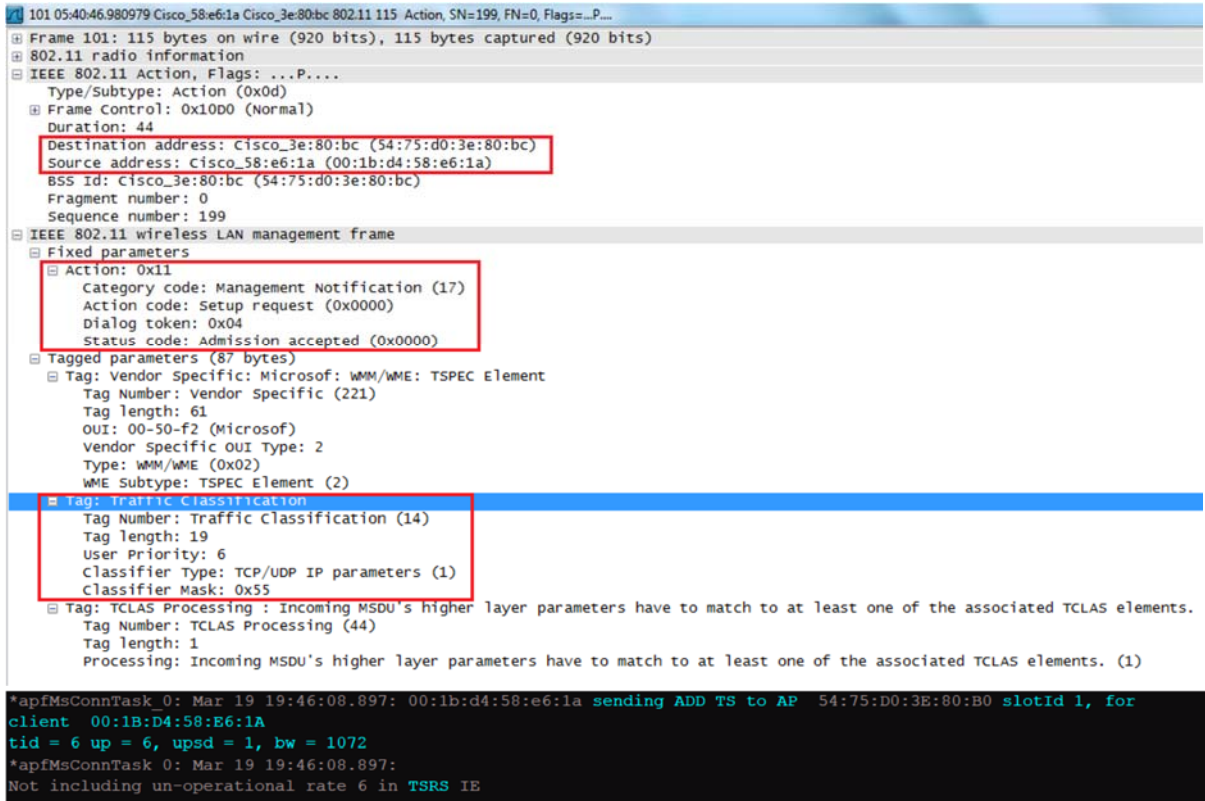
#	U.S. Patent No. 8,228,801	Oracle MPTCP Products
1a	1. A communications device that is capable of providing broadband communications services, comprising:	The Oracle MPTCP Products implement the claimed communication device by, for example, having Oracle Solaris, Oracle Linux 8.3, Oracle Linux 8.4, Oracle Linux 8.5, Oracle Linux 8.6, Oracle Linux 9, and operating systems that operate in a similar manner installed on a device. By way of example, Oracle Linux 9 is charted herein. The Oracle MPTCP Products constitute a communications device that is capable of providing broadband communications services as described below:  <pre> uek7@UEK7-TEST:~ [uek7@UEK7-TEST ~]\$ cat /etc/oracle-release Oracle Linux Server release 9.0 [uek7@UEK7-TEST ~]\$ uname -mrs Linux 5.15.0-0.30.19.el9uek.x86_64 x86_64 [uek7@UEK7-TEST ~]\$ sysctl net.ipv4.tcp_available_ulp net.ipv4.tcp_available_ulp = mptcp tls [uek7@UEK7-TEST ~]\$ </pre>
1b	at least one connection for connecting to a communications network;	The Oracle MPTCP Products include at least one connection for connecting to a communications network as described below: Network interfaces are identified by a name that combines a prefix and a suffix. The prefix depends on the type of network interface: Ethernet network interfaces: en; Wireless local area network (LAN) interfaces: wl; Wireless wide area network (WAN) interfaces: ww
1c	at least one wireless interface for connecting wirelessly to at least one remote communications device;	The Oracle MPTCP Products include at least one wireless interface for connecting wirelessly to at least one remote communications device as described below:

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1d	and a processor that	The Oracle MPTCP Products include a processor as described below: Oracle is pleased to announce Oracle Linux 9 general availability for Intel-64/AMD-64 (x86_64) and Arm (aarch64). This release includes the Unbreakable Enterprise Kernel Release 7 (UEK R7)
1e	requests the at least one remote communications device to assist in transferring data,	The Oracle MPTCP Products request the at least one remote communications device to assist in transferring data as described below: At a high level, an MPTCP implementation will take one input data stream from an application, and split it into one or more subflows, with sufficient control information to allow it to be reassembled and delivered reliably and in order to the recipient application.
1f	sends a request to the at least one remote communications device for requesting use of a portion of unused bandwidth of the at least one remote communications device,	The Oracle MPTCP Products send a request to the at least one remote communications device for requesting use of a portion of unused bandwidth of the at least one remote communications device as described below: The Oracle MPTCP Products provide wpa_supplicant. wpa_supplicant can be used as a roaming daemon to automatically connect to different networks as a device travels between locations. To facilitate roaming, an 11k capable client associated with an AP sends a request for a list of neighbor APs. The request is in the form of an 802.11 management frame known as an action packet.... The neighbor list includes information about BSSID, channel, and operation details of the neighboring radios.

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		An access point or a WLAN switch can request from a client or another access point data about channel load or how long the channel was used during a given time. A client, or some other access point, called a channel monitoring station, monitors one or more channels and collects load information for a period called channel monitoring duration. The diagram illustrates a two-way communication between an ACCESS POINT (represented by a wireless antenna icon) and a CHANNEL MONITORING STATION (represented by a laptop icon). Channel Load Request (Red text, red arrow pointing from AP to station): 1. Channel number 2. Channel band Channel Load Report (Blue text, blue arrow pointing from station to AP): 1. Channel number 2. Channel band 3. Actual start time of channel monitoring 4. Channel monitoring duration 5. Channel load TSPEC allows 802.11 wireless client to signal its traffic requirement to the AP. The client includes the TSPEC in the add traffic stream (ADDTs). TSPEC from client include data rate, packet size, number of stream & more. 802.11e standard specifies TSPEC to provide the management link between higher QoS protocols & the channel access function. Channel Access functions are defined by EDCA (Enhanced Distributed Channel Access) mechanism.

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		 The image shows a Wireshark packet capture of an IEEE 802.11 wireless LAN management frame. The frame is of type Action (0x0d) and subtype Action (0x0d). It contains several tags, with the following ones highlighted in red boxes: - Destination address: Cisco_3e:80:bc (54:75:d0:3e:80:bc) - Source address: Cisco_58:e6:1a (00:1b:d4:58:e6:1a) - BSS Id: Cisco_3e:80:bc (54:75:d0:3e:80:bc) - Fragment number: 0 - Sequence number: 199 - Action: 0x11 - Category code: Management Notification (17) - Action code: Setup request (0x0000) - Dialog token: 0x04 - Status code: Admission accepted (0x0000) - Tag: Vendor Specific: Microsoft WMM/WME: TSPEC Element - Tag Number: Vendor Specific (221) - Tag length: 61 - OUI: 00-50-f2 (Microsoft) - Vendor specific OUI Type: 2 - Type: WMM/WME (0x02) - WME Subtype: TSPEC Element (2) - Tag: Traffic Classification - Tag Number: Traffic Classification (14) - Tag length: 19 - User Priority: 6 - Classifier Type: TCP/UDP IP parameters (1) - Classifier Mask: 0x55 - Tag: TCLAS Processing : Incoming MSDU's higher layer parameters have to match to at least one of the associated TCLAS elements. - Tag Number: TCLAS Processing (44) - Tag length: 1 - Processing: Incoming MSDU's higher layer parameters have to match to at least one of the associated TCLAS elements. (1) Below the packet capture, there is a log entry: <pre>*apfMsConnTask 0: Mar 19 19:46:08.897: 00:1b:d4:58:e6:1a sending ADD TS to AP 54:75:D0:3E:80:B0 slotId 1, for client 00:1B:D4:58:E6:1A tid = 6 up = 6, upsd = 1, bw = 1072 *apfMsConnTask 0: Mar 19 19:46:08.897: Not including un-operational rate 6 in TSRS IE</pre>
1g	receives a response from the at least one remote communications device, the response containing information about the portion of unused bandwidth,	The Oracle MPTCP Products receive a response from the at least one remote communications device, the response containing information about the portion of unused bandwidth as described below: The Oracle MPTCP Products provide wpa_supplicant. wpa_supplicant can be used as a roaming daemon to automatically connect to different networks as a device travels between locations.

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		To facilitate roaming, an 11k capable client associated with an AP sends a request for a list of neighbor APs. The request is in the form of an 802.11 management frame known as an action packet.... The neighbor list includes information about BSSID, channel, and operation details of the neighboring radios. After the channel monitoring process, the results are reported to the requesting entity through a channel load report,...As a result, the station that issued the request is informed about the load of a channel. In other words this parameter gives an idea of how many free slots a new station would have at its disposal.” The diagram shows an ACCESS POINT (represented by a radio tower icon) on the left and a CHANNEL MONITORING STATION (represented by a laptop icon) on the right. A red arrow points from the Access Point to the station, labeled Channel Load Request with a list: 1. Channel number and 2. Channel band. A blue arrow points from the station back to the Access Point, labeled Channel Load Report with a list: 1. Channel number, 2. Channel band, 3. Actual start time of channel monitoring, 4. Channel monitoring duration, and 5. Channel load. The AP responds with a list of neighbor APs on the same WLAN with their Wi-Fi channel numbers. The AP response is also an action packet. From the response frame, the client knows which APs are candidates for the next roam.

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		In 802.11e, after receiving a request to use a portion of unused bandwidth, an AP responds to Tspecc containing information about the portion of unused bandwidth. Below is an exemplary image of the response from the AP indicating available bandwidth. 
1h	selects the at least one remote communications device with unused bandwidth,	The Oracle MPTCP Products select the at least one remote communications device with unused bandwidth as described below:

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		The Oracle MPTCP Products provide wpa_supplicant. wpa_supplicant can be used as a roaming daemon to automatically connect to different networks as a device travels between locations. On informed belief, any of the APs can be selected, including those with unused bandwidth.
1i	sends control information to the at least one remote communications device for participating in a multilink connection,	The Oracle MPTCP Products sends control information to the at least one remote communications device for participating in a multilink connection as described below: Host A initiates a new subflow between one of its addresses and one of Host B's addresses. The token -- generated from the key -- is used to identify which MPTCP connection it is joining, and the HMAC is used for authentication. The Hash-based Message Authentication Code (HMAC) uses the keys exchanged in the MP_CAPABLE handshake, and the random numbers (nonces) exchanged in these MP_JOIN options. MP_JOIN also contains flags and an Address ID that can be used to refer to the source address without the sender needing to know if it has been changed by a NAT. <pre> Host A Host B ----- ----- MP_JOIN MP_JOIN [B's token, A's nonce, [B's HMAC, B's nonce, A's Address ID, flags] B's Address ID, flags] -> <- <- <- ACK + MP_JOIN ACK [A's HMAC] <- <- </pre>
1j	receives packets from the at least one remote communications device and	The Oracle MPTCP Products receive packets from the at least one remote communications device and aggregate the data from the at least one remote communications device with data

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	aggregates the data from the at least one remote communications device with data transfers from the at least one connection to increase data bandwidth for the communications device.	transfers from the at least one connection to increase data bandwidth for the communications device as described below: At a high level, an MPTCP implementation will take one input data stream from an application, and split it into one or more subflows, with sufficient control information to allow it to be reassembled and delivered reliably and in order to the recipient application. Using recent hardware and 3 dual-port 10Gig NICs, Multipath TCP is able to transmit a single data-stream at the rate of up to 51.8 Gbit/s.