
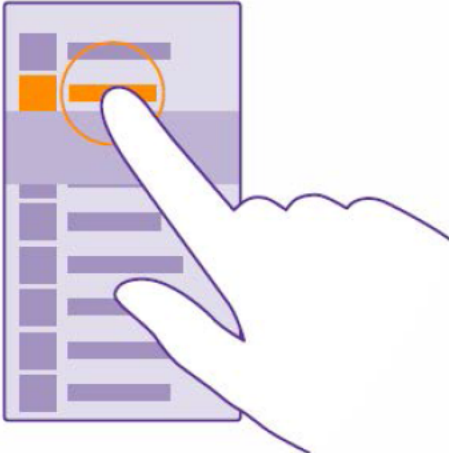







Claim Limitation	Accused Instrumentalities: Exemplary T-Mobile Cellular Phones
<p>1. A computing device comprising:</p>	<p><i>Accused component: Microsoft Lumia 435</i> <i>Basis of Infringement Contention: The Microsoft Lumia 435 is a computing device.</i></p> <p>A cellular smartphone with tethering capabilities (i.e., capable of acting as a wifi hotspot for other devices) is a computing device.</p> <p>The Microsoft Lumia 435 user manual referenced below is distributed by T-Mobile at: https://support.t-mobile.com/docs/DOC-21990</p>
<p>a communication module adapted to: (1) wirelessly connect said computing device to an IP based network via a first wireless access point (AP) having a first AP Identification (APID); and (2) wirelessly communicate with other wireless enabled computing devices;</p>	<p><i>Accused component: Microsoft Lumia 435</i> <i>Basis of Infringement Contention: The Microsoft Lumia 435 provides a communication module adapted to wirelessly connect the device to an IP-based network via a first wireless access point (AP) having a first AP Identification (APID).</i></p> <p>Cellular smartphones are able to communicate using radio frequency signals over a cellular network and over a wifi network. Conducting such communications requires communications circuitry that is a communication module.</p> <p>A cellular base station acts as a first wireless AP and connects to an IP-based network through, e.g., a base transceiver station in GSM networks or node B in UMTS networks. Base stations, node B entities, and other similar devices have a unique identifier (e.g., a cell ID) that enables mobile smartphones and the core cellular network to identify them and distinguish between different stations. Communications with a base station or node B are generally conducted using various cellular multiple access technologies.</p> <p>A cellular smartphone that is capable of supporting wireless tethering (acting as a mobile hotspot) wirelessly communicates with the tethered devices (e.g., laptop or tablet computer). Such communications are generally carried out using a wifi connection, although other types of connections (e.g., Bluetooth) may also be used.</p>


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	<p>See User Manual, pp. 90-91:</p> <p>Connect your computer to the web</p> <p>It's simple to use the internet on your laptop on the go. Turn your phone into a Wi-Fi hotspot, and use your mobile data connection to access the internet with your laptop or other device.</p> <ol style="list-style-type: none"> 1. On the start screen, swipe down from the top of the screen, and tap ALL SETTINGS > . 2. Switch Sharing to On . 3. To change the name of your connection, tap setup > Broadcast name, and write a name. <p>★ Tip: You can also type in a password for the connection.</p> <ol style="list-style-type: none"> 4. Select the connection on the other device. <p>The other device uses data from your data plan, which may result in data traffic costs. For information on availability and costs, contact your network service provider.</p>
<p>a user interface and display adapted to allow a user of said computing device to interact with destinations over the IP based network, through the first wireless AP, using a first public IP address; and</p>	<p><i>Accused component: Microsoft Lumia 435</i></p> <p><i>Basis of Infringement Contention: The Microsoft Lumia 435 provides a user interface and display to allow a user of the device to interact with destinations over the IP-based network, through the first wireless AP, using a first public IP address associated with the computing device.</i></p> <p>A smartphone has a user interface and display and can interact with web pages and other servers using an IP address assigned by the cellular service provider. Web page requests are sent over the cellular air interface to the cellular base station and routed over the Internet, which is an IP based network.</p> <p>The computing device provides a user interface and display. See User Manual, p. 18:</p>

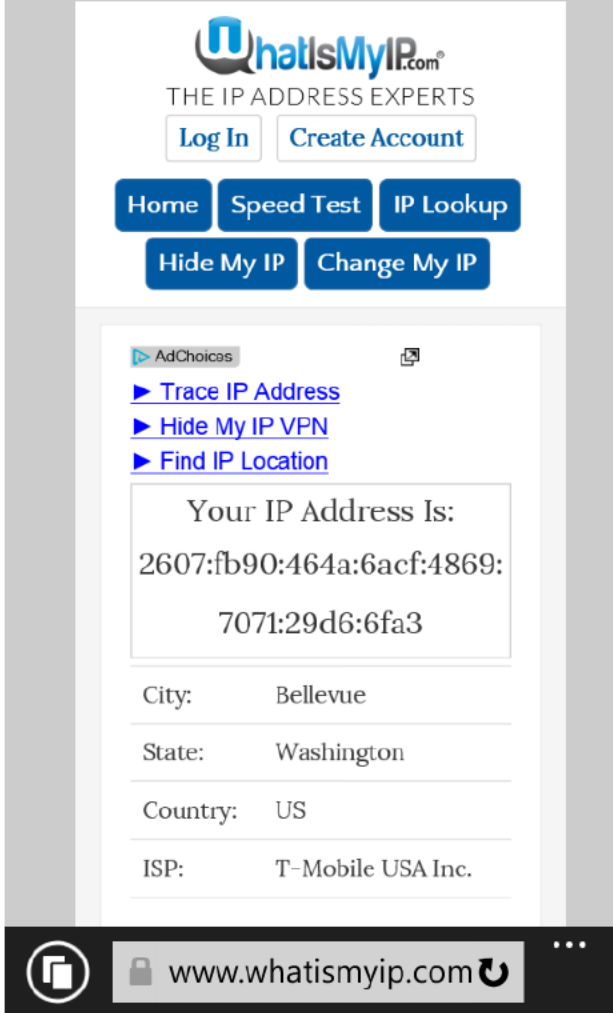
Claim Limitation	Accused Instrumentalities: Exemplary T-Mobile Cellular Phones
	<p>Use the touch screen Explore your phone with a tap, swipe, or drag.</p> <ol style="list-style-type: none"> 1. To use your phone, simply tap or tap and hold the touch screen. 2. To open further options, place your finger on an item until the menu opens. <p>★ Example: To open an app or other item, tap the app or item. To edit or delete a calendar appointment, tap and hold the appointment, and select the appropriate option.</p>  <p>Tap and hold to drag an item Place your finger on the item for a couple of seconds, and slide your finger across the screen.</p> <p>The computing device allows a user to interact with destinations over the IP based network. See User Manual, p. 91:</p>


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	<p>Web browser</p> <p>Catch up on the news, and visit your favorite websites. You can use Internet Explorer 11 in your phone to view web pages on the internet. Your browser can also help warn you against security threats.</p> <p>Tap  Internet Explorer.</p> <p>To browse the web, you must be connected to the internet.</p> <p>Browse the web</p> <p>Who needs a computer, when you can browse the internet on your phone?</p> <p> Tip: If your network service provider doesn't charge you a fixed fee for data transfer, to save on data costs, use a Wi-Fi network to connect to the internet.</p> <ol style="list-style-type: none"> 1. Tap  Internet Explorer. 2. Tap the address bar. 3. Write a web address. <p>The computing device allows a user to interact with destinations over the IP based network, <u>through the first wireless AP</u>. See User Manual, p. 90:</p> <p>Use a mobile data connection</p> <p>On the start screen, swipe down from the top of the screen, tap ALL SETTINGS > cellular +SIM, and switch Data connection to On .</p> <p>The computing device allows a user to interact with destinations over the IP based network, through the first wireless AP, <u>using a first public IP address</u>:</p> <p>[Screen capture of application showing IP address used by the phone:]</p>

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	 <p>The screenshot displays the homepage of WhatIsMyIP.com. At the top, the logo 'WhatIsMyIP.com' is shown with the tagline 'THE IP ADDRESS EXPERTS'. Below the logo are 'Log In' and 'Create Account' buttons. A navigation bar contains buttons for 'Home', 'Speed Test', 'IP Lookup', 'Hide My IP', and 'Change My IP'. An 'AdChoices' icon is present. A list of links includes 'Trace IP Address', 'Hide My IP VPN', and 'Find IP Location'. A box displays the user's IP address: 'Your IP Address Is: 2607:fb90:464a:6acf:4869:7071:29d6:6fa3'. Below this, location details are listed: City: Bellevue, State: Washington, Country: US, and ISP: T-Mobile USA Inc. The browser's address bar at the bottom shows 'www.whatismyip.com'.</p>

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<p>an AP module adapted to: (1) provide a given device of the other wireless enabled computing devices with access to the IP based network by causing said computing device to serve the given device as a second AP having a second APID, distinct from the first APID, and provide the given device access to the network via the first AP; and</p>	<p><i>Accused component: Microsoft Lumia 435</i> <i>Basis of Infringement Contention: The Microsoft Lumia 435 provides an AP module adapted to provide another wireless-enabled computing device with access to the IP-based network by causing said computing device to serve the given device as a second AP having a second APID, distinct from the first APID, and provide the given device access to the network via the first AP.</i></p> <p>The tethering functionality allows the smartphone to act as an access point through which other devices can access the Internet. The smartphone appears to such other devices as a wifi access point (i.e., the second AP) with an identifier that is different from the ID of the cellular base station or node B (i.e., the first AP) through which the smartphone routes communications to and from the tethered device. Typically, the access point has a name that has been assigned or given to the smartphone or that is defined by the owner of the smartphone.</p> <p>The computing device provides an AP module adapted to provide a given device, e.g., a laptop computer, of the other wireless enabled computing devices with access to the IP based network... and provide the given device access to the network via the first AP. See User Manual, pp. 90-91:</p> <p>Connect your computer to the web</p> <p>It's simple to use the internet on your laptop on the go. Turn your phone into a Wi-Fi hotspot, and use your mobile data connection to access the internet with your laptop or other device.</p> <ol style="list-style-type: none"> 1. On the start screen, swipe down from the top of the screen, and tap ALL SETTINGS > . 2. Switch Sharing to On .

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	<p>3. To change the name of your connection, tap setup > Broadcast name, and write a name.</p> <p> Tip: You can also type in a password for the connection.</p> <p>4. Select the connection on the other device.</p> <p>The other device uses data from your data plan, which may result in data traffic costs. For information on availability and costs, contact your network service provider.</p> <p>The computing device provides an AP module adapted to provide a given device, e.g., a laptop computer, of the other wireless enabled computing devices with access to the IP based network <u>by causing said computing device to serve the given device as a second AP having a second APID, distinct from the first APID.</u></p> <p>The IP address used by the phone is different from the IP address used by the other device.</p> <p>[Screen capture of application showing IP address used by the first device:]</p>

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	 <p>The screenshot shows the homepage of 'What is My IP.com'. At the top, it features the logo and the tagline 'THE IP ADDRESS EXPERTS'. Below this are 'Log In' and 'Create Account' buttons. A navigation menu includes 'Home', 'Speed Test', 'IP Lookup', 'Hide My IP', and 'Change My IP'. A central section titled 'AdChoices' contains links for 'Trace IP Address', 'Hide My IP VPN', and 'Find IP Location'. The main content area displays 'Your IP Address Is: 2607:fb90:464a:6acf:4869:7071:29d6:6fa3'. Below the IP address, it lists location details: City: Bellevue, State: Washington, Country: US, and ISP: T-Mobile USA Inc. The browser's address bar at the bottom shows the URL 'www.whatismyip.com'.</p> <p>[Screen capture of application showing IP address used by the other device:]</p>

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	 <p>The screenshot shows a web browser window displaying the homepage of WhatIsMyIP.com. The browser's address bar shows the URL https://www.v. The page features the site's logo, navigation buttons for Home, Speed Test, IP Lookup, Hide My IP, and Change My IP. A prominent section displays the user's IP address as 172.58.46.215, along with location and ISP information: City: Bellevue, State: Washington, Country: US, and ISP: T-Mobile USA. The browser's status bar at the bottom indicates 'Internet Protected Mode: On' and a zoom level of 100%.</p>

Claim Limitation	Accused Instrumentalities: Exemplary T-Mobile Cellular Phones
<p>(2) tunnel data traffic from the given device, through said computing device, through the first AP, through the IP network, to a proxy server, such that the proxy server acts as a proxy of the given device and the data traffic is secure from said computing device and first AP and the given device operates on the network with a public IP address distinct from the first public IP address.</p>	<p><i>Accused component: Microsoft Lumia 435</i> <i>Basis of Infringement Contention: The Microsoft Lumia 435 provides an AP module adapted to tunnel data traffic from the given device, through said computing device, through the first AP, through the IP network, to a proxy server, such that the proxy server acts as a proxy of the given device and the data traffic is secure from said computing device and first AP and the given device operates on the network using a second public IP address distinct from the first public IP address, with the second public IP address associated with the given device.</i></p> <p>The tethering functionality routes data traffic from a tethered device through the smartphone to the cellular connection, through the base station or node B, and through an IP network. The data is routed through the IP network to a packet data proxy server (e.g., a packet data gateway). In at least some circumstances, a tunnel is created between the tethered device and the packet data network server and that tunneled data is secure from the smartphone. In addition, the packet data proxy server assigns an IP address that is seen by external web servers for the tethered device that is typically different from the IP address used for the smartphone.</p> <p>The computing device provides an AP module adapted to tunnel data traffic from the given device, through said computing device, through the first AP, through the IP network, to a proxy server.</p> <p>The AP module may be comprised of software, including, without limitation, one or more processing routines within an operating system executing within the computing device; specialty hardware, such as a microprocessor or application-specific integrated circuit; or a combination of hardware and software, such as a microprocessor executing one or more software routines. For example, and without limitation, the operating system on the computing device prevents the given device and its applications from accessing data contained within the computing device.</p> <p>In order to access the Internet, data traffic is tunneled from the given device, through the Microsoft Lumia 435, through the first AP, through the IP network, to a proxy server. On information and belief, all major U.S. cellular carriers use HTTP proxies. T-Mobile uses a proxy server. See, e.g., Xu, et</p>

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	<p>al., <u>Investigating Transparent Web Proxies in Cellular Networks</u>, USC & Northeastern University, Mar. 20, 2015, available at goo.gl/MCmsnr</p> <h2>Overview</h2> <p><u>Goal:</u></p> <ul style="list-style-type: none"> • Understand the behavior and impact of proxies on mobile users <p><u>Results:</u></p> <ul style="list-style-type: none"> • All four major US cellular carriers use HTTP proxies • Varying proxy features like object caching, image compression, or redirecting traffic based on a proxy's DNS resolution • Proxies enhance performance in some (not all) scenarios <p style="text-align: right;"><i>Slides: goo.gl/MCmsnr 3</i></p> <hr/> <p>As shown in the above rows, the second public IP address is distinct from the first public IP address.</p>
2. A computing device	The cellular network uses a proxy server to coordinate the mapping between an address that may

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<p>according to claim 1, wherein the second APID is associated with the proxy server.</p>	<p>change as individual cellular networks are traversed. Thus, the second APID is associated with the proxy server.</p>
<p>3. A computing device according to claim 2, wherein said AP module tunnels data traffic to the proxy server in response to the given device using the second APID.</p>	<p>The cellular network uses a proxy server to coordinate the mapping between an address that may change as individual cellular networks are traversed. Thus, the AP module that is part of the computing device tunnels data traffic to the proxy server for that data traffic that emanates from other STAs.</p> <p>In order to access the Internet, data traffic is tunneled from the given device, through the Microsoft Lumia 435, through the first AP, through the IP network, to a proxy server. On information and belief, all major U.S. cellular carriers use HTTP proxies. T-Mobile uses a proxy server. See, e.g., Xu, et al., <u>Investigating Transparent Web Proxies in Cellular Networks</u>, USC & Northeastern University, Mar. 20, 2015, available at goo.gl/MCmsnr</p>

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	<p>Overview</p> <p><u>Goal:</u></p> <ul style="list-style-type: none"> • Understand the behavior and impact of proxies on mobile users <p><u>Results:</u></p> <ul style="list-style-type: none"> • All four major US cellular carriers use HTTP proxies • Varying proxy features like object caching, image compression, or redirecting traffic based on a proxy’s DNS resolution • Proxies enhance performance in some (not all) scenarios <p style="text-align: right;">3</p> <hr/> <p style="text-align: center;"><i>Slides: goo.gl/MCmsnr</i></p>
<p>4. A computing device according to claim 1, wherein said computing device is a mobile device.</p>	<p><i>Accused component: Microsoft Lumia 435</i> <i>Basis of Infringement Contention: The Microsoft Lumia 435 is a mobile device.</i></p>
<p>5. A computing device according to claim 4, wherein said computing device is a cellular phone.</p>	<p><i>Accused component: Microsoft Lumia 435</i> <i>Basis of Infringement Contention: The Microsoft Lumia 435 is a cellular phone.</i></p>

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6. A computing device according to claim 4, wherein said computing device is a laptop computer.	Not presently asserted. Barkan expressly reserves the right to amend its infringement contentions based on information derived through discovery.
7. A computing device according to claim 1, wherein said computing device prevents the other wireless enabled computing devices from accessing its inner network.	<p><i>Accused component: Microsoft Lumia 435</i> <i>Basis of Infringement Contention: The Microsoft Lumia 435 is a cellular phone.</i></p> <p>The computing device does not allow the other wireless-enabled computing devices to access its inner network. There is no capability to allow the other STAs, that are connected via the AP Module of the computing device, to access the computing device's inner network.</p>
8. A computing device comprising:	Not presently asserted. Barkan expressly reserves the right to amend its infringement contentions based on information derived through discovery.
a first communication module adapted to communicate over an IP network, using a first public IP address, via a first wireless access point (AP), the first wireless AP having a first AP Identification (APID);	
a second communication module adapted to wirelessly communicate, as a second access point (AP) having a second APID, with other wireless enabled computing devices and provide the other wireless enabled computing devices access to the IP network via the first wireless	

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<p>AP, wherein data traffic from the other wireless enabled computing devices is tunneled by the second AP through the first AP to a proxy server such that the proxy server acts as a proxy of the other wireless enabled computing devices and the data traffic is secure from the first and second APs and the other wireless enabled computing devices operate on the IP network with a public IP address distinct from the first public IP address;</p>	
<p>data storage adapted to store data, addressed to a destination on the IP network, received wirelessly via said second communication module, from a given device of the other wireless enabled computing devices;</p>	
<p>transmission logic adapted to transmit the stored data to the destination, over the IP network, after communications between said computing device and the given device are disconnected, such that data</p>	

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<p>may be uploaded from a client device to said computing device and subsequently uploaded by said computing device to a destination on the internet.</p>	
<p>9. A computing device according to claim 8, wherein said computing device is a mobile device.</p>	<p>Not presently asserted. Barkan expressly reserves the right to amend its infringement contentions based on information derived through discovery.</p>
<p>10. A computing device according to claim 9, wherein said computing device is a cellular phone.</p>	<p>Not presently asserted. Barkan expressly reserves the right to amend its infringement contentions based on information derived through discovery.</p>
<p>11. A computing device according to claim 9, wherein said computing device is a laptop computer.</p>	<p>Not presently asserted. Barkan expressly reserves the right to amend its infringement contentions based on information derived through discovery.</p>
<p>12. A computing device according to claim 8, wherein the computing device is further adapted to send to the given device, over the IP network, a confirmation once the data is completely transmitted to the destination.</p>	<p>Not presently asserted. Barkan expressly reserves the right to amend its infringement contentions based on information derived through discovery.</p>
<p>13. Communication circuitry adapted to:</p>	<p>Not presently asserted. Barkan expressly reserves the right to amend its infringement contentions based on information derived through discovery.</p>
<p>(1) generate a second access point identification (APID) associated with an access</p>	

CLAIM CHART FOR U.S. PATENT NO. 8,559,369 – T-Mobile

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point (AP) having a first APID;	
(2) provide a tunnel for wireless devices connecting to said AP using the second APID.	