EXHIBIT A

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March 4, 2009

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Re: *Abdullah Ali Bahattab v. Juniper Networks Middle East*
Civil Case No. 576-07

Dear Mr. Hatim:

Thank you for the opportunity to provide responses to the questions raised in your February 24, 2009 email concerning Juniper routers.

As described below, Juniper documents demonstrate that Juniper has been using the same technology at issue in this case since 1998. These documents prove that Juniper has used the same technology before Dr. Bahattab applied for his patent in 2000 and before he contacted Juniper in 2002, and that contrary to Dr. Bahattab's assertion, no difference exists between Juniper's "current" technology and "previous" technology. Juniper also identifies documents that prove that Juniper's forwarding tables contain all destination addresses located in the routing tables. Finally, Juniper provides the financial information you requested.

Juniper notes that while it has provided numerous documents and extensive analysis proving that it does not infringe Dr. Bahattab's patent, Dr. Bahattab has only provided two Juniper documents with no explanation as to how these documents prove infringement. Indeed, the documents Dr. Bahattab submitted do not describe a routing table cache, do not describe a process of predicting which destination addresses will be needed, and do not describe Autoregressive Moving Average. All of these elements are required by Dr. Bahattab's patent. Thus, Juniper respectfully requests at the completion of your analysis that your report finds that Juniper does not infringe Dr. Bahattab's patent.

I. PROOF THAT JUNIPER HAS USED THE SAME TECHNOLOGY SINCE 1998

A. Juniper's Technology Installs All Destination Addresses Into The Forwarding Table

Dr. Bahattab's patent is directed at a router that uses a routing table cache, where the routing table cache does not hold a route to every destination address. A routing table cache is used to increase the speed of a router by having the router perform a look-up of the destination address and corresponding route to the destination address in the routing table cache. The routing table cache contains fewer destination addresses and corresponding routes, and as a result, increases the speed of the look-up because there are fewer entries to search. However, if the destination address and corresponding route are not in the routing table cache – resulting in a "cache miss" – the router will slow down because it has to search for the destination address and corresponding route in the larger routing table. Dr. Bahattab attempts to solve this problem of a cache miss by better predicting what destination addresses and corresponding routes might be needed by using Autoregressive Moving Average to place certain destination addresses and corresponding routes in the routing table cache. Of course, Dr. Bahattab's solution still suffers from the fact the routing table cache cannot hold a route to every destination address, and as a result, the router still has to perform a slow look-up in the routing table for every destination address that it does not find in the routing table cache.

Juniper uses a different approach to increase the speed of a router. Juniper routers have a Packet Forwarding Engine that performs only one look-up for a destination address and the corresponding route to the destination address in a forwarding table. The forwarding table contains a route for every destination address. Juniper designed a Packet Forwarding Engine that performs a look-up with great speed, and as a result, does not need to use a routing table cache to speed up the look-up process. Moreover, Juniper does not need to employ an algorithm to predict what destination address and corresponding route might be needed in the forwarding table, because a route to *every* destination address is installed in the forwarding table.

Not only has Juniper increased the speed of its routers through use of its Packet Forwarding Engine and forwarding table, Juniper has increased the speed of a packet through the network by having the router determine which route is the best route through the network to the packet's final destination. Multiple routes to every destination address are stored in a routing table. Because packets could take multiple routes to the same destination address, Juniper's Routing Engine determines which route is the best route to each destination address. The best route is called the "active route."[1] The Routing Engine determines the active route for each

[1] Juniper outlined the algorithm used to determine the active route for each destination, directed you to the documents describing the algorithm, and demonstrated that the algorithm does not use Autoregressive Moving Average to determine which route is the best route to a particular destination address in my December 15, 2008 letter.

destination address and installs these routes into the forwarding table. By installing the best route to each destination address in the forwarding table, Juniper routers have no need to employ an algorithm to predict what destination address and corresponding route might be needed in the forwarding table.

B. Juniper Has Used The Same Technology Since 1998

Juniper has been using this technology in all of its routers since 1998. Juniper shipped its first router using this technology, the M40, on September 16, 1998.[2] As its press release described at that time, "[a]t the core of the M40 router is the powerful Packet Forwarding Engine (PFE)," which "has one forwarding table [and] one look-up."[3] The Packet Forwarding Engine only has to perform one look-up because the forwarding table contains the best route to every destination address. The press release also describes that "the greatest innovation of the M40 PFE is the Internet Processor, which is the fastest and most flexible route look-up engine available, delivering 40 Mpps or 100 times the look-up capability of existing look-up engines used in routers in the Internet today." Juniper created a faster route look-up engine, which allowed Juniper to solve one of the problems associated with a router that uses a routing table cache.

In addition to the press release, numerous other documents prove that Juniper has been using the same technology since 1998.

Juniper's 1999 Annual Report (dated March 2000) describes the architecture for the M40 router, including the Routing Engine and Packet Forwarding Engine:

> The architecture of our products is exemplified by the M40. The M40 architecture delivers the forwarding rates and network control necessary to scale Internet backbones rapidly and reliably. The M40 system includes a Routing Engine, or RE, and a Packet Forwarding Engine, or PFE. The clean separation of the routing and forwarding functions ensures that the two functions do not compete for the same resources.[4]

The 1999 Annual Report also describes the high speed of the Packet Forwarding Engine (PFE) of the M40 router:

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[2] Exhibit 18, Juniper Press Release, "Juniper Networks Ships the Industry's First Internet Backbone Router Delivering Unrivaled Scalability, Control and Performance," Sept. 16, 1998.

[3] Exhibit 18, Juniper Press Release, "Juniper Networks Ships the Industry's First Internet Backbone Router Delivering Unrivaled Scalability, Control and Performance," Sept. 16, 1998.

[4] Exhibit 3 to Juniper's December 15, 2008 submission, *Juniper Networks 1999 Annual Report on Form 10-K*, at J000485.

> The heart of the PFE is the Internet Processor ASIC. With over one million gates and a lookup rate of over 40 million packets per second, or Mpps, the Internet Processor represents the largest and fastest route lookup ASIC currently available, capable of processing data at throughput rates in excess of 40 Gbps.[5]

The 1999 Annual Report explains that the Juniper routers do not employ a routing table cache, as use of a cache will cause a router to slow delivery of packets due to cache misses:

> All lookup rates reflect longest-match route table lookups for all packets and all lookups are performed in hardware. ***There is no caching mechanism***, which is a mechanism by which critical information, such as destinations for traffic, is stored in rapidly accessible memory to make the process of looking up traffic destinations faster. In addition there is no risk of cache misses in the system which can result in slower storage access and thus considerably slower traffic delivery.[6]

This same language appears in the Juniper 2000 Annual Report[7] and the Juniper 2001 Annual Report.[8]

The Juniper Internet Backbone Router Architecture and Configuration Class Release 4.0, dated 2000, details the architecture of the Juniper router, including the Routing Engine, routing table, Packet Forwarding Engine, and forwarding table:[9]

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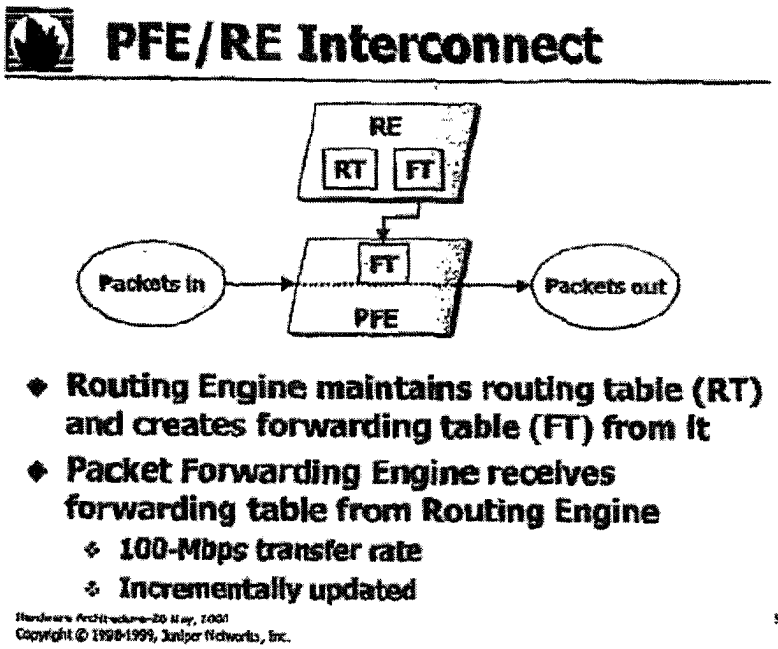
[5] Exhibit 3 to Juniper's December 15, 2008 submission, *Juniper Networks 1999 Annual Report on Form 10-K*, at J000486.

[6] Exhibit 3 to Juniper's December 15, 2008 submission, *Juniper Networks 1999 Annual Report on Form 10-K*, at J000486 (emphasis added).

[7] Exhibit 4 to Juniper's December 15, 2008 submission, *Juniper Networks 2000 Annual Report on Form 10-K*, at J000621-22;

[8] Exhibit 5 to Juniper's December 15, 2008 submission, *Juniper Networks 2001 Annual Report on Form 10-K*, at J000780-81

[9] Exhibit 10 to Juniper's December 15, 2008 submission, *Juniper Internet Backbone Router Architecture and Configuration Class Release 4.0*, at J200454.



This same document describes that the Routing Engine determines the active routes and installs these routes into the forwarding table: "***the routing protocol process determines the active routes to network destinations and installs these routes into the Routing Engine's forwarding table.***"[10]

Additionally, Juniper patents applied for in 2000 – nearly two years before Dr. Bahattab first contacted Juniper in May 2002[11] – describe the same architecture and the use of active routes. For example, United States Patent Number 6,885,635, filed on November 21, 2000 by Juniper contains the same figure showing the architecture of the Routing Engine, routing table, Packet Forwarding Engine, and forwarding table:[12]

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[10] Exhibit 10 to Juniper's December 15, 2008 submission, *Juniper Internet Backbone Router Architecture and Configuration Class Release 4.0*, at J200454 (emphasis added).

[11] Document 1 of Dr. Bahattab's December 15, 2008 submission at 1 ("In 2002, I sent my papers by email to Juniper networks, Dubai, AUE"); Document 2 of Dr. Bahattab's December 15, 2008 submission (emails in May 2002 between Dr. Bahattab and Chris Moore of Juniper)).

[12] Exhibit 19, United States Patent 6,885,635, *High Capacity Router Having Redundant Components*, (filed Nov. 21, 2000) at Figure 1. United States Patent Number 6,578,186, filed on December 22, 2000, and United States Patent Number 6,826,713, filed on January 2, 2001, also

(continued...)

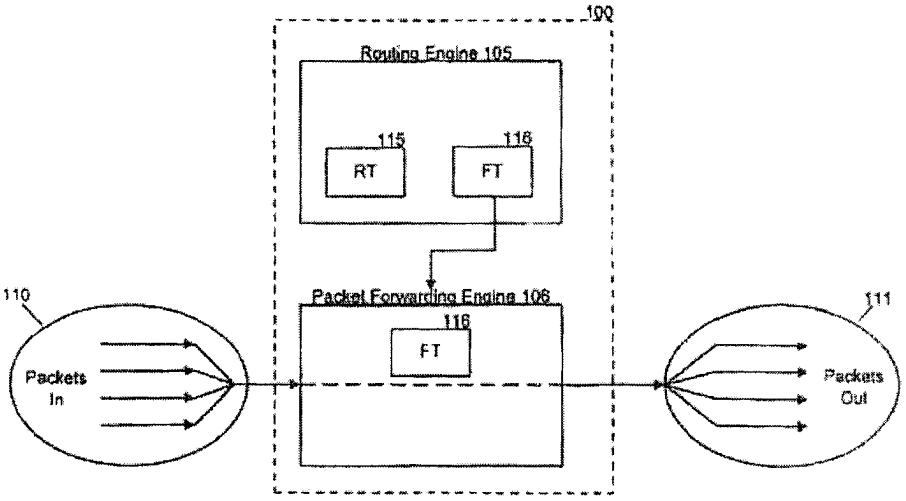

Fig. 1

The Juniper patent also describes the routing engine as installing active routes into the forwarding table:

> Router 100 includes routing engine 105 and a packet forwarding engine (PFE) 106. Routing engine 105 may maintain one or more routing tables (RTs) 115 and a forwarding table (FT) 116. Through routing tables 115, routing engine 105 consolidates routing information that the routing engine learns from the routing protocols of the network. ***From this routing information, the routing protocol process may determine the active routes to network destinations and install these routes into forwarding table 116***. Packet forwarding engine 106 may consult forwarding table 116 when determining the next destination for incoming packets 110.[13]

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contain the same Figure 1. *See* Exhibit 20, United States Patent 6,578,186, *Reset Control for Systems Using Programmable Logic*, (filed Dec. 22, 2000) at Figure 1; Exhibit 21, United States Patent 6,826,713, *Diagnostic Access to Processors in a Complex Electrical System*, (filed Jan. 2, 2001) at Figure 1.

[13] Exhibit 19, United States Patent 6,885,635, *High Capacity Router Having Redundant Components*, (filed Nov. 21, 2000) at column 2, lines 57-65 (emphasis added). United States Patent Number 6,578,186, filed on December 22, 2000, and United States Patent Number

(continued...)

Therefore, Juniper has been using the same architecture and installing of active routes into the forwarding table since 1998.

II. PROOF THAT THE "CURRENT" TECHNOLOGY IS THE SAME AS THE "PREVIOUS" TECHNOLOGY

Juniper continues to use this same architecture and installing of active routes into the forwarding table, as demonstrated by the document that Dr. Bahattab describes as Juniper's "current" technology. Just like Juniper's documents dated 1998 and 2000, the Juniper Networks Router Overview document states that the "Routing Engine constructs and maintains one or more routing tables. From the routing tables, the Routing Engine derives a table of active routes, called the forwarding table, which is then copied into the Packet Forwarding Engine."[14] Thus, documents from 1998 and 2000 describe Juniper's technology the same way as the document that Dr. Bahattab has identified as Juniper's "current" technology.

In addition, Juniper documents from October 2008 and provided in my December 15, 2008 letter to you describe the same technology of installing active routes into the forwarding tables:

- *JUNOS® Software Routing Protocols and Policies Command Reference Release 9.3*: "From the routing tables, the Routing Engine derives a table of active routes, called the forwarding table."[15]

- *JUNOS® Software Hierarchy and RFC Reference Release 9.3*: "The JUNOS software installs all active routes from the routing table into the forwarding table. The active routes are routes that are used to forward packets to their destinations. The JUNOS kernel maintains a master copy of the forwarding table. It copies the forwarding table to the Packet Forwarding Engine, which is the component responsible for forwarding packets."[16]

6,826,713, filed on January 2, 2001, describe active routes in identical terms. *See* Exhibit 20, United States Patent 6,578,186, *Reset Control for Systems Using Programmable Logic*, (filed Dec. 22, 2000) at column 2, lines 52-60; Exhibit 21, United States Patent 6,826,713, *Diagnostic Access to Processors in a Complex Electrical System*, (filed Jan 2, 2001) at column 3, lines 8-16.

[14] Document 6 of Dr. Bahattab's December 15, 2008 submission, *Juniper Networks Router Overview*, at 4.

[15] Exhibit 7 to Juniper's December 15, 2008 submission, at J238777.

[16] Exhibit 9 to Juniper's December 15, 2008 submission, at J247479.

- *JUNOS® Software Routing Protocols Configuration Guide Release 9.3*: "The JUNOS software installs all active routes from the routing table into the forwarding table. The active routes are routes that are used to forward packets to their destinations. The JUNOS kernel maintains a master copy of the forwarding table. It copies the forwarding table to the Packet Forwarding Engine, which is the part of the router responsible for forwarding packets."[17]

Furthermore, as described in response to your first question, at least three Juniper patents describe Juniper's routing engine as installing active routes into the forwarding table, and each patent predates Dr. Bahattab's first contact with Juniper.

Nothing in the two Juniper documents submitted by Dr. Bahattab describes a process related to the process described in Dr. Bahattab's patent. Indeed, these documents do not describe a routing table cache, they do not describe predicting what destination addresses will be needed for the forwarding table, and they do not describe using Autoregressive Moving Average (or any other temporal model) to populate the forwarding table. Thus, regardless of the alleged differences between the two Juniper documents submitted by Dr. Bahattab, no Juniper document demonstrates that Juniper infringes Dr. Bahattab's patent.

Moreover, Dr. Bahattab cannot claim that installing active routes in a forwarding table is his invention. This particular idea has been in the public domain for many years prior to Dr. Bahattab filing for his patent. For instance, the Internet Engineering Task Force ("IETF") described installing active routes in a forwarding table in 1993. The IETF is an organization whose mission is to "produce high quality, relevant technical and engineering documents that influence the way people design, use, and manage the Internet in such a way as to make the Internet work better."[18] The IETF issued RFC 1476, "RAP: Internet Route Access Protocol," in 1993. In RFC 1476, the IETF describes that the Route Access Protocol "selects routes that are to be active and loads them into the IP forwarding database."[19] Thus, Dr. Bahattab has no basis to assert that Juniper's installation of active routes into forwarding tables infringes his patent.

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[17] Exhibit 1 to Juniper's December 15, 2008 submission, at J244043.

[18] Exhibit 22, IETF RFC 3935, *A Mission Statement For the IETF*, (October 1994) at page 1.

[19] Exhibit 23, IETF RFC 1476, *RAP: Internet Route Access Protocol* (June 1993) at page 15. *See also* page 17 ("4.4 Active route selection[:] The router selects those routes to be entered into the IP forwarding database and actively used to forward datagrams from the set of routes after aggregation, combined with routes derived from other protocols such as RIP. This selection may be made on any combination of attributes and options desired by local policy.").

Thus, Juniper has conclusively demonstrated that its "current" technology is the same technology it has been using since 1998, and that Juniper's technology does not infringe Dr. Bahattab's patent.

III. PROOF THAT ALL ADDRESSES IN THE ROUTING TABLE ARE IN THE FORWARDING TABLE

As I described at our November 18, 2008 meeting, Juniper's routers do not need a routing table cache, as required by Dr. Bahattab's patent, because Juniper can place all destination addresses from the routing table into the forwarding table. *JUNOS® Software Routing Protocols Configuration Guide Release 9.3*, Exhibit 1 of the documents Juniper sent you on December 15, 2008, explains that if the routing table contains multiple routes to one destination, the Routing Engine determines the best route to that destination and designates that route as the "active route."[20] The Routing Engine "choose[s] an active route for ***each*** destination."[21] That active route is then placed in the forwarding table and used to route packets to their destinations.[22] Thus, the forwarding table contains all the destination addresses that are located in the routing table, and contains the best route to each of those destinations.

IV. JUNIPER'S SALES IN THE UNITED ARAB EMIRATES

Juniper's sales in the United Arab Emirates between the beginning of 2005 and the end of 2008 relating to its routers totaled $18,022,537.

Thank you again for the opportunity to further explain the operation of Juniper's routers. Please let me know if Juniper can provide any additional information or if you have other questions regarding the explanations and documentation I have provided.

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[20] Exhibit 1 to Juniper's December 15, 2008 submission, *JUNOS® Software Routing Protocols Configuration Guide Release 9.3*, at J244044.

[21] Exhibit 1 to Juniper's December 15, 2008 submission, *JUNOS® Software Routing Protocols Configuration Guide Release 9.3*, at J244044 (emphasis added).

[22] Exhibit 1 to Juniper's December 15, 2008 submission, *JUNOS® Software Routing Protocols Configuration Guide Release 9.3*, at J244044 ("the JUNOS routing protocol process uses the information in its routing table, along with the properties set in the configuration file, to choose an *active route* for each destination. While the JUNOS software might know of many routes to a destination, the active route is the preferred route to that destination and is the one that is installed in the forwarding table and used when actually routing packets.")

Sincerely,

/s/ Alan M. Fisch

Alan M. Fisch
Counsel for Juniper Networks Middle East

Enclosures: Exhibit 18
Exhibit 19
Exhibit 20
Exhibit 21
Exhibit 22
Exhibit 23

cc: Abdullah Ali Bahattab
Scott J. Coonan, Esq.
Khalid Wahab, Esq.