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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte SEBASTIANO BORGIONE and SIVA NARAYANAN

Appeal 2018-003047
Application 14/688,802
Technology Center 2400

Before JOSEPH L. DIXON, CHARLES J. BOUDREAU, and JASON M. REPKO, *Administrative Patent Judges*.

REPKO, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants[1] appeal under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 1, 3–8, 10–15, and 17–20. Br. 6.[2] Claims 2, 9, and 16 were canceled. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

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[1] According to Appellants, the real party in interest is Arista Networks Inc. Br. 4.

[2] Throughout this opinion, we refer to the Final Rejection ("Final Act.") mailed March 10, 2017; the Appeal Brief ("Br.") filed August 21, 2017; and the Examiner's Answer ("Ans.") mailed October 16, 2017.

THE INVENTION

Appellants' invention relates to programmed routes in network devices. Spec. ¶ 15. To ensure routing decisions use the most recent information, network devices update programmed routes immediately after being instructed to add or remove routes. *Id.* This behavior, however, may cause a network device to withdraw a route before a peer device receives the route-withdrawal notification. *Id.* During this time, the peer network device may deliver packets that depend on the withdrawn route's availability. *Id.* Specifically, because the route was withdrawn, a network device may be unable to process the packets and must drop them. *Id.*

Appellants' invention delays route withdrawal until all peers have been notified. *Id.* Thus, network devices can continue to make decisions during the pending withdrawal. *Id.* In one example, the invention uses a timer with a timeout value. *Id.* ¶ 43. Before time expires, devices can process packets that use the route to be withdrawn. *Id.* ¶ 34. If the network device uses Border Gateway Protocol ("BGP") to communicate with peers, the network device sends a BGP UPDATE message identifying the route to be withdrawn. *Id.* ¶¶ 42, 44.

Claim 1 is reproduced below:

> 1. A method for withdrawing programmed routes in network devices, comprising:
> receiving instructions to withdraw at least one route of a plurality of programmed routes, wherein the plurality of programmed routes is stored in a forwarding information base (FIB);
> removing the at least one route from a plurality of routes stored in a routing information base (RIB);
> notifying at least one peer network device of a plurality of peer network devices about the at least one route to be

withdrawn by sending a border gateway protocol (BGP) UPDATE message comprising the at least one route to be withdrawn to the at least one peer network device;

initializing a timer with a timeout value and starting the timer;

before the time expires, processing a packet that uses the at least one route to be withdrawn; and

after the timer expires, removing the at least one route from the FIB.

THE EVIDENCE

The Examiner relies on the following as evidence:

Scudder US 8,572,225 B2 Oct. 29, 2013

Y. Rekhter et al., *A Border Gateway Protocol 4 (BGP-4)*, Request for Comments: 4271, Network Working Group (January 2006) ("Rekhter").

THE REJECTION

Claims 1, 3–8, 10–15, and 17–20 stand rejected under 35 U.S.C. § 103 as unpatentable over Scudder and Rekhter. Final Act. 3–6.

ANALYSIS

The Examiner finds that Scudder teaches every limitation in representative[3] claim 1 except for using a BGP UPDATE message as recited. Final Act. 3–4; *see also* Ans. 7. In concluding that claim 1's subject matter would have been obvious, the Examiner finds that Rekhter uses a

[3] Appellants argue claims 1, 3–8, 10–15, and 17–20 as a group. *See* Br. 6 ("Appellant argues that claims 1, 3-8, 10-15, and 17-20 are patentable over Scudder in view of Rekhter for at least the reasons given below."). We select independent claim 1 as representative of claims 3–8, 10–15, and 17–20. *See* 37 C.F.R. § 41.37(c)(1)(iv).

BGP UPDATE message to exchange information about withdrawn routes. Final Act. 4 (citing Rekhter 15).

Appellants argue that Scudder, alone or in combination with Rekhter, does not teach or suggest a message to peer routers with a specific route to be withdrawn from the sending router. Br. 9. We, however, agree with the Examiner that claim 1 does not recite this feature. Ans. 6.

Specifically, Appellants argue that Scudder's BGP Notification message includes a grace period for peer routers but does not initialize a timer only on the sending router. Br. 9. Claim 1 recites, in relevant part, "initializing a timer with a timeout value and starting the timer." Appellants have not pointed to language in the claim or the Specification that limits the recited initialization to only the sending router. *See id.*

Appellants argue that the claimed invention does not communicate time-related information to peer routers. *Id.* Yet we are unpersuaded that claim 1 is limited in this way. Instead, claim 1 uses the transitional term "comprising," which is a term of art that means additional, unrecited elements are not excluded from the claim. Thus, we agree with the Examiner that claim 1 does not preclude the additional unrecited step of sending timer-related information in the way that Scudder does. Ans. 6–7 (citing Scudder 2:58–3:14).

Likewise, Appellants argue that the router that sends the message also removes the route in claim 1. Br. 9. But the Examiner relies on Rekhter, in part, for the BGP UPDATE message containing information about withdrawn routes. Final Act. 4. So Appellants' arguments in section IV.A.1 of the Appeal Brief about withdrawing routes (Br. 9) are unpersuasive because they do not consider the Examiner's proposed modification of

Scudder to use Rekhter's BGP UPDATE messages instead of BGP Notification messages (Final Act. 4).

Appellants further argue that BGP Notification messages and BGP UPDATE messages have "fundamental and incompatible differences." Br. 9. In particular, Appellants argue that Scudder uses a BGP Notification message's general data field to tell peer routers to withdraw. *Id.* at 10. According to Appellants, a BGP UPDATE message lacks a general data field. *Id.* In Appellants' view, using a BGP UPDATE message instead of a BGP Notification message would render Scudder inoperable for its intended purpose. *Id.* Appellants contend that the Examiner does not explain "how BGP would need to be modified to accommodate peer routers using both message types to somehow cause specific route withdrawal." *Id.* at 11.

Appellants, however, have not shown that redesigning Scudder in this way would have been uniquely challenging or otherwise beyond the level of ordinarily skilled artisans. *See Leapfrog Enters., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1162 (Fed. Cir. 2007). Even if Scudder would need to be changed or redesigned, it is well-settled that "a determination of obviousness based on teachings from multiple references does not require an actual, physical substitution of elements." *In re Mouttet*, 686 F.3d 1322, 1332 (Fed. Cir. 2012). At most, Appellants have shown that Scudder would need to operate in a different way in the Examiner's proposed combination. *See* Br. 9–11.

Appellants cite RFC 7606 to show that the Examiner's modification may result in malformed Update attributes. *Id.* at 10 (quoting RFC 7606, https://tools.ietf.org/html/rfc7606). Yet the quoted part of RFC 7606 explains that a BGP speaker that receives a malformed message must reset

the session, which is undesirable. *Id.* Here, the Examiner is not proposing sending malformed UPDATE messages. *See* Final Act. 4. In fact, the quoted part of RFC 7606 shows that one of ordinary skill in the art would have known to make appropriate modifications to avoid sending malformed messages. *Accord* Ans. 9.

Also, we are unpersuaded that the Examiner's obviousness rationale lacks support. Br. 11. Specifically, Scudder's shutdown router sends a BGP Notification to close its connection with its BGP peers. Scudder 2:58–61. After sending the Notification, the shutdown router closes the TCP sessions for the established connections. *Id.* at 2:61–63. And in response, the BGP peers remove all original routes advertised on those connections from service. *Id.* at 2:65–67. Similarly, Rekhter uses a BGP UPDATE message to withdraw multiple routes from service. Rekhter 15.

The Examiner proposes substituting one type of message for another, where each message is suitable for a different purpose. *See* Final Act. 4. According to the Examiner, "Rekhter shows that Update messages are more generally used for route withdrawal, whereas Notification messages are used for route maintenance due to detected errors." Ans. 9. In this way, the Examiner has shown that the proposed enhancement predictably uses the prior-art features according to their established functions (withdrawing and maintaining routes) and involves a creative step well within the level of ordinarily skilled artisans. *See KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 417, 421 (2007).

Thus, we sustain the rejection of representative claim 1 and claims 3–8, 10–15, and 17–20. *See supra* note 3.

DECISION

We affirm the Examiner's decision to reject claims 1, 3–8, 10–15, and 17–20.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv). *See* 37 C.F.R. § 41.50(f).

AFFIRMED