IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT: 6,424,625

INVENTOR: Larsson, P. et al.

FILED: October 29, 1998   ISSUED: July 23, 2002

TITLE: METHOD AND APPARATUS FOR DISCARDING PACKETS IN A DATA NETWORK HAVING AUTOMATIC REPEAT REQUEST

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REPLY DECLARATION OF HARRY BIMS, PH.D.

I, Harry Bims, declare as follows:

General Background

1.   My name is Harry Bims. I previously submitted a Declaration of Harry Bims, PhD, which I understand was filed with a Petition for *Inter Parties* Review of U.S. Patent No. 6,424,625 as Exhibit 1004. My background is described in that Declaration.

2.   I have been asked for my opinions on certain issues relating to a Patent Owner's Response by Ericsson Under 37 C.F.R. § 42.120, which I have reviewed.

Garrabrant Anticipates Claim 1 of the '625 Patent

3.   In my original declaration, I explained why Garrabrant anticipates claim 1 of the '625 patent. Below I provide an additional discussion of Garrabrant in reply to Patent Owner's Response.

4.   Owner argues that none of the commands listed in Garrabrant relate to commanding to receive. Response at 26. The list of commands are general types, such as "RR" for flow and "RNR" for control. A transmitter could use, for example, a control message (RNR) to send a "lost" message that commands the receiver to receive the next packet and move the receive window.

Hettich Anticipates Claim 1 of the '625 Patent

5.   In my original declaration, I explained why Hettich anticipates claim 1 of the '625 patent. Below I provide an additional discussion of Hettich in reply to Patent Owner's Response.

6.   The DELAY N command tells the receiver to release any expectation of receiving unacknowledged packet N (and any of N-1, N-2, etc)., and to start receiving packets beginning with N+1. Therefore it would make sense for the transmitter to send the DELAY N command and then send packet N+1. At a minimum, Hettich implicitly discloses (and certainly does not preclude) sending N+1 as the next packet and thus discloses the method step of claim 1. I believe a person of ordinary skill would understand that Hettich implicitly teaches various

combinations of scenarios of missing packets, such as one discarded packet, multiple discarded packets, and packets sent in different orders.

7.   Hettich discloses "discarding" as claimed in claim 1 of the '625 patent. In the example of Figure 12 of the '625 patent, all packets between DSN and BSN are discarded, and a subsequent packet with RBEP=TRUE tells the receiver to move its window forward. (*See* '625 patent, Fig. 10B; Ex. 1001). In like manner, Hettich discloses that the transmitter discards cells (packets) because a timer in the transmitter has expired. (Hettich at §5.2.3; Ex. 1007) Then Hettich sends a DELAY PDU to inform the receiver that cells have been discarded. (Hettich, §5.2.4; Ex. 1007). After this discarding of cells has occurred, A DELAY PDU command with RN = BSN or BSN-1 (to use the terminology of the '625 patent) is sent from the transmitter to the receiver, causing the receiver to "stop waiting for cells where the following applies for the number: N <= RN. It then shifts the window and issues a corresponding acknowledgement." (Hettich, p. 35; Ex. 1007). This step anticipates the "commanding" step as required by claim 1 of the '625 patent.

8.   While it is possible that the transmitter may contain non-discarded cells having sequence numbers between the DELAY SN and the next received packet, Hettich implicitly discloses that the transmitter can send DELAY N in order to start sending the next packet at N+1. Furthermore, as long as the

transmitter discards packets meeting the claimed conditions ("all packets for which acknowledgement has not been received, and which have sequence numbers prior to the at least one packet"), the discarding step of claim 1 is met whether or not the transmitter discards or does not discard other packets as well. Hettich states that sending a DELAY command with SN means "SN is the highest number of all the discarded cells."

Walke Renders Claim 1 of the '625 Patent Obvious

9. In my original declaration, I explained why Walke renders claim 1 of the '625 patent obvious. Below I provide an additional discussion of Walke in reply to Patent Owner's Response.

10. Walke's Delay command is not just a command to "ignore." Delay (n, m) commands the receiver to receive packet #n and to ignore packet #m (*i.e.*, it "releases expectations" of receiving #m).

11. Walke is not limited to "releasing expectations" only for packets with the specific numbers in the example in Walke where the transmitter sends Delay (4, 1). Walke would also release expectations where the release causes a next packet to be sent just after the released one, and therefore non-consecutive with a previously received packet. For example, if packet #3 was discarded and the next packet to be sent was #4, Walke could send Delay (4,3), and the packet

commanded to be received (#4) would be non-consecutive with a previously

received packet (e.g., #2).

12.   Patent Owner says that "Broadcom's DELAY (n, n-1) scenario

applied to claim 9 would reduce the throughput of the system, and therefore would

not be suggested by Walke." Response at 51. This statement seems to suggest that

the delay (n, n-1) scenario means that Walke must be made to operate always in a

manner where the next packet was one sequence number after the previously

received one. This misses the point, which is that a person of ordinary skill

reading Walke would understand that it discloses this possibility, along with any

other possibilities. The '625 patent also envisions scenarios in which there are no

packets waiting to be sent. For example, dependent claim 8 of the '625 patent

assumes there will be such cases. I believe a person of ordinary skill would

similarly assume that Walke could operate in situations with no packets are waiting

to be sent, one packet, or multiple packets waiting to be sent.

13.   Furthermore, the principles taught by Walke could be used in a Stop-

and-Wait type of system, in which packets are sent and acknowledged one at a

time. While Stop-and-Wait systems are not as efficient, they were well-known in

the art, as indicated in the background of the '625 patent ('625 patent at 1:23, Ex.

1001), and in Hettich at Section 5.1.1. While this Stop-and-Wait approach is less

efficient than selective reject, it would have been obvious to one of ordinary skill

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