



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/623,011	01/12/2007	Eliezer Aloni	14528.00597	4063
16378	7590	05/14/2013	EXAMINER	
Broadcom/BHGL			NGUYEN, PHUOC H	
P.O. Box 10395			ART UNIT	PAPER NUMBER
Chicago, IL 60610			2443	
			MAIL DATE	DELIVERY MODE
			05/14/2013	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ELIEZER ALONI, URI EL ZUR,
RAFI SHALOM, and CAITLIN BESTLER

Appeal 2010-012431
Application 11/623,011
Technology Center 2400

Before JOSEPH L. DIXON, ST. JOHN COURTENAY III, and
CARLA M. KRIVAK, *Administrative Patent Judges*.

COURTENAY III, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants appeals under 35 U.S.C. § 134 from a rejection of claims 1-45. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm-in-part.

The claims are directed to a “system and/or method for protocol offload and direct I/O with I/O sharing in a virtualized network environment.” (Spec. ¶[0011]). Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A method for communicating via a network, the method comprising:

sharing by a plurality of guest operating systems (GOSs), a single network interface circuitry, which provides access to a network; and

handling processing of one or both of: data to be transmitted to a network and/or data received from a network directly by said single network interface circuitry for each of said plurality of GOSs without an intermediary for said plurality of GOSs handling processing of said one or both of: said data to be transmitted to said network and/or said data received from said network.

REJECTIONS

1. Claims 16-30 stand rejected under 35 U.S.C §101 as being directed to non-statutory subject matter.
2. Claims 1-45 stand rejected under 35 U.S.C §102(e) as being anticipated by van Riel (US Pat. App. Pub. No. 2007/0061492 A1).

ANALYSIS

Rejection under 35 U.S.C. § 101

Issue: Under §101, did the Examiner err in concluding that the scope of claims 16-30 covers non-statutory subject matter?

In setting forth a new ground of rejection in the Answer, the Examiner concludes:

These claims [16-30] are drawn to a "machine-readable storage medium". The specification is silent regarding the meaning of this term. Thus, applying the broadest reasonable interpretation in light of the specification and taking into account the meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art (MPEP 2111), the claim as a whole cover[s] both transitory and non-transitory media. A transitory medium does not fall into any of the four categories of invention (process, machine, manufacture, or composition of matter). Therefore, claims 16-30 are directed to non-statutory subject matter.

(Ans. 3).

Appellants disagree, citing MPEP §2106.01 in support. Appellants submit "that claims 16-30 define statutory subject matter and are allowable. Additionally, the Appellants specifically "disclaim[] any strictly non-statutory implementation of claims 16-30 (to the extent any 'implementation' can be considered non-statutory at all)." (Reply Br. 3).¹

¹ We note that a prosecution disclaimer narrows the ordinary meaning of claim terms in federal court by excluding specific claim term interpretations that were disclaimed during prosecution. *Omega Eng'g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1324 (Fed. Cir. 2003). A prosecution disclaimer requires "clear and unambiguous disavowal of claim scope," *Storage Tech. Corp. v. Cisco Sys., Inc.*, 329 F.3d 823, 833 (Fed. Cir. 2003), which appears to be the case here. (Reply Br. 3). Because such prosecution disclaimers are a preliminary consideration in determining literal infringement during

The issue turns on whether the broadest reasonable interpretation of the “machine-readable *storage* having stored thereon, a computer program,” as recited in independent claims 16 and 27, includes non-statutory subject matter. (Emphasis added).

After reviewing the record, we conclude Appellants’ claimed “machine-readable *storage* having stored thereon, a computer program” broadly but reasonably includes both statutory and non-statutory embodiments.² (Claims 16, 27). When we look to Appellants’ Specification for *context*, we find a computer program product that includes a broadly described *computer program*:

The present invention may also be embedded in a *computer program product*, which comprises all the features enabling the implementation of the methods described herein, and which when loaded in a computer system is able to carry out these methods. Computer program in the present context means *any expression*, in any language, code or notation, of a set of instructions intended to cause a system having an information processing capability to perform a particular function either directly or after either or both of the following: a) conversion to another language, code or notation; b) *reproduction in a different material form*.

(Spec. [00130], emphasis added).

infringement proceedings in federal district courts, Appellants’ disclaimer *statement* has no impact on our claim construction. (Reply Br. 3). Rather, “during patent examination, the pending claims must be given their broadest reasonable interpretation consistent with the specification.” *In re Hyatt*, 211 F.3d 1367, 1372 (Fed. Cir. 2000).

² If a claim covers material not found in any of the four statutory categories, that claim falls outside the plainly expressed scope of § 101 even if the subject matter is otherwise new and useful.” *In re Nuijten*, 500 F.3d 1346, 1356-57 (Fed. Cir. 2007).

Regarding the support in the Specification, we find “*reproduction in a different material form*” (*id.*) may include *transitory signal embodiments*. (*Id.*). Therefore, we conclude the claimed “machine-readable *storage* having stored thereon, *a computer program*” is not limited to only statutory embodiments. (Independent claims 16, 27).³ Accordingly, we sustain the Examiner’s rejection under § 101 of claims 16-30.

Rejection under 35 U.S.C. § 102

Independent claim 1

Issue: Under §102, did the Examiner err in finding that van Riel expressly or inherently discloses:

handling processing of one or both of: data to be transmitted to a network and/or data received from a network directly by said single network interface circuitry for each of said plurality of GOSs *without an intermediary* for said plurality of GOSs handling processing of said one or both of: said data to be transmitted to said network and/or said data received from said network.

within the meaning of claim 1? (Emphasis added).

ANALYSIS

Under 35 U.S.C. § 102, “[a] single prior art reference that discloses, either expressly or inherently, each limitation of a claim invalidates that claim by anticipation.” *Perricone v. Medicis Pharm. Corp.*, 432 F.3d 1368,

³ See also U.S. Patent & Trademark Office, *Evaluating Subject Matter Eligibility Under 35 USC § 101* (Aug. 2012 Update); pp. 11-14, available at http://www.uspto.gov/patents/law/exam/101_training_aug2012.pdf.

1375 (Fed. Cir. 2005) (citing *Minn. Mining & Mfg. Co. v. Johnson & Johnson Orthopaedics, Inc.*, 976 F.2d 1559, 1565 (Fed. Cir. 1992)).

Regarding claim 1, Appellants contend:

Van Riel neither discloses nor suggests at least the limitation of "handling processing ... directly by said single network interface circuitry for each of said plurality of GOSs without an intermediary for said plurality of GOSs," as claimed by the Appellant in independent claim 1. Instead, Van Riel discloses that to achieve a zero-copy network receive, *the host OS receives a subset of network state information from the guest process and determines a virtual memory address associated with a target guest process that is to receive the network packet data payloads.* See Van Riel at paragraph 0059, lines 1-25. Furthermore, Van Riel discloses that *the host OS performs the virtual memory address translations enabling it to directly copy the virtual network packet header from one guest OS to the kernel buffer of the second guest OS.* See Van Riel at paragraph 0065, lines 15-20. Furthermore, *the Examiner admits that Van Riel discloses in "Figures 2 wherein the data is communicated to/from GOSs and Internet cloud 99 via NIC 20 through either the Host OS as TGOS or the hypervisor."* See the Office Action at page 5. Accordingly, Van Riel clearly discloses a host OS that acts as an intermediary for handling processing of data, but does not disclose or suggest "handling processing ... directly by said single network interface circuitry for each of said plurality of GOSs without an intermediary for said plurality of GOSs," as claimed by the Appellant in independent claim 1.

(App. Br. 10-11).

The Examiner disagrees, pointing to Figure 2(c) in support. (Ans. 9).

At the outset, we observe that the disputed negative limitation "without an intermediary" is recited in the original claims. (Original claims 1, 16, and 31). Moreover, we find the originally-filed Specification provides support for the disputed negative limitation in the form of a *reason to exclude* the intermediary between a Guest Operating System (GOS) and a

hardware Network Interface Card (NIC): “this invention may allow reduction in overhead and number of copies that may be required to move the data to/from the GOS application buffer.” (Spec. ¶[0025]).⁴

Turning to the reference, Riel describes in pertinent part:

Thus, the NIC hardware 21, *without intervention by the host O/S*, is enabled to directly copy the header (H) and data (D) portions of a packet 25 to be sent, subject to application of firewall rules. *The host O/S will only need to examine the header* (and possibly modify it for firewall rules) and *perform an address translation for the data without actually needing to copy the data itself*.

(van Riel, ¶[0064]).

We acknowledge the Examiner has located a close reference that describes the NIC hardware 21 as being enabled to directly copy the header (H) and data (D) portions of a packet 25 to be sent, *without intervention by the host O/S*, subject to application of address translation and firewall rules. (*Id.*).

However, van Riel also reveals that the lack of host O/S intervention is not absolute, as “*the host O/S will only need to examine the header* (and possibly modify it for firewall rules) and *perform an address translation for the data* *without actually needing to copy the data itself*.” (*Id.*, emphasis added).

⁴ See *Santarus, Inc. v. Par Pharmaceutical, Inc.*, 694 F.3d 1344, 1351 (Fed. Cir. 2012). (“Negative claim limitations are adequately supported when the specification describes a reason to exclude the relevant limitation. Such written description support need not rise to the level of disclaimer. In fact, it is possible for the patentee to support both the inclusion and exclusion of the same material.”)

Given this description, we agree with Appellants that “Van Riel clearly discloses a host as that *acts as an intermediary* for handling processing of data.” (App. Br. 11, emphasis added). Therefore, we find van Riel is not an anticipatory reference because it does not disclose the aforementioned negative limitation which requires “handling processing ... directly by said single network interface circuitry for each of said plurality of GOSs *without an intermediary* for said plurality of GOSs,” as Appellants contend. (App. Br. 11).

Accordingly, we are constrained by the record to reverse the Examiner’s anticipation rejection of independent claims 1, 16, and 31, and the anticipation rejection of each associated dependent claim.

Independent claims 12, 27, and 42

Regarding remaining independent claims 12, 27, and 42, Appellants contend, *inter alia*:

Van Riel neither discloses nor suggests at least the limitation of "handling processing of one or both of: data to be transmitted to a network and/or data received from a network, **through a trusted guest operating system (TGOS)**," as claimed by the Appellant in independent claim 12. Instead, Van Riel discloses that to achieve a zero-copy network receive, the host as receives a subset of network state information from the guest process and determines a virtual memory address associated with a target guest process that is to receive the network packet data payloads. See Van Riel at paragraph 0059, lines 1-25. The Examiner is apparently suggesting that a host OS is equivalent to a trusted guest operating system. The Appellant respectfully disagrees. Accordingly, Van Riel discloses a host OS as an intermediary for processing receive and transmit data from the network, and does not disclose or suggest "handling processing of one or both of: data to be transmitted to a network and/or data received from a network, through a trusted guest operating

system (TGOS)," as claimed by the Appellant in independent claim 12.

(App. Br. 25).

The Examiner disagrees: “[t]he examiner respectfully submits that a similar response as seen in the first argument can be applied here and further, the *TGOS can be either any GOS and host OS as hypervisor.*” (Ans. 11, ll. 1-2, emphasis added).

Although van Riel describes a GOS (e.g., “guest O/S 50” ¶[0064]), the Examiner has not pointed to an express disclosure of a Trusted Guest Operating System (TGOS), as required by the plain language of independent claims 12, 27, and 42. Nor has the Examiner fully developed the record to establish that a TGOS is *inherently* disclosed by van Riel (*cf.* Ans. 11, ll. 1-2: “the TGOS *can be* either any GOS and host OS as hypervisor.” emphasis added). Our reviewing court guides that “[i]nherency ... may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.” *In re Robertson*, 169 F.3d 743, 745, (Fed. Cir. 1999) (citations omitted).

This reasoning is applicable here. Therefore, for essentially the same reasons argued by Appellants (App. Br. 25), we reverse the Examiner’s anticipation rejection of independent claims 12, 27, and 42, and the anticipation rejection of each associated dependent claim.

Appeal 2010-012431
Application 11/623,011

DECISION

We affirm the Examiner's rejection of claims 16-30 under §101.

We reverse the Examiner's rejection of claims 1-45 under §102.

No time for taking any action connected with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED-IN-PART

Vsh