UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte NETWORK CACHING TECHNOLOGY, L.L.C.

Appeal 2008-4022
Reexamination Control 90/007,193
Patent 6,085,234
Technology Center 3900

Decided: October 31, 2008

Before FRED E. McKELVEY, *Senior Administrative Patent Judge*, and JAMES T. MOORE and SCOTT R. BOALICK, *Administrative Patent Judges*.

BOALICK, *Administrative Patent Judge*.

DECISION ON APPEAL

Network Caching Technology, L.L.C. appeals under 35 U.S.C. § 134(b) and 35 U.S.C. § 306 from a final rejection of claims 1-17 and 19.[1]

[1] Claim 18 has been confirmed as patentable.

We have jurisdiction under 35 U.S.C. § 6(b).

An oral hearing was held on September 17, 2008. Oral argument was transcribed. The record includes a written transcript of the oral argument. Arguments made for the first time during oral argument have not been considered. *See* 37 C.F.R. § 41.37(c)(1)(vii) (2007) ("Any arguments or authorities not included in the brief or a reply brief filed pursuant to § 41.41 will be refused consideration by the Board, unless good cause is shown.").

We affirm.

REEXAMINATION

A request for reexamination of U.S. Patent 6,085,234 (the '234 patent), entitled "Remote File Services Network-Infrastructure Cache," was filed on September 7, 2004. The '234 patent issued July 4, 2000, based on Application 09/121,651 (the '651 application), filed July 23, 1998. The '234 patent is said to be a continuation-in-part of Application 08/806,441 (the '441 application), now U.S. Patent 5,892,914 (the '914 patent). The '914 patent claims an effective filing date of June 3, 1992.

STATEMENT OF THE CASE

The claimed invention relates to proxy file caches used in networks of digital computers. The Examiner rejected claims 1-17 and 19[2] as being unpatentable over the prior art.

[2] Claims 1-17 and 19 have not been amended during the instant reexamination proceeding or during prosecution of the '651 application. The first office action issued during prosecution of the '651 application was a notice of allowability for claims 1-19. ('651 application, Notice of Allowability mailed January 18, 2000.)

The prior art relied upon by the Examiner in rejecting the claims on appeal is:

Domenikos, et. al.	6,065,043	May 16, 2000 (filed Jul. 2, 1998)
Yu	6,351,775 B1	Feb. 26, 2002 (filed May 30, 1997)

Chankhunthod, Danzig, Neerdaels, et. al, *A Hierarchical Internet Object Cache,* CU-CS-766-95, Dept. of Computer Science, Univ. of Colorado, (1995) ("Chankhunthod").

Claims 1-3 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Chankhunthod.

Claims 4-10 and 13-15 stand rejected under 35 U.S.C. § 103(a) as being obvious over Chankhunthod and Domenikos.

Claims 11-12, 16-17, and 19 stand rejected under 35 U.S.C. § 103(a) as being obvious over Chankhunthod, Domenikos, and Yu.

Except as will be noted in this opinion, Appellant has not presented any substantive arguments directed separately to the patentability of the dependent claims or related claims in each group of rejected claims. In the absence of a separate argument with respect to those claims, they stand or fall with the representative independent claim. *See* 37 C.F.R. § 41.37(c)(1)(vii).

ISSUES

1. The first issue is whether claims 1, 4, 6, 8, and 14 are entitled, under 35 U.S.C. § 120, to the effective filing date of the '914 patent.

2. The second issue is whether Appellant has shown that the Examiner erred in rejecting claims 1-3 under 35 U.S.C. § 102(b).

3. The third issue is whether Appellant has shown that the Examiner erred in rejecting claims 4-10 and 13-15 under 35 U.S.C. § 103(a).

4. The fourth issue is whether Appellant has shown that the Examiner erred in rejecting claims 11-12, 16-17, and 19 under 35 U.S.C. § 103(a).

FINDINGS OF FACT

The record supports the following findings of fact (FF) by a preponderance of the evidence.

The '234 Patent

1. U.S. Patent 6,085,234 (the '234 patent) issued on July 4, 2000 based on Application 09/121,651 (the '651 application), filed July 23, 1998, naming William M. Pitts, Joel R. Rigler, and Robert E. Lister as the inventors. The '234 patent is said to be a continuation-in-part of Application 08/806,441 (the '441 application), filed February 26, 1997, now U.S. Patent 5,892,914 (the '914 patent), which claims priority from PCT Application PCT/US92/04939, filed June 3, 1992. (Col. 1, ll. 7-13.)

2. Figure 5 of the '234 patent is reproduced below:

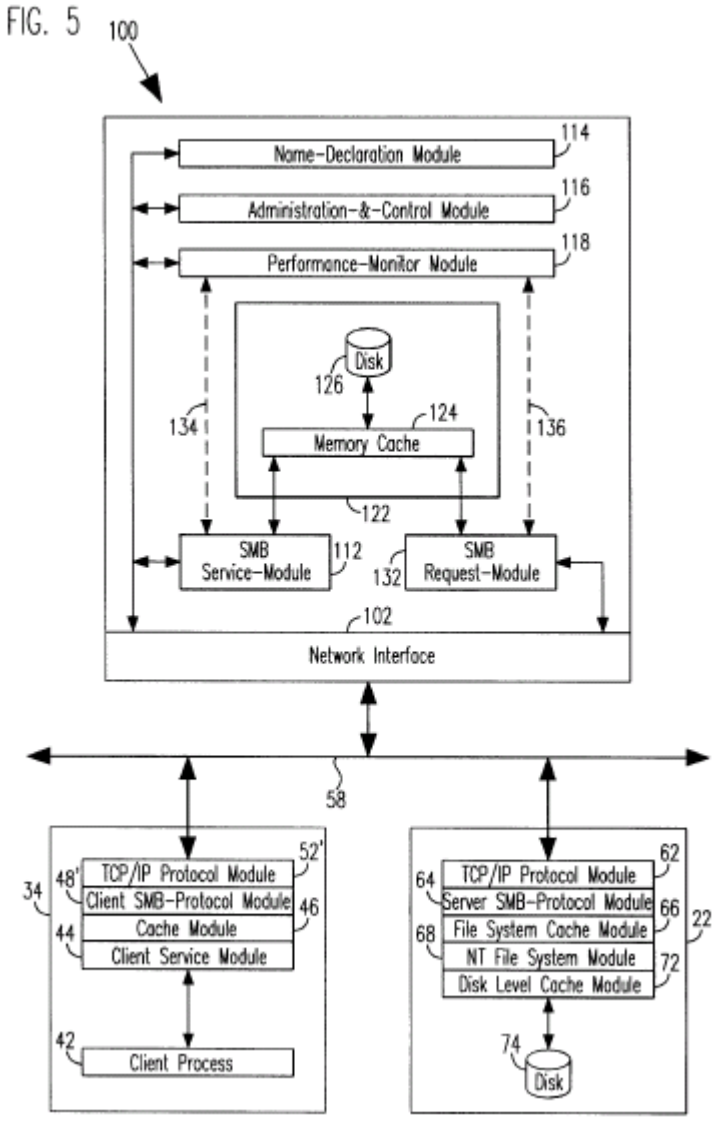

Figure 5 "is a block diagram depicting, together with the prior art client workstation, server, and network illustrated in FIG. 4, a network-infrastructure cache that includes a network interface, file-request service-module, a cache, and a file-request generation-module." (Col. 6, ll. 13-18.)

3. The '234 patent is directed to a network-infrastructure cache (NI Cache) 100 that provides proxy file services to client workstations 34 that are concurrently requesting access to file data stored on a server 22. (Abstract; col. 5, ll. 14-17; col. 6, ll. 34-48; col. 8, ll. 53-59; Fig. 5.) The NI Cache 100 includes a network interface 102 that connects to a network connection 58, a file-request service-module (FRSM) 112 of the NI Cache that receives and responds to network-file-services-protocol (NFSP) requests from client workstations 34 through the network interface 102, a cache 122, included in the NI Cache 100, that stores data which is transmitted back to the client workstations 34, a file-request generation-module (FRGM) 132, also included in the NI Cache 100, that transmits requests for data to the server 22 and receives responses from the server 22 that include data missing from the cache 122. (Abstract; col. 5, ll. 21-50; col. 6, l. 49 to col. 8, l. 8; Fig. 5.)

4. Claim 1 on appeal is reproduced below [numbers from the drawings added].

> 1. A network-infrastructure cache [100] for providing proxy services to a plurality of client workstations [34] concurrently requesting access to data stored on a server [22]; the client workstations [34] and the server [22] being interconnected by a network [58] via which client workstations [34] may transmit network-file-services-protocol requests to the server [22], and via which the server [22] transmits network-file-services-protocol responses to requesting client workstations [34]; the network-infrastructure cache [100] comprising:

a network interface [102] that connects to the network [58] for providing a hardware and software interface to the network [58] through which the network-infrastructure cache [100] receives and responds to network-file-services-protocol requests from client workstations [34] for data for which the network-infrastructure cache [100] provides proxy services;

a file-request service-module [112] for receiving via said network interface [102] network-file-services-protocol requests transmitted by the client workstations [34] for data for which the network-infrastructure cache [100] provides proxy services, and for transmitting to client workstations [34] via said network interface [102] network-file-services-protocol responses to the network-file-services-protocol requests;

a cache [122] from which said file-request service-module [112] retrieves data that is included in the network-file-services-protocol responses that said file-request service-module [112] transmits to the client workstations [34]; and

a file-request generation-module [132] for transmitting to the server [22] via said network interface [102] network-file-services-protocol requests for data specified in network-file-services-protocol requests received by said file-request service-module [112] that is missing from said cache [122], for receiving from the server [22] network-file-services-protocol responses that include data missing from said cache [122], and for transmitting such missing data to said cache [122] for storage therein.

The '914 Patent

5. U.S. Patent 5,892,914 (the '914 patent) issued on April 6, 1999, based on Application 08/806,441 (the '441 application), filed February 26, 1997, naming William Michael Pitts as the sole inventor. The '914 patent is said to be a division of Application 08/343,477 (the '477 application), filed November 28, 1994, now U.S. Patent No. 5,611,049 (the '049 patent), which claimed priority to PCT Application PCT/US92/04939, filed June 3, 1992, published as WO93/24890 on December 9, 1993. (Col. 1, ll. 5-9.) Thus, the '914 patent claims an effective filing date of June 3, 1992.

6. The '914 patent is directed to a computer network where "[s]ome of the computers in the network function as Network Distributed Cache ("NDC") sites," (col. 6, ll. 53-54) and where each NDC 50 includes NDC buffers 129. (Col. 6, ll. 51-56; Figs. 1-3.) The network also includes one or more client sites 42, where "[e]ach client site [42] presents requests to an NDC [50] to access data that is stored at an NDC site located somewhere within the network." (Col. 6, ll. 58-60 (citations added).) The data requested by the client site 42 belongs to a named set of data called a dataset. (Col. 6, ll. 60-62; col. 10, ll. 1-8.) "The NDC site storing a particular dataset is called the NDC server terminator site [22] for that particular dataset" and "[t]he NDC site that receives requests to access data from the client site [42] is called the NDC client terminator site [24]." (Col. 6, ll. 62-65 (citations added).) "A single client site may concurrently request to access

different datasets that are respectively stored at different NDC sites," and "[t]hus, while there is only a single NDC client terminator site for each client site, simultaneously there may be a plurality of NDC server terminator sites responding to requests from a single client site to access datasets stored at different NDC server terminator sites." (Col. 6, l. 65 to col. 7, l. 5.)

7. Thus, the NDCs 50 permit the accessing of a dataset stored at an NDC server terminator site 22 in response to a request submitted to an NDC client terminator site 24 by a client workstation 42. (Abstract; col. 6, ll. 51-62; Figs. 1-3.) In accessing the dataset, the NDCs 50 form an NDC data conduit 62 that provides an active virtual circuit ("AVC") from the NDC client site 24, through intermediate NDC sites 26B, 26A, to the NDC server site 22. (Abstract; Figs. 1-3.) The NDC sites 22, 26A and 26B project an image of the requested portion of the dataset through the AVC provided by the conduit 62 into the NDC client site 24, where it may be either read or written by the client workstation 42. (Abstract; Figs. 1-3.) Data structures called channels 116 in each NDC 50 accumulate profiling data from the requests to access the dataset for which they have been claimed. (Abstract.) The NDCs 50 use the accumulated profile data stored in channels 116 to anticipate future requests to access datasets from a client workstation 42. (Abstract.)

8. Figures 1 and 2 of the '914 patent are reproduced below:

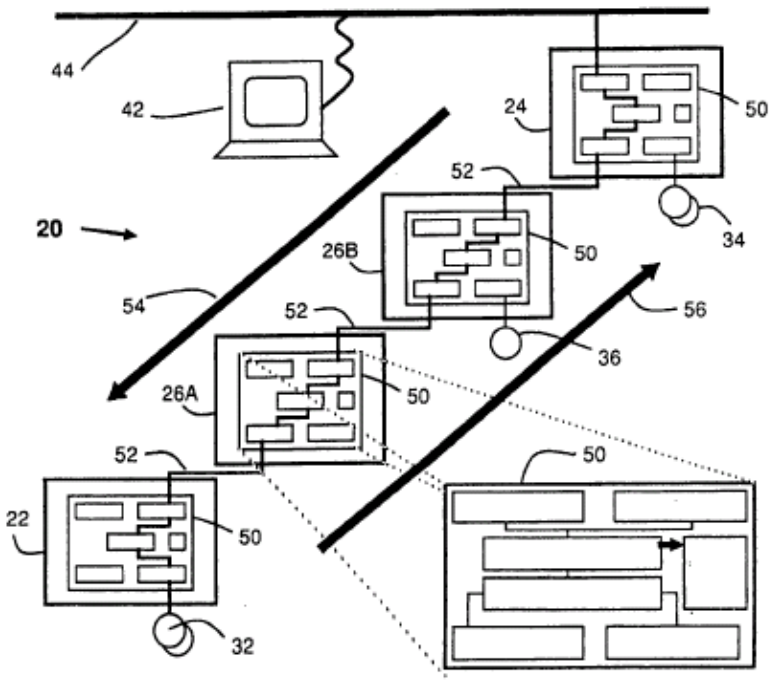

FIG. 1

Figure 1 "is a block diagram depicting a networked, multi-processor digital computer system that includes an NDC server terminator site, an NDC client terminator site, and a plurality of intermediate NDC sites, each NDC site in the networked computer system operating to permit the NDC client terminator site to access data stored at the NDC server terminator site." (Col. 8, ll. 41-47.)

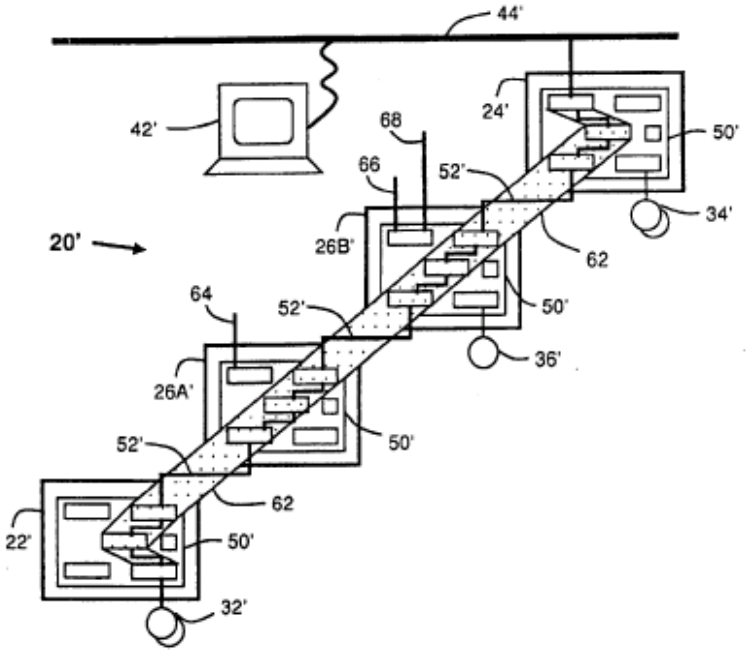

FIG. 2

Figure 2 "is a block diagram that provides another way of illustrating the networked, multi-processor digital computer system of FIG. 1." (Col. 8, ll. 48-50.)

9. Figure 1 shows "a series of NDC sites 22, 24, 26A and 26B linked together by the DTP [Data Transfer Protocol] messages 52 that form a chain connecting the client workstation 42 to the NDC server site 22." (Col. 10, ll. 47-50.) Analogizing the NDC chain to an electrical transmission line, the '914 patent teaches that "[t]he transmission line of the NDC chain is terminated at both ends, i.e., by the NDC server site 22 and by the NDC client site 24." (Col. 10, ll. 50-53.) "An NDC server terminator site 22 will always be the node in the network of processors that 'owns' the source data structure" and "the NDC client

terminator site 24[] is the NDC site that receives requests from the client workstation 42 to access data on the NDC server site 22." (Col. 10, ll. 56-61.)

10. Referring to Figure 1, "[d]ata being written to the hard disk 32 at the NDC server site 22 by the client workstation 42 flows in a "downstream" direction indicated by a downstream arrow 54" and "[d]ata being loaded by the client workstation 42 from the hard disk 32 at the NDC server site 22 is pumped "upstream" through the NDC chain in the direction indicated by an upstream arrow 56 until it reaches the NDC client site 24." (Col. 10, l. 62 to col. 11, l. 1.) When the data reaches the NDC client site 24, it is reformatted into a reply message according to the appropriate network protocol, such as NFS, and sent back to the client workstation 42. (Col. 11, ll. 1-5.)

11. Figures 3 and 7 of the '914 patent are reproduced below:

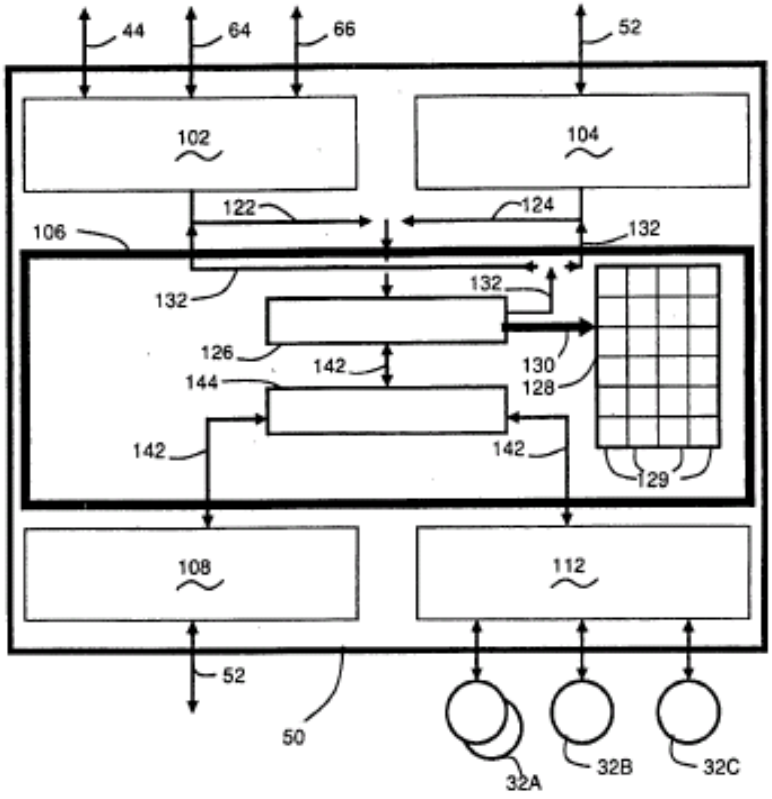

FIG. 3

Figure 3 "is a block diagram depicting a structure of the NDC included in each NDC site of FIG. 1 including the NDC's buffers." (Col. 8, ll. 51-53.)

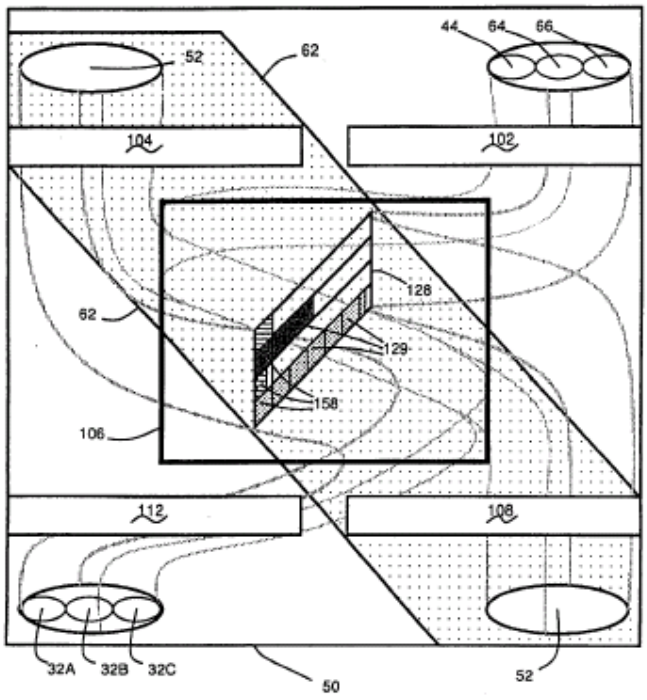

FIG. 7

Figure 7 "is a block diagram illustrating projected images of a single dataset being transferred through the NDC site depicted in FIG. 3 and illustrating the storage of various segments of the dataset in the NDC buffers." (Col. 8, l. 66 to col. 9, l. 2).

12. The '914 patent describes a ten step process to service a single request by the client workstation 42 to read data stored on the hard disk 32 of the NDC server site 22. (Col. 11, l. 13 to col. 12, l. 10; Figs. 1-3, 7.) The following is a description of these ten steps:

    a. In step 1, the "request flows across the Ethernet LAN 44 to the NDC client site 24 which serves as a gateway to the NDC chain." (Col. 11, ll. 13-15.) An NDC client intercept routine

102 (shown in Figs. 3 and 7) within the NDC client site 24 inspects the request and intercepts it if the request is directed at any NDC site 24, 26A, 26B, or 22 for which the NDC client site 24 is a gateway. (Col. 11, ll. 15-21.)

b. In steps 2 and 3, the NDC client intercept routine 102 submits the request to an NDC core 106 which receives the request and checks its NDC cache to determine if the requested data is already present there. (Col. 11, ll. 22-27.) "If all data is present in the NDC cache of the NDC client site 24, the NDC 50 will . . . immediately respond to the calling NDC client intercept routine 102." (Col. 11, ll. 27-31.)

c. In step 4, "[i]f all the requested data isn't present in the NDC cache of the NDC client site 24, then the NDC 50 will access any missing data elsewhere." (Col. 11, ll. 32-34.) "If the NDC site 24 were a server terminator site, then the NDC 50 would access the filesystem for the hard disk 34 upon which the data would reside." (Col. 11, ll. 34-37.)

d. In step 5, if the NDC client site 24 is not a server terminator site, "the NDC 50 must request the data it needs from the next downstream NDC site, i.e., intermediate NDC site 26B in the example depicted in FIG. 1." (Col. 11, ll. 38-42.) "Under this circumstance, DTP client interface routines 108, illustrated in

FIGS. 3 and 7, are invoked to request from the intermediate NDC site 26B whatever additional data the NDC client site 24 needs to respond to the current request." (Col. 11, ll. 42-46.)

e. In step 6, a data transfer protocol (DTP) server interface routine 104 (shown in Figs. 3 and 7) at the downstream intermediate NDC site 26B receives the request from the NDC 50 of the NDC client site 24 and processes it according to steps 3, 4, and 5. (Col. 11, ll. 47-51.) This "sequence repeats for each of the NDC sites 24, 26B, 26A and 22 in the NDC chain until the request reaches the server terminator, i.e., NDC server site 22 in the example depicted in FIG. 1, or until the request reaches an NDC site that has all the data that is being requested of it." (Col. 11, ll. 51-56.)

f. In step 7, "[w]hen the NDC server terminator site 22 receives the request, its NDC 50 accesses the source data structure." (Col. 11, ll. 57-58.) "If the source data structure resides on a hard disk, the appropriate file system code (UFS, DOS, etc.) is invoked to retrieve the data from the hard disk 32. (Col. 11, ll. 59-61.)

g. In step 8, when the "NDC server site 22 returns the data from the hard disk 32, a response chain begins whereby each downstream site successively responds upstream to its client,

e.g. NDC server site 22 responds to the request from intermediate NDC site 26A, intermediate NDC site 26A responds to the request from intermediate NDC site 26B, etc." (Col. 11, l. 62 to col. 12, l. 2.)

h. In step 9, "the response percolates up through the sites 22, 26A, and 26B to the NDC client terminator site 24." (Col. 12, ll. 3-4.)

i. In step 10, "[t]he NDC 50 on the NDC client site 24 returns to the calling NDC client intercept routine 102, which then packages the returned data and metadata into an appropriate network protocol format, such as that for an NFS reply, and sends the data and metadata back to the client workstation 42." (Col. 12, ll. 5-10.)

13. "If an NDC site 24, 26B, 26A or 22 is both the client terminator site and the server terminator site for a request to access data, then the NDC data conduit 62 is contained entirely within that NDC site 24, 26B, 26A or 22." (Col. 12, ll. 37-41.)

14. Referring to Figure 2, "[a]fter an NDC 50' intercepts a request from a client workstation on one of the networks 44', 64, 66 or 68 and converts it into the DTP messages 52', the request travels through the data conduit 62 until all the data has been located." (Col. 12,

ll. 42-46.) "If a request reaches the NDC server terminator site 22', the NDC 50' directs it to the appropriate file system on the NDC server terminator site 22'." (Col. 12, ll. 49-51.) "Each NDC site 22' may support several different types of file systems for hard disks attached thereto such as the hard disks 32', 34', and 36'." (Col. 12, ll. 51-53.) "After the file system at the NDC server terminator site 22' returns the requested data to its NDC 50', the NDC 50' passes the reply data and metadata back up through each NDC site 26A' and 26B' until it reaches the client terminator 24'." (Col. 12, ll. 54-58.) At the client terminator 24', the NDC client intercept routine 102 reformats the data and metadata into an appropriately formatted reply message and sends that message back to the client workstation 42'. (Col. 12, ll. 58-60.)

15. Figure 7 shows an NDC data conduit 62 passing through an NDC site, such as NDC sites 22, 24, 26A, or 26B. (Col. 14, ll. 12-14.) "The NDC data conduit 62, stretching from the NDC server terminator site 22 to the NDC client terminator site 24, is composed of the channels 116 at each NDC site 22, 24, 26A or 26B that have bound together to form an expressway for transporting data between the NDC server terminator site 22 and the NDC client terminator site 24." (Col. 14, ll. 14-20.)

16. Referring to Figures 3 and 7, "[i]f the client intercept routines 102 of the NDC 50 receives a request to access data from a client, such as the

client workstation 42, it prepares a DTP [data transfer protocol] request indicated by the arrow 122 in FIG. 3." (Col. 14, ll. 64-67.) Also, "[i]f the DTP server interface routines 104 of the NDC 50 receives a request from an upstream NDC 50, it prepares a DTP request indicated by the arrow 124 in FIG. 3." (Col. 14, l. 67 to col. 15, l. 3.) The DTP requests 122 and 124 are presented to the NDC core 106 and cause a buffer search routine 126 to search a pool 128 of NDC buffers 129 (shown by arrow 130) to determine if all the data requested by either routine 102 or routine 104 is present in the NDC buffers 129 of this NDC 50. (Col. 15, ll. 3-9.) "The channel 116 together with the NDC buffers 129 assigned to the channel 116 may be referred to collectively as the NDC cache." (Col. 15, ll. 9-11.)

17. Continuing to refer to Figures 3 and 7, if all the requested data is found in the NDC buffers 129, the buffer search routine 126 prepares a DTP response (shown by arrow 132) that responds to the request 122 or 124, and the NDC core 106 returns the DTP response 132, containing both data and metadata, to either client intercept routines 102 or to DTP server interface routines 104 -- depending upon which routine, 102 or 104, submitted the request 122 or 124. (Col. 15, ll. 11-17.) If the client intercept routine 102 receives DTP response 132, then it reformats the response from DTP to the protocol in which the client workstation 42 requested access to the dataset before it

returns the requested data and metadata to the client workstation 42. (Col. 15, ll. 18-23.)

18. On the other hand, if all the requested data is not found in the NDC buffers 129, then the buffer search routine 126 prepares a DTP downstream request (shown by arrow 142) for only that data which is not present in the NDC buffers 129. (Col. 15, ll. 24-28.) If this NDC 50 is not located in the NDC server terminator site 22, then a request director routine 144 directs the DTP request 142 to the DTP client interface routines 108. (Col. 15, ll. 28-30.) But if this NDC 50 is located in the NDC server terminator site 22, then the request director routine 144 directs the DTP request 142 to the file system interface routines 112. (Col. 15, ll. 31-32.) "After the DTP client interface routines 108 obtains the requested data together with its metadata from a downstream NDC site 22, 26A, etc. or the file system interface routines 112 obtains the data from the file system of this NDC client terminator site 24, the data is stored into the NDC buffers 129 and the buffer search routine 126 returns the data and metadata either to the client intercept routines 102 or to the DTP server interface routines 104 as described above." (Col. 15, ll. 32-40.)

19. When an NDC client terminator site receives the first request to access a dataset from a client site, it assigns a data structure called a channel to the request and stores information about the request into the channel. (Col. 7, ll. 14-17.) "Each channel functions as a conduit

through the NDC site for projecting images of data to sites requesting access to the dataset, or, if this NDC site is an NDC client terminator site for a particular request, the channel may store an image of the data in the NDC buffers at this NDC site." (Col. 7, ll. 18-22.) "In addition to functioning as part of a conduit for transmitting data between an NDC server terminator site and an NDC client terminator site, each channel also stores data that provides a history of access patterns for each client site as well as performance measurements both for client sites and for the NDC server terminator site." (Col. 7, ll. 22-27.)

20. Referring to Figures 1-3 and 7, "[t]he NDC 50 employs channels 116 to provide a data pathway through each NDC site 22, 24, 26A and 26B, and to provide a structure for storing a history of patterns of accessing each dataset for each client, such as the client workstation 42, as well as performance measurements on both clients and the NDC server terminator site 22." (Col. 15, ll. 42-47.) "Using this information, the NDC 50 is able to anticipate future demand by the client, such as the client workstation 42, and the latencies that will be incurred on any request that must be directed downstream toward the NDC server terminator site 22." (Col. 15, ll. 47-52.)

Chankhunthod

21. Chankhunthod describes a proxy cache arrangement for Internet information systems, called the "Harvest cache," that includes a hierarchical arrangement of caches. (Abstract; Section 1 (Introduction), second paragraph, at page 1.) The hierarchical arrangement mirrors the topology of a wide-area internetwork to, among other things, help distribute load away from server hot spots and reduce access latency. (Abstract.) The Harvest cache "implements a more general caching interface, allowing objects to be cached using a variety of access protocols (FTP, Gopher, and HTTP)." (Section 6 (Related Efforts), fourth paragraph, page 11.)

22. Section 2 (Design) of Chankhunthod "describes our design to make the Harvest cache fast, efficient, transportable, and transparent." (Section 2, at page 1.) Section 2 includes subsections 2.1 through 2.9. (Pages 1 through 4).

23. Figure 1 of Chankhunthod is reproduced below:

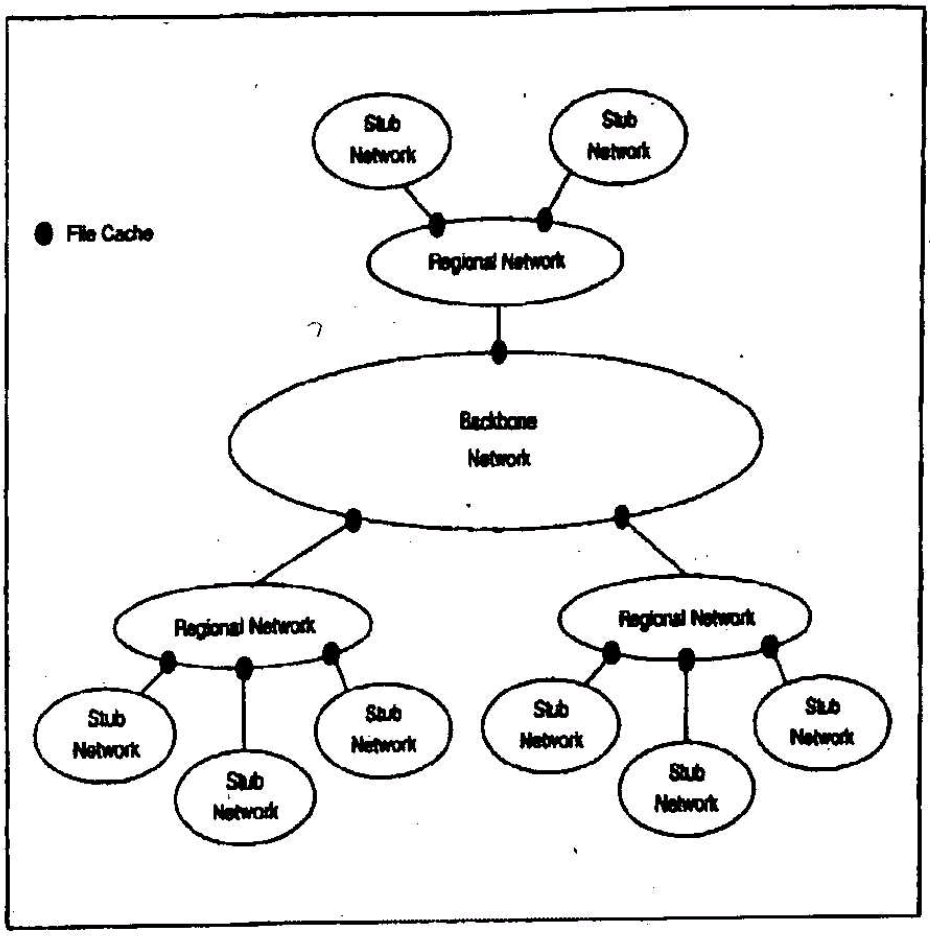

Figure 1: Hierarchical Cache Arrangement.

24. Subsection 2.1 (Cache Hierarchy) of Chankhunthod teaches that "caches resolve misses through other caches higher in a cache hierarchy, as illustrated in Figure 1." (Subsection 2.1, first paragraph, at page 1.) "Each cache in the hierarchy independently decides whether to fetch the reference from the object's home site or from the cache or caches above it in the hierarchy." (*Id.*) In the cache

resolution algorithm, a parent cache (cache higher up in the hierarchy) is distinguished from a sibling cache (cache at the same level in the hierarchy). (*Id.* at pages 1-2.) Chankhunthod teaches that "[w]hen a cache receives a request for a URL that misses, it performs a remote procedure call to all of its siblings and parents, looking to see if the URL hits any sibling or parent" (*id.* at page 2) and also tricks the URL's home site into implementing the resolution protocol (*id.*). Next, "[a] cache resolves a reference through the first sibling, parent, or home site to return a UDP 'Hit' packet or through the first parent to return a UDP 'Miss' message if all caches miss and the home's UDP 'Hit' packet fails to arrive within two seconds." (Subsection 2.1, second paragraph, at page 2.) The goal of the resolution protocol "is for a cache to resolve an object through a source (cache or home) that can provide it most efficiently." (*Id.*)

25. Figure 2 of Chankhunthod is reproduced below:

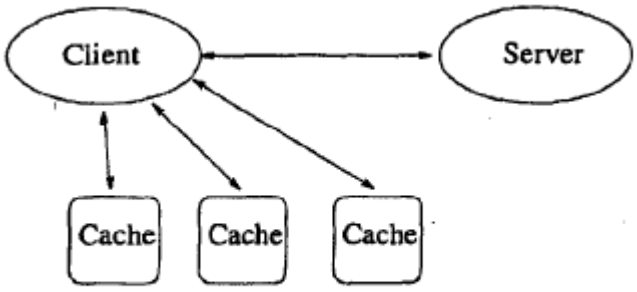

Figure 2: Cache-aware client

26. Figure 2 of Chankhunthod shows a cache-aware client. A cache-aware client "decide[s] between resolving an object indirectly through a parent cache or directly from the object's home." (Subsection 2.6,

first paragraph, at page 3.) To illustrate this point, Figure 2 shows a client, three separate caches, and a server. Separate bi-directional arrows connect each individual cache (parent cache) to the client. A single bi-directional arrow connects the client to the server (object's home).

27. Figure 3 of Chankhunthod is reproduced below:

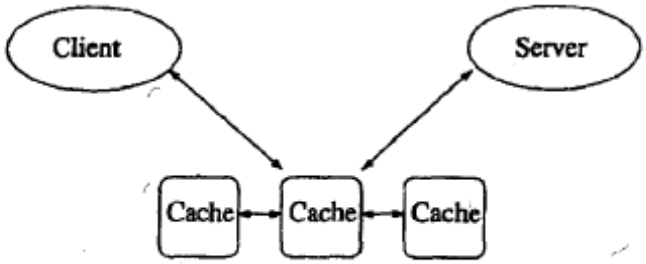

Figure 3: Proxy-caching client

28. Figure 3 of Chankhunthod shows a proxy-caching client. In this arrangement, "[c]lients send all their requests to their *proxy-server*, and the proxy server decides how best to resolve it." (Subsection 2.6, second paragraph, at page 3.) To illustrate this point, Figure 3 shows a client, three separate caches, and a server. A single bi-directional arrow connects the client to one of the three caches. As shown, the arrow connects to the middle one of the three caches. This teaches that the client sends requests to the middle cache and that the middle cache responds to client requests. A separate bi-directional arrow connects the same cache (middle of the three caches) to the server (object's home). In addition, separate arrows connect the middle cache to both the cache to the left and the cache to the right of the

middle cache. This teaches that the middle cache decides how best to resolve the request -- i.e., it decides whether to resolve the request from its own cache, from one of the other two caches, or from the object's home (server). Thus, the middle cache functions as the proxy server in the proxy-caching arrangement of Figure 3.

Domenikos

29. Domenikos describes a system that allows a computer in a computer network to connect to a server to execute a program stored on a disk linked to the server. (Abstract.)

30. Domenikos teaches a cache redirector that determines whether the requested file has been cached. (Col. 17, ll. 30-65; Figs. 6, 7.)

31. Domenikos also teaches a protocol translator by teaching that the redirector translates data requests to enable data transmission across multiple platforms. (Col. 3, l. 10 to col. 4, l. 4.)

Yu

32. Yu describes load balancing across servers in a computer network. (Abstract.)

33. Yu teaches keeping various statistics that record performance of the network-infrastructure cache. (Col. 9, l. 34 to col. 10, l. 3.)

PRINCIPLES OF LAW

"It is elementary patent law that a patent application is entitled to the benefit of the filing date of an earlier filed application only if the disclosure of the earlier application provides support for the claims of the later application, as required by [the first paragraph of] 35 U.S.C. § 112." *PowerOasis, Inc. v. T-Mobile USA, Inc.*, 522 F.3d 1299, 1306 (Fed. Cir. 2008) (quoting *In re Chu*, 66 F.3d 292, 297 (Fed. Cir. 1995)). Different claims of a continuation-in-part (CIP) application may receive different effective filing dates because subject matter arising "for the first time in the CIP application does not receive the benefit of the filing date of the parent application." *Augustine Medical, Inc. v. Gaymar Indus., Inc.*, 181 F.3d 1291, 1302 (Fed. Cir. 1999). Under 35 U.S.C. § 120, "in a chain of continuing applications, a claim in a later application receives the benefit of the filing date of an earlier application so long as the disclosure in the earlier application meets the requirements of 35 U.S.C. § 112, ¶ 1, including the written description requirement, with respect to that claim." *Technology Licensing Corp. v. Videotek, Inc.*, No. 2007-1441, -1463, 2008 WL 4529095, at *7 (Fed. Cir. Oct. 10, 2008) (citing *Transco Prods. Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 556 (Fed. Cir. 1994)).

Under the written description requirement of 35 U.S.C. § 112, first paragraph, the disclosure of the prior application relied upon must reasonably convey to one of ordinary skill in the art that, as of the filing date of the prior application, the inventor had possession of the later claimed subject matter. *Vas-Cath*, 935 F.2d at 1563. "One shows that one is 'in possession' of *the invention* by describing *the invention,* with all its claimed

limitations, not that which makes it obvious." *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1572 (Fed. Cir. 1997) (emphasis in original). Although "the meaning of terms, phrases, or diagrams in a disclosure is to be explained or interpreted from the vantage point of one skilled in the art, all the limitations must appear in the specification." *Id.* The specification need not describe the claimed subject matter in exactly the same terms as used in the claims, but it must contain an equivalent description of the claimed subject matter. *Id.*

Anticipation is established when a single prior art reference discloses expressly or under the principles of inherency each and every limitation of the claimed invention. *Atlas Powder Co. v. IRECO Inc.*, 190 F.3d 1342, 1347 (Fed. Cir. 1999); *In re Paulsen*, 30 F.3d 1475, 1478-79 (Fed. Cir. 1994).

"Section 103 forbids issuance of a patent when 'the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.'" *KSR Int'l Co. v. Teleflex Inc*., 127 S. Ct. 1727, 1734 (2007). In *KSR*, the Supreme Court reaffirmed that "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *Id.* at 1739.

"[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, 441 F.3d at 988. "To facilitate review, this

analysis should be made explicit." *KSR*, 127 S. Ct. at 1741. However, "the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *Id.*

During examination of a patent application, a claim is given its broadest reasonable construction consistent with the specification. *In re Prater*, 415 F.2d 1393, 1404-05 (CCPA 1969). "[T]he words of a claim 'are generally given their ordinary and customary meaning.'" *Phillips v. AWH Corp.,* 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (internal citations omitted). The "ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application." *Id.* at 1313.

ANALYSIS

Appellant contends that the Examiner erred in rejecting claims 1-17 and 19. Reviewing the record before us and the findings of facts cited above, we cannot agree. In particular, we find that the Appellant has not shown that the Examiner erred in finding that claims 1-19 are not entitled to the benefit of the filing date of the '914 patent. In addition, we find that Appellant has not shown that the Examiner failed to make a prima facie showing of anticipation with respect to claims 1-3 and has not shown that the Examiner failed to make a prima facie showing of obviousness with

respect to claims 4-17 and 19. Appellant failed to meet the burden of overcoming these prima facie showings.

Effective Filing Date Issue

Appellant argues that claims 1, 4, 6, 8, and 14 are entitled to the effective filing date of the '914 patent, and therefore Chankhunthod[3] is not prior art as to these claims. (App. Br. 4-14; Reply Br. 4-15.) In the Reply Brief, Appellant states that "Patent Owner does not now, nor has it at any time during the reexamination, argued that claims 2, 3, 5, 7, 9-13, and 16-19 are entitled to the benefit of the '914 filing date." (Reply Br. 4, n.1.) At the oral argument, Appellant confirmed that the benefit of the '914 filing date is sought only for claims 1, 4, 6, 8, and 14 and that all other claims have an effective filing date of July 23, 1998 -- the filing date of the '234 patent. (Tr. 21:3-7.) Therefore, Appellant seeks the benefit of the '914 effective filing date for claims 1, 4, 6, 8, and 14 only.

Appellant argues that claims 1, 4, 6, 8, and 14 do not require a stand-alone cache. (App. Br. 6-9; Reply Br. 14-15.) Appellant further argues that, even if a stand-alone cache is required, "the '914 patent ***explicitly*** describes a stand alone cache in substantially the same manner as in the '234 patent." (Reply Br. 6; *see also* Reply. Br. 7-13, App. Br. 9-11.) Appellant additionally argues that original claims 1 and 53 of the '914 patent disclose a stand-alone cache. (App. Br. 12-14; Reply Br. 13-14.) We do not agree.

[3] Although Appellant's arguments are focused on the question of whether Chankhunthod is prior art as to these claims, we note that they are equally applicable to the question of whether Domenikos and Yu are prior art.

The Examiner found that claims 1-19 are not entitled to the effective filing date of the earlier-filed '914 patent because the disclosure of the '914 patent is not sufficient to comply with the written description requirement of 35 U.S.C. § 112, first paragraph. (Ans. 3-4, 17-25.) The Examiner noted that "[n]o substantial portion (even a single statement) or drawing (even a single drawing) of the '234 patent is repeated from the '914 patent specification and/or drawing." (Ans. 4; *see also* Ans. 18-19.) In interpreting claim 1 on appeal, the Examiner found that a "stand-alone" cache is required because the claim recites "**A** network[-]infrastructure **cache**" comprising, among other things, "**a cache**," and because "[t]here is nothing in the disclosure [of the '234 patent] that indicates that the caching system consisting [*sic*, consists] of more than a single cache." [4] (Ans. 20.) Importantly, the Examiner found that the '234 patent "is the first time that [the] patent owner discloses the concept of [the] 'stand alone cache' of claims 1-19." (Ans. 4; *see also* Ans. 17, 19-25.) The Examiner found no equivalent description of a stand-alone cache in the '914 patent. (Ans. 18-19.) We agree with the Examiner.

[4] At page 14 of the Final Office Action mailed June 22, 2006, the Examiner makes note of an order granting partial summary judgment to the defendants in the case of *Network Caching Technology, LLC v. Novell, Inc.*, No. CV-01-2079 (VRW) (N.D. Cal. Jul. 7, 2003) (order granting partial summary judgment). *Network Caching Technology* involved both the '234 patent and the '914 patent. In that order, Judge Vaughn Walker found that claim 1 of the '234 patent requires a "stand-alone" cache and is not entitled to the effective filing date of the '914 patent for the same reasons given by the Examiner during the instant reexamination proceeding. *See Network Caching Technology*, No. CV-01-2079, at 10-13. The Director of the USPTO was not a party to the *Network Caching Technology* case.

Appellant has not demonstrated error in the Examiner's interpretation of claim 1 as requiring a "stand-alone cache." Appellant points out that claim 1 does not explicitly recite the phrase "stand-alone," and therefore argues that intermediate caching is not precluded by the language of claim 1. (App. Br. 7; Reply Br. 15.) But as the Examiner correctly found (Ans. 20), the specification and drawings of the '234 patent describe and show only a single network infrastructure cache 100. (FF 2, 3.) Appellant has not pointed to any credible evidence that the '234 patent describes or shows intermediate caching or even more than one cache. Thus, we conclude that the Examiner's interpretation of claim 1 as requiring a "stand-alone cache" is reasonable and consistent with the specification of the '234 patent.

We further agree with the Examiner that the parent '914 patent lacks adequate written description support under 35 U.S.C. § 112, first paragraph, for the later claimed stand-alone cache. As the Examiner correctly found (Ans. 22-24), the '914 patent is directed to a computer network with a plurality of Network Distributed Cache ("NDC") sites 50. (FF 6-20.) The '914 patent does not disclose a stand-alone cache as recited by claim 1 of the '234 patent. Instead, the '914 patent uses a chain of NDCs 50, including an NDC client terminator site 24, an NDC server terminator site 22, and, potentially, intermediate NDC sites 26B, 26A. (FF 6-20.)

In an attempt to demonstrate disclosure of a stand-alone cache in the '914 patent, Appellant asserts an equivalence between: (a) the recited "network interface" of claim 1 and the "client intercept routine 102" of the '914 patent; (b) the recited "file-request service-module" ("FRSM") of claim 1 and the "buffer search routine 126" of the '914 patent; (c) the recited

"cache" of claim 1 and the "NDC buffers 129" of the '914 patent; and (d) the recited "file-request generation-module" ("FRGM") of claim 1 and the "request director routine 144" of the '914 patent. (Reply Br. 8-10.) However, we do not agree that there is an equivalent disclosure for every limitation recited by claim 1.

Claim 1 recites, among other things with emphasis added, "a file-request generation-module [FRGM] *for transmitting to the server via said network interface* network-file-services-protocol [NFSP] requests for data specified in network-file-services-protocol [NFSP] requests received by said file-request service-module [FRSM] that is missing from said cache, . . . [and] *for receiving from the server* network-file-services-protocol [NFSP] responses that include data missing from said cache." The '914 patent lacks adequate written description support for these features of claim 1 of the '234 patent.

The request director routine 144, asserted by Appellant to be equivalent to the FRGM of claim 1 (Reply Br. 9),[5] is not described in the '914 patent as either transmitting a request for missing data to a server via the network interface (i.e., client intercept routine 102 of the '914 patent as asserted by Appellant), or as receiving from a server data missing from the cache. Instead, the buffer search routine 126 prepares a request for missing data and the request director routine 144 sends the request for missing data to either: (1) the client interface routine 108 (not the "network interface" --

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[5] Appellant argues (Reply Br. 8-9) that the request director routine 144 of the '914 patent (*see* FF 18) is equivalent to the request module 132 of the '234 patent (*see* FF 2, 3). We interpret this as an argument that the request director routine 144 of the '914 patent discloses the claimed FRGM.

i.e., client intercept routine 102 as asserted by Appellant) for transmission to a downstream NDC site (not a server); or (2) to the file system interface routine 112 (again, not the "network interface" -- i.e., client intercept routine 102 as asserted by Appellant) to obtain the data from the file system of the local NDC site (again, not a server). (FF 18.)

There is no indication that the missing data obtained by either the client interface routine 108 or the file system interface routine 112 is obtained from a server. Indeed, the '914 patent teaches that the NDC server terminator site 22 "*will always be* the node in the network . . . that 'owns' the source data." (FF 9 (emphasis added).) Appellant has not shown where the '914 patent describes missing data as being retrieved from a server connected to the network rather than from an NDC server terminator site. Instead, we find the '914 patent teaches that the missing data is received from either a downstream NDC site or from the file system of the local NDC. (FF 18.) Thus, there is no equivalent disclosure in the '914 patent of the "file-request generation-module" as recited by claim 1.

Appellant also argues that the '914 patent discloses a stand-alone cache because it describes a situation where an NDC site is both the client terminator site and the server terminator site, and the data conduit 62 is contained entirely with that particular NDC site. (App. Br. 9-11; Reply Br. 10-13) While the '914 patent does describe this situation (FF 12.a, 13), it does not remedy the lack of disclosure in the '914 patent of the recited "file-request generation-module" as discussed *supra*.

Appellant further argues that original claims 53 and 1 of the '914 patent disclose a stand-alone cache. (App. Br. 12-14; Reply Br. 13-14.) We do not agree.

Original claim 53[6] recited, with emphasis added, "A cache . . . comprising: (a) *channel* claiming means for claiming a *channel* . . . said *channel* being adapted for storing metadata" and four other limitations (denoted (b) through (e)), each of which recited "said channel." (App. Br. 12.) Appellant admits that the '914 patent teaches that "the *channels* 'form an expressway for transporting data between the NDC server terminator site 22 and the NDC client terminator site 24.'" (App. Br. 13 (emphasis added); *see also* FF 7, 15, 16, 19, 20.) Thus, the recitation of a "channel" in original claim 53 makes clear that the claim is not directed to a stand-alone cache but rather to a cache in a chain of NDC sites, as disclosed in the '914 patent (*see* FF 6-20).

The preamble of original claim 1 recites a network including "a plurality of Network Distributed Cache ('NDC') sites, each NDC site including an NDC that has an NDC buffer" and also recites "a method for projecting an image . . . from an NDC server terminator site into an NDC client terminator site" comprising steps that variously recite "the NDC," "the NDC buffer," "this NDC," "the NDC server terminator site," and "the NDC client terminator site." Here, we construe the preamble of original claim 1 as being in the balance of the claim because limitations from the preamble are recited in the body of the claim. *See Pitney Bowes, Inc. v. Hewlett-*

[6] Original claim 53 was cancelled along with original claims 17-52 and 54-66 in a preliminary amendment filed with the '441 application on February 26, 1997.

Packard Co., 182 F.3d 1298, 1305 (Fed. Cir. 1999) ("If the claim preamble, when read in the context of the entire claim, recites limitations of the claim, or, if the claim preamble is 'necessary to give life, meaning, and vitality' to the claim, then the claim preamble should be construed as if in the balance of the claim."). From the recitations in both the preamble and the body of the claim, original claim 1 is not directed to a stand-alone cache but rather to a cache in a chain of NDC sites, as disclosed in the '914 patent (*see* FF 6-20).

Furthermore, original claims 53 and 1 do not remedy the lack of disclosure in the '914 patent of the recited "file-request generation-module" as discussed *supra*.

In sum, Appellant has not shown possession in the parent '914 patent of the invention later claimed in the child '234 patent. Accordingly, we conclude that Appellant has not shown that the Examiner erred in finding that claims 1-19 are not entitled to the effective filing date of the '914 patent. Thus, Chankhunthod, Domenikos, and Yu are prior art as to claims 1-19.

§ 102(b) Rejection - Chankhunthod

Regarding claim 1, Appellant initially argues that Chankhunthod is not prior art under 35 U.S.C. § 102(b) because it is entitled to the effective filing date of the '914 patent. (App. Br. 14-15; Reply Br. 15.) As discussed *supra*, however, Appellant has not shown error in the Examiner's finding that claims 1-19 are not entitled to the effective filing date of the '914 patent.

Next, Appellant argues that Chankhunthod does not disclose a network interface, file-request service-module, and file-request generation-module, as claimed. (App. Br. 17-19; Reply Br. 15-16.) We do not agree.

As the Examiner correctly found, Chankhunthod teaches each limitation of claim 1. (Ans. 8-9, 25-28; FF 21-28.) The Examiner construed the disputed "network interface," "file-request service-module" ("FRSM"), and "file-request generation module" ("FRGM") limitations and the "network-file service-protocol" limitation, which is not disputed. (Ans. 5-8.) Specifically, the Examiner construed: (1) a network interface to be "any interaction that facilitate[s] or allows the client to transmit [a] message and/or receive [a] message through any type of communication protocol such as TCP/IP and/or other protocols" (Ans. 6); (2) a file-request service-module to be "simply a module that facilitates the receiving and responding to the requests for cache from a client workstation through the network" (Ans. 7); (3) a file-request generation-module to be a module that, "when data is missing from the cache, . . . transmits a request to the server and receives response from the server for that missing data. In other words *the file-request generation-module* facilitates request and response for the missing data from cache to server." (Ans. 7); and (4) a network-file service-protocol as "[a]ny network protocol that can be used to transfer [a] message between a client and a file server." (Ans. 8).

Appellant only challenges the Examiner's interpretation of a "network interface." (Reply Br. 16.) Appellant has not disputed the Examiner's interpretation of the remaining claim terms (Tr. 4:23 to 5:7).

With respect to the claim term "network interface," Appellant argues (Reply Br. 16) that, according to the plain language of the claim, the network interface is part of the network infrastructure cache and the *cache* -- not the client -- must receive and respond to requests through the network interface. The Examiner's interpretation is consistent with the claim language. In particular, in interpreting the term "network interface," the Examiner noted that the specification of the '234 patent teaches that the network interface 102 of the NI cache 100 is functionally equivalent to the Communication Protocol Module 52 of the client workstation 34 and/or the TCP/IP Protocol Module 62 of the file server 22. (Ans. 6.)

We believe that the Examiner's claim interpretation, by showing functional equivalence of the interfaces of the NI cache 100, the client work station 34, and the file server 22, used the term "client" in a broad sense (i.e., encompassing the NI Cache 100, the client workstation 34, or the file server 22) rather than in a narrow sense (i.e., encompassing only the client workstation 34) when stating that a network interface "allows the *client* to transmit [a] message and/or receive [a] message . . . ."

In any event, the Examiner has shown how Chankhunthod discloses a network interface in the Harvest cache (network infrastructure cache) that receives and responds to requests. (Ans. 8-9; 25-28; FF 21-28.) We do not agree with Appellant's argument that "the specific architecture of Chankhunthod uses the *client* -- not the cache -- to resolve network cache requests" (Reply Br. 16) and therefore "Chankhunthod does not disclose or otherwise make obvious the interface structure of claims 1-3" (*id*.).

Chankhunthod teaches that the Harvest proxy cache implements a general caching interface that allows objects to be cached using a varied of access protocols such as HTTP (FF 21), and teaches that caches resolve misses by deciding whether to retrieve an object from the object's home or from other caches in the hierarchy (FF 24). In the proxy-caching client of Chankhunthod Figure 3, the proxy server receives requests from the client and decides how to resolve them. (FF 28.) Figure 3 of Chankhunthod shows a single bi-directional arrow from the client to the middle of three caches, a single bi-directional arrow from the middle of three caches to the server, and separate bi-directional arrows from the middle cache to the caches to the left and to the right. (FF 28.) This teaches that the middle cache functions as the proxy server in the proxy-caching arrangement of Figure 3.

In particular, Figure 3 teaches that the client sends requests to the middle cache, the middle cache decides how best to resolve the requests -- i.e., it decides whether to resolve a request from its own cache, from one of the other two caches, or from the object's home (server), and the middle cache responds to the client requests. (FF 28.) We agree with the Examiner (Ans. 26) that such communications cannot happen without communicating through a network interface.

At the oral hearing, Appellant conceded that Chankhunthod uses a network interface, but argued that the Examiner could not prove it uses the same network interface as claimed -- i.e., a network interface that resolves and responds to a cache request. (Tr. 6:25 to 7:4, 8:3-11.) As discussed, however, Chankhunthod teaches that the middle cache of Figure 3 both resolves and responds to the request received from the client as required by

claim 1. Thus, Appellant has not demonstrated error in the Examiner's finding that Chankhunthod discloses a network interface as claimed.

The Examiner also has shown how Chankhunthod discloses a file-request service-module and a file-request generation-module, as claimed. (Ans. 9, 27-28; FF 21-28.) In particular, Chankhunthod teaches these limitations by teaching that the proxy cache receives and responds to requests for data from a client workstation through the network and by teaching how the Harvest cache resolves misses. (Ans. 9; FF 24, 27-28.) Appellant has not presented any convincing arguments to demonstrate error in these findings.

Accordingly, we conclude that Appellant has not shown that the Examiner erred in rejecting claim 1 under 35 U.S.C. § 102(b). Claims 2 and 3 were not argued separately (App. Br. 19-20), and fall together with claim 1 from which they depend.

Moreover, even assuming for the sake of argument that Appellant's contention that Chankhunthod does not anticipate claims 1-3 was correct, we nevertheless conclude that claims 1-3 are unpatentable under 35 U.S.C. § 103 as being obvious over Chankhunthod based on admissions made by Appellant at the oral hearing. Specifically, at the oral hearing Appellant admitted that the network interface, file-request service-module, and file-request generation-module recited by claim 1 each were known in the prior art (Tr. 6:16-23, 7:6-15, 8:3-12, 12:18 to 13:25, 14:1-7) and admitted that each performs a function in the claimed invention that was performed in the prior art (Tr. 7:16-24, 13:10-25, 14:1-7). Further, Appellant did not dispute

that the claimed "cache" limitation was known in the prior art and performs the same function in the claimed invention as in the prior art. (Tr. 12:5-9.)

Appellant has not presented any convincing arguments that the claimed combination of elements yields unpredictable results. "The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *KSR*, 127 S. Ct. at 1739. The invention of claim 1 is no more than the combination of familiar elements according to known methods that does no more than yield predictable results, and therefore is obvious. Claims 2 and 3 respectively require network-file-services-protocol requests and responses to use Hyper-Text Transfer Protocol (HTTP), which is disclosed or at least suggested by Chankhunthod (FF 21).

At the oral hearing, Appellant contended that the key difference between the claimed invention and the prior art is that the claimed invention resolves requests *in the cache* while Chankhunthod resolves requests in the client. (Tr. 4:12-22, 6:24 to 7:4, 8:15 to 12:4, 12:25 to 12:25, 14:1-7.) In particular, Appellant argues that the location in the network infrastructure cache of the network interface, file-request service-module, and file-request generation-module is different than in the prior art. (*Id.*) Although we do not agree, even assuming for the sake of argument that Appellant is correct, Chankhunthod nevertheless teaches that resolving requests in the cache was well-established at the time of the invention. (FF 24, 28.) Thus, adapting the system of Chankhunthod to resolve requests in the cache would have been reasonably obvious to one of ordinary skill in the art at the time of the invention. *See Muniauction, Inc. v. Thomson Corp.*, 532 F.3d 1318,

1326-27 (Fed. Cir. 2008); *Leapfrog Enters., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1161-62 (Fed. Cir. 2007).

> When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense. In that instance the fact that a combination was obvious to try might show that it was obvious under § 103.

Muniauction, Inc. v. Thomson Corp., 532 F.3d 1318, 1327 (Fed. Cir. 2008) (quoting *KSR*, 127 S. Ct. at 1742). There are a finite number of identified, predictable locations in the network, including in the cache or in the client, where requests may be resolved. Thus, one of ordinary skill in the art would have been motivated to pursue the option of locating the request resolution functionality in the cache. In addition, Appellant has not presented credible evidence to show that resolving requests *in the cache* would have been "uniquely challenging or difficult for one of ordinary skill in the art" or "represented an unobvious step over the prior art." *Leapfrog*, 485 F.3d at 1162 (citing *KSR*, 127 S. Ct. at 1740-41).

We do not believe that our conclusion that claims 1-3 would have been obvious over Chankhunthod need be treated as a new ground of rejection. As discussed *infra*, the Examiner has rejected claims 4-17, each of which depends from claim 1, under 35 U.S.C. § 103 as being obvious over Chankhunthod and various combinations of Domenikos and Yu. Because a dependent claim "shall be construed to incorporate by reference all the limitations of the claim to which it refers," 35 U.S.C. § 112, the Examiner

necessarily found independent claim 1 to be obvious over Chankhunthod and the various combinations of Domenikos and Yu. But Domenikos and Yu were only applied by the Examiner for the purpose of showing specific limitations of dependent claims 4-17, none of which are recited by independent claim 1. (Ans. 10-12.) Under these circumstances, a conclusion that claim 1 is obvious over Chankhunthod alone need not be treated as a new ground of rejection. *Cf. In re Kronig*, 539 F.2d 1300 (CCPA 1976) (no new ground of rejection where the Board affirmed a § 103 rejection on the same statutory basis but used fewer references than Examiner considered).

Moreover, Appellant is not prejudiced by our conclusion that claims 1-3 would have been obvious over Chankhunthod because Appellant already has argued that Chankhunthod does not "*make obvious*" claims 1-3 (Reply Br. 16 (emphasis added)). Appellant also has argued that Chankhunthod does not "disclose *or even suggest* all the claimed elements of the '234 patent's independent claim 1" (App. Br. 19 (emphasis added)) and has argued that "this combination of [the Chankhunthod and Domenikos] references fails to disclose those elements [of claim 1]" (App. Br. 22). Appellant has chosen to argue the rejection of claims 2 and 3, which depend from claim 1, together with claim 1. In addition, Appellant has not presented any new arguments with respect to independent claim 1 in the portions of its briefs (App. Br. 20-23; Reply Br. 16-18) directed to the obviousness rejections under 35 U.S.C. § 103 that were not already presented in the portions of its briefs (App. Br. 14-20; Reply Br. 15-16) directed to the anticipation rejection under 35 U.S.C. § 102(b).

However, if Appellant believes that our conclusion that claims 1-3 are obvious under 35 U.S.C. § 103 over Chankhunthod constitutes a new ground of rejection under 37 C.F.R. § 41.50(b), Appellant may treat it as such. 37 C.F.R. § 41.50(b) provides that, "[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review."

37 C.F.R. § 41.50(b) also provides that the Appellants, *WITHIN TWO MONTHS FROM THE DATE OF THE DECISION*, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of proceedings (37 C.F.R. § 1.197 (b)) as to the rejected claims:

> (1) Reopen prosecution. Submit an appropriate amendment of the claims so rejected or new evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the proceeding will be remanded to the examiner …
>
> (2) Request rehearing. Request that the proceeding be reheard under 37 C.F.R. § 41.52 by the Board upon the same record …

§ 103 Rejection - Chankhunthod / Domenikos

Appellant argues that the Examiner has failed to present a prima facie case of obviousness with respect to claims 4-10 and 13-15 because Chankhunthod is not prior art with respect to claims 4, 6, 8, and 14[7] and also because Chankhunthod does not disclose all the elements of independent

[7] Although Appellant appears to argue that each of claims 4-10 and 13-15 is entitled to the benefit of the filing date of the '914 patent (App. Br. 21; Reply Br. 16), at the oral hearing Appellant confirmed that the benefit only is sought for claims 1, 4, 6, 8, and 14 (Tr. 21:3-7; *see* discussion of effective filing date issue *supra*). In any event, we have previously found that Appellant has not shown that the Examiner erred in finding that claims 1-19 are not entitled to the effective filing date of the '914 patent.

claim 1, from which claims 4-10 and 13-15 depend. (App. Br. 21; Reply Br. 16.) For the reasons previously discussed with respect to claim 1, we do not agree with these arguments.

In addition, Appellant argues that the Examiner failed to make particular findings as to a reason why one of ordinary skill in the art would combine the teachings of Chankhunthod and Domenikos and that the Examiner used improper hindsight. (App. Br. 21; Reply Br. 17.) We do not agree.

The Examiner has articulated a reason with rational underpinnings (Ans. 10-11, 28-29) as to why one of ordinary skill in the art would combine the teachings of the applied references -- namely for the reason of enabling "a network interface to a plurality of different network[s,] each of which use[s] a different file transport protocol such as NCP, NFS, SMB, or any other open or proprietary service[] that provide[s a] protocol for transmitting and sharing data." (Ans. 28-29.) Appellant has not presented credible evidence to demonstrate error in this rationale or to demonstrate that the Examiner used improper hindsight.

With respect to claim 10, Appellant argues that the combination of Chankhunthod and Domenikos fails to teach or suggest a filter element located in the cache. (App. Br. 21-22; Reply Br. 17.) We do not agree.

As the Examiner correctly found (Ans. 10-11, 29), Domenikos teaches the claimed filter element by teaching a cache redirector that determines whether the requested file has been cached. (FF 30.) We agree that it would have been obvious to locate the cache redirector of Domenikos in the network infrastructure cache of Chankhunthod, rather than in the client

itself. One of ordinary skill in the art would recognize that there are a finite number of identified, predictable locations within the network where the redirector could be located, including within the client computer or within the cache.

> When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense. In that instance the fact that a combination was obvious to try might show that it was obvious under § 103.

Muniauction, 532 F.3d at 1327 (quoting *KSR*, 127 S. Ct. at 1742). Thus, one of ordinary skill in the art would have been motivated to pursue the option of locating the redirector in the cache. As the Examiner correctly noted, "the patent owner has not provided any argument as [to] why the filter of Domenikos cannot be implemented anywhere in the network system." (Ans. 29.) Thus, Appellant has not shown that locating the filter in the network infrastructure cache would have been "uniquely challenging or difficult for one of ordinary skill in the art" or "represented an unobvious step over the prior art." *Leapfrog*, 485 F.3d at 1162 (citing *KSR*, 127 S. Ct. at 1740-41). Further, Appellant has not presented credible evidence of secondary considerations of nonobvious to rebut the Examiner's prima facie case. *Cf. Muniauction*, 532 F.3d at 1327 (finding evidence of secondary factors either lacked nexus to claims or relationship "simply too attenuated to overcome the strong prima facie demonstration . . . that the claims are obvious.").

With respect to claim 13, Appellant argues that "Chankhunthod fails to disclose a file-request service-module or a file-request generation-module and Domenikos does not disclose a network cache" (App. Br. 22) and that there is no motivation to combine Chankhunthod and Domenikos. (App. Br. 22.) For the reasons previously discussed, we do not agree with these arguments.

Accordingly, we conclude that Appellant has not shown that the Examiner erred in rejecting claims 4-10 and 13-15 under 35 U.S.C. § 103(a).

§ 103 Rejection - Chankhunthod / Domenikos / Yu

Appellant again argues that Chankhunthod is not prior art to claim 1 (App. Br. 22, n.7; Reply Br. 18), and again we disagree for the reasons explained with respect to claim 1.[8] Appellant also argues that the "Examiner has failed to identify particularized reasons for combining Chankhunthod and Domenikos to disclose the elements of claim 1 and, in any event, this combination of references fails to disclose those elements" and "[a]ccordingly, because claims 11-12, 16-17, and 19 incorporate the elements of claim 1, these references are not sufficient to establish a *prima facie* case of obviousness for claims 11-12, 16-17 or 19." (App. Br. 22; *see*

[8] Although Appellant appears to argue that claims 11-12, 16-17, and 19 are entitled to the benefit of the filing date of the '914 patent (App. Br. 22; Reply Br. 18), at the oral hearing Appellant confirmed that the benefit only is sought for claims 1, 4, 6, 8, and 14 (Tr. 21:3-7; *see* discussion of effective filing date issue *supra*). In any event, we have previously found that Appellant has not shown that the Examiner erred in finding that claims 1-19 are not entitled to the effective filing date of the '914 patent.

also Reply Br. 19.) We disagree for the reasons previously discussed with respect to claim 1 and claims 4-10 and 13-15.

In addition, the Examiner has articulated a reason with rational underpinnings (Ans. 12, 15, 30) as to why one of ordinary skill in the art would combine the teachings of Yu with Chankhunthod and Domenikos -- namely "for the purpose of load balancing the servers in a network to improve cache performance and efficiency." (Ans. 12.) Appellant has not presented credible evidence to demonstrate error in this rationale or to demonstrate that the Examiner used improper hindsight.

With respect to claim 16, Appellant admits that "the Yu reference does disclose monitoring network performance" (App. Br. 22), but argues that Yu does not disclose a performance monitor *in the cache*. (App. Br. 22-23; Reply Br. 18[9].) We do not agree.

As the Examiner correctly found, Yu teaches keeping various statistics that record performance of the network infrastructure cache. (Ans. 12, 30; FF 33.) In addition, we agree with the Examiner that the statistics reporting routine of Yu "can be implemented anywhere in the network structure on [the] client side, server side, or inside or outside the NI cache of [] Chankhunthod." (Ans. 30.) Appellant has not shown that locating the routines in the network infrastructure cache would have been "uniquely challenging or difficult for one of ordinary skill in the art" or "represented an unobvious step over the prior art." *Leapfrog*, 485 F.3d at 1162. Further, Appellant has not presented credible evidence of secondary

[9] Although page 18 of the Reply Brief specifically refers to claim 19, it is the limitations of claim 16 that are argued.

considerations of nonobvious to rebut the Examiner's prima facie case. *Cf. Muniauction*, 532 F.3d at 1327.

With respect to claim 19, Appellant argues that "there simply is no disclosure or other suggestion to put the protocol translator in the network-infrastructure cache." (App. Br. 23.) We do not agree.

The Examiner found that Domenikos teaches a protocol translator (Ans. 15; FF 31) and that "[i]t would have been obvious to one having ordinary skill in the art at the time the invention was made to have incorporated the use of a protocol translator as taught by Domenikos into the system of Chankhunthod-Domenikos-Yu" (Ans. 15). Appellant has not shown that locating the protocol translator in the network infrastructure cache would have been "uniquely challenging or difficult for one of ordinary skill in the art" or "represented an unobvious step over the prior art." *Leapfrog*, 485 F.3d at 1162. Further, Appellant has not presented credible evidence of secondary considerations of nonobvious to rebut the Examiner's prima facie case. *Cf. Muniauction*, 532 F.3d at 1327.

Accordingly, we conclude that Appellant has not shown that the Examiner erred in rejecting claims 11-12, 16-17, and 19 under 35 U.S.C. § 103(a).

CONCLUSIONS

Based on the findings of facts and analysis above, we conclude that:

(1) Appellant has not shown that the Examiner erred in finding that claims 1-19 are not entitled to the effective filing date of the '914 patent.

(2) Appellant has not shown that the Examiner erred in rejecting claims 1-3 as being anticipated by Chankhunthod.

(3) Claims 1-3 are unpatentable under 35 U.S.C. § 103 over Chankhunthod because the subject matter of those claims would have been obvious.

(4) Appellant has not shown that the Examiner erred in rejecting claims 4-10 and 13-15 because the subject matter of those claims would have been obvious over Chankhunthod and Domenikos.

(5) Appellant has not shown that the Examiner erred in rejecting claims 11-12, 16-17, and 19 because the subject matter of those claims would have been obvious over Chankhunthod, Domenikos, and Yu.

DECISION

The rejection of claims 1-3 for anticipation under 35 U.S.C. § 102(b) is affirmed.

The rejection of claims 4-10 and 13-15 for obviousness under 35 U.S.C. § 103 is affirmed.

The rejection of claims 11-12, 16-17, and 19 for obviousness under 35 U.S.C. § 103 is affirmed.

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).

AFFIRMED

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