UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte GLOBAL PATENT HOLDINGS, LLC[1]

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Appeal No. 2006-0698
Reexamination Control No. 90/005,742[2]
Patent No. 5,235,341[3]

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HEARD: April 5, 2006

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Before MARTIN, LEE, and MOORE, Administrative Patent Judges.

MARTIN, Administrative Patent Judge.

**DECISION ON APPEAL**

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[1] The current owner of the patent under reexamination. Supplemental Appeal Brief at 1. PTO assignment records reveal that previous owners include IP Innovation, L.L.C., and TechSearch, L.L.C.

[2] This reexamination proceeding is the result of a request filed on June 9, 2000, by an anonymous requester, c/o Blakely, Sokoloff, Taylor & Zafman LLP.

A November 13, 2000, "Decision Dismissing Petition and Returning Improper Papers" (Paper No. 8) held (1) that a third-party request for reexamination filed on July 3, 2000, by Gabriel Katona will be treated as a prior art citation under 37 CFR § 1.510 and (2) dismissed a duplicate request for reexamination filed by Gabriel Katona on August 29, 2000.

[3] Issued October 12, 1993, based on Application 07/683,972, filed April 11, 1991, naming as inventors: Anthony I. Rozmanith and Neil Berinson. The '341 patent identifies itself as a continuation-in-part of Application 07/665,528, filed March 4, 1991. Appellant does not contend that any of the rejected claims are entitled to benefit of the filing date of the '528 application.

This is an appeal under 35 U.S.C. §§ 134 and 305 from the examiner's final rejection of claims 9-11, 14, and 93-104, which are all of the claims under reexamination, under 35 U.S.C. §§ 102, 103, and/or 112. We affirm-in-part. More particularly, we affirm rejections of all of the claims except claim 101.

**A. Related litigation**

The brief states that "[t]he '341 patent is involved in a lawsuit filed in the United States District Court for the Northern District of Illinois on July 9, 1999, Case No. 99 C 4550." Brief at 1.

**B. Summary of this reexamination proceeding to date**

The '341 patent issued with claims 1-16, of which claims 1-3 and 7 are independent claims. The order granting reexamination indicated that all of the patent claims are subject to reexamination.[4]

The first Office action[5] ("First Action"), mailed February 23, 2001, included a number of grounds of rejection, including a § 102(e) rejection of claims 1-8 and 15 for anticipation by Filepp and a § 103(a) rejection of claims 9-14 and 16 for obviousness over Filepp in view of "well known practices," namely, the allegedly well-known use of UNIX-based host systems and server systems, RISC and CISC microprocessors, a windowing environment, and multiple compression techniques. First Action at 11-12.

[4] Order Granting/Denying Request for Reexamination (Paper No. 5).

[5] Paper No. 9.

Appellant responded with an amendment which (a) canceled claims 1-8, 12, 13, 15, and 16; (b) rewrote dependent claims 9-11 and 14 in independent form while also amending "compressed or non-compressed" to read "compressed"; (c) added new claims 17-92, and (d) requested that the examiner's assertions of "well known practices" be supported by the citation of references.[6] Following an interview with the examiner,[7] appellant filed a supplemental response[8] which canceled claims 17-92, added new claims 93-104, and was accompanied by a Rule 132 declaration by Anthony Brown alleging commercial success of the claimed invention.

In a nonfinal second Office action ("Second Action"")[9] by a different examiner,[10] the examiner held the Brown Declaration ineffective to prove commercial success. Second Action at 1, para. 4. As support for the assertion that "well known practices" included UNIX-based host systems and server systems and RISC and CISC microprocessors, the examiner cited The Electronics Engineers' Handbook and twenty-nine articles apparently obtained from the on-line Gale Group Computer Database, File 275, which we will hereinafter refer to as "the Gale articles." Second Action at 7-8, para. 11. These articles apparently were selected using the search terms "network," "Unix," "server," "RISC," and "CISC," as evidenced by the fact that

[6] "Response to February 23, 2001, Office Action in Reexamination " (Paper No. 12).

[7] The Interview Summary Record is Paper No. 15.

[8] "Supplemental Response to February 23, 2001 Office Action and May 22, 2[0]01 Interview in Reexamination" (Paper No. 16).

[9] Paper No. 20.

[10] The reexamination proceeding was assigned to a different examiner at appellant's request. June 27, 2001, "Decision on Petition" (Paper No. 18).

these terms appear in bold in the articles. Regarding the use of a windowing environment, recited in claim 14, the examiner asserted, without citing a reference, that it was known to use a program called Xwindows. Id. at 6.

As evidence that it was known to use more than one compression technique, the examiner cited an article by Carr and U.S. patents to De Maine, Giltner, Notenboom, and LeGall. Second Action at 8. In addition to repeating the rejection based on Filepp in view of "well known practices," the examiner added new rejections based on U.S. patents to Yurt,[11] Kirchner, Cohen, and Sugiyama and on articles by Punj and Bridges and also rejected some claims under the first and/or second paragraphs of § 112.

Appellant responded[12] by amending claims 93-96 and 99-104, submitting declarations 37 CFR § 1.131 (Rule 131) by inventor Anthony Rozmanith and noninventor Egon Fabian in an attempt to antedate Yurt, and submitting a thirty-page declaration under 37 CFR § 1.132 entitled "Declaration of Philip Koopman, Ph.D." (hereinafter "First Koopman Declaration"), which addresses the § 112 rejections and the prior-art rejections.

The nonfinal, third Office action ("Third Action")[13] is 109 pages long. At pages 72-108, which provide the statements of the rejections, the examiner repeated the rejection based on Filepp in view of well known practices (citing the supporting references) and other rejections and adds new rejections based on additional references including Row, Paolini, Walter, Pocock,

[11] The rejections based on Yurt applied to claims 93, 95, 96, 100, and 102-104.

[12] Paper No. 24.

[13] Paper No. 26.

Baji, Catros, and McCalley.[14] In addition, the examiner cited paragraphs 56-58 of the First Koopman Declaration as support for a non-enablement rejection of claims 94, 95, 97, and 98. 3d Action at 72, para. 9. The examiner did not mention the Rule 131 declarations but failed to repeat and therefore implicitly withdrew[15] the rejections of claims 93, 95, 96, 100, and 102-104 based on Yurt. However, he newly rejected claim 11 for obviousness over Yurt in view of either Kandell or Gargini. Id. at 86-88, paras. 19-20. Rather than following each statement of each ground of rejection with his response to the relevant parts of Dr. Koopman's testimony, the examiner devotes pages 8 to 71 to a separate discussion of that testimony. That discussion consists of reproducing virtually the entire First Koopman Declaration a passage at a time and following each quoted passage with the examiner's response (in bold).

Appellant's response[16] to the third Office action was accompanied by a "Second Declaration of Philip Koopman, Ph.D." ("Second Koopman Declaration"),[17] which runs 200 pages (excluding exhibits). The length of this declaration is due to the fact that it quotes, a passage at a time, virtually the entire Office action (including its quotations from the First Koopman Declaration) and follows each passage with Dr. Koopman's comments.

The fourth and final Office action ("Final Action")[18] is 265 pages long, of which pages 232-64 provide the statements of the rejections. The paragraph numbers the Answer assigns to

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[14] At page 3, the examiner also relied on Rozmanith U.S. Patent 5,179,652.

[15] The examiner stated that "[e]very rejection not expressly maintained is withdrawn." 3d Action at 72, para. 7.

[16] Paper No. 28.

[17] Paper No. 27.

some of the rejections differ from the paragraph numbers used in the Final Action. The examiner confirmed that the Rule 131 declarations are effective to remove Yurt as a reference with respect to claims 93, 95, 96, 99, 100, and 102-04 but not with respect to claim 11, the only claim currently rejected over that reference. Final Action at 202, para. 367. The examiner held the Second Koopman Declaration effective to overcome only the § 112, written description rejections of claims 93-99 and 101 and the § 102(e) rejection of claim 103 over Pocock. Id. at 5-6, para. 7. At pages 6-232, the examiner explained why the Second Koopman Declaration is unconvincing as to the remaining rejections. The length of this discussion is due to the fact that it reproduces virtually the entire declaration a passage at a time and follows each quoted passage with the examiner's commentary (in bold).

Several different versions of the appeal brief have been filed. All versions except for the brief filed on August 27, 2003 (hereinafter "Brief")[19] have been returned to appellant. October 8, 2003, "Decision Denying Petition" [20] (referring to the brief now before us as the "third submission"). Much of the Brief consists of a summary of all of the Office actions except the first, the discussion of which (at pages 16-19) has been redacted. Regarding the merits of the rejections given in the Final Action, appellant simply asserts that the rejections set forth in the Final Action were addressed in appellant's responses to earlier Office actions and relies on a

[18] Paper No. 29.

[19] Paper No. 37.

[20] Paper No. 38.

table that correlates the page numbers (but not the paragraph numbers) of the Second Koopman Declaration with the paragraph numbers employed in the Final Action. Brief at 57-58.

In the Answer,[21] which runs 220 pages, the statements of the rejections appear at pages 7-26 and are assigned paragraph numbers (i.e., paras. 2-24) that differ from the paragraph numbers employed in the Final Action and the Third Action. The § 103(a) rejection of claims 10 and 11 based on Paolini in view of Gargini and Official Notice was withdrawn at page 26, paragraph 31. The Second Koopman Declaration is discussed at pages 40-220.

The Supplemental Appeal Brief filed on March 24, 2005, simply updates the identification of the real party in interest.

Prior to docketing of this appeal, the reexamination file was returned to the examiner to obtain clarification of some matters in the Brief and the Answer, including whether certain previously asserted rejections that were not repeated in the answer have been withdrawn.[22] A response was filed by the examiner[23] and then by appellant.[24] In that response appellant argues, inter alia, that the examiner's citation of so many references against claims 9-11 and 14 is

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[21] Paper No. 39.

[22] Paper No. 40, mailed February 28, 2005.

[23] Paper No. 42, mailed April 29, 2005. The examiner explained that the following rejections are not being maintained: (a) the § 112 rejection of claim 98 as lacking written description support; (b) the § 103(a) rejection of claim 11 based on Filepp in view of Row; (c) the § 103(a) rejection of claims 95 and 98 based on Baji in view of Sugiyama; (d) § 103(a) rejection of claim 11 based on Rozmanith '652 in view of "known practices"; and (e) the § 112 rejections of claims 95, 98, and 103. The examiner also confirmed that the § 103(a) rejection of claims 9-11 and 14 based on Filepp in combination with well known practices is being maintained.

[24] Paper received May 24, 2005.

contrary to In re Dembiczak, 175 F.3d 994, 50 USPQ2d 1614 (Fed. Cir. 1999), an issue we address below.

**C. The state of the record**

As already noted, the Brief asserts that the rejections set forth in the Final Action were addressed in appellant's responses to earlier Office actions and provides the aforementioned table correlating the page numbers of the Second Koopman Declaration (which discusses the Third Action) with the paragraph numbers of the Final Action. Brief at 57-58. The examiner did not object to the form of the Brief and thus effectively treated the Second Koopman Declaration as incorporated by reference therein, as will we.

Because the Office action that is discussed in the Second Koopman Declaration is the Third Action, we are keying our discussion of the rejections to the paragraph and page numbers used in the Third Action, which appear in bold in the Second Koopman Declaration. See, e.g., 2d Koopman Decl. at 4 (citing **Office Action ¶ 6, Page 8**). Each cited paragraph and page number of the Third Action is followed by numbered paragraphs (hereinafter "testimony paragraphs") that (a) reproduce the corresponding passages from the First Koopman Declaration and the examiner's responses thereto and (b) give Dr. Koopman's comments on the examiner's responses. Thus, the citation of **Office Action ¶ 6, Page 8** at page 4 of the Second Koopman Declaration is followed 15 at pages 4 to 7 by testimony paragraphs 8. These testimony paragraph numbers can then be used to locate the corresponding discussion in the Final Action

and the Answer. Continuing with the same example, the examiner's responses to testimony paragraphs 8 to 15 appear in the Final Action at pages 6-9 and in the Answer at pages 40-43.[25]

We have looked only to the examiner's statements of the rejections (i.e., not to his discussions of the Koopman declarations) for statements of the prima facie cases for anticipation and obviousness.

**D. Appellant's due process argument**

In addition to arguing the merits of the various rejections, appellant asserts that

> the examiner's practices of repeatedly iterating past assertions and arguments verbatim (sometimes repeating absolutely identical rejections to the same claims in the same office action); refusing even to acknowledge much of the evidence submitted by the applicants and continuously citing scores of new and only peripherally pertinent alleged prior art references have made it impossible to prosecute the re-examination and thwarted any meaningful appellate review, in violation of the Administrative Procedures Act and the regulations of the PTO[.]

Brief at 6-7. The afore-mentioned October 8, 2003, Decision Denying Petition (Paper No. 38), quoting MPEP § 1201 (8th ed., rev. 1, Feb. 2003),[26] explains that questions regarding the conduct of an examiner are petitionable rather than appealable. Decision at 4 & n.2. Our review is

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[25] Some of the responses given in the Answer are more extensive than the corresponding responses given in the Final Office Action. Compare, e.g., the response to testimony paragraph 11 given at page 42 of the Answer to the response given at page 7 of the Final Action. The Brief fails to specifically address the responses given in the Final Action or the Answer.

[26] The quoted portion of MPEP § 1201 reads:

> The line of demarcation between appealable matters for the Board of Patent Appeals and Interferences (Board) and petitionable matters for the Commissioner of Patents and Trademarks should be carefully observed. The Board will not ordinarily hear a question which it believes should be decided by the Commissioner, and the Commissioner will not ordinarily entertain a petition where the question presented is an

accordingly limited to the merits of the rejections now before us.

**E. Appellant's invention**

Appellant's invention is directed to a method and an apparatus whereby an end user station (EUS) transmits a query to a remote server in order to obtain audio/visual (AV) data and/or graphical/tabular information which resides at the server. '341 patent, col. 2, ll. 24-30.

Figure 1 is a system overview showing the details of EUS 10 ("the EUS"), which can be one of a plurality of EUS's. The EUS includes a remote query communication system 12 that can communicate with the global server network 29 in any of three different ways: (a) via a DDS (direct dial service) telephone line 33 and an optional concentrator device 19 to the end user's local server 11A; (b) via a CATV adapter 22, cable 26A, and local CATV service center 26 to the CATV's local server 11B; and (c) via an auxiliary input device 16, radio frequency link 37, and local auxiliary service center 18 to the auxiliary's local server 11C. Id. at col. 3, ll. 21-32.

In operation, the EUS transmits a query to the host/server for the purpose of initiating a process in the host/server. Id. at col. 2, ll. 29-30. The server, which is more powerful than the EUS, responds to the query by performing processes such as indexing into a very large database, data compression, and high-speed processing to generate a response. Id. at col. 2, ll. 30-35. The less powerful EUS performs appropriate inverse processing (including data decompression where appropriate) on the response. Id. at col. 2, ll.35-38. Because most of the processing power resides in the server, the system is referred to as "asymmetric." Id. at col. 2, ll. 39-44.

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appealable matter. Decision at 4 n.2.

The control and processing unit 48 (see Fig. 3) of the remote query and data retrieval system may be an Intel 8086, 80286, 80386, 80486 or higher power Intel compatible microprocessor or, alternatively, a Motorola 68000 series microprocessor. Id. at col. 6, ll. 22-27. This control and processing unit operates under the control of an operating system such as MS-DOS, PC-DOS, UNIX,[27] XENIX or other operating system. Id. at col. 6, ll. 27-29.

The more powerful host/server 11 can preferably be UNIX-based and should utilize a CISC- or RISC-based "processor," id. at col. 3, ll. 36-38; col. 4, ll. 13-26,[28] such as an HP Apollo Series 7000 with PA-RISC architecture. Id. at col. 3, ll. 38-40. The record before us does not include any details of the HP Apollo Series 7000.

Various compression and decompression techniques are discussed, such as FRACTAL, CCITT, and JPEG. Id. at col. 7, ll. 33. The '341 patent explains that in order to accommodate efficient compression and decompression of animated sequences (as in feature film video), the

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[27] UNIX is an operating system for a wide variety of computers, from mainframes to personal computers, that supports multitasking and is ideally suited to multi-user applications. Que's Computer User Dictionary (Que's Dictionary) 461 (1990 ed.) (copy enclosed).

[28] The term "CISC" refers to a "complex instruction set computer," which is a central processing unit (CPU) that can recognize as many as 100 or more instructions, enough to carry out most computations directly. Que's Dictionary 106 (copy enclosed). "RISC" refers to a "reduced instruction set computer," which is a CPU in which the number of instructions the computer can execute is reduced to a minimum to increase processing speed. Id. at 388 (copy enclosed).

> The idea of a RISC architecture is to reduce the instruction set to a bare minimum, emphasizing the instructions that are used most of the time, and optimizing them for the fastest possible execution. The instructions left out of the chip must be carried out by combining the ones left, but because these instructions are needed far less frequently, a RISC processor usually runs 50 to 75 percent faster than its CISC counterpart.
>
> RISC processors are also cheaper to design, debug, and manufacture because they are less complex.

technique of Differential (DFF) Image Compression (DIC) described by John Bridges in Dr. Dobb's Journal #173 February 1991, page 38, et seq. (the Bridges reference) may utilized as part of the decompression module. Id. at col. 7, ll. 34-40. Improved (maximum) compression be obtained by combining the DIC methodology for DFF frames with a high compression ratio methodology for reference frames, such as the FRACTAL technique. Id. at col. 8, ll. 13-18. Alternatively, a combination of compression technologies may be used "to communicate a reasonable quality video single animated sequence over a lower bandwidth channel such as the standard DDS phone lines, in real time, where the data rate is effectively 1600 bytes per second or above." Id. at col. 8, ll. 18-23.

**F. The rejected claims**

Claims under reexamination are given their broadest reasonable interpretation consistent with the patent disclosure. In re American Academy of Science Tech Center, 367 F.3d 1359, 1364, 70 USPQ2d 1827, 1830 (Fed. Cir. 2004).

The rejected claims include ten independent claims, viz., claims 9-11, 14, 93, and 100-04. As already noted, claims 9-11 and 14 specify that the response received by the remote query and data retrieval means from the remote host is compressed. The remaining independent claims specify that the response may be compressed or non-compressed. Claim 9 reads:

> 9. Apparatus for querying and downloading data from a remote server comprising:
>
> end user means for formulating a query via a data input means and inputting said query to remote query and data retrieval means;

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Id.

> means for transmitting said query from said remote query and data retrieval means to a remote host processor via a concentrator means;
>
> said remote query and data retrieval system receiving a compressed response to said query from said remote host via said input/output means, said remote query and data retrieval system decompressing said compressed response to said query, and displaying a presentation corresponding to said query response on output means, wherein said remote host utilizes a RISC based processor and a UNIX based operating system.

We are construing the phrase "said remote query and data retrieval system" (emphasis added) in the third paragraph as referring to the "remote query and data retrieval means" (emphasis added) recited in the first and second paragraphs. We note that because the end user means formulates the query and inputs it to the "remote query and data retrieval means" for transmission to "a remote host processor via a concentrator means," it is clear that the "remote query and data retrieval means" is part of, rather than remote from, the end user means.

We are also construing the phrase "said input/output means" (emphasis added) in the third paragraph, which has no antecedent, as "an input/output means" (emphasis added). Furthermore, we understand the phrase "said remote host" in the third paragraph to be referring to "a remote host processor," recited in the second paragraph.

The term "processor" can be read on a central processing unit (CPU), which consists of a computer's internal storage, processing, and control circuitry, including the arithmetic-logic unit (ALU) and the primary storage. Que's Dictionary at 82. The term "processor" is broader than "microprocessor," which is an integrated circuit chip that contains the ALU and control unit of a CPU. Id. at 293.

The corresponding language in claims 10, 11, and 14 is being construed in a similar manner.

The scope and meaning of claims 93-104 are addressed prior to the discussion of the rejections of those claims.

**G. The references relied on in the rejections[29]**

**1. U.S. Patents**

| | | |
|---|---|---|
| De Maine et al. (De Maine) | 3,656,178 | Apr. 11, 1972 |
| Giltner et al. (Giltner) | 4,386,416 | May 31, 1983 |
| Kandell et al. (Kandell) | 4,430,530 | Feb. 7, 1984 |
| Walter | 4,506,387 | Mar. 19, 1985 |
| Gargini et al. (Gargini) | 4,538,174 | Aug. 27, 1985 |
| Kirchner et al. (Kirchner) | 4,665,519 | May 12, 1987 |
| Catros et al. (Catros) | 4,679,079 | July 7, 1987 |
| Sugiyama et al. (Sugiyama) | 4,797,742 | Jan. 10, 1989 |
| McCalley et al. (McCalley) | 4,829,372 | May 9, 1989 |
| Cohen | 4,949,l87 | Aug. 14, 1990 |
| Notenboom | 4,955,066 | Sep. 4, 1990 |
| Pocock et al. (Pocock) | 5,014,125 | May 7, 1991 |

[29] The filing date of Yurt is being provided because appellant has is attempting to antedate it under 37 CFR § 1.131.

| | | |
|---|---|---|
| Baji et al. (Baji) | 5,027,400 | June 25, 1991 |
| LeGall et al. (LeGall) | 5,049,993 | Sep. 17, 1991 |
| Yurt et al. (Yurt) | 5,132,992 | July 21, 1992 (filed Jan. 7, 1991) |
| Row et al. (Row) | 5,163,131 | Nov. 10, 1992 |
| Filepp et al. (Filepp) | 5,347,632 | Sep. 13, 1994 |

**2. The Gale articles** (cited in the order given in the third Office action at 75-76, para. 14)

Irwin Greenstein, Sun Intros Sub-$l0,000 RISC Computer, MIS Week, vol. 10, n.16, p. 16(1) (Apr. 17, 1989).

Hewlett Adds HP-UX 7.0, Two Unix RISCs, X400 for UNIX. . . , Computergram International, n. 1253 (Aug. 31, 1989) .

Mike Seither, Pyramid's Network Server Offers 12 CPUs, up to 150 MIPS; an Early Convert Hopes to Conquer the UNIX Market, Mini-Micro Systems, v. 22, n. 2, p. 21(3) (Feb. 1989).

Ray Weiss, MIPS Shows ECL RISC Superserver, Electronic Engineering Times, n. 563, p. 1(1) (Nov. 6, 1989).

DEC Product Rollout Includes Ultrix Servers, Computer Systems News, n. 425, p. 10(1) (July 10, 1989).

Gary H. Anthes, Multiple Terminals Can Do Super Work, Firm Says, Federal Computer Week, v. 3, n. 27, p. 8(2) (July 3, 1989).

Paula Rooney, DEC Pushes Price vs Performance, EDN, v. 34, n. 14A, p. 5(2) (Aug. 10, 1980).

George Briggs, DG Unveils New Unix Version to Support Aviion Family, MIS Week, vol. 10, n. 10, p. 16 (March 6, 1989).

Wind River Systems Vxworks (TM) Realtime Operating System Bundled with Concurrent Computer 6000 Series Hosts, News Release, p. 1 (Jan. 3, 1990).

Ron Wilson, Chip Set Introduces PC Builders to Multiprocessing World, Computer Design, v. 29, n. 7, p. 117(1) (Apr. 1, 1990).

Brian Gillooly, Steam to Rise in 1990s Workstation Arena As Vendors Vie for Supremacy, Computer Reseller News, n. 337, p. 87(2)(Oct. 16, 1989).

Altos Expected to Debut Workstation That Operates Under Both DOS and Unix, PC Week, v. 5, n. 25, p. 30(1) (June 21, 1988).

Patricia Keefe, Banyan, Oracle Team up on Server Option, Computerworld, v. 23, n. 15, p. 14(1) (April 10, 1989).

Jean S. Bozman, Oracle Version 6.0 Covers the Distributed Data 'Bases,' Computerworld, vol. 23, no. 26, p. 14(1) (June 26, 1989).

Juli Cortino, Motorola Plans Low-end Unix Network Server, PC Week, vol. 6, n. 15, p. 13(1) (April 17, 1989).

AIM Technology Offers 0S-2 and Unix Benchmarks, Computer & Software News, vol. 6, n. 28, p. 74(1) (July 11, 1988).

Martin Farncombe, A Parallel Future, EXE, vol. 4, n. 6, p. 48(5) (Nov. 1989).

Jeff Moad, The New Agenda for Open Systems, Datamation, vol. 36, no. 7, p. 22(7) (Apr. 1, 1990).

.

David Methvin, Unix Frees Developors from RISC-specific Work, PC Week, vol. 7, n. 13, p. S24(1) (Apr. 2,1990).

John Battelle, IPT Brings uShare Server to SCO Unix and Xenix, MacWEEK, vol. 4, n. 14, p. 22(1) (Apr. 10, 1990).

Amy Cortese, Motorola Revs into Server Mart, Computerworld, vol. 24, n. 11, p. 8(1) (Mar. 12, 1990).

Barbara E. & John F. McMullen, AT&T Introduces Rhapsody for Business Orchestration, Newsbytes, p. NEW03290033 (March 29,1990).

Tom Smith, AT and T Broadens Data Systems' Net Options; Company Offers X-Windows Support, Bolsters Connectivity of SB Minis and Terminal Subnets, Network World, vol. 6, n. 45, p. 43(2) (Nov. 13, 1989).

Mark Lapedus, Intel Enters Network File Servers, Electronic News, vol. 35, n. 1758, p. 14(1) (May 15, 1989).

Prime Offers Unix MPs Bought From Sequent, Electronic News, vol. 35, n. 1772, p. 17(1) (Aug, 21, 1989).[30]

Martin Marshall, MIPS Announces Two File Servers, Unix System V 4.0 ABI Agreement, InfoWorld, vol. 11, n. 44, p. 44(1) (Oct. 30, 1989).

Patricia Keefe, IBM UNIX Tthrust Carries Promise, Risk, Computerworld, vol. 24, n. 8, p. 1(2) (Feb. 19, 1990).

Joan M. Hosinski, UNIX Server Targets Commercial Uses, Government Computer News, vol. 8, n. 6, p. 31(1) (Mar. 20, 1989).

IBM'S RS/6000 Announcements, Computergram International, n. 1366 (Feb. 16, 1990).

Barbara Depompa, AT&T Intros Servers for Wide-ranging Networks, MIS Week, vol. 11, no. 15, p. 4(1) (April 9, 1990).[31]

**3. Other printed publications**

John Bridges, Differential Image Compression, Doctor Bob's Journal on CD-ROM 1-12 (Bridges).[32]

M.D. Carr, New Video Coding Standard for the 1990s, Electronics & Communication Engrg. Journal 119-24 (June 1990).

Donald K. Fink and Donald Christiansen, The Electronics Engineers' Handbook, p. 23-88 (3d ed. 1989).

V. Punj, Broadband Applications and Services of Public Switched Networks, 35 IEEE Transactions on Consumer Electronics 106-12 (May 1989) (Punj).

[30] Copy provided by the examiner with Paper No. 42.

[31] Copy provided by the examiner with Paper No. 42.

[32] As noted above, the '341 patent gives the publication date as February 1991.

## H. The § 112 rejection

Claims 94 and 97 stand rejected under § 112, first paragraph, for lack of an enabling disclosure. 3d Action at 72, para. 9; Final Action at 232, para. 11; Answer at 6 (no para. number).[33]

## I. The art rejections

The pending grounds of rejections can be grouped as follows (including citations to the Third Action, Final Action, and Answer):

### 1. Rejections based on Filepp

- Claims 9-11 and 14 under 35 U.S.C. § 103(a) for obviousness over Filepp in view of known practices, as evidenced by The Electronics Engineers' Handbook, the Gale articles, De Maine, Carr, Giltner, Notenboom, and LeGall. 3d Action at 75, para. 14; Final Action at 234, para. 14; Answer at 7-8, para. 2.

- Claims 9, 10, 14 under § 103(a) over Filepp in view of Row. 3d Action at 79, para. 17; Final Action at 237, para. 17; Answer at 9, para. 3.

- Claim 11 under § 103(a) over Filepp in view of Giltner. 3d Action at 83, para. 18; Final Action at 241, para. 18; Answer at 12, para. 4.

### 2. Rejections based on Yurt

- Claim 11 under § 103(a) over Yurt in view of Kandell. 3d

[33] This ground of rejection, which previously applied against claims 94, 95, 97, and 98, 3d Action at 72, para. 9; Final Action at 232 para. 11, was not repeated as to claims 95 and 98 in the Answer and is therefore being treated as withdrawn as to those claims. Likewise, the § 112 rejection of claims 95, 98, and 103 for failure to satisfy the written description requirement, 3d Action at 73-74, paras. 11-12; Final Action at 233-34, paras. 12-13, was not repeated in the Answer and is being treated as withdrawn.

Action at 86, para. 19; Final Action at 243, para. 19; Answer at 14, para. 5.

• Claim 11 under § 103(a) over Yurt in view of Gargini. 3d Action at 87, para. 20; Final Action at 244, para. 20: Answer at 14, para. 6.

**3. Rejections based on Walter**

• Claims 93, 95, 96, and 98-101 under § 102(b) for anticipation by Walter. 3d Action at 94, para. 34; Final Action at 249, para. 34; Answer at 17, para. 10.

• Claim 103 under § 103(a) over Walter in view of Kirchner. 3d Action at 106, para. 47; Final Action at 259, para. 46; Answer at 25, para. 21.

• Claim 103 under § 103(a) over Walter in view of Dr. Koopman's testimony. 3d Action at 102 (no para. no.); Final Action at 255; Answer at 22, para. 15.

**4. Rejections based on Pocock**

• Claims 93, 96, 100-02, and 104 under 102(e) for anticipation by Pocock. 3d Action at 96, para. 35; Final Action at 251-53, para. 35; Answer at 18, para. 11.

• Claims 95 and 98 under § 103(a) over Pocock in view of Catros. 3d Action at 103, para. 43; Final Action at 257, para. 42; Answer at 22, para. 17.

• Claims 95 and 98 under § 103(a) over Pocock in view of Sugiyama. 3d Action at 104, para. 45; Final Action at 258, para. 44; Answer at 24, para. 19.

• Claim 99 under § 103(a) over Pocock in view of McCalley. 3d Action at 107, para.49; Final Action at 260, para. 48; Answer at 26, para. 23.

• Claim 103 under § 103(a) over Pocock in view of Kirchner. 3d

Action at 107, para. 48; Final Action at 259, para. 46; Answer at 25, para. 22.

• Claim 103 under § 103(a) over Pocock in view of Dr. Koopman's testimony. 3d Action at 101, para. 41; Final Action at 255, para. 40; Answer at 21, para. 14.

**5. Rejections based on Baji**

• Claims 93, 96, 100, 102, and 104[34] under § 102(e) for anticipation by Baji. 3d Action at 99, para. 39; Final Action at 253, para. 38; Answer at 20, para. 12.

• Claims 94 and 97 under § 103(a) over Baji in view of Catros. 3d Action at 103, para. 42; Final Action at 256, para. 41; Answer at 22, para. 16;.

• Claims 94 and 97 under § 103(a) over Baji in view of Sugiyama. 3d Action at 104, para. 44; Final Action at 257, para. 43; Answer at 23, para. 18.

• Claim 99 under § 103(a) over Baji in view of McCalley. 3d Action at 107, para. 49; Final Action at 260, para. 49; Answer at 26, para. 24.

• Claim 103 under § 103(a) over Baji in view of Kirchner. 3d Action at 105, para. 46; Final Action at 258, para. 45; Answer at 24, para. 20.

• Claim 103 under § 103(a) over Baji in view of Dr. Koopman's testimony. 3d Action at 100, para. 40; Final Action at 254, para. 39; Answer at 21, para. 13.

**6. Rejections based on Cohen**

• Claims 93, 94, 96, 97 under § 103(a) over Cohen in view of Sugiyama. 3d Action at 91, para. 24; Final Action at 247, para. 24; Answer at 15, para. 7.

[34] Although claim 101 is included in the statement of the rejection, it is not addressed in the discussion of the rejection and is therefore not considered to be subject to the rejection.

- Claims 93, 94, 96, 97 under § 103(a) over Cohen in view of Bridges and further in view of Punj. 3d Action at 92, para. 28; Final Action at 248, para. 28; Answer at 16 (no para. no.).

**J. General observations regarding the evidence**

The above-identified patents and publications are the only references identified in the statements of the rejections. Patents and publications which are not identified in the statements of the rejections but are mentioned in the examiner's discussion of the rejections or Dr. Koopman's testimony have not been considered. See MPEP § 706.02(j) (8th ed., rev. 5, Oct. 2006) ("Where a reference is relied on to support a rejection, whether or not in a minor capacity, that reference should be positively included in the statement of the rejection. See In re Hoch, 428 F.2d 1341, 1342 n.3, 166 USPQ 406, 407 n.3 (CCPA 1970)"). Accord Ex parte Movva, 31 USPQ2d 1027, 1028 n.1 (Bd. Pat. App. & Int. 1993).

The examiner's assertions of technical facts are being given weight only to the extent they are supported by the cited references. See In re Pardo, 684 F.2d 912, 917, 214 USPQ 673, 677 (CCPA 1982) ("Assertions of technical facts in areas of esoteric technology must always be supported by citation to some reference work recognized as standard in the pertinent art and the appellant given, in the Patent Office, the opportunity to challenge the correctness of the assertion or the notoriety or repute of the cited reference.") (quoting In re Ahlert, 57 CCPA 1023, 1027, 424 F.2d 1088, 1091, 165 USPQ 418, 420-21 (1970)). However, the examiner's asserted motivation for combining the reference teachings need not appear in the references themselves:

> [A]n implicit motivation to combine exists not only when a suggestion may be gleaned from the prior art as a whole, but when the "improvement" is technology-independent and the combination of

> references results in a product or process that is more desirable, for example because it is stronger, cheaper, cleaner, faster, lighter, smaller, more durable, or more efficient.

DyStar Textilfarben GmbH v. C.H. Patrick Co., 464 F.3d 1356, 1368, 80 USPQ2d 1641, 1651 (Fed. Cir. 2006).

The examiner does not deny that Dr. Koopman's background and experience (First Koopman Decl. paras. 1-4) qualify him under Kumho Tire Co. v. Carmichael, 526 U.S. 137, 50 USPQ2d 1177 (1999), and Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U.S. 579, 27 USPQ2d 1200 (1993), to testify about the knowledge and level of ordinary skill of persons working in the field of the invention as of appellant's filing date. However, much of his testimony regarding the obviousness rejections misses the mark because it fails to address the rationale and merits of those rejections, namely, (1) whether one skilled in the art would have been motivated to combine the teachings of the primary and secondary references for the reasons proposed by the examiner and (2) whether the combined teachings satisfy the language of the rejected claims. Specifically, his testimony fails to take into account that a rejection for obviousness can be based on combining reference teachings so as to solve a problem different from the problem solved by the applicant. See In re Kahn, 441 F.3d 977, 988, 78 USPQ2d 1329, 1337 (Fed. Cir. 2006) ("[T]he law does not require that the references be combined for the reasons contemplated by the inventor.") (quoting In re Beattie, 974 F.2d 1309, 1312, 24 USPQ2d 1040, 1042 (Fed. Cir. 1992)). Instead, Dr. Koopman argues the nonobviousness of combining the reference teachings in order to achieve appellant's disclosed purpose of providing a server capable of handling AV (audio visual) data of the type disclosed in the '341 patent (including an

animated sequence data representing feature film video – col. 7, ll. 34-36), even though such AV data is not required by the claims[35] or by the examiner's proposed combinations of reference teachings. An example is the following discussion of cache memory, which is not recited in the claims:

> 10. Workstations, and in particular, RISC workstations, at the time of the Rozmanith ['341] application were notorious for their sensitivity to specific programs being executed, with huge performance degredation to be expected if applications did not fit into the relatively small cache memories of the day. Cache memory technology required very fast static RAM chips that were expensive, in short supply, and very difficult to get to work robustly. Similarly, CISC (Intel 80386 computers) usually had no caches, while the 80486 had a small on-chip cache. In contrast, mainframes could afford sizeable amounts of high-speed memory and cache to speed processing. Worse, AV applications are, in fact, well-known to have poor performance for small cache sizes due to the high amount of data moved through the system in real time, making use of a microprocessor based RISC or CISC server highly suspect.

1st Koopman Decl. at 5, para. 10 (emphasis added). See also id. at 6, para. 11 (asserting that the references cited by the examiner "do not demonstrate that utilizing either a RISC or CISC (i.e., Intel's then-existing 80x86-based processor) would have been feasible for the instant application") (emphasis added). In addition, Dr. Koopman's testimony about the individual references is frequently limited to the specific passages cited by the examiner rather than addressing the reference as a whole.

[35] The closest the claims come to reciting such AV data is the recitation of "an animation sequence" in claim 96, which does not specify that it represents feature film video.

Finally, Dr. Koopman's conclusory testimony will be given weight only to the extent it has support in the documentary evidence. See Rohm & Haas. v. Co. v. Brotech Corp., 127 F.3d 1089, 1092, 44 SPQ2d 1459, 1462 (Fed. Cir. 1997):

> While an expert may testify to the ultimate issue in a case without giving the basis for that opinion, Fed. R. Evid. 704, 705, nothing in the rules requires a fact finder to accept this conclusion. In Symbol Technologies [v. Opticon, Inc., 935 F.2d 1569, 1582, 19 USPQ2d 1241, 1250 (Fed. Cir. 1991)], this court explained the distinction between a proffer of evidence and the sufficiency of the proffered evidence: "In short, [the patentee] was permitted to rest its prima facie case on [the] expert testimony, including charts, that the patents were infringed, and the District Court was free to accept or reject that evidence." 935 F.2d at 1576. Nothing in the rules or in our jurisprudence requires the fact finder to credit the unsupported assertions of an expert witness.

See also In re Wright, 999 F.2d 1557, 1563, 27 USPQ2d 1510, 1514 (Fed. Cir. 1993)("each of these affidavits fails in its purpose because each merely contains unsupported conclusory statements as to the ultimate legal question").

**K. The allegations of commercial success**

A determination of obviousness requires consideration of any objective evidence of nonobviousness. See In re Huang, 100 F.3d 135, 138, 40 USPQ2d 1685, 1687-88 (Fed. Cir. 1996):

> The ultimate determination as to whether or not an invention is obvious is a legal conclusion based on underlying factual inquiries including: (1) the scope and content of the prior art; (2) the level of ordinary skill in the art; (3) the differences between the claimed invention and the prior art; and (4) objective evidence of nonobviousness. Graham v. John Deere Co., 383 U.S. 1, 17-18, 148 USPQ 459, 467 (1966).

Objective evidence of nonobviousness includes evidence of commercial success, such as licensing agreements. In re GPAC Inc., 57 F.3d 1573, 1580, 35 USPQ2d 1116, 1122 (Fed. Cir. 1995).

As evidence that the claimed invention has been extensively licensed, appellant offers the May 22, 2001, declaration by Anthony Brown, President of TechSearch, L.L.C., at that time the owner of the '341 patent. Mr. Brown testified:

> 2. During the past twenty four (24) months, the '341 patent has been licensed on a fully paid-up basis to fifty four (54) companies having combined annual sales in excess of one hundred fifty billion ($150,000,000,000).
> 3. Licenses have even been negotiated and granted during this reexamination proceeding, which indicates to me a high level of recognition of the value and importance of the patented invention.
> 4. Although the precise terms of the licenses are confidential, at the requests of the licensees, the licenses covered all the claims of the '341 patent (that is, claims 1-16 as originally issued) and were entered into as a result of the licensees' recognition that all claims – including dependent claims – covered the activities of the licensees. This nexus is apparent from the fact that the fifty four (54) licensees come from a wide range of industries (from airlines to financial services), with the only common feature being the licensees' use of the patented technology.
> 5. In my view, many thousands of web sites use the invention as defined in the amended and newly submitted claims, which also shows the commercial success of the invention claimed. This success has been further established by the fact that more than $1.875 million in royalties and/or settlements have been paid to TechSearch for the rights it has granted under all claims of the '341 patent.

Brown Decl. at 1-2, paras. 2-5.

A party relying on licensing activities as evidence of unobviousness must demonstrate a nexus between those activities and the subject matter of the rejected claims. See GPAC, 57 F.3d at 1580, 35 USPQ2d at 1122:

> Licenses taken under the patent in suit may constitute evidence of nonobviousness; however, only little weight can be attributed to such evidence if the patentee does not demonstrate "a nexus between the merits of the invention and the licenses of record." Stratoflex [Inc. v. Aeroquip Corp.], 713 F.2d [1530,] 1539, 218 USPQ [871,] 879 [(Fed. Cir. 1983)]; see Demaco [Corp. v. F. Von Langsdorff Licensing Ltd.], 851 F.2d [1387,] 1392, 7 USPQ2d [1222,] 1226 [(Fed. Cir. 1988)].

The GPAC court held that "[b]ecause, in affidavits reciting the licensing history of the '111 patent, GPAC did not establish which claim(s) of the patent the licensing program incorporates, GPAC has not shown that licensing of Natale's invention arose out of recognition and acceptance of the subject matter claimed in the '111 patent." GPAC, 57 F.3d at 1580, 35 USPQ2d at 1122. Furthermore,

> affirmative evidence of nexus [is required] where the evidence of commercial success presented is a license, because it is often "cheaper to take licenses than to defend infringement suits." EWP Corp. v. Reliance Universal Inc., 755 F.2d 898, 908 [225 USPQ 20, 26] (Fed. Cir. 1985). . . . Without a showing of nexus, "the mere existence of . . . licenses is insufficient to overcome the conclusion of obviousness" when there is a strong prima facie case of obviousness. SIBIA Neurosciences, Inc. v. Cadus Pharm. Corp., 225 F.3d 1349, 1358 [55 USPQ2d 1927, 1933] (Fed. Cir. 2000).

Iron Grip Barbell Co. v. USA Sports, Inc., 392 F.3d 1317, 1324, 73 USPQ2d 1225, 1230 (Fed. Cir. 2004).

The Brown declaration falls short of demonstrating the required nexus in several respects.

First, it fails to establish that the licensing agreements are specifically directed to the subject matter recited in any of the claims currently rejected for obviousness. All of the independent claims of the '341 patent (i.e., claims 1-3 and 7) were cancelled by appellant in response to the

First Action, with dependent claims 9-11 and 14 being (a) rewritten in independent form to include all of the limitations of canceled claim 7 and (b) also being amended by changing "compressed or non-compressed" to "compressed." Response to February 23, 2001, Office Action in Reexamination, at 1-4 and 44. The remaining claims rejected for obviousness (i.e., claims 93-104) were added in appellant's supplemental response to the first Office action. "Supplemental Response to February 23, 2001 Office Action and May 22, 2[0]01 Interview in Reexamination" at 4-8. Even assuming, as Brown asserts, that fifty-four of the licensing agreements apply to all of patent claims 1-16, including the dependent claims, we are not prepared to assume that those licenses are specifically based on features recited in dependent claims 9-11 and 14. This deficiency also applies to the licenses obtained subsequent to commencement of this reexamination proceeding, because the declaration neither asserts that the licensing agreements are directed to the new and amended claims nor specifically identifies the claims which are covered by those agreements.

Moreover, appellant has failed to provide sufficient facts to establish that the "licenses arose out of recognition and acceptance of the patent," GPAC, 57 F.3d at 1580, 35 USPQ2d at 1122, rather than simply from a desire to avoid the expense of infringement litigation. Iron Grip Barbell, 392 F.3d at 1324, 73 USPQ2d at 1230; EWP, 755 F.2d at 908, 225 USPQ at 26.

Finally, even assuming for the sake of argument that the Brown declaration establishes some degree of commercial success of the claimed subject matter, that success is clearly outweighed by the strong prima facie case for obviousness, discussed below. SIBIA Neurosciences, 225 F.3d at 1358, 55 USPQ2d at 1933.

**L. The level of skill in the art**

There is no testimony specifically directed to the educational level or years of work experience of a person having ordinary skill in the art, which are relevant to one of the fundamental factual determinations to be made in an obviousness analysis. Graham, 383 U.S. at 17-18, 148 USPQ at 467. As a result, the level of ordinary skill must be inferred from the references themselves. See In re Oelrich, 579 F.2d 86, 91, 198 USPQ 210, 214 (CCPA 1978) ("the PTO usually must evaluate both the scope and content of the prior art and the level of ordinary skill solely on the cold words of the literature"); GPAC, 57 F.3d at 1579, 35 USPQ2d at 1121 (Board did not err in adopting the approach that the level of skill in the art was best determined by the references of record).

**M. The rejections based on Filepp**

**(1) The Filepp disclosure**

Filepp explains that interactive computer networks are known in which multiple users, each at a remote terminal, log onto a host computer having a data and software resource that sequentially receives the users' data processing requests, executes them and supplies responses back to the users. Filepp, col. 1, ll. 26-29. However, a result of requiring the host computer to satisfy all the user data processing requests is that processing bottle-necks arise at the host, causing slowdowns in network response time and requiring an expansion in computing power (i.e., bigger and more complex computer facilities) in order to accommodate increases in the number of users to be served. Id. at col. 1, ll. 36-46. Filepp's system reduces processing demands on the host computer by having the host computer send "objects"

> that have been specially structured to include display data, control data and program instructions for supporting the applications at the network reception systems, the objects being pre-created, parceled units of information that may be distributed and stored at lower levels in the network[,] e.g., at the reception system, so as to reduce processing demand on the network higher element[s], and
>
> thereby permit the higher elements to function primarily as elements for maintaining and supplying the database information.

Id. at col. 2, l. 61 to col. 3, l. 3.

Referring to Figure 2 of Filepp, an interactive network 10 uses a layered structure including an information layer 100, a switch/file server layer 200 (including file server 205), and a cache/concentrator layer 300. Id. at col. 4, ll. 19-22. This structure maintains active application databases and delivers requested parts of the databases on demand to the plurality of reception systems (RSs) 400 in reception layer 401. Id. at col. 4, ll. 22-25. Each of the cache/concentrator units 302 in cache/ concentrator layer 300 serves a plurality of reception systems 400 units over lines 301. Id. at col. 4, ll. 25-28.

Each reception system 400 includes a personal computer 405 having a CPU 410 including a microprocessor (e.g., an INTEL X'86 microprocessor), companion RAM and ROM memory and other associated elements, a monitor 412 with screen 414, and a keyboard 424. Id. at col. 4, ll. 44-50.

Each reception system 400 is capable of communication with the host system to receive information containing either of two types of data, namely objects and messages. Id. at col. 5, ll. 3-6. Objects have a uniform, self-defining format known to the reception system 400 and include data types, such as interpretable programs and presentation data for display at monitor

screen 414 of the user's personal computer. Id. at col. 5, ll. 6-10. Figure 3b shows an example of a page of data displayed on screen of reception system 400.

Since much of the application processing formerly done by a host computer in previously known time-sharing networks is now performed at the user's reception system 400, the higher elements of network 10, particularly layer 200 (including file server 205), have as their primary functions the routing of messages, serving of objects, and line concentration. Id. at col. 6, ll. 29-34.

The information received by reception system 400 from interactive network 10 includes a compression descriptor segment, which contains information needed for the decompression of objects which have been compressed by network 10. Id. at col. 15, ll. 35-37. This segment is a formalization of parameters to be used by a decompression routine residing at reception system 400, using, for example, the Huffman encoding well known in the art. Id. at ll. 35-40.

Filepp explains that "[t]he reception system 400 software is the interface between the user of personal computer 405 and interactive network 10" and that "[t]he object of reception system software is to minimize mainframe processing, minimize transmission across the network, and support application extendibility and portability." Id. at col. 82, ll. 16-21 (emphasis added).

Filepp does not describe interactive computer network 10 (which performs the mainframe processing) as employing a RISC- or CISC-based processor or as being UNIX-based.

**(2) Comparing claims 9-11 and 14 to Filepp**

Claims 9-11 and 14 stand rejected under 35 U.S.C. § 103(a) for obviousness over Filepp in view of "well known practices," as evidenced by The Electronics Engineers' Handbook, the numerous Gale articles, De Maine, Carr, Giltner, Notenboom, and LeGall.

The preambles of claims 9, 10, and 11 recite a "remote server," while the body of each claim more broadly recites a "remote host processor," also referred to as "said remote host."[36] The preambular "remote server" recitation will not be treated as further limiting "remote host processor," because in these claims "the body of the claim fully and intrinsically sets forth the complete invention, including all of its limitations, and the preamble offers no distinct definition of any of the claimed invention's limitations, but rather merely states . . . the purpose or intended use of the invention." Pitney Bowes, Inc. v. Hewlett-Packard Co., 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1166 (Fed. Cir. 1999). In any event, the preambular "remote server" reads on Filepp's file server 205, upon which the examiner reads the claimed "remote host processor."

Comparing claim 9 to Filepp's Figure 2, the examiner explains why he believes Filepp satisfies all of the claim language with the exception of the last clause ("wherein said remote host utilizes a RISC based processor and a UNIX based operating system"). 3d Action at 77, para. 15(a)-(d); Final Action at 235-36, paras. 15(a)-(d). Specifically, he reads the claimed

[36] In a computer network, the "host" computer is the computer that performs centralized functions, such as making program or data files available to workstations in the network. Que's Dictionary 223 (copy enclosed). In a local area network, a "server," which is synonymous "network server," is a computer that provides services for the users of a network; the server receives requests for peripheral services and manages requests so that they are answered in an orderly, sequential manner. Id. at 414 (copy enclosed).

"end user means for formulating a query via a data input means and inputting said query to remote query and data retrieval means" on reception system 400 as discussed at column 73, lines 53-68, which he reproduces in part as follows:

> Through this interaction, the user is able to input data into fields provided as part of the display, or may individually select choices causing a standard or personalized page to be built . . . for display on the monitor of personal computer 405. . . . For example, the user may select a particular option, such as opening on closing window partition 275, which is present on the monitor and follow the selection with a completion key stroke, such as ENTER.

3d Action at 77, para. 15(a); Final Action at 235, para. 15(a).

Dr. Koopman does not deny that the claimed "end user means" and "remote query and data retrieval means" read on reception system 400 or that the reception system has "data input means," such a keyboard 424. Instead, he appears to arguing the cited passage does not describe using the input means of the reception system 400 to formulate a request for an object from interactive network 10:

> The portion of Filepp cited by the examiner does not teach inputting the request to remote query and data retrieval means as alleged. Moreover, the examiner has omitted a key sentence of the cited passage, namely col. 73 lines 57-64, which states that activity responsive to the inputs occurs at a **client computer** RS 400, which is not a remote query and data retrieval means. There is no specific disclosure of inputting a request to a remote query and data retrieval means. Moreover, because Filepp teaches the use of native code modules that are run on client machines, the default assumption for execution where not otherwise stated is on client machines, not a remote machine. Additional disclosure of objects and interaction screens being entirely local to a client machine can be found in col. 87 lines 5-14 of Filepp.

2d Koopman Decl. at 160-61, para. 344. The passage in column 87 to which Dr. Koopman refers explains that the object may reside in various locations in reception system 400, such as in

RAM or on a disk 424. However, whether or not the passage cited by the examiner describes using the input means (e.g., keyboard 424) to formulate a request for an object from the interactive network, it is clear from the other passages that the data input means is to be used to formulate such requests. See, e.g., Filepp. col. 5, ll. 41-44 ("objects make up one or more partitioned applications, and are retrieved on demand by a user's RS 400 for interpretive execution and selective storage"). Dr. Koopman's testimony on this point, as well as on many others, lacks probative value because it is limited to the specific reference language cited by the examiner rather than addressing the reference as a whole.

Turning now to the next limitation, the examiner, without contradiction by Dr. Koopman, reads the recited "means for transmitting said query from said remote query and data retrieval means to a remote host processor via a concentrator means" on the means for allowing RS 400 to communicate with network 10. 3d Action at 77, para. 15(b); Final Action at 235-36, para. 15(b). As shown in Figure 2, this communication means includes cache/concentrator layer 300 (including cache/concentrators 302), which transmits a query via line 301 to switch/file server layer 200 (including file server 205), which in turn is connected via lines 210 to information layer 100 (including, e.g., a high function system 110).

Regarding the claim's requirement that "the remote query and data retrieval means receiv[es] a compressed response to said query from said remote host via said input/output means," the examiner explains that the retrieved object includes a compression descriptor segment that identifies the type of compression applied to the object data by interactive

network 10, citing column 15, lines 34-53. Final Action at 237, para. (c).[37] The examiner further explains that the "compression descriptor segment contain[s] information needed for decompression at the reception system of objects compressed in the interactive network," id., which we understand to mean that RS 400 performs decompression and thus satisfies the claim's requirement that "said remote query and data retrieval system decompress[es] said compressed to said query." Thus, even though, as noted by Dr. Koopman, 2d Koopman Decl. at 167, para. 353, the examiner's statement of the rejection fails to assert that the "decompressing . . . said compressed response" limitation reads on Filepp, it is clear why the examiner believes this is the case. Furthermore, the examiner's failure to expressly assert that this claim language is satisfied by Filepp does not provide sufficient support for Dr. Koopman's assertion that this limitation "is not disclosed by the references," id., an assertion which must be based on an evaluation of Filepp as a whole, including any reasonable inferences to be drawn therefrom.

The examiner reads the step of "displaying a presentation corresponding to said query response on output means" on the displaying step that is described in the abstract and at column 2, lines 52-54 ("the invention includes method and apparatus for providing interactive applications containing text and graphics at the monitor of a personal computer"). 3d Action

at 78; Final Action at 236. Dr. Koopman's denial that the displayed text and graphics correspond to the query response, 2d Koopman Decl. at 167-68, para. 354, ignores the fact that the objects

[37] The 3d Action at 77-78, paragraph (c) cites column 15, lines 35-41.

received by RS 400 from the interactive network 10 (Filepp, col. 5, ll. 40-44) "carry application programs and information for display at monitor screen 414 of RS 400." Id. at col. 5, ll. 56-57.

For the foregoing reasons, we agree with the examiner that the only language of claim 9 that is not satisfied by Filepp is "wherein said remote host utilizes a RISC based processor and a UNIX based operating system."

Claims 10, 11, and 14 differ from claim 9 by replacing its ultimate "wherein" clause with the following "wherein" clauses, which do not read on Filepp:

(a) Claim 10 -- "wherein said remote host utilizes a CISC based processor and a UNIX based operating system."

(b) Claim 11 -- "said compressed response is compressed utilizing at least two compression techniques."

(c) Claim 14 -- "wherein said remote server resides on a compatible network in which CISC and RISC based processors operating with a UNIX based operating system communicate in a windowing environment."

As noted above, the term "processor" in the phrases "RISC based processor" and "CISC based processor" encompasses but is not restricted to a microprocessor.

**(3) Claims 9-11 and 14 -- obvious over Filepp in view of well known practices?**

(a) The evidence of "well known practices"

As evidence that the features of claims 9-11 and 14 which are missing from Filepp represent "well known practices," the examiner cites page 23-88 of The Electronics Engineers' Handbook, the twenty-nine Gale articles, De Maine, Carr, Giltner, Notenboom, and LeGall. 3d Action at 75-76, para. 14; Final Action at 234-35, para. 14. The discussion of the rejection (3d Action at 78-79, para. 16; Final Action at 236-37, para. 16) does not explain which references apply to which claim limitations. However, it is evident from a perusal of these references that The Electronics Engineers' Handbook and the Gale articles are relied on for their disclosures of UNIX, CISC, and RISC servers and workstations and thus are pertinent to claims 9, 10, and 14, whereas the remaining references (i.e., De Maine, Carr, Giltner, Notenboom, and LeGall) disclose video compression techniques and thus pertain to claim 11.

(b) The rejection of claims 9, 10, and 14 (UNIX, RISC, and CISC limitations)

The examiner 's reason for citing The Electronics Engineers' Handbook and the twenty-nine Gale articles, which disclose UNIX, RISC, and CISC servers and workstations, was to establish a general trend in the industry:

> UNIX based host systems or servers systems were widely used in the implementation of remote host systems at the time of the filing date due to platform independence and multi user capability of the UNIX operating system. As to the RISC and CISC microprocessor[,] it would have been obvious to replace a board CPU with a microprocessor to take advantage of the scalability and the rapid increase in processing power that the microprocessor had achieved[;] further it was a general trend in the industry.

3d Action at 78-79, para. 16; Final Action at 236-37, para. 16 (emphasis added).[38] Ordinarily, the citation of cumulative references is to be avoided. As explained in § 706.02 of the MPEP (8th ed., rev. 5, Oct. 2006), under the heading "Choice of Prior Art; Best Available," "[p]rior art rejections should ordinarily be confined strictly to the best available art" (subject to several exceptions which do not apply here[39]) and "[m]erely cumulative rejections . . . should be avoided." Id. See also In re Herrick, 344 F.2d 713, 716, 145 USPQ 400, 401 (CCPA 1965):

> Regarding claim 1, the most reasonable interpretation of the board's statement leads to the conclusion that there is, in fact, the astounding total of twenty-four separate rejections of the claim. As to claims 2 and 3, there is no meaningful way to tell how many rejections have been made, because of the board's use of the disjunctive conjunction 'and/or.' The number of rejections of claims 4, 5, 6 and 8 is likewise indefinite, due to the use of the word 'any,' but the minimum number is eleven. A rejection so stated defeats the intent and purpose of 35 U.S.C. § 132.
>
> The form of the rejections would seem to indicate that many of the references were considered merely cumulative. And yet, the examiner's answer and the solicitor's brief describe and analyze each reference in some detail. Such a state of affairs places this court in a very real quandary. Are we to choose one individual rejection for each claim and turn the entire appeal on the correctness of those rejections? Or are we to work our way step-by-step through each rejection in the hope of finding one we can sustain? Neither alternative is satisfactory from the standpoint of the public interest.

On the other hand, it is appropriate to rely on cumulative references to show the existence of a technological trend. See Kansas Jack, Inc. v. Kuhn, 719 F.2d 1144, 1150, 219 USPQ 857, 860

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[38] We agree with Dr. Koopman that the term "board CPU" apparently refers to a non-microprocessor CPU. 2d Koopman Decl. at 162, para. 346.

[39] These exceptions are: "(A) the propriety of a 35 U.S.C. § 102 or 103 rejection depends on a particular interpretation of a claim; (B) a claim is met only in terms by a reference which does not disclose the inventive concept involved; and (C) the most pertinent reference seems likely to be antedated by a 37 CFR 1.131 affidavit or declaration." MPEP § 706.02.

(Fed. Cir. 1983) (fact that teachings relied upon to show obviousness were repeated in a number of references strengthened conclusion of obviousness). That is clearly the situation before us, although the examiner could have made the same point with fewer Gale articles. That is, rather than being cited for the details of the RISC, CISC, and UNIX servers and workstations discussed therein, the Gale articles are cited collectively to show that such servers and workstation were known in the art and in fact commercially available prior to the filing date of appellant's '341 patent. Dr. Koopman's chief criticism of the Gale articles, which is that they contain too little information to be enabling, see, e.g., 2d Koopman Decl. at 26, para. 52 ("A reference that has no pertinent technical content is not meaningful prior art."), fails to consider the Gale articles in this light. Also, his testimony fails to take into account the high level of skill in the art that is implied by the brevity of the discussion in the '341 patent regarding the use of a UNIX-based server employing a RISC or CISC processor:

> The server 11 will typically include special purpose, high speed processing and large capacity multi-distributed storage capability. The server 11 will typically be more powerful than the EUS 10, can preferably be UNIX based, and should utilize a CISC or RISC based processor which is capable of utilizing compression software such as fractal-transform technology, manufactured and marketed by Iterated Systems, Inc. of Norcross, Ga., and which can be enhanced by co-processors. In addition, the host processor should be able to operate in a windowing environment. Other compression/decompression packages such as JPEG and DFF (Differential Image Storing) may also be utilized by the host/server 11 of the present invention.

'341 patent, col. 4, ll. 13-26 (emphasis added). The '341 patent thus presumes that a person having ordinary skill in the art of interactive computer networks, without the exercise of undue experimentation, would have been able to select or design a UNIX-based server which has a RISC or CISC processor and is capable of (1) performing one or more of the above-specified

compression techniques and (2) operating in a windowing environment. That the examiner agrees with this conclusion about the high level of skill is evidenced by the absence of a rejection of any of claims 9, 10, and 14 under § 112, first paragraph, for being based on a non-enabling disclosure. Appellant cannot, on the one hand, be given the benefit of a high level of skill in the art in order to comply with the enablement requirement of § 112, first paragraph, and, on the other hand, argue a lower level of skill for judging obviousness over the prior art.

A result of this high level of skill in the art is that the rejection of claims 9, 10, and 14 is sustainable if the cited secondary references would have suggested to the artisan that UNIX, RISC, and CISC technology would have been desirable and suitable for use as Filepp's file server 205. The examiner's assertion that the UNIX operating system was recognized as offering the advantages of platform independence and multi-user capability is supported by his citation of page 23-88 of The Electronics Engineers' Handbook, which reads in pertinent part:

> Operating systems are generally developed for a specific CPU architecture or for a family of CPUs. However, one operating system, the UNIX system (a trademark of AT&T), has been transported to a number of different manufacturers' systems and is in very wide use today. UNIX was developed as a unified, interactive, multiuser system. It consists of a kernel that schedules tasks and manages data, a shell that executes user commands—one at a time or in a series called a pipe—and a series of utility programs.

Although Dr. Koopman asserts that "[i]t was not obvious to use a UNIX based remote host system," 2d Koopman Decl. at 162, para. 345, he does not actually deny that is would have been obvious in view of The Electronics Engineers' Handbook to implement Filepp's file server 205 as a UNIX-based server. Instead, he denies that it would have been obvious to use a UNIX-based server to handle AV data of the type which is disclosed in appellant's '341 patent but not recited

in the rejected claims, see, e.g., 2d Koopman Decl. at 17, para. 8, an argument which is not responsive to the rationale of the rejection.

As already noted, the examiner contends there were several different motivations for implementing Filepp's file server with a RISC or CISC microprocessor: (a) "scalability"; (b) "the rapid increase in processing power that the microprocessor had achieved"; and (c) "a general trend in the industry." 3d Action at 78-79, para. 16; Final Action at 236-37, para. 16.[40] We are unable to determine the merits of the "scalability" argument because that term is not defined or adequately discussed in the record.[41] Dr. Koopman responded to the asserted "processing power" motivation by arguing that "[r]eplacing a non-microprocessor CPU with a microprocessor CPU would only be reasonable if both versions had the same instruction set," 2d Koopman Decl. at 162, para. 346, and that "[a]t the time that Rozmanith filed it was ordinarily the case that a mainframe [i.e., non-microprocessor] implementation of an instruction set would be a more powerful computer than a microprocessor based implementation." Id. This argument is unconvincing because we are not persuaded that a RISC- or CISC-microprocessor implementation of Filepp's non-RISC, non-CISC processor must use the same instruction set. Dr. Koopman's argument that "microprocessor based versions of a machine were typically lacking in I/O bandwidth and functionality," id., whereas "a remote host or server machine, like

[40] Dr. Koopman correctly notes that claims 9, 10, and 14 do not recite "microprocessors." 2d Koopman Decl. at 162, paras. 345-46. Instead, they recite "processors," a term which embraces but is not limited to microprocessors. However, this fact does not detract from the merits of the rejection, which requires only that the examiner demonstrate the obviousness of something falling within the scope of the rejected claim.

[41] This term is not addressed in Dr. Koopman's testimony about paragraph 16 of the Third Office action.

Rozmanith's, would need significant I/O capability," id., is unconvincing because it concerns the obviousness of using a RISC-or CISC-microprocessor server to handle AV data of the type disclosed in the '341 patent rather than to handle information of the type handled by Filepp's file server. The same criticism applies to Dr. Koopman's remaining arguments at pages 4-15, paragraphs 8-33. Dr. Koopman has therefore failed to give us any convincing reason why the trend towards using UNIX servers having RISC or CISC microprocessors would been considered to be inapplicable to Filepp's interactive computer network, including file server 205.

For the foregoing reasons, we are affirming the rejection of claims 9, 10, and 14 for obviousness over Filepp in view of "well known practices" as evidenced by The Electronics Engineers' Handbook and the twenty-nine Gale articles.

(c) The rejection of claim 11 (two compression techniques[42])

Of the five references apparently cited as disclosing the use of two video compression techniques (i.e., De Maine, Carr, Giltner, Notenboom, and LeGall), one (namely, Giltner) is specifically relied on in combination with Filepp in a separate rejection of claim 11, 3d Action at 83, para. 18; Final Action at 241, para. 18, and therefore will be addressed in our discussion of that rejection. As for the remaining four references, the examiner's statement of the rejection based on Filepp in view of "well known practices" fails to identify the specific reference

[42] Claim 11 does not include UNIX, RISC, or CISC limitations.

teachings the examiner is proposing to combine with Filepp.[43] The rejection of claim 11 for obviousness over Filepp in view of "well known practices" as evidenced by De Maine, Carr, Giltner, Notenboom, and LeGall is therefore reversed.

**(4) Claims 9, 10, and 14 – obvious over Filepp in view of Row?**

The rejection relies on the "Background of the Invention" portion of Row (cols. 1-3) rather than on the detailed description of Row's invention. Row explains that "[p]resent-day network clients and servers usually run the DOS, MacIntosh OS, OS/2, or Unix operating systems," col. 1, ll. 51-53, and that

> Unix client nodes typically feature a 16- or 32-bit microprocessor with 1-8 MB of primary memory, a 640x1024 pixel display, and a built-in network interface. A 40-100 MB local disk is often optional. Low-end examples are 80286-based PCs or 68000-based MacIntosh I's; mid-range machines include 80386 PCs, MacIntosh II's, and 680X0-based Unix workstations; high-end machines include RISC-based DEC, HP, and Sun Unix workstations.

Id. at col. 1, l. 62 to col. 2, l. 2. These characteristics apply to servers as well as to clients: "Servers are typically nothing more than repackaged client nodes, configured in 19-inch racks rather than desk sideboxes." Id. at col. 2, ll. 2-4. Row further explains that "[d]riven by RISC and CISC microprocessor developments, client workstation performance has increased by more than a factor of ten in the last few years." Id. at col. 2, ll. 7-9.

The examiner argues that "[i]t would have been obvious . . . to replace the mainframe used by Filepp et al. with a remote host utilizing a RISC or CISC based processor in view of the

[43] The U.S. patent to De Maine has thirty sheets of drawings and 124 columns of text (not including the claims and a printout of a program listing).

express teaching and motivation supplied by Row et al. (Col. 1, line 33-col. 2, line 22)." 3d Action at 81; Final Action at 239. Dr. Koopman disagrees, arguing that whereas Filepp discloses a network which includes a mainframe-plus-personal computers (i.e., clients), Row teaches replacing an entire mainframe-plus-dumb terminals network with a workstation-plus-clients network and thus does not suggest "that a mainframe alone can be replaced by a microprocessor-based server in isolation." 2d Koopman Decl. at 169, para. 358. This argument takes an unduly restrictive view of the disclosures of the two references. The term "mainframe,"[44] which appears only once in Filepp (at column 82, lines 16-21[45]), refers to the interactive computer network 10, including file server 205. Thus, Filepp's network can accurately be characterized as either a mainframe-plus-clients network or a server-plus-clients network. As a result, Row's teaching that present-day clients and servers usually run the DOS, MacIntosh OS, OS/2, or Unix operating systems," col. 1, ll. 51-53, and that high-end machines include RISC-based DEC, HP, and Sun Unix workstations, col. 1, l. 68 to col. 2, l. 2, would have been understood as being applicable to Filepp's file server 205 as well as to the client machines (i.e., RS 400).

In another argument for nonobviousness, Dr. Koopman notes that while Row credits UNIX workstations having RISC- or CISC-based microprocessor with an increase in performance of greater than a factor of ten (Row, col. 2, ll. 7-9), Row also explains that I/O

[44] Que's Dictionary explains at 285 (copy enclosed) that "a mainframe meets the computing needs of an entire organization, and a minicomputer meets the needs of a department within an organization."

[45] These lines read: "The reception system 400 software is the interface between the user of personal computer 405 and interactive network 10. The object of reception system software is to minimize mainframe processing, minimize transmission across the network, and support

(input/output) limitations of UNIX servers having RISC- or CISC-based microprocessor have prevented them from keeping up with the increase in workstation demand (col. 2, ll. 9-16). 2d Koopman Decl. at 170, para. 359. As a result, according to Dr. Koopman, the servers would not have been understood to be capable of providing the "high quality compression" disclosed in appellant's '341 patent. Id. This argument is unconvincing because it fails to address the rationale of the rejection, which does not require compression of the type of AV data disclosed by appellant, let alone in the manner disclosed by appellant. Instead, the rejection requires that the server be capable only of compressing the type of data disclosed in Filepp and in the manner disclosed by Filepp.

For the foregoing reasons, we are affirming the § 103(a) rejection of claim 9 ("said remote host utilizes a RISC based processor and a UNIX based operating system") and claim 10 ("said remote host utilizes a CISC based processor and a UNIX based operating system") for obviousness over Filepp in view of Row.

Claim 14 differs from claims 9 and 10 by specifying that "said remote server resides on a compatible network in which CISC and RISC based processors operating with a UNIX based operating system communicate in a windowing environment." This language does not require a windowing environment at the server; it is broad enough to read on a windowing environment at the client. Regarding the UNIX, RISC, and CISC limitations, Dr. Koopman repeats (2d Koopman Decl. at 170, para. 360) the same unconvincing arguments he made with respect to clams 9 and 10, thereby leaving only the "windowing environment" limitation for our

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application extendibility and portability."

consideration. The examiner correctly notes that Filepp teaches a windowing environment in column 8, line 64 to column 9, line 57, which explains that Figures 3a and 3b show the information being displayed in a windowing format at the client machine (RS 400). 3d Action at 83, para. 17. Dr. Koopman's criticism that these displays appear at the client machine rather than at the server (2d Koopman Decl. at 171, para. 362) incorrectly construes the claim as requiring a window display at the server.

The § 103(a) rejection of claim 14 for obviousness over Filepp in view of Row is affirmed.

**(5) Claim 11 – obvious over Filepp in view of Giltner?**

Claim 11 differs from claims 9 and 10 by not including UNIX, RISC, or CISC limitations and instead specifying that the compressed response received from the remote server "is compressed utilizing at least two compression techniques."

Filepp's compressed response received from the server includes a compression descriptor segment containing the information needed for the decompression of objects compressed in interactive network 10, such as Huffman coding, and more particularly includes parameters to be used by a decompression routine residing at the reception system 400. Filepp, col. 15, ll. 35-41.

Giltner discloses a system which compresses data for transmission over a conventional telecommunications network and performs decompression at a remote station. Giltner, col. 1, ll. 6-13. As explained in the abstract, on which the examiner relies, the system can be used with text data or other types of data, serial or parallel, such as color television data. The system is useful when the number of possible data units (e.g., words in the English language) is very large.

Id. at col. 1, l. 67 to col. 2, l. 5. The first type of encoding employed by the system is to replace at least some data units with library addresses:

> [T]he most statistically recurrent portion of the total number of units are stored in a memory library. Then the memory library is searched for each word/unit and if the word/unit is found, the binary address of the word/unit in the library memory is substituted for the binary data representing the word/unit together with an appropriate code indicating that the substitution has been made. The binary data stream is thus compressed by compiling a data stream consisting alternatively of units in the original form, or the addresses of such units in a library memory, with an "escape code" designating which alternative is used. Decompression is then achieved by detecting the address data and fetching the unit from the same address of an identical library memory.

Id. at col. 2, ll. 43-57. This first encoding technique can be supplemented by applying Huffman coding to the data units which are not found in the library memory. Id. at col. 3, ll. 28-32.[46] The library memory can be predetermined and fixed or can be complied in a reconfiguration library as data are being transmitted. Id. at col. 3, ll. 40-43.

The examiner's position is that it would have been obvious to modify the compression teaching of Filepp with that of Giltner "[f]or the benefit[s] expressly taught by Giltner et al. (Col. 13, line 65 - col.14, line 67)." 3d Action at 85-86, para. 18; Final Action at 242-43, para. 18. Some of these benefits are stated as follows:

> Since the unit 14 can operate at a substantially greater speed than data can be transmitted over most communications networks, a number of options are available in the sequence of operation. For example, as soon as a portion of a message is received from the local station and stored in memory, the unit will attempt to establish contact with the designated remote terminal. Compression of the message can then begin as soon as a

[46] Dr. Koopman's testimony (2d Koopman Decl. at 80, para. 169) that Giltner fails to disclose two compression modes is therefore not understood.

> suitable answerback is received. The message can then be simultaneously received from a local terminal, compressed, and transmitted to the remote terminal. This permits the use of smaller buffers 42 and 44 to handle messages of indefinite length. A similar approach can be used for receiving messages from remote terminals, decompressing the messages, and forwarding them to the local terminal.
>
> From the above detailed description of a preferred embodiment of the invention, it will be appreciated by those skilled in the art that a unique and novel text compression system has been described. The text compression system may be advantageously used as an in-line addition for existing relatively slow speed data handling systems, particularly telecommunications systems. While the text compression system is particularly useful for English and other language text, it also has application in its broader aspects of compression to other data compiled in a similar format.

Giltner, col. 13, l. 66 to col. 14, l. 24.

Dr. Koopman, after correctly characterizing Giltner as disclosing "a hybrid compression scheme that uses two related but slightly different mechanisms intermingled in a stream of compressed data," 2d Koopman Decl. at 84, para. 177, denies that this is sufficient to satisfy the claim:

> The examiner repeatedly argues that any compressed data stream with more than one possible sub-algorithm comprises "two compression techniques." But, those are mere combinations of mechanisms, in contrast to the word "techniques," which implies that the techniques are being distinctly applied. The difference is clear and compelling, as well as fully supported by the claim wording.

Id. Dr. Koopman appears to be construing the claim language as requiring the simultaneous application of plural encoding techniques to the same data units. We agree with the examiner that the claim language is broad enough to read on successively applying different techniques to different data units, as in Giltner.

Dr. Koopman also criticizes the rejection on other grounds, none of which is persuasive. His complaint that the examiner failed to identify which benefit he is relying on in the nearly full column of cited text, 2d Koopman Decl. at 172, para. 364, is unconvincing. Dr. Koopman should have assumed that the examiner is relying on each of the several benefits discussed in those lines. Dr. Koopman's assertion that Giltner's compression technique "is grossly ineffective to use on the vast majority of AV data, including without limitation digital color images, monochrome color images, and audio data," Id. at 79, para. 168, ignores the fact that the rationale of the rejection does not require compressing and decompressing such data. Instead, the examiner has argued the obviousness of using Giltner's plural compression techniques (i.e., dictionary addressing and Huffman encoding) to compress the object and message data that Filepp compresses using only one those techniques (i.e., Huffman coding). Dr. Koopman's discussion of the differences between Giltner's color digital video and color television pictures likewise has no relevance to the rejection. 2d Koopman Decl. at 79-80, para. 170.

We hold that it would have been obvious to modify Filepp so as to employ the two compression techniques disclosed in Giltner in order to reduce the amount of data to be transmitted and thus are affirming the rejection of claim 11 on this ground.

**N. Rejections of claim 11 based on Yurt**

**(1) The effect of the Rule 131 declarations**

The Rule 131 declarations by inventor Anthony Rozmanith and by noninventor Egon Fabian (a software consultant and programmer) assert conception of the claimed subject matter

prior to Yurt's January 7, 1991, effective date under 35 U.S.C. § 102(e)(2) coupled with reasonable diligence from prior to that date up to appellant's April 11, 1991, filing date.

A showing of prior invention must address every limitation of the rejected claim or claims:

> (a) When any claim of an application or a patent under reexamination is rejected, the inventor of the subject matter of the rejected claim, the owner of the patent under reexamination, or the party qualified under §§ 1.42, 1.43, or 1.47, may submit an appropriate oath or declaration to establish invention of the subject matter of the rejected claim prior to the effective date of the reference or activity on which the rejection is based.

37 CFR § 1.131(a) (2006). As noted by the examiner, Final Action at 202, para. 367, these declarations were filed in order to overcome the previous (now withdrawn) rejections of claims 93, 95, 96, 99, 100, and 102-04 based on Yurt, not the rejections of claim 11, the sole claim now rejected over that reference. As a result, these declarations make no attempt to explain how the facts recited therein demonstrate either (a) prior conception of the subject matter of claim 11, including its recitation of using two compression techniques to compress the response to the query (not recited in any of claims 93, 95, 96, 99, 100, and 102-04), or (b) the exercise of reasonable diligence in reducing that claimed subject matter to practice. Nor does the brief offer such an explanation. See In re Borkowski, 505 F.2d 713, 718, 184 USPQ 29, 33 (CCPA 1974) (Rule 131 showing held deficient because "[t]he original and supplemental affidavits together with the accompanying comments do not adequately explain what facts or data appellant is relying upon to show a completion of the invention prior to April 13, 1961.").

The examiner was therefore correct to hold that the declarations are insufficient to antedate Yurt as a reference with respect to the rejections of claim 11.

**(2) The Yurt disclosure**

Figures 1a to 1g of Yurt are block diagrams of various configurations of transmission systems 100 and reception systems 200 (Yurt, col. 3, ll. 24-26) which permit remote users to request audio and/or video information from a compressed data library 118 (Fig. 2b) in the transmission system (Id. at col. 6, ll. 35-38). In the Figure 1e configuration, transmission system 100 is directly connected to (a) a reception system 200 that includes a single user and (b) a reception system 200' that serves as the head end of cable television systems 200a and 200b. Id. at col. 4, ll. 22-29. As shown in Figure 2b, transmission system 100 may send the requested information to the customer's reception system 200 (or 200') using any of the following communication links: ISDN (Integrated Services Digital Network), B ISDN (Broadband Integrated Services Digital Network), satellite, cable TV, LAN or MAN, or telephone lines. Id. at col. 16, ll. 4-15. The transceiver 122 which sends the requested information over standard telephone lines is a modem. Id. at col. 16, ll. 58-59. The user accesses the transmission system 100 (i.e., sends a request for information) over a standard telephone line. Id. at col. 3, ll. 54-58; col. 14, ll. 6-9. Video data are compressed using two compression techniques:

> Video data compression preferably involves applying two processes: a discrete cosine transform, and motion compensation. This process is described in "A Chip Set Core of Image Compression", by Artieri and Colavin. Multiple frames of video data may preferably be analyzed for patterns in the horizontal (H), vertical (V), diagonal (zigzag) and time (Z) axis. By finding repetition in the video data, redundancy may be removed and the video data may be compressed with a minimal loss of information.

Id. at col. 10, ll. 3-17. Referring to Figure 6, which depicts a preferred embodiment of a receiving system 200 (col. 17, ll. 67-68), transceiver 201 automatically receives the information from the transmitter 122 as compressed formatted data blocks, while format converter 202 converts the compressed formatted data blocks into a format suitable for storage in storage device 203. Id. at col. 18, ll. 6-21. When playback is requested, the compressed formatted data blocks are sent to a data formatter 204, which processes the compressed formatted data blocks and separates audio and video information. Id. at col. 18, ll. 26. During playback, the separated audio and video information are respectively decompressed by audio decompressor 209 and video decompressor 208 before being applied to digital and analog audio and video output terminals 211-14. Id. at col. 18, ll.27-38.

**(3) Comparing claim 11 to Yurt**

The examiner contends, and Dr. Koopman does not deny, that Yurt discloses all of the claimed subject matter except for the requirement that the query be transmitted from the remote query and data retrieval means to the remote host processor "via a concentrator means." 3d Action at 86, para. 19; Final Action at 243, para. 19. Specifically, he reads the recited end user means and remote query and date retrieval means on the reception system 200 depicted in Figure 6, the recited remote host on the transmission system 100 depicted in Figures 2a and 2b, and the recited input/output means on element 207 in Figure 6. Decompression of the video information, which has been compressed in the transmission system using two compression techniques, is effected by decompression element 208 in Figure 6, which outputs digital and analog video signals on terminals 211 and 213. The decompressed video information can be

immediately reproduced on a display system, such as a television display. Id. at col. 18, ll. 36-37.

The '341 patent does not define or restrict the term "concentrator," which is described therein in part as follows:

> Where a cluster of EUS's 10 cannot economically justify a single dedicated server, a neighboring server in the Global Server Network 29 may be loaded with services for the said cluster of EUS's. In this case, communication between an individual EUS 10 and the Server is accommodated through a concentrator 19 which stores and forwards EUS requests and corresponding server replies, thereby allowing for more efficient utilization of the DDS communication channel.

'341 patent, col. 3, ll. 43-51.

**(4) Claim 11 – obvious over Yurt in view of Kandell?**

The examiner cites column 2, line 54 to column 3, line 5 of the "Background of the Invention" portion of Kandell's specification as evidence that it would have been obvious to add Kandell's disclosed concentrator to Yurt in order "to allow for sharing of high speed access among multiple users." 3d Action at 86-87, para. 19; Final Action at 243, para. 19. The cited text reads:

> Concentrators enable an efficient utilization of data channels in digital data networks. Basically, a digital data network includes modulator/demodulator ("modem") circuits for enabling digital information to be transferred over a normal telephone network in an analog form. When several subscribers in one area require only low-speed data transfers, each subscriber is connected to a local concentrator at a particular location by means of two low-speed modems; one at subscriber's location and the other at the concentrator location. The concentrator location will have one such low-speed modem for each incoming telephone line. A digital processing circuit converts the digital signals between the low-speed modems of the concentrator and a time multiplexed, high-speed, serial, digital pulse train that is applied to and

> received from a high-speed modem that is in a high-speed path to a data processing center. Oftentimes these concentrators are very sophisticated and an apparently large concentration can occur at such a point.

Kandell, col. 2, l. 54 to col. 3, l. 5. We understand the examiner's position to be that it would have been obvious in view of the above teaching to replace (a) the transceiver (i.e., low-speed modem) 122 in Yurt's Figure 2b transmission system that is connected via a plurality of standard, low-speed telephone lines to respective reception systems 200 with (b) a high-speed modem connected via a high-speed communication line to a high-speed modem in a remotely located concentrator that communicates with the reception systems via low-speed modems and low-speed telephone lines.

Dr. Koopman argues (2d Koopman Decl. at 173, para. 368) that the succeeding paragraph in Kandell, quoted below, teaches way from using a concentrator in a conventional voice telephony system:

> However, in many applications the actual concentration is less than 40:1. Moreover, this approach is not readily adapted for application to conventional, voice telephony. The high speed data networ[k]s require specially conditioned telephone lines that are expensive to utilize, and the required modems are expensive. The modems produce or respond to carriers held to a finite fr[e]quency band and digital processing circuits are, in effect, independent switches that can become quite complex and expensive. In addition, even if readily adapted to a telephony network, the economic benefit of substituting this type of a concentrator network at a remote location in a telephony system would not be economically justified by the cabling savings that would otherwise be provided.

Kandell, col. 3, ll. 6-20. The examiner responded to this criticism by asserting that "Kandell's teaching is [that] in [a] remote area it is not economically viable, not [that] in general [it is not viable]," Final Action at 202-03, para. 368; Answer at 201, para. 368, a reasonable interpretation

that is not addressed by Dr. Koopman or appellant. Moreover, Kandell does not actually "teach away" in the patent law sense from using the disclosed concentrators in a standard voice telephony system. The reason is that instead of questioning the technological feasibility of such an arrangement, Kandell finds faults for merely economic reasons. See Syntex (U.S.A.) LLC v. Apotex, Inc., 407 F.3d 1371, 1380, 74 USPQ2d 1823, 1830 (Fed. Cir. 2005):

> Under the proper legal standard, a reference will teach away when it suggests that the developments flowing from its disclosures are unlikely to produce the objective of the applicant's invention. In re Gurley, 27 F.3d 551, 553 [31 USPQ2d 1130, 1131] (Fed. Cir. 1994). A statement that a particular combination is not a preferred embodiment does not teach away absent clear discouragement of that combination. In re Fulton, 391 F.3d 1195, 1199-1200 [73 USPQ2d 1141, 1146] (Fed. Cir. 2004)].

The rejection of claim 11 for obviousness over Yurt in view of Kandell is therefore affirmed.

**(5) Claim 11 – obvious over Yurt in view of Gargini?**

Gargini discloses television cable systems in which subscribers can receive signals from as well as return signals to the system via a cable carrying electrical or optical signals. Id. at col. 1, ll. 5-8. The cable system depicted in Figure 7 includes concentrators 76, whose inputs are connected to head end 71 by trunk lines 75 and whose outputs are connected to switching centers 78 by subtrunk lines 77. Id. at col. 8, l. 64 to col. 9, l. 1. Each concentrator 76 is connected to its associated switching centers by seven coaxial cables, six of which carry the groups of VHF television signals and the seventh of which carries Band II signals and control data signals. Id. at col. 9, ll. 36-40. As shown in Figure 7, each switching center is connected to a plurality of homes 80, each of which includes a plurality of outlets or subscriber stations 81. Each

subscriber station includes a keypad for sending data to the head end. Id. at col. 10, ll. 4-8. These data identify the desired television program. Id. at col. 9, ll. l

The examiner contends that "[i]t would have been obvious . . . to modify Yurt et al. with Gargini et al. to allow for sharing of high speed access among multiple users and other the [sic] benefits expressly recited (col. 11, lines 9-17; col. 11, lines 44-55)." 3d Action at 87-88, para. 20; Final Action at 244, para. 20 . The cited lines explain that the concentrators (a) perform some data processing in order to reduce the work load of the CPU at the head-end and reduce the amount of data to be transmitted from the concentrators to the head end (col. 11, ll. 9-17) and (b) reassemble the data for high speed transmission to the CPU at the head end. Id. at col. 11, ll. 44-55.

We agree with the examiner that it would have been obvious in order to obtain the afore-mentioned benefits to implement the Yurt's cable television reception systems (e.g., 200a and 200b in Figs. 1e and 1f) as cable distribution systems of the type depicted in Figure 7 of Gargini, including the concentrators, which relay a request for a specific television program (the recited "query") from the subscriber to the central station. Dr. Koopman's argument that column 3, lines 6-20 of Kandell (discussed supra) teach away from this proposed combination of Yurt and Gargini (2d Koopman Decl. at 175, para. 373) is unconvincing because that passage in Kandell discusses the use of concentrators with standard telephone lines rather than with coaxial cables and also because that "teaching away" argument is unpersuasive even with respect to standard telephone lines.

The rejection of claim 11 over Yurt in view of Gargini is therefore affirmed.

## O. The scope and meaning of claims 93-99

Claim 93, on which claims 94-99 depend directly or indirectly, reads:

> 93. A method for downloading responsive data from a remote server comprising the following steps:
> (a) identifying a query via a data input means and inputting said query to remote query and data retrieval means;
> (b) transmitting said query from said remote query and data retrieval means to a remote server via an input/output means;
> (c) receiving a compressed or non-compressed response to said query at said remote query and data retrieval means from said remote server via said input/output means;
> (d) displaying a presentation corresponding to said compressed or non-compressed response on output means;
> (e) wherein said displaying step commences before said step of receiving said compressed or non-compressed response has been completed.

Step (e) precludes downloading and storing the entire response at the user location (which contains the recited input/output means and remote query and data retrieval means) prior to commencing display of the corresponding presentation.

## P. The merits of the § 112 rejection of claims 94 and 97

Dependent claims 94 and 97 stand rejected under § 112, first paragraph, as based on a non-enabling disclosure. These claims specify (1) that the response represents an image (claim 94) or an animation sequence (recited in claim 96, on which claim 97 depends) and (2) that the server generates the response by using differential compression "following receipt of said query" from the user location (claims 94 and 97).[47]

[47] More particularly, claim 94 specifies that "said compressed or non-compressed response comprises an image that is differentially compressed following receipt of said query." Claim 97 specifies that "said animation sequence [recited in claim 96] is differentially compressed following receipt of said query."

The§ 112 rejection is based on testimony by Dr. Koopman concerning a Bridges article that is cited in the '341 patent for its disclosure of differential compression and is also relied on by the examiner in a § 103(a) rejection of claims 94 and 97 (i.e., for obviousness over Cohen in view of Bridges and Punj). 2d Action at 21, para. 43; 3d Action at 92, para. 28; Final Action at 248, para. 28. The pertinent part of the '341 patent reads:

> Furthermore, in order to accommodate efficient compression and decompression of animated sequences (as in feature film video), a technique of Differential (DFF) Image Compression (DIC), as described in an article by John Bridges in Dr. Dobb's Journal #173 February 1991, page 38, et seq may utilized as part of the decompression module.

'341 patent, col. 7, ll. 34-40.[48] The '341 patent explains that Bridge's differential compression techniques can be used for communications over a high band-width channel (e.g., CATV), col. 7, l. 53 to col. 8, l. 12, or over a standard DDS telephone line. Id. at col. 8, ll. 13-23.

Cohen (described in more detail below in the discussion of the rejection) discloses a system which employs telephone lines or a fiber optic cable network to send movies from a central location to a subscriber site. Cohen, col. 4, ll. 41-46; claims 2 and 3. The § 103(a) rejection characterizes Bridges as "disclos[ing] a system for compressing upon transmission to allow for realtime display of the transmitted video." 2d Action at 22, para. 46; 3d Action at 93, para. 31; Final Action at 248, para. 31. In his first declaration, Dr. Koopman disagreed with the

examiner's characterization of Bridges for the following reasons, which the examiner now cites as the basis for the § 112 non-enablement rejection:

[48] The page numbers of the copy of Bridges that is of record run from 1 to 13.

> 56. Bridges does the opposite of what the examiner states. Bridges teaches that using differential compression for real-time compression of query responses is impractical when attempting to compress while transmitting. Specifically Bridges page 13 [i.e., the last page] states:
>
> > "If you are willing to sacrifice image quality for fast motion, you can still have crystal clear images – if you can sit still long enough.
> > . . .
> > Note, the key phrase here is 'sit still,' which shows we have a long way to go until video phones are as common as FAX machines.
>
> Thus Bridges is saying that differential compression is so hopelessly slow that it would be unrealistic to use it for a system such as that taught by Rozmanith. Thus, Bridges teaches away from Rozmanith. In addition, videophone-quality compression is unsatisfactory for query/response data such as AV data used for marketing purposes because of its generally low visual quality.

1st Koopman Decl. at 29, para. 56. In his second declaration, Dr. Koopman explains he was not arguing that Bridges is non-enabling but rather that Bridges teaches away from appellant's disclosure of using Bridges's DFF compression technique to compress AV data. 2d Koopman Decl. at 138-39, para. 296. The examiner refused to give weight to this testimony on the ground that it contradicts Dr. Koopman's earlier testimony and he has not satisfactorily explained the change in his testimony. Final Action at 173, para. 296; Answer at 180, para. 296 (adding citation of In re Ruff, 256 F.2d 590, 118 USPQ 340 (CCPA 1958)).

We are reversing the § 112 rejection, because we do not consider Dr. Koopman's initial testimony to be an admission of non-enablement. In the first place, the passages Dr. Koopman quoted from Bridges do not apply to communications over a fiber-optic cable network, one of the transmission media disclosed in the '341 patent (element 26 in Fig. 1) and encompassed by the rejected claims, which do not specify any particular type of transmission medium. Nor does

Bridges teach away from using his DFF compression technique to send video (claim 94) or an animation sequence (claim 97) over a telephone line. Instead, the cited passages simply recognize that the low bandwidth of telephones lines restricts the quality of the transmitted information. Finally, Dr. Koopman's assertion that Bridges's videophone-quality compression is unsatisfactory for AV data used for marketing purposes is irrelevant, because such AV data is not recited in claim 94 or claim 97.

The § 112 rejection of claims 94 and 97 is therefore reversed.

**Q. The rejections based on Walter**

**(1) Claims 93, 95, 96, and 98-101 – anticipated by Walter?**

Walter discloses a programming-on-demand cable system 10 having a central station 12 and a data receiving station 14 and employing optical fibers as the transmission media for the selected programs. Each of the memory modules 24, 26, 28, 30, 32, and 34 at the central station stores a video program. Walter, col. 4, ll. 7-11. The program is stored in these modules in compressed form for subsequent transmission to the data receiving station in compressed form. Id. at col. 7, ll. 17-19. At the data receiving station, the user uses the keyboard 18, control computer 112, and automatic modem 134 to send an "address" identifying the desired video program over telephone lines 138 and 142 to the modem 143 and host computer 20 in the central station. Id. at col. 7, ll. 48-57. The host computer acknowledges the request by sending a "receipt" signal over the telephone lines to the data receiving station, which displays that acknowledgment to the user on television 146. Id. at col. 7, ll. 57-63. The requested program is then sent over the fiber optic lines to the data receiving station, where it is converted to electrical

signals by photodiode modules 86, 88, 90, 92, and 130 and stored in memory module 102, at which time the host computer 20 informs the user that the program is ready for viewing by causing the display of a "ready" signal on the television. Id. at col. 8, ll. 12-19. Alternatively, viewing can begin prior to completion of transmission:

> Although the above description was made in terms of a fully completed transmission of a program before viewing by the user, the present invention fully contemplates that the user may begin viewing his program before the complete transmission thereof. Central data station 12 may transmit only a portion of the selected program to the user for his viewing, and then begin transmitting a portion of another selected program to a second user. This permits central data station 12 to simultaneously handle several users, rather than waiting for complete transmission of one selected program before proceeding with another user's address signal.

Id. at col. 8, ll. 36-47. The user begins the video program by depressing a "START" switch on keyboard 18. Id. at col. 8, ll. 19-20.

The examiner correctly asserts that all of the limitations of claim 93 read on Walter. 3d Action at 94, para. 34; Final Action at 249, para. 34. Dr. Koopman's argument that Walter fails to disclose the use of compressed and non-compressed responses, 2d Koopman Decl. at 182, para. 392, is apparently based on the misconception that Walter, to be anticipatory of the claim, must disclose both types of responses. However, reception of either type of response is enough to satisfy the claim, as noted by the examiner. Answer at 202-03, para. 392. Dr. Koopman also argues that Walter fails to disclose using the same input/output means for transmitting the query to the server and for receiving the response from the server, noting that Walter's query is transmitted to the central station via modem 134 and telephone lines 138 and 142, whereas the video program data is received from the central station via the optical fibers

and the photodiode modules. 2d Koopman Decl. at 183, para. 393. However, the claim language does not preclude the recited "input/output means" from collectively reading on modem 134 and the photodiode modules in the data receiving station.

Regarding step (e) ("wherein said displaying step commences before said step of receiving said compressed or non-compressed response has been completed"), Dr. Koopman contends that the discussion of that feature at column 8, lines 36-47, of Walter, reproduced above, is non-enabling:

> A practitioner of ordinary skill in the art would not have enough information to proceed from this description. Significant issues that would have to be addressed include how to package data for interleaved transmission, how long each "portion" should be, how receiving stations would be able to receive and reassemble portions, and so on. All of these issues are dealt with in sufficient detail within Rozmanith's ['341] patent to be enabling (e.g., Rozmanith Fig. 5 and col. 98 line 52 – col. 10 line 52). But Walter provides only a single sentence that provides insufficient information to be enabling on this topic.

2d Koopman Decl. at 183-84, para. 394. We are not persuaded that Dr. Koopman's testimony demonstrates non-enablement. While his identification of issues left to be revolved appears to be correct, he has not adequately explained why their resolution would have required undue experimentation.

The rejection of claim 93 for anticipation by Walter is therefore affirmed.

Claim 95, which depends on claim 93 and further specifies that "said . . . response comprises an image that has been differentially compressed prior to receipt of said query," is also satisfied by the Walter system, which uses inter-frame differential pulse code modulation to

encode the video program data for storage and later transmission. Walter, col. 7, ll. 26-30.[49] Dependent claim 96, which specifies that the response comprises an animation sequence, reads on Walter's video programs, as does claim 98, which depends on claim 96 and specifies that the animation sequence is compressed prior to receipt of the query. Dr. Koopman does not deny that the limitations added by claims 95, 96, and 98 read on Walter. The rejection of these claims for anticipation by Walter is affirmed.

Dependent claim 99 specifies that the compressed or non-compressed response comprises audio data in digital format and that the displaying step comprises audible playback of the audio data. The examiner reads claim 99 on the passage at column 2, lines 19-46 of Walter (3d Action at 95, para. 34), which passage Dr. Koopman correctly points out makes no mention of "audio." 2d Koopman Decl. at 184, para. 395. He also correctly notes that the Walter patent nowhere mentions "audio" or "sound." Id. However, the examiner responds, correctly in our view, that a person skilled in the art would have understood that Walter's video programs, such as the two-hour movie mentioned at column 7, lines 44-47, inherently (i.e., necessarily) contain audio that is audibly reproduced by television 146. Final Action at 214, para. 395; Answer at 204, para. 395. The rejection of claim 99 for anticipation by Walter is therefore affirmed.

Claim 100, an independent claim that repeats the preamble and steps (a) to (d) of claim 93 and recites as step (e) "wherein said compressed or non-compressed response comprises an

[49] The claim is broad enough to read on intra-frame or inter-frame differential compression.

image," reads on Walter's stored and transmitted video programs. The rejection is therefore affirmed as to that claim.

Claim 101 also repeats the preamble and paragraphs (a) to (d) of claim 93 and recites as step (e):

> (e) wherein said compressed or non-compressed response is compressed prior to receipt at said remote query and data retrieval means, and wherein said compressed response is decompressed at said remote query and data retrieval means using an asymmetric decompression technique corresponding to an inverse operation of the technique used to compress said compressed or non-compressed response.

The first "wherein" clause is satisfied because each video program is transmitted in compressed form and thus is compressed prior to receipt of the response by the data receiving station, which corresponds to the recited "remote query and data retrieval means."

As for the second "wherein" clause, the examiner and appellant do not agree on the meaning of "asymmetric decompression." The examiner construes the following language in the abstract of the '341 patent as an admission that compression and inverse decompression techniques are inherently asymmetric:

> The EUS may transmit a query to the Server manually and/or automatically for the purpose of initiating a process in the Server (e.g. data compression, indexing into a very large database, etc.), which requires the high speed processing, large capacity and multi-distributed data storage, etc.) which are typically preferred at a Server. The EUS provides appropriate inverse processing (e.g. data decompression) which, by its nature, requires relatively little processing power to accomplish. Thus, the method of this invention exploits the inherent asymmetry in the overall process of an EUS querying a remote Server (and/or Server Network) for a data service (e.g. retrieval of AV data in faster than real time) where most of the processing power and global scheduling is performed by the Server.

'341 patent, abstract.[50] Specifically, the examiner contends that

> the use of [a] asymmetric decompression technique corresponding to an inverse operation of the technique used to compress is inherent [in Walter[, as] evidenced by . . . patentee's statement in the abstract of the instant patent[:] "The UES provides appropriate inverse processing (e.g. data compression) which by its nature, requires relatively little processing power to accomplish. Thus, the method of the invention exploits the inherent asymmetry of the overall process . . . ."

3d Action at 95-96; Final Action at 250-51. Dr. Koopman denies that all compression and inverse decompression techniques are inherently asymmetric. 2d Koopman Decl. at 184, para. 397 (citing paragraphs 249-51 and 337-40 of that declaration, which specifically address the now-withdrawn § 112, first paragraph, rejection of claim 101 for lack of written description support). In that cited testimony, Dr. Koopman explains that only some compression and inverse decompression techniques are asymmetric:

> [S]ome compression/decompression systems have the property that compression takes markedly more computational power than decompression ("markedly" typically means by integer multipliers of time for a given CPU speed); these are asymmetric systems. A typical instance of an asymmetric technique is one for continuous-tone imagery such as JPEG. Some compression/decompression systems have the property that compression takes the same amount of time as decompression; these are symmetric systems. An example of a symmetric technique is one for monochrome graphical data such as CCITT compression or run-length encoding. As mentioned previously, both JPEG and CCITT are taught by [the '341 patent].

2d Koopman Decl. at 119-20, para. 250.[51] In support, Dr. Koopman (2d Koopman Decl. at 120, para. 251) cited a definition that reads in part: **"asymmetric compression:** A data compression

[50] Similar language appears at column 2, lines 35-44.

[51] The examiner did not address the merits of this testimony. Instead, he responded to

technique that requires more processing capability to compress than to decompress." Telecom Glossary 2K, http://www.atis.org/tg2k/_asymmetric_compression.html (accessed July 6, 2002). Although the 2002 date of this definition is subsequent to appellant's April 1991 filing date, we of the opinion that both it and Dr. Koopman's testimony are consistent with the discussion of compression and decompression in the '341 patent disclosure. What the examiner apparently has failed to recognize is that the system disclosed in the '341 patent is "asymmetric" in two different respects. The first respect, the only one to which the '341 patent applies the term "asymmetric," concerns the different processing powers of the server and the end user station, a relationship which exists whether or not the responses are in compressed form. Specifically, after explaining that "[i]n operation, the EUS transmits a query to the server for the purpose of initiating a process in the server (e.g. data compression, indexing into a very large database, etc.), via an optional concentrator or requiring the high speed processing, large capacity and multi-distributed data storage, etc. typically included in the server," '341 patent, col. 2, ll. 29-35, the patent characterizes this difference in processing power as "an inherent asymmetry in the overall process in which an EUS queries a remote server (and/or Server Network) for a data service (e.g. retrieval of audio visual data in faster than real time) where most of the processing power resides in the Server." Id. at col. 2, ll. 39-44. The second respect in which the disclosed system is asymmetric is to employ compression and inverse decompression techniques which

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the testimony in paragraphs 249-51 and 337-40 about the meaning of "asymmetric" simply by noting that "the rejections" (presumably the § 112 rejections) have been withdrawn. Answer at 162 and 188.

have asymmetric processing power requirements and thus take advantage of the asymmetrical processing power of the server and EUS:

> The EUS provides appropriate inverse processing (e.g. data decompression) which, by its nature, requires relatively little processing power to accomplish. Thus, the method of this invention exploits an inherent asymmetry in the overall process . . . where most of the processing power and global scheduling is performed by the Server.

Id.; abstract. Thus, the first of these two quoted sentences refers to the compression and inverse decompression techniques selected for use in the EUS rather than to all compression and inverse decompression techniques.

For the foregoing reasons, we agree with Dr. Koopman that the term "asymmetric" in claim 101 means that the inverse decompression technique requires less processing power that does the compression technique. The examiner does not contend that all inter-frame differential-pulse-code-modulation compression techniques and inverse decompression techniques are necessarily asymmetric. Instead, he argues that "as the data receiving station (12 [sic, 14]) in Walter would not be expected to have the processing power of the host computer (20), the use of asymmetric compression is inherent for real-time display of video." Answer at 204-05, para. 397. While we agree that Walter's data receiving station would not be expected to have the processing power of host computer 20, the examiner has not explained, and it is not apparent to us, why it necessarily follows that the use of asymmetric compression is inherent for real-time display of video. The examiner has not explained and it is not otherwise apparent, why Walter's system cannot achieve real-time display using symmetrical inter-frame differential-pulse-code-modulation techniques to effect compression and inverse decompression. Accordingly, we are

reversing the rejection of claim 101 for anticipation by Walter.

**(2) Claim 103 – obvious over Walter in view of Kirchner?**

Claim 103 repeats the preamble and paragraphs (a) to (d) of claim 93 and recites as step (e): "wherein said remote query and data retrieval means is mobile."

The term "mobile" is not defined in the '341 patent and appears therein in only the following sentence: "It is yet a further object of the present invention to provide a remote query communication system in which the end user station is mobile." '341 patent, col. 1, ll. 59-61. Neither the examiner nor the appellant has provided a definition of "mobile" as used in the claim. Broadly defined, "mobile" simply means "[c]apable of moving or being moved from place to place." The American Heritage Dictionary of the English Language 842 (New College Edition, 1975). However, in the context of the needs allegedly solved by the invention, it is reasonable to interpret "mobile" as used in the claim more narrowly as requiring that the "remote query and data retrieval means" (with or without the remaining components of the disclosed end user station) be capable of convenient transportation from one location to another, such as from the office to a hotel:

> There has long been a need to provide a system, method and device which can rapidly enter, communicate, distribute and/or retrieve data and display the data in a timely fashion for a variety of applications. Such a system and method could be utilized to immediately access and rapidly display information relevant to new consumer products, financial information, real estate listings, travel accommodations and special events or performances and the like at an end user station as well as provide timely updates of such information. The device could be conveniently located in a home, office or hotel and could be conveniently transported.

'341 patent, col. 1, ll. 21-31 (emphasis added). We note that "mobile" embraces but does not require a wireless connection.

Kirchner discloses wireless modems for providing communication between computers, terminals, and other peripheral computer equipment, such as printers and memory units. Kirchner, col. 1, ll. 5-8. The examiner cites Kirchner as teaching "replacing of the telephone modem with a wireless modem and the resulting advantages gained (col. 1, lines 15-40)." 3d Action at 107, para. 47; Final Action at 259, para. 46. These advantages include "permit[ting] part or all of the computer equipment to be portable" and "facilitat[ing] physical rearrangement and substitution of equipment." Kirchner, col. 1, ll. 29-30 and 35-36. Kirchner equates portability with mobility by describing his wireless modem as "provid[ing] communications mobility for portable usage within an office or plant environment," Kirchner, col. 2, ll. 10-14 (emphasis added), which is consistent with our understanding of the term "mobile" in appellant's claim 103. Dr. Koopman's testimony that Kirchner does not teach "mobile use" or "mobility," 2d Koopman Decl. at 197, para. 434, is unconvincing because it fails to address the foregoing passage in Kirchner.

Dr. Koopman's testimony that appellant's '341 patent employs more than one thousand times the bandwidth available on a per-station basis than does Kirchner, 2d Koopman Decl. at 197, para. 435, also misses the mark in several respects. First, Kirchner is not being relied on for operational details. Second, the question raised by the rejection is whether it would have been obvious to combine the teachings of Walter and Kirchner in a manner which satisfies the

claim, not whether it would have been obvious to combine the teachings Walter and Kirchner in a manner which yields appellant's disclosed invention.

We agree with the examiner that in view of Kirchner's teachings about the desirability of mobility and portability, it would have been obvious to make Walter's receiving stations mall enough to be conveniently transported from one location to another. The rejection of claim 103 for obviousness over Walter in view of Kirchner is therefore affirmed.

**(3) Claim 103 – obvious over Walter in view of Dr. Koopman's testimony?**

As an alternative ground for the obviousness of making Walter's data receiving station mobile, the examiner argues that "[i]t is generally recognized that mobility is a positive aspect of the computer art as it allows for portability." 3d Action at 102 (unnumbered para.); Final Action at 254, para. 39. As support for this assertion, the examiner cites the following testimony given by Dr. Koopman in response to the previous (later withdrawn) § 112, first paragraph, rejection of claim 103 for lacking written description support:

> 40. As an additional piece of support for the system [disclosed in the '341 patent] being mobile (in response to examiner ¶ 16)[,] Rozmanith Col. 1 line 32 states that the EUS "could be conveniently transported." In 1991 this would have been readily implemented using a transportable, "mobile", computer such as a laptop computer just as would be possible today. Mobile laptop computers had been commonly in use since at least the introduction of the Grid Compass in 1983, so this was widely known technology.

1st Koopman Decl. at 24, para. 40. Dr. Koopman denies that this testimony constitutes an admission that it would have been obvious to substitute a mobile unit "for any arbitrary computer." 2d Koopman Decl. at 192-94, paras. 422 and 424. This mischaracterizes the examiner's position, which relies on the testimony as an admission that it was common practice

to implement some computers as portable "laptop" units. Furthermore, even without the benefit of this testimony we would hold that it would have been obvious to implement Walter's data receiving station as a portable "laptop" unit for the convenience of the user. See also DyStar, 464 F.3d at 1368, 80 USPQ2d at 1651 ("an implicit motivation to combine exists . . . when the 'improvement' is technology-independent and the combination of references results in a product or process that is more desirable, for example because it is stronger, cheaper, cleaner, faster, lighter, smaller, more durable, or more efficient.").

We are accordingly affirming the rejection of claim 103 for obviousness over Walter in view of Dr. Koopman's testimony.

**R. The rejections based on Pocock**

**(1) Claims 93, 96, 100-02, and 104 – anticipated by Pocock?**

Pocock discloses systems for selectively distributing video presentations to viewers, more particularly systems for enabling viewers to interactively select still frame video images and accompanying audio to be distributed to them over a television system such as a cable network. Pocock, col. 1, ll. 7-12. The video presentation can represent, for example, the houses being offered for sale by a real estate service, in which case video frames showing the available houses are individually retrieved from a suitable video storage medium. Id. at col. 1, ll. 18-24. The video information is stored in presentation system 10 (Fig. 1) at a central location in a compressed format, id. at col. 4, ll. 39-40, and upon read-out is decompressed by the DVS (Digital Video System) 40 in Figure 2 to produce a video signal. Id. at col. 5, ll. 36-39. The user uses the remote control 16 to enter instructions into the user terminal 14, col. 3, ll. 38-41, which

sends instructions to the presentation system over an existing wire or fiber optic telephone network 12. Id. at col. 3, ll. 26-32. The presentation system responds by encoding the video frames of the requested presentation with the address of the user and sending the presentation to the user over one or more channels of a CATV network. Id. at col. 3, ll. 45-59. The user terminal searches the frames transmitted over that channel or channels for those which are encoded with its particular address, and stores each such frame, one at a time, in a frame store, with the stored frame being continually retransmitted from the terminal 14 to the viewer's television receiver 36 for display as a still frame. Id. at col. 4, ll. 17-23.

Steps (a) to (d) of claim 93 clearly read on the foregoing disclosures in Pocock. The examiner reads step (e), which requires that the displaying step commence before said step of receiving said compressed or non-compressed response has been completed, on the following sentence in Pocock (col. 4, ll. 23-25): "When the next frame in a desired presentation reaches the user terminal, it replaces the preceding frame in the frame store and is then displayed." 3d Action at 96, para. 35. Dr. Koopman argues that the claim language is not satisfied, because each video frame, upon which he reads the claimed "response," is written into the frame store in its entirety before read-out begins. 2d Koopman Decl. at 186, para. 403. The examiner, correctly in our view, explains that the claimed "response" can be read on Pocock's "presentation," which consists of a plurality of video frames, and that display of the presentation begins before the last

frame of the presentation has been stored at the user terminal. Answer at 206, para. 403. We are therefore affirming the rejection of claim 93 for anticipation by Pocock.

Dependent claim 96 specifies that the response comprises an animation sequence. The examiner reads this limitation on "116, 8, abstract, col. 12, lines 5-12." 3d Action at 96, para. 35; Final Action at 251, para. 35. The numeral "116" apparently refers to modulator 116 in Figure 5, which depicts the components of the user terminal. This numeral is not mentioned in the specification but is shown in Figure 5 as designating a line connecting controller 104 to telephone interface 122. Dr. Koopman correctly notes that these numerals and the cited passages do not indicate that the requested presentation can comprise an animated sequence. 2d Koopman Decl. at 187, para. 404. The examiner has not explained why Dr. Koopman's criticism is incorrect or asserted that another part of Pocock discloses an animated sequence. Final Action at 217-18, para. 404; Answer at 206-07, para. 404. The rejection for anticipation of claim 96 over Pocock is therefore reversed.

Claim 100 repeats the preamble and paragraphs (a) to (d) of claim 93 and recites as paragraph (e): "wherein said compressed or non-compressed response comprises an image," which clearly reads on Pocock's disclosure of transmitting video frames. The rejection of claim 100 for anticipation by Pocock is therefore affirmed.

Claim 101 repeats the preamble and paragraphs (a) to (d) of claim 93 and recites as step (e):

> (e) wherein said compressed or non-compressed response is compressed prior to receipt at said remote query and data retrieval means, and wherein said compressed response is decompressed at said remote query and data retrieval means using an asymmetric technique corresponding to an inverse operation of the technique used to compress said compressed or non-compressed response.

Regarding the first of these "wherein" clauses, the examiner properly relies on Pocock's

disclosure that video information can be transmitted to the user terminal in a compressed format in order to increase the transmission capacity of the system (col. 19, ll. 50-54). 3d Action at 97; Final Action at 252. In Pocock thus implemented, the video signals are transmitted in digital rather than analog form. Pocock, col. 19, ll. 35-38. Dr. Koopman's testimony that Pocock is "silent on the manner in which compression occurs and when it occurs," 2d Koopman Decl. at 188, para. 406, is not understood. Since the type of compression is not specified in claim 101, any manner of compression will suffice to satisfy the claim. As for the timing of compression, it is clear that the compression described in column 19, lines 50-54 of Pocock occurs prior to transmission, which is necessarily prior to receipt of the compressed response by the user terminal.

For the reasons given above in the discussion of Walter, we are construing the term "asymmetric" in claim 101 to mean that the decompression technique requires a different amount (less) processing power that does the corresponding compression technique. The examiner's reliance on the abstract of the '341 patent as an admission that all compression and inverse decompression techniques are inherently asymmetrical, 3d Action at 97; Final Action at 252, is unconvincing for the reasons given above in the discussion of Walter, as is the examiner's argument that the presentation system 10 and user terminal 14 inherently provide asymmetrical processing power and thus inherently employ asymmetrical compression and inverse decompression techniques. Answer at 208, para. 407. The rejection of claim 101 for anticipation by Pocock is therefore reversed.

Claim 102 repeats the preamble and paragraphs (a) to (d) of claim 93 and recites as

step (e): "wherein said displaying step occurs repeatedly in response to one or more commands inputted to said remote query and data retrieval system." The examiner correctly reads this limitation on column 11, line 65 to column 12, line 20 (3d Action at 98, para. 37; Final Action at 252), which lines explain that the commands at the user's disposal during a viewing session include a command to repeat a frame. Pocock, col. 12, ll. 13-16. We also note Pocock's disclosure that "[t]he stored frame is continually retransmitted from the terminal 14 to the viewer's television receiver 36 for display as a still frame." Pocock, col. 4, ll. 20-23. Dr. Koopman's discussion (2d Koopman Decl. at 189, para. 408) of this claim does not deny that the limitation recited in step (e) reads on Pocock.

The rejection of claim 102 for anticipation by Pocock is affirmed.

Claim 104 repeats the preamble and paragraphs (a) to (d) of claim 93 and recites as paragraph (e): "wherein said remote query and data retrieval means further comprises a removable bulk storage device containing data that is accessed and displayed based on said compressed or non-compressed response to said query." The examiner reads this limitation on column 18, lines 4-23 of Pocock. 3d Action at 99, para. 38; Final Action at 252-53, para. 37. Lines 6-8 of column 18 explain it may be desirable to attach a memory unit, such as a CD ROM, to store fixed information at the user terminal. Dr. Koopman's discussion (2d Koopman Decl. at 189-90, para. 411) of this rejection does not deny that paragraph (e) reads on Pocock.

The rejection of claim 104 for anticipation by Pocock is therefore affirmed.

**(2) Claims 95 and 98 -- obvious over Pocock in view of Catros?**

Claim 95, which depends on claim 93, adds that "said compressed or non-compressed response comprises an image that has been differentially compressed prior to receipt of said query." The examiner correctly characterizes Pocock column 19, line 27 to column 15, line 15 and column 4, lines 39-40 as disclosing that compression occurs prior to receipt of a request. 3d Action at 103, para. 43; Final Action at 257, para. 42. Pocock, in describing presentation system 10 (i.e., the central location), explains that "[p]referably, the digitized video information is stored in a compressed form." Pocock, col. 4, ll. 39-40. When considered in light of the fact that "[t]he presentation system 10 processes the incoming requests from the viewers and retrieves video frames and accompanying audio associated with the presentations desired by the various viewers," id. at col. 3, ll. 42-45, it is clear that compression of the stored video information occurs prior to receipt of a request for the video information. The retrieved compressed video frames can be transmitted in their compressed format to the user terminal, which will effect decompression and display of the presentation. Id. at col. 19, ll. 43-61. Dr. Koopman is therefore incorrect to deny that Pocock discloses compressing a response prior to receipt of a query. 2d Koopman Decl. at 195-96, paras. 428-29.

Concerning the recited differential compression, the examiner notes that Pocock fails to specify the type of compression performed and argues that "[Catros] expressly suggest[s] the benefits of differential compression such as simplicity of application (col. 1) and the improvement made [by Catros] as discussed in Col. 5, lines 2-22." 3d Action at 103, para. 43; Final Action at 257, para. 42. Catros discloses bit-rate compression of digital television signals. Catros, col. 1, ll. 9-11. Figure 1 shows a prior-art differential coding system that employs

spatial encoding, i.e., coding that takes into account only states of points which are geographically adjacent to each point to be coded and belong to the same television frame as the point to be coded. Id. at col. 3, ll. 41-44; col. 1, ll. 39-45; col. 4, ll. 6-54. Catros's improved encoding system, depicted in Figures 2-9, on which the examiner specifically relies, employs the coding method of Figure 1 and additional coding structures composed of predictors and quantizers having different characteristics, each structure being employed as a function of the local environment of each image point to be coded, specifically whether the point being encoded is in an image contour areas or highly textured image area or in a uniform or slightly textured area. Id. at col. 4, ll. 55-67. The passage on which the examiner specifically relies explains that one of the coding structures is "[a]n inter-frame temporal or time predictor which takes into consideration the state of a number of points located in different frames." Id. at col. 5, ll. 2-4.

Dr. Koopman contends it would have been unobvious to use Catros's inter-frame differential encoding in Pocock because such encoding is designed for use with successive television frames containing similar images, whereas Pocock transmits still-frame video images. 2d Koopman Decl. at 196, para. 430. The examiner's response (Final Action at 227-28, para. 430; Answer at 216, para. 430) to paragraph 430 of Dr. Koopman's testimony fails to address the merits of this argument, which argument strikes us as having merit in the still-frame vis-à-vis movie context. We are accordingly reversing the rejection of claim 95 for obviousness over Pocock in view of Catros.[52]

[52] The examiner has not argued, and we have therefore not considered, the obviousness of using the spatial (i.e., intra-frame) encoding technique described as prior art in Catros to compress Pocock's still-frame video images.

Claim 98, which depends on claim 96 ("wherein said compressed or non-compressed response comprises an animation sequence"), specifies that "said animation sequence has been differentially compressed prior to receipt of said query." The rejection of claim 96 for anticipation by Pocock has been reversed and the examiner does not contend that it would have been obvious in view of Catros to replace Pocock's still-frame video images with an animated sequence. The rejection of claim 98 for obviousness over Pocock in view of Catros is therefore reversed.

**(3) Claims 95 and 98 -- obvious over Pocock in view of Sugiyama?**

We agree with Dr. Koopman (2d Koopman Decl. at 197, para. 432) that the examiner's alternative reliance (3d Action at 104-05, para. 45; Final Action at 258, para. 44) on Sugiyama's disclosure of inter-frame differential compression (col. 2, ll. 48-62) of video signals is misplaced for the same reasons as his reliance on Catros's inter-frame differential compression. More particularly, Sugiyama explains that "in the first aspect of the present invention, transform coefficients representative of video signals are coded and transmitted block by block only where there exists a significant difference in transform coefficient between the current frame and the preceding frame." Sugiyama, col. 2, ll. 40-44. A further aspect of the invention that is specifically relied on by the examiner is that "in place of coding and transmitting transform coefficients, it is also preferable to calculate a difference in transform coefficient between a current frame and a past frame in order to code and transmit only calculated transform coefficient differences in response to the difference presence signal." Id. at col. 2, ll. 49-54.

Thus, whereas Sugiyama's differential encoding system is designed to be used to encode a series of successive television frames containing similar images, Pocock transmits still video pictures.

The rejection of claim 95 over Pocock in view of Sugiyama is therefore is reversed, as is the rejection of claim 98 over those references.

**(4) Claim 99 – obvious over Pocock in view of McCalley?**

Claim 99, which depends on claim 93, adds that the "said compressed or non-compressed response comprises audio data in digital format and wherein said displaying step comprise audible playback of said audio data." Neither claim requires compression of the audio data.

Pocock, in discussing the analog embodiment of this invention, describes two types of audio information. The first is background audio, which is combined with the video information in modulators 72 (Fig. 2) for transmission in analog form to subscribers over, for example, the coaxial cables of a CATV system. Pocock, col. 6, ll. 29-39. The second type of audio information (hereinafter "presentation audio") consists of audio messages transmitted in analog form to the user over the telephone lines. Id. at col. 4, ll. 62-65. The user terminal (Fig. 5) includes (a) a video demodulator 106 for separating the video and background audio, (b) a telephone interface circuit 122 for receiving the presentation audio, (c) an audio processing circuit 110 which combines the two types of audio for application to the speakers of a television receiver via a modulator 116 and switch 100, and (d) a mute circuit 108 for controlling the level of the background audio relative to the presentation audio. Id. at col. 8, ll. 11-22 and 41-55. Although Pocock explains that the video signal alternatively can be transmitted in digital form

(col.19, ll. 27-61), he does not mention transmitting either type of audio information in digital form.

McCalley discloses a digital, interactive communication system for transmitting, at a subscriber's request, still-frame television video with an accompanying audio message. McCalley, col. 1, ll. 5-8. The video/audio presentations are transmitted in the form of digital packets of information to a plurality of presentation players strategically located in the vicinity of the subscriber, with each packet being uniquely addressed to the requesting subscriber. Id. at col. 2, ll. 42-47. The examiner states the rejection as follows:

> Pocock et al. did not expressly disclose the playback of digital audio. McCalley et al. aught the use of digital audio. It would have been obvious . . . to modify the teaching of Pocock et al. with that of McCalley to gain the benefit of more accurate reproduction of the original signal as expressly taught by McCalley (col. 2, lines 29-32).

3d Action at 107, para. 49; Final Action at 260, para. 48. The lines cited by the examiner appear in McCalley's "Summary of the Invention" and read as follows: "It is another object of the presentation player of the present invention to process both video and audio signals in a digital format and thereby provide a more accurate reproduction of the original signals." While the examiner does not explain which of Pocock's two types of audio information he is proposing to transmit in digital from, we hold that it would have been obvious in view of McCalley that when Pocock's video information is being transmitted in digital form, it would have been obvious to transmit the background audio and presentation audio in digital form in order to realize McCalley's above-quoted goal of providing more accurate reproduction of the original audio and video signals. Dr. Koopman's argument that the passage in McCalley cited by the examiner is

non-enabling, 2d Koopman Decl. at 199, para. 439, fails to appreciate that the rejection is based on the entire McCalley disclosure and also fails to explain why undue experimentation would have been required to digitize the audio signals.

The rejection of claim 99 for obviousness over Pocock in view of McCalley is therefore affirmed.

**(5) Claim 103 -- obvious over Pocock in view of Kirchner?**

Claim 103 repeats the preamble and paragraphs (a) to (d) of claim 93 and recites as paragraph (e): "wherein said remote query and data retrieval means is mobile." As noted above, we are interpreting the claim as requiring that the "remote query and data retrieval means" (with or without the other components of the disclosed end user station) be small enough to be conveniently transported.

Pocock explains that the transmission facility for transmitting video and background music to the viewers "can be a coaxial or fiber optic cable, a broadcast transmitter, or a microwave channel for distribution to individual receivers, a CATV hub or a satellite for DBS broadcasts." Pocock, col. 6, ll. 36-39. Pocock does not describe the user terminals used for receiving video and background music over any of these media as transportable, let alone conveniently transportable. However, in view of Kirchner's above-noted teachings regarding the desirability of mobility and portability, we are persuaded it would have been obvious to make Pocock's user terminals small enough to permit easy transportation by a user from one location to another, regardless of whether the user terminals are designed for releasable direct connection

to coaxial or fiber optic cables or are designed for receiving wireless broadcast signals from a transmitter or satellite.

The rejection of claim 103 for obviousness over Pocock in view of Kirchner is therefore affirmed.

**(6) Claim 103 – obvious over Pocock in view of Dr. Koopman's testimony?**

The rejection of claim 103 for obviousness over Pocock in view of Dr. Koopman's testimony is affirmed for the same reason as the rejection of that claim over Walter in view of that testimony.

**S. The rejections based on Baji**

**(1) Claims 93, 96, 100, 102, and 104 – anticipated by Baji?**

The examiner contends that claims 93, 96, 100-02, and 104 read on Baji. 3d Action at 99, para. 39; Final Action at 253, para. 38. Baji discloses a bidirectional image communication system employing broadband ISDN or cable for transmitting programs and advertisements. Baji, col. 1, ll. 6-11. Referring to Figure 1-1, the system includes a broadcast station head end 115 which is connected via broadband transmission lines 19 to a plurality of subscriber stations 116. Each subscriber station includes a network terminal 111, a decoder 112, a terminal control unit 113, a program buffer 161, a commercial buffer 160, and a television monitor 114. The head end 115 includes a title data base 129, which includes a pointer to the corresponding file in a preview data base 127, which in turn includes a pointer to the corresponding file in motion picture data base 102. Figure 14A shows this hierarchical relationship in pictorial form. Head end 115 also includes an image encoder 107 for achieving bandwidth compression of a motion picture

program signal 1 (from motion picture data base 102), a broadcast signal 6, and a still picture signal 13. Id. at col. 1, ll. 40-44. Figure 15 shows an example of a subscriber system 116 useful for hierarchical data retrieval.

Figures 14B-14E show how the subscriber system depicted in Figure 15 is used to select a motion picture. Figure 14B shows a list of motion picture titles, obtained from title data base 129, being displayed on the television monitor 114 of the subscriber station. Id. at col. 11, ll. 49-52 and 66. The subscriber uses a mouse or the remote control tablet 136 of remote controller 135 (Fig. 15) to select one of these titles, thereby initiating a display of the corresponding preview (Fig. 14C), which is obtained from preview data base 127 and can be stored in short version cache memory 166 in the subscriber apparatus. Id. at col. 11, l. 66-68; col. 12, ll. 38-50. If the program is selected for viewing by the user, the system uses the pointer in the preview program to obtain access to and thus downloading of the corresponding motion picture program in motion picture data base 102 (Fig. 1-1). Id. at col. 12, ll. 9-14. The downloaded, compressed motion picture information is decompressed in the subscriber apparatus by decoder 112 for display on television monitor 114. Id. at col. 1, ll. 65-67.

The preamble of claim 93 ("A method of downloading responsive data from a remote server comprising . . .") clearly reads on Baji's system. Step (a) ("identifying a query via a data input means and inputting said query to remote query and data retrieval means") reads on using the remote controller and other subscriber apparatus to select a motion picture for viewing. Step (b) ("transmitting said query from said remote query and data retrieval means to a remote server via an input/output means") reads on network terminal 111. Step (c) ("receiving a

compressed or non-compressed response to said query at said remote query and data retrieval means from said remote server via said input/output means") reads on receiving compressed motion picture data from head end 115 and storing the motion picture data in program buffer 161. Dr. Koopman's testimony that Baji fails to disclose "receiving a compressed or non-compressed response," 2d Koopman Decl. at 190, para. 415, appears to be based on the misconception that Baji must disclose receiving compressed and non-compressed responses; reception of either type of response is enough, as noted by the examiner. Final Action at 221, para. 415; Answer at 210, para. 415.

Step (d) ("displaying a presentation corresponding to said compressed or non-compressed response on output means") reads on using the television monitor 114 to display the selected, decompressed motion picture data that is read out of the program buffer. Dr. Koopman's testimony (2d Koopman Decl. at 190-91, para. 416) that the television monitor 114 and program buffer do not teach displaying a presentation corresponding to the response is not understood.

The examiner reads step (e), which specifies that "said displaying step commences before said step of receiving said compressed or non-compressed response has been completed," on the following passage sentence:

> While an access is effected on a motion picture data base, it is possible to use a playback control function 170 for various operations such as a fast forward operation, a rewind operation, a temporary stop, and a slow display, thereby achieving a remote control on the motion picture data base located in the head end 115. The function above is also available during an operation of a local video image recording apparatus 133.

Baji, col. 12, ll. 15-22. We agree that the fast forward, temporary stop, and slow display

operations necessarily imply that the display of a selected motion picture begins prior to completion of downloading of that motion picture. Dr. Koopman's testimony that the cited sentence "is silent on the matter as to when the display begins relative to receiving," 2d Koopman Decl. at 191, para. 417, fails to address the necessary implications of the quoted sentence.

The rejection of claim 93 for anticipation by Baji is therefore affirmed, as is the anticipation rejection of dependent claim 96, which specifies that the response is an animated sequence.

The anticipation rejection is likewise affirmed with respect to independent claim 100, which repeats the preamble and steps (a) to (d) of claim 93 and recites as step (e): "wherein said compressed or non-compressed response is an image."

Claim 102 repeats the preamble and steps (a) to (d) of claim 93 and in step (e) specifies that "said displaying step occurs repeatedly in response to one or more commands inputted to said remote query and data retrieval means." The examiner (3d Action at 100, para. 39) reads this step on the same passage, reproduced above, on which he reads step (e) of claim 93, which passage describes playback operations such as a fast forward operation, a rewind operation, a temporary stop, and a slow display. Baji, col. 12, ll. 15-22. During the temporary stop and slow display playback operations, frames of motion picture data inherently will be repeatedly read out of the program buffer and displayed. Dr. Koopman (2d Koopman Decl. at 192, para. 420) fails to explain why this is not the case. The rejection of claim 102 for anticipation by Baji is affirmed.

Claim 104 repeats the preamble and steps (a) to (d) of claim 93 and in step (e) specifies that the remote query and data retrieval means further comprises "a removable bulk storage device containing data that is accessed and displayed based on said compressed or non-compressed response to said query." The examiner reads this limitation on column 18, lines 4-23. 3d Action at 100, para. 39; Final Action at 154, para. 38. In response to Dr. Koopman's criticism that the cited lines make no mention of storage, removable or otherwise, 2d Koopman Decl. at 192, para. 421, the examiner shifted his reliance to column 16, lines 15-22, Final Action at 223, para. 421, which explain that the program and commercial recorders can be implemented as video tape recorders. We agree with the examiner that the buffers thus implemented satisfy the claim language and are accordingly affirming the rejection of claim 104 for anticipation by Baji.

**(2) Claims 94 and 97 – obvious over Baji in view of Catros?**

Dependent claim 94 calls for differential compression of an image following receipt of the query, as does claim 97, which additionally specifies through its dependence on claim 96 that the response represents an animated sequence.[53] As is apparent from Figure 1-1 of Baji, the motion picture data are subjected to bandwidth compression by image encoder 107 (col. 1, ll. 40-44; col. 4, ll. 19-34) after being read out of data base 102 in response to a query. However, Baji does not describe the type of compression performed by encoder 107. Catros, as already noted, discloses differential compression of television video signals. We agree with the examiner that it would have been obvious to implement Baji's image encoder 107 so as to perform Catros's

differential encoding on the motion picture signals. 3d Action at 103, para. 42; Final Action at 256, para. 41. Dr. Koopman's argument that "Catros does not specifically provide motivation to combine differential compression with other elements of a Rozmanith-style system," 2d Koopman Decl. at 194-95, para. 425, appears to be directed to appellant's disclosure rather than the claimed subject matter.

The rejection of claims 94 and 97 for obviousness over Baji in view of Catros is therefore affirmed as to both claims.

**(3) Claims 94 and 97 – obvious over Baji in view of Sugiyama?**

We agree with the examiner that it would have been obvious to have the compression performed on Baji's motion picture signals by Baji's image encoder 107 take the form of the differential encoding technique disclosed by Sugiyama. 3d Action at 104, para. 44; Final Action at 257, para. 43. Dr. Koopman's testimony regarding this rejection does not address the merits of combining Sugiyama's differential encoding with Baji, instead arguing that those references fail to satisfy the limitations of parent claim 93. 2d Koopman Decl. at 196, para. 431 (citing id. at 194-95, paras. 425-26). As that argument is unconvincing, the rejection of claims 94 and 97 for obviousness over Baji in view of Sugiyama is affirmed as to both claims.

**(4) Claim 99 – obvious over Baji in view of McCalley?**

[53] Dr. Koopman's assertion that claim 97 recites "differentially compressed ***prior to*** receipt of said query" is incorrect. 2d Koopman Decl. at 195, para. 426.

Claim 99, which depends on claim 93, adds that "said compressed or non-compressed response comprises audio data in digital format and wherein said displaying step comprise audible playback of said audio data." We are of the opinion that a person skilled in the art would have understood that Baji's compressed, digital motion picture signals would inherently contain digital audio that is audibly reproduced by television monitor 114, which is similar to the position taken by the examiner in arguing that claim 99 is anticipated by Walter. Final Action at 214, para. 395; Answer at 204, para. 395. Inasmuch as anticipation is epitome of obviousness, In re McDaniel, 293 F.3d 1379, 1385, 63 USPQ2d 1462, 1466-67 (Fed. Cir. 2002), we are affirming the rejection of claim 99 for obviousness over Baji in view of McCalley.

Alternatively, we are affirming on the ground that transmitting Baji's audio information in digital form would have been obvious from column 2, lines 29-32 of McCalley, as asserted by the examiner. 3d Action at 108, para. 50; Final Action at 260-61, para. 49. Dr. Koopman's argument that the cited passage in McCalley in non-enabling (2d Koopman Decl. at 199, para. 441) is unconvincing for the reasons given above in the discussion of the rejection of claim 99 over Pocock in view of McCalley.

**(5) Claim 103 – obvious over Baji in view of Kirchner?**

The rejection of claim 103 ("mobile") for obviousness over Baji in view of Kirchner is affirmed for reasons like the those given above in affirming the rejection of this claim over Walter in view of Kirchner.

**(6) Claim 103 – obvious over Baji in view of Dr. Koopman's testimony?**

The rejection of claim 103 ("mobile") for obviousness over Baji in view of Dr. Koopman's testimony is affirmed for the reasons given above in the discussion of the rejection of this claim over Walter in view of that testimony.

**T. The rejections based on Cohen**

**(1) Claims 93, 94, 96, and 97 – obvious over Cohen in view of Sugiyama?**

Cohen, after explaining that "real time viewing via cable and broadcast networks, as well as viewing of cassette recording have serious drawbacks," col. 1, ll. 16-18, discloses a video communications system that makes it possible for home viewers to download a movie in digital format from a large archive library, store the digital movie file locally, and view the movie at any convenient time. Id. at col. 1, ll. 39-42. Figure 4 shows the central source of video and audio data; Figures 1-3 show a user terminal. Referring to Figure 2, the keypad 102 (corresponding to the recited "data input means" and "input/output means") is used to identify the movie to be downloaded. The central processing unit 104 (the recited "remote query and data retrieval means") is responsive to this information and uses modem 110 to digitally transmit the identifying information (the claimed “query”) over telephone line 112. Id. at col. 4, ll. 50-63. The requested digital data file (the claimed "compressed or non-compressed response") representing the requested movie is received over phone line 112 and modem 110 from the central location and stored in disk storage system 114. Id. at col. 4, ll. 64-67. When the file is fully downloaded, the display 118 so indicates and the telephone link is broken, id. at col. 5, ll. 2-4, after which the user can cause the movie to be played back and converted to a composite video signal on line 124 for display on a display device (not shown). Id. at col. 5, ll. 5-17. Thus,

Cohen fails to disclose having the user terminal begin to display the movie before downloading is complete, as required to satisfy step (e) ("said displaying step commences before said step of receiving said compressed or non-compressed response has been completed"). As evidence of obviousness of modifying Cohen so as to operate in the claimed manner, the examiner cites Sugiyama and also refers to Punj, which is not mentioned in the statement of the rejection:

> Sugiyama et al. disclosed a system for compressing upon transmission to allow for realtime display of the transmitted video. It would have been obvious . . . to combine the teachings of Cohen and Sugiyama et al.[, a]s the more efficient coding would reduce the cost of as taught by Sugiyama et al. in col. 2, lines 6-22[.] [F]urther motivation for the combination is suggested by Punj page 112, col. 1, with the desirability of video on demand.

3d Action at 92, para. 26; Final Action at 247, para. 26. While is it fair to characterize Sugiyama as disclosing compression of video upon transmission and real-time display of the transmitted video (e.g., visual telephone data), we are not persuaded that it would have been obvious to modify Cohen in view of Sugiyama so as to provide real-time display of downloaded video information. The reason is that Cohen has no interest in obtaining real-time display of downloaded video information. To the contrary, the stated purpose of his invention is to avoid the drawbacks associated with real-time display of such information by downloading it in nonreal-time format for storage and later viewing at a convenient time. Cohen, col. 1, ll. 39-42. Furthermore, there is no indication in Sugiyama that its encoding technique is capable of providing real-time display of movies, the type of video information being downloaded in Cohen.

Also, the examiner's reliance on Punj is improper because it is not cited in the statement of the rejection. MPEP § 706.02(j); Hoch, 428 F.2d at 1342 n.3, 166 USPQ at 407 n.3. In any event, Punj does not avoid the above-noted problem with combining the teachings of Cohen and Sugiyama.

The rejection of claim 93 for obviousness over Cohen in view of Sugiyama is reversed, as is the rejection over those references of dependent claims 94, 96, and 97.

**(2) Claims 93, 94, 96, and 97 – obvious over Cohen in view of Bridges and Punj?**

Bridges discloses transmitting differentially compressed videophone data in order to provide real-time videophone display. The examiner's proposed modification of Cohen in view of Bridges and Punj (which is cited in the statement of the rejection), 3d Action at 92, para. 28; Final Action at 248, para. 29, therefore fails for the same reasons as the proposed modification of Cohen in view of Sugiyama and Punj. The rejection of claims 93, 94, 96, and 97 for obviousness over Cohen in view of Bridges and Punj is therefore reversed.

**U. Summary**

**1. 35 U.S.C. § 112 rejection**

The § 112, first paragraph, enablement requirement rejection of claim 94 and 97 has been reversed as to both claims. The art rejections have been decided as follows:

2**. Rejections based on Filepp**

(a) The § 103(a) rejection of claims 9-11 and 14 for obviousness over Filepp in view of known practices, as evidenced by The Electronics Engineers' Handbook, the Gale articles, De Maine, Carr, Giltner, Notenboom, and LeGall, is affirmed as to claims 9, 10, and 14 and reversed as to claim 11.

(b) The § 103(a) rejection of claims 9, 10, 14 over Filepp in view of Row is affirmed as to all of these claims.

(c) The § 103(a) rejection of claim 11 under § 103(a) over Filepp in view of Giltner is affirmed.

**3. Rejections based on Yurt**

(a) The § 103(a) rejection of claim 11 under § 103(a) over Yurt in view of Kandell is affirmed.

(b) The § 103(a) rejection of claim 11 over Yurt in view of Gargini is affirmed.

**4. Rejections based on Walter**

(a) The § 102(b) rejection of claims 93, 95, 96, and 98-101 for anticipation by Walter is affirmed as to claims 93, 95, 96, and 98-100 and reversed as to claim 101.

(b) The § 103(a) rejection of claim 103 over Walter in view of Kirchner is affirmed.

(c) The § 103(a) rejection of claim 103 over Walter in view of Dr. Koopman's testimony is affirmed.

**5. Rejections based on Pocock**

(a) The § 102(e) rejection of claims 93, 96, 100-02, and 104 for anticipation by Pocock is affirmed as to claims 93, 100, 102, and 104 and reversed as to claims 96 and 101.

(b) The § 103(a) rejection of claims 95 and 98 over Pocock in view of Catros is reversed.

(c) The § 103(a) rejection of claims 95 and 98 over Pocock in view of Sugiyama is reversed.

(d) The § 103(a) rejection of claim 99 over Pocock in view of McCalley is affirmed.

(e) The § 103(a) rejection of claim 103 over Pocock in view of Kirchner is affirmed.

(f) The § 103(a) rejection of claim 103 over Pocock in view of Dr. Koopman's testimony is affirmed.

**6. Rejections based on Baji**

(a) The § 102(e) rejection of claims 93, 96, 100, 102, and 104 for anticipation by Baji is affirmed as to all of these claims.

(b) The § 103(a) rejection of claims 94 and 97 over Baji in view of Catros is affirmed.

(c) The § 103(a) rejection of claims 94 and 97 over Baji in view of Sugiyama is affirmed.

(d) The § 103(a) rejection of claim 99 over Baji in view of McCalley is affirmed.

(e) The § 103(a) rejection of claim 103 over Baji in view of Kirchner is affirmed.

(f) The § 103(a) rejection of claim 103 over Baji in view of Dr. Koopman's testimony is affirmed.

**7. Rejections based on Cohen**

(a) The § 103(a) rejection of claims 93, 94, 96, 97 over Cohen in view of Sugiyama is reversed.

(b) The § 103(a) rejection of claims 93, 94, 96, 97 over Cohen in view of Bridges and further in view of Punj is reversed.

Thus, the sole rejected claim as to which no art rejection has been affirmed is claim 101, which recites “asymmetric” compression and inverse decompression.

## V. Extensions of time

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR 1.136(a). See 37 CFR §§ 41.50(f) and 41.52(b).

AFFIRMED-IN-PART

| | |
|---|---|
| _____<br>JOHN C. MARTIN<br>Administrative Patent Judge | ) |
| _____<br>JAMESON LEE<br>Administrative Patent Judge | ) BOARD OF PATENT<br>) APPEALS AND<br>) INTERFERENCES |
| _____<br>JAMES T. MOORE<br>Administrative Patent Judge | ) |

JCM/jcm

CC:

Counsel for Patent Owner:

John C. Janka, Esq.
NIRO, SCAVONE, HALLER & NIRO
181 west Madison Street, Suite 4600
Chicago, Ill. 60602

Counsel for Third-Party Requester:[54]

Michael J. Mallie, Esq.
Blakely, Sokoloff, Taylor & Zafman LLP
12400 Wilshire Boulevard, Seventh Floor
Los Angeles, CA 90025-1030

Enclosures:

Que's Computer User Dictionary (Que's Dictionary) 82, 106, 223, 285, 293, 388, 414, and 461 (1990 ed.).

[54] Change of Correspondence Address received June 25, 2001 (Paper No. 19).