

EXHIBIT D

Sprint Docket 1090

CERTIFICATION UNDER 37 C.F.R. 1.8

I hereby certify that this Amendment is being deposited with the United States Postal Service as First Class Mail, postage prepaid, on April 16, 1998, in an envelope addressed to: Assistant Commissioner of Patents, Washington, D.C. 20231.

Jay B. Beatty
Jay B. Beatty-Intellectual Property Admin

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Joseph Michael Christie
Application. No.: 08/525,897
Title: "Broadband Telecommunications System"
Filed: September 8, 1995
Art Unit: 2603
Examiner: Blum, R.

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Group 2700

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W. Little
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Amendment

Please amend and re-consider the above-referenced application. Also enclosed are an Extension of Time, Terminal Disclaimers, an Information Disclosure Statement, a Correction of Drawings, and a Transmittal with appropriate fee authorizations.

In the Specification

Please amend the specification as follows.

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On page 1, please delete lines 3-6.

On page 8, line 13, please change "by" to -- be --.

On page 3, line 29, please change "Figure 3 is a block diagram of a version" to -- Figures 3A and 3B are block diagrams of versions --.

On page 11, line 24, please change "3" to -- 3A --.

On page 12, line 30, please add the following paragraph, -- Figure 3B shows another

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version of the multiplexer for other embodiments. The multiplexer is similar to Figure 3A except that E3 interface 312, E1 interface 317, and OC-3 interface 337 are shown. --.

On page 9, line 23, after "application," please add -- number 08/525,868 --.

On page 12, line 23, please change "parameters" to -- parameters --.

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On page 16, line 1, please add at the beginning of the paragraph: "Application number 08/568,551, entitled "Method, System, and Apparatus for Telecommunications Control," filed on December 7, 1995 and currently pending (and which is a continuation of Application number 08/238,605, filed on May 5, 1994, and now abandoned) is incorporated by reference into this application."

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On page 27, line 14, please change "B" to -- A --.

Please add Figure 3B before Figure 4.

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In the Claims

Please amend the claims as follows.

In claim 26, line 19, before, "second signaling processor," please change "the" to -- a --.

Please add new claims 63-66.

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63. A method of operating a telecommunications system to provide a call with a virtual connection wherein a user places the call by sending signaling for the call to the telecommunications system and by transmitting user information to the telecommunications system over a particular connection for the call, wherein the system comprises an ATM interworking multiplexer and a signaling processor linked to the ATM interworking multiplexer, the method comprising:

receiving the signaling for the call into the signaling processor wherein the signaling processor is external to any switch;

processing the signaling for the call in the signaling processor to select the virtual connection;

generating new signaling in the signaling processor to identify the particular connection and the selected virtual connection;

transmitting the new signaling to the ATM interworking multiplexer;

receiving the user information for the call from the particular connection into the ATM interworking multiplexer;

converting the user information from the particular connection into ATM cells that identify the selected virtual connection in the ATM interworking multiplexer in response to the new signaling; and

transmitting the ATM cells from the ATM interworking multiplexer over the selected virtual connection. --

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---64. A method of operating a telecommunications system to provide a call with a virtual connection wherein a user places the call by sending signaling for the call to the telecommunications system and by transmitting user information to the telecommunications system over a particular connection for the call, wherein the system comprises an ATM interworking multiplexer and a signaling processor linked to the ATM interworking multiplexer, the method comprising:

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- receiving the signaling for the call into the signaling processor;
 - processing the signaling for the call in the signaling processor to select the virtual connection;
 - generating new signaling in the signaling processor to identify the particular connection and the selected virtual connection;
 - transmitting the new signaling to the ATM interworking multiplexer;
 - receiving the user information for the call from the particular connection into the ATM interworking multiplexer;
 - converting the user information from the particular connection into ATM cells that identify the selected virtual connection in the ATM interworking multiplexer in response to the new signaling wherein the virtual connection is not used for other calls until the call is released;
 - and
 - transmitting the ATM cells from the ATM interworking multiplexer over the selected virtual connection. --

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-- 65. A telecommunications system to provide a call received over a particular connection with a virtual connection in response to signaling for the call, the system comprising:

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a signaling processor that is not coupled to a switch matrix and that is operable to receive and process the signaling for the call to select the virtual connection for the call, and to generate and transmit new signaling that identifies the particular connection and the selected virtual connection;

an ATM interworking multiplexer operable to receive user information from the particular connection, convert the user information into ATM cells that identify the selected virtual connection in response to the new signaling, and to transmit the ATM cells from the ATM interworking multiplexer over the selected virtual connection; and

a link between the signaling processor and the ATM interworking multiplexer operable to transfer the new signaling from the signaling processor to the ATM interworking multiplexer. --

-- 66. An ATM interworking multiplexer for providing calls with virtual connections in response to signaling for each of the calls, the multiplexer comprising:

an access interface operable to receive user information for each call from a particular connection for that call;

93 a control interface operable to receive signaling for each call that identifies the particular connection and a virtual connection for that call;

an ATM adaption processor coupled to the access interface and the control interface and operable to convert user information from the particular connection for each call into ATM cells that identify the virtual connection for that call, wherein the conversion occurs in response to the signaling for that call and wherein the virtual circuit is not used for other calls until the call is released; and

an ATM interface coupled to the ATM adaption processor and operable to transmit the ATM cells for each call over the virtual connection for that call. --

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Remarks

This Response includes the substance of the interviews related to this application between Russel Blum and Michael Setter on February 25-26, 1997 at the U.S. Patent Office. Claims 1-62 are pending and claims 63-66 have been added by this response. Claims 1-49 and 55-62 stand rejected and claims 50-54 have been allowed. Applicant requests allowance of claims 1-66.

The Declaration was defective for omitting a statement related to continuation-in-part applications. Applicant has deleted the continuation-in-part cross-reference in the present application. Since the application is not a continuation-in-part application, the original Declaration is no longer defective.

The drawings are objected to for not showing features of claims 42-44 and 47, and for omitting descriptive terms for elements 534, 536, 538, and 540 on Figure 5. Applicant has submitted a drawing correction as a separate paper to address these objections. Figure 3B has been added to show the features in claims 42-44 and 47, and the specification has been amended to correspond to the new Figure 3B. Figure 3B and the corresponding amendment are clearly supported by claims 42-44, claim 47, and page 5, lines 19-26. In addition, descriptive terms have been added to Figure 5. Specifically, elements 534, 536, 538, and 540 are now labeled "CCM." CCM is specified on Figure 2 as the acronym for "Call/Connection Manager." Applicant submits that the objection to the drawings should be withdrawn.

The specification is objected to for various informalities. The specification has been amended to correct these informalities. Applicant submits that the objection to the specification should be withdrawn.

Claims 26-34 stand rejected under section 112 for improper antecedent basis. Claim 26 has been amended to correct the problem. Applicant submits that claims 26-34 are patentable under section 112.

Various claims of the present application stand provisionally rejected for obviousness-type double patenting with respect to various claims of application numbers 08/525,050 and 08/568,551. Applicant has timely filed Terminal Disclaimers in compliance with 37 C.F.R. 1.132(b) and (c) to overcome these rejections.

Claims 37-49 stand rejected under section 102(e) over Hiller (5,345,445). Claims 1-10, 15-25, 36, 36, and 55-62 stand rejected under section 103 over Hiller in view of Isono and common knowledge in the art. Applicant respectfully traverses these rejections.

Claim 1 describes a method where a signaling processor receives and processes signaling to select a virtual connection and generate new signaling that identifies the selected virtual connection. The new signaling is transmitted to an ATM multiplexer that converts user information into ATM cells that identify the selected virtual connection. In the invention, the ATM multiplexer uses the virtual connection identified in the signaling in order to interwork a call with the proper virtual connection. For example, the signaling processor may select and identify the particular VPI/VCI that the ATM multiplexer should use on a given call. As a result, the ATM multiplexer would place this VPI/VCI in the headers of the ATM cells for that call.

In contrast, the ATM multiplexer in Hiller uses an internal switching matrix to physically load user information into a buffer that has been pre-assigned to a particular virtual connection. A class 5 switch controls the switching matrix in the ATM multiplexer. In Hiller, the ATM multiplexer does not use signaling that identifies a selected virtual connection. Instead, the ATM multiplexer uses matrix control instructions to load the call into the appropriate buffer. This buffer has been pre-assigned to the selected virtual connection. (See Hiller column 16, lines 48-50; column 16, lines 65-66; column 22, lines 2-10).

The difference discussed above is clearly delineated in claim 1 and provides distinct advantages. The multiplexer of claim 1 does not use matrix control to physically load calls into a buffer that is pre-assigned to a virtual connection. The multiplexer of claim 1 can interwork a call in a buffer with different virtual connections in response to signaling. Thus, a call in any buffer can reach multiple destinations. Reducing the need for matrix control reduces complexity. As a result, the invention is novel and non-obvious in light of Hiller.

Claims 1-15 and 17-66, all require the limitation that the ATM multiplexer use signaling that identifies the virtual connection to interwork a call into the selected virtual connection. Claim 16 claims a reciprocal process where the non-ATM connection is selected and identified

by the signaling processor. The ATM multiplexer interworks the call arriving over the ATM connection to the selected non-ATM connection.

New claims 63-66 add additional distinctions that are fully supported by the specification. Claim 63 recites that the signaling processor is external to any switch, and claim 65 recites that the signaling processor is not coupled to any switch matrix. In Hiller, the mux is controlled by a class 5 switch or a cross-connect controller. Claims 64 and 66 recite that the virtual connection used on a call is not used for another call until the call is released. In Hiller, composite cells are used that combine multiple calls in the same virtual connection at the same time. This requires additional logic to separate the calls. The invention allows the simple use of the virtual connection to separate calls.

Applicants submit that claims 1-66 are patentable under sections 102 and 103 over the prior art of record.

Respectfully submitted,

Date 4-16-97

By



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