



# UNITED STATES PATENT AND TRADEMARK OFFICE

EX2003

Palo Alto Networks, Inc. v. Selective Signals, LLC

Page 1 of 43

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
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## NOTICE OF ALLOWANCE AND FEE(S) DUE

67801 7590 11/09/2011  
MARTIN D. MOYNIHAN d/b/a PRTSI, INC.  
P.O. BOX 16446  
ARLINGTON, VA 22215

EXAMINER

LEE, CHI HO A

ART UNIT

PAPER NUMBER

2472

DATE MAILED: 11/09/2011

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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12/513,510

05/05/2009

Avi Oron

46203

3332

TITLE OF INVENTION: MEDIA SESSION IDENTIFICATION METHOD FOR IP NETWORKS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$870	\$300	\$0	\$1170	02/09/2012

**THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.**

**THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.**

### HOW TO REPLY TO THIS NOTICE:

#### I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.**

## PART B - FEE(S) TRANSMITTAL

EX2003

Palo Alto Networks, Inc. v. Selective Signals, LLC

Page 2 of 43

Complete and send this form, together with applicable fee(s), to: **Mail** **Mail Stop ISSUE FEE**  
**Commissioner for Patents**  
**P.O. Box 1450**  
**Alexandria, Virginia 22313-1450**  
**or Fax** **(571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

67801 7590 11/09/2011  
MARTIN D. MOYNIHAN d/b/a PRTSI, INC.  
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ARLINGTON, VA 22215

## Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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12/513,510

05/05/2009

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46203

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TITLE OF INVENTION: MEDIA SESSION IDENTIFICATION METHOD FOR IP NETWORKS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
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nonprovisional

YES

\$870

\$300

\$0

\$1170

02/09/2012

EXAMINER	ART UNIT	CLASS-SUBCLASS
LEE, CHI HO A	2472	370-252000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a **Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

1 \_\_\_\_\_

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

2 \_\_\_\_\_

3 \_\_\_\_\_

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

☐ Issue Fee☐ Publication Fee (No small entity discount permitted)☐ Advance Order - # of Copies \_\_\_\_\_

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

☐ A check is enclosed.☐ Payment by credit card. Form PTO-2038 is attached.☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number \_\_\_\_\_ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature \_\_\_\_\_

Date \_\_\_\_\_

Typed or printed name \_\_\_\_\_

Registration No. \_\_\_\_\_

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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Page 3 of 43

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12/513,510	05/05/2009	Avi Oron	46203	3332

  

67801	7590	11/09/2011
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EXAMINER	
LEE, CHI HO A	

  

ART UNIT	PAPER NUMBER
2472	

  

DATE MAILED: 11/09/2011

## Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 155 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 155 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

## Privacy Act Statement

**The Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

<b>Notice of Allowability</b>	<b>Application No.</b>		<b>Applicant(s)</b>		
	12/513,510		ORON, AVI		
	<b>Examiner</b>		<b>Art Unit</b>		
	ANDREW LEE		2472		

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 914/11.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_; the restriction requirement and election have been incorporated into this action.

3. ☒ The allowed claim(s) is/are 1-24.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.

3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.

(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached

1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_.

(b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_.

**Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3. ☒ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application

6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_.

7. ☐ Examiner's Amendment/Comment

8. ☐ Examiner's Statement of Reasons for Allowance

9. ☐ Other \_\_\_\_.

/ANDREW LEE/ Primary Examiner, Art Unit 2472	
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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of.:	§		
	§		
Avi ORON	§	Confirmation	3332
	§		
Serial No.: 12/513,510	§		
	§		
Filed: May 5, 2009	§	Group Art Unit:	2472
	§		
For: MEDIA SESSION	§		
IDENTIFICATION METHOD	§		
FOR IP NETWORKS	§		
	§	Attorney Docket:	<b>46203</b>
	§		
Examiner: Chi Ho A. LEE	§		

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Alexandria, VA 22313-1450

**RESPONSE TO FINAL FILED IN CONJUNCTION WITH RCE**

Sir:

This is in response to the United States Patent and Trademark Final Office Action mailed June 15, 2011, which response is being made on or before September 15, 2011, and for which no extension of time fees are due.

A Request for Continued Examination (RCE) is also enclosed herewith.

Applicant submits this response for entry into the record, in which:

**Amendments to the Claims** begin on page 2.

**Remarks** begin on page 9.

Please amend the above-identified application as follows:

In re Application of: Avi ORON  
Serial No.: 12/513,510  
Filed: May 5, 2009  
Office Action Mailing Date: June 15, 2011

Examiner: Chi Ho A. LEE  
Group Art Unit: 2472  
Attorney Docket: **46203**  
Confirmation No.: 3332

**In the Claims:**

1. (Currently Amended) Electronic network apparatus for identifying media sessions over IP and network packets as belonging or not belonging to a media session, comprising:

a packet characteristic extraction unit configured for obtaining ~~session-traffic~~ packet characteristics from a succession of packets, said packets respectively belonging to various unknown sessions, ~~said characteristics comprising packet traffic characteristics~~;

a grouping unit associated with said packet characteristic extraction unit, configured to compare packets with other packets according to said extracted traffic characteristics to group together those packets whose extracted packet traffic characteristics are similar as probably belonging to a common session, and

a session analyzer configured for analyzing said grouped packets for session characteristics, therewith to identify a session type of said probable common session.

2. (Original) The apparatus of claim 1, further comprising a resource allocator for allocating at least one member of the group consisting of resources, provisioning features and control features to said session.

3. (Original) The apparatus of claim 1, wherein said session type identification comprises identifying a session managing entity generating or managing said session.

4. (Original) The apparatus of claim 1, wherein said session analyzer comprises a neural network, using characteristics automatically built into said neural network during a neural network training phase.

In re Application of: Avi ORON  
Serial No.: 12/513,510  
Filed: May 5, 2009  
Office Action Mailing Date: June 15, 2011

Examiner: Chi Ho A. LEE  
Group Art Unit: 2472  
Attorney Docket: **46203**  
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5. (Original) Apparatus according to claim 1, further comprising a thresholder for thresholding said traffic characteristics, and a packet session identifier configured to identify those packets whose characteristics are mutually within said thresholds for said grouping unit to group said packets as belonging to said common session.

6. (Original) The apparatus of claim 1, wherein said traffic characteristics comprise at least one member of the group consisting of packet length, inter-arrival period, and average bandwidth.

7. (Original) The apparatus of claim 1, wherein said grouping unit comprises a packet marker, associated with said packet session identifier, configured for inserting into a header of a respective packet an indication of said common session with which said respective packet has been identified.

8. (Original) The apparatus of claim 7, further comprising a session analyzer associated with said packet marker, configured to obtain packets marked as belonging to said common session and to determine, from said packets, characteristics belonging to said common session, therefrom to identify a session type.

9. (Original) The apparatus of claim 8, wherein said session analyzer is configured to obtain said characteristics belonging to said common session from parameter patterns common to said packets.

10. (Previously Presented) The apparatus of claim 8, wherein said session analyzer is configured to use at least one member of the group consisting of:

- packet length
- inter-arrival period



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- variance of inter-arrival period
- variance of length
- covariance of inter-arrival period
- covariance of length
- a statistical derivative obtained from multi records of packet length
- a statistical derivative obtained from multi records of inter-arrival period
- a histogram built of at least one of the following;
  - i. packet length
  - ii. inter-arrival period
  - iii. variance of inter-arrival period
  - iv. variance of length
  - v. covariance of inter-arrival period
  - vi. covariance of length
  - vii. a statistical derivative obtained from multi records of packet length
  - viii. a statistical derivative obtained from multi records of inter-arrival period
- a matrix histogram built of at least one of the following;
  - i. packet length
  - ii. inter-arrival period
  - iii. variance of inter-arrival period
  - iv. variance of length
  - v. covariance of inter-arrival period
  - vi. covariance of length
  - vii. a statistical derivative obtained from multi records of packet length
  - viii. a statistical derivative obtained from multi records of inter-arrival period.

In re Application of: Avi ORON  
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11. (Original) The apparatus of claim 8, wherein said session analyzer comprises a neural network, using characteristics automatically built into said neural network during a neural network training phase.

12. (Original) The apparatus of claim 1, further comprising a resource allocator configured to allocate resources on a network according to said identified common session.

13. (Previously Presented) The apparatus of claim 8, further comprising a resource allocator, configured to allocate resources on a network according to said identified session type.

14. (Original) The apparatus of claim 1, wherein at least one of said packet session analyzer, said extraction unit and said grouping unit comprises a neural network.

15. (Currently Amended) A method of identifying session type, comprising ~~categorizing-obtaining~~ passing packets of respectively unknown sessions and unknown session types;

~~using-obtaining~~ traffic packet characteristics of said passing packets of respectively unknown session types;

comparing said obtained packets with each other using respectively obtained traffic packet characteristics;

grouping together those packets having similar values of said traffic packet characteristics into a presumed session; and

analyzing said grouped packets of said presumed session for session characteristics;

In re Application of: Avi ORON  
Serial No.: 12/513,510  
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Examiner: Chi Ho A. LEE  
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Attorney Docket: **46203**  
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~~thereby to~~ using said session characteristics to identify a session type of said presumed session.

16. (Original) The method of claim 15 wherein said identifying a session type comprises identifying a session managing entity generating or managing said session.

17. (Original) The method of claim 15 wherein said identifying a session type is followed by at least one of the group comprising: providing provisioning and providing control actions to the session.

18. (Original) Method according to claim 15, further comprising thresholding said traffic characteristics, and identifying those packets whose characteristics are mutually within said thresholds for said grouping.

19. (Original) The method of claim 15, wherein said characteristics comprise at least one member of the group consisting of packet length, inter-arrival period, and average bandwidth.

20. (Previously Presented) The method of claim 15, further comprising inserting into a header of a respective packet an indication of said presumed session with which said respective packet has been identified.

21. (Previously Presented) The method of claim 15, comprising obtaining said characteristics belonging to said presumed session from parameter patterns common to said packets.

22. (Original) The method of claim 15, comprising using at least one member of the group consisting of:

- packet length

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Attorney Docket: **46203**  
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- inter-arrival period
- variance of inter-arrival period
- variance of length
- covariance of inter-arrival period
- covariance of length
- a statistical derivative obtained from multi records of packet length
- a statistical derivative obtained from multi records of inter-arrival period
- a histogram built of at least one of the following;
  - i. packet length
  - ii. inter-arrival period
  - iii. variance of inter-arrival period
  - iv. variance of length
  - v. covariance of inter-arrival period
  - vi. covariance of length
  - vii. a statistical derivative obtained from multi records of packet length
  - viii. a statistical derivative obtained from multi records of inter-arrival period
- a matrix histogram built of at least one of the following;
  - i. packet length
  - ii. inter-arrival period
  - iii. variance of inter-arrival period
  - iv. variance of length
  - v. covariance of inter-arrival period
  - vi. covariance of length
  - vii. a statistical derivative obtained from multi records of packet length

In re Application of: Avi ORON  
Serial No.: 12/513,510  
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Examiner: Chi Ho A. LEE  
Group Art Unit: 2472  
Attorney Docket: **46203**  
Confirmation No.: 3332

viii. a statistical derivative obtained from multi records of inter-arrival period.

23. (Original) The method of claim 15, comprising using a neural network and characteristics automatically built into said neural network during a neural network training phase.

24. (Original) The method of claim 16, further comprising using a neural network and characteristics automatically built into said neural network during a neural network training phase.

In re Application of: Avi ORON  
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### **REMARKS**

Reconsideration of the above-identified application in view of the amendments above and the remarks following is respectfully requested.

Claims 1 -24 are in this Application. Claims 1 - 24 have been rejected under 35 U.S.C. § 103. Claims 1, and 18 have been amended herewith.

### **Amendments To The Claims**

#### **Informalities**

#### **35 U.S.C. § 103 Rejections**

Examiner rejects the independent claims over Tayyar et al.

In considering the claims, Examiner is required to give a meaning to each of the claim limitations.

In the rejection of claim 1 in section 2 of the Office Action the Examiner does not relate to the claimed feature (quote taken from the version of claim 1 prior to the current amendment) of:

a grouping unit associated with said packet characteristic extraction unit, configured to group together those packets whose extracted packet traffic characteristics are similar as probably belonging to a common session

As the Examiner *neither* points out where this feature is found, *nor* does he argue how it is rendered obvious, it is respectfully submitted that claim 1 is *allowable irrespective of the present amendment*.

Specifically, in the Examiner's rejection of claim 1, the Examiner relates only to the classifier of Tier teaching the packet extraction (it does not – as will be explained below) and the session type identification. However the feature of grouping is not related to.

In the response to arguments, Examiner states:

In re Application of: Avi ORON  
Serial No.: 12/513,510  
Filed: May 5, 2009  
Office Action Mailing Date: June 15, 2011

Examiner: Chi Ho A. LEE  
Group Art Unit: 2472  
Attorney Docket: **46203**  
Confirmation No.: 3332

"nor does group together packets with similar transport characteristics. This limitation not claimed".

Yet as stated above, the claim does define:

"a grouping unit associated with said packet characteristic extraction unit, configured to group together those packets whose extracted packet traffic characteristics are similar as probably belonging to a common session".

Therefore applicant, with all due respect, has some difficulty with Examiner's argument.

Regarding claim 15 the same applies. Specifically, in the rejection of claim 15 in section 2 of the Office Action the Examiner does not relate to the claimed feature of:

"grouping together those packets having similar values of said traffic characteristics into a presumed session".

As the Examiner neither points out where this feature is found and nor does he argue how it is rendered obvious, it is respectfully submitted that claim 15 is allowable irrespective of the present amendment.

Specifically, in the Examiner's rejection of claim 1, the Examiner relates only to the classifier of Tier teaching the packet extraction (it does not – as will be explained below) and the session type identification. However the feature of grouping is not related to.

In the response to arguments, Examiner states:

"nor does group together packets with similar transport characteristics. This limitation not claimed".

Yet as stated above, the claim (version prior to present amendment) *does* define:

" grouping together those packets having similar values of said traffic characteristics into a presumed session ".

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Therefore applicant, with all due respect, has some difficulty with Examiner's argument, and believes that claims 1 and 15 are allowable, even without the current amendments.

Nevertheless, in order to facilitate prosecution, applicant further amends the claims to define that the initial packets are of unknown sessions, and that the grouping is carried out by comparing packets with other packets.

The claims include *inter alia* the following integers, that the packets are of *unknown* session, that the *traffic* characteristics are extracted *from the packets*, and that the packets are grouped into *presumed sessions* based on *similarity* of the *traffic* characteristics. Following the grouping, the characteristics of the presumed session are then studied to find out a *type* of this presumed group. The session characteristics and the transport characteristics are *not* the same.

Tayyar fails to teach *any* of the above integers.

On the contrary, Tayyar has packets of known sessions and the sessions are of known types. No packets are grouped together and there is no teaching of presumed sessions. Although he mentions QoS, he does not mention extraction of characteristics *of a first type* from the *packets themselves* and *then* determine a session type from a characteristic extracted from a *presumed session*. As will be explained below, the QoS in Tayyar is not extracted *from the packets*. Tayyar never groups packets at all since they are *already grouped in sessions* – he merely adds the packets, according to the *already known* grouping, to the respective session queue, and he never teaches probable or presumed sessions or extracts characteristics from such a *presumed session*.

Examiner is required to give due weight *to each feature* pointed out in the claims and to either state where the feature is found, or why it is obvious, and if he cannot do so then he is required to allow the claim.

Tayyar relates to a situation in which packets are already grouped into queues of previously known sessions. Once the known sessions are queued *then* it is decided how to schedule the packets of the session queue to be sent forward. He uses the QoS



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of the known session in order to decide how to schedule that queue. He does not teach *presumed* sessions and therefore it is not obvious for Tayyar to use QoS to find the session type of a *presumed* session.

That is to say applicant is arguing that while it may or may not be obvious to use QoS to find a session type of a *known* session, it is *not* obvious to use QoS to determine a session type of a *presumed* session, and this could not be learned from Tayyar since Tayyar does not teach a *presumed* session.

In this respect Examiner's attention is directed to Tayyar paragraph 37, where it states (lines 3 – 5) that "a classifier classifies each of the incoming packets as being associated with one of a plurality of sessions". The sessions of Tayyar's plurality are *known* (note the implication from the term "plurality" that the number of these sessions is known) and it is simply a matter of placing the packet in the queue of the known session to which it belongs.

In the following sentence (Tayyar Paragraph 37 from line 5) it is mentioned that the sessions may correspond to a certain level of quality of service. At no point does paragraph 37 of Tayyar contain the information that the *quality of service* information is used to *identify which session* the packet belongs to, *or to group the packets*, contrary to the requirement of the present claims. Neither is there any information that the packets are compared with *other packets or that characteristics of traffic of the packets are analyzed*. Rather the traffic characteristics are simply *obtained*.

That is to say, it appears from the disclosure as a whole that the sessions are *already known about* and that Tayyar simply *adds* a new packet to an *existing* session. Note in particular component 22 in Figure 1 of Tayyar where the session queues appear to be present and known about. Also note Tayyar paragraph 20, where information about entities and sessions is *provided* to the scheduler.

Tayyar does not teach *grouping of packets of unknown session into groups which are then taken as presumed sessions, followed by obtaining characteristics of the presumed session in order to determine a session type*.

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In addition, at numerous locations in Tayyar, there is reference to packets arriving that belong to an *idle* session. See for example Paragraphs 45, and 48. A single packet belonging to an idle session can *only* be considered as part of a *known* session.

In addition, Examiner's attention is drawn to paragraph 70 where it is explained that only two non-trivial calculations need to be carried out by the method, namely the calculation of the virtual time and the finish time. If indeed Tayyar had been grouping packets according to transport characteristics then the grouping itself would be an *additional* non-trivial calculation.

Therefore Tayyar teaches away from the *clearly and definitively* claimed feature that the system of the present claims *groups packets together into presumed sessions*.

Tayyar therefore fails to teach the claimed feature of:

"a grouping unit associated with said packet characteristic extraction unit, configured to *compare packets with other packets according to said extracted traffic characteristics* to group together *those packets whose extracted packet traffic characteristics are similar as probably* belonging to a common session, "

since this teaches grouping according to traffic characteristics to form a presumed session. The claim defines comparing packet with packet and groups together packets whose extracted traffic characteristics look similar into a presumed session – note use of the term "probably" to indicate a probabilistic grouping, not a deterministic grouping. Tayyar merely identifies a packet as part of a *known* session – that is a *deterministic* identification. Tayyar places packets having a common session *identifier* into the corresponding session queue, the session already being known about.

Tayyar fails to teach *probabilistic* identification of a presumed session, only *absolute* determination of a known session.

Tayyar further fails to teach:

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"a session analyzer configured for analyzing said grouped packets for session characteristics, therewith to identify a session type of said probable common session"

since the session type already seems to be known. Although Examiner argues that it would be obvious considering Tayyar to use QoS to identify a session type, applicant argues as discussed above, that it is at most obvious to use QoS to identify a type of a known session. There is no teaching of a probable session and therefore it is not obvious based on a reading of Tayyar combined with the skilled person's general knowledge, to extend the use of QoS to find the session type of a session which has only been probabilistically identified in the first place. Probabilistic determinations and definitive determinations are different fields of endeavor with different mathematics and different textbooks and the claim definitively recites the probability aspect.

As a further point, Tayyar clearly had no intention of using QoS as a method of identifying a session. Using several Queues, wherein each queue has different priority and is used by a group or pre-defined protocols / sessions, is common practice in maintaining required Quality-of-Server (QoS) for specific and known -e.g. by UDP or TCP Port number - or settable rule services, thus ensuring user-experience and performance for those sessions. Tayyar is referring to QoS-assurance per session, rather than identifying sessions according to QoS, which would make little sense in any event.

Examiner argues that the QoS corresponds to the claimed feature of *transport characteristics extracted from the packets*. However, Examiner's attention is drawn to the last three lines of Tayyar paragraph 37 where it is stated that the sessions may correspond to a group of packets for which *it is desired to provide* a certain level of QoS. There is no indication in this paragraph as to how the desire referred to comes about, however the Examiner's attention is again drawn to Tayyar paragraph 20 where it is quite clear that the scheduler receives entities to be scheduled and that the entities include sessions. This would be interpreted by the skilled person as meaning that the scheduler is *told* about the sessions, and the QoS characteristics are *provided* along

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with the scheduling information, as *opposed* to being gleaned from the grouped packets.

In other words the QoS characteristics are not taught by Tayyar to be extracted from the packets and thus Tayyar fails to teach the claimed feature of

"a packet characteristic extraction unit configured for obtaining traffic packet characteristics from a succession of packets, said packets respectively belonging to various unknown sessions".

For the above reasons it is believed that claim 1 as amended is new and inventive over the prior art.

Independent claim 15 has been amended to include the same features and is believed to be allowable for the same reasons.

Claims 2 – 14 and 16 – 24 are dependent claims and are believed to be allowable for at least the reason that they are dependent on allowable main claims.

In view of the above amendments and remarks it is respectfully submitted that claims 1 - 24 are now in condition for allowance. A prompt notice of allowance is respectfully and earnestly solicited.

Respectfully submitted,

**/Jason H. Rosenblum/**

Jason H. Rosenblum  
Registration No. 56,437  
Telephone: 718.246.8482

Date: September 14, 2011

**Enclosures:**

- Request for Continued Examination (RCE)



# UNITED STATES PATENT AND TRADEMARK OFFICE

EX2003  
Palo Alto Networks, Inc. v. Selective Signals, LLC  
Page 21 of 43

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
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Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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12/513,510

05/05/2009

Avi Oron

46203

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67801 7590 06/15/2011  
MARTIN D. MOYNIHAN d/b/a PRTSI, INC.  
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ARLINGTON, VA 22215

EXAMINER

LEE, CHI HO A

ART UNIT

PAPER NUMBER

2472

MAIL DATE

DELIVERY MODE

06/15/2011

PAPER

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

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

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	12/513,510	ORON, AVI	
	<b>Examiner</b>	<b>Art Unit</b>	
	ANDREW LEE	2472	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 07 March 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

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## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 5-10, 12, 13, 15-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tayyar et al PG PUB 2007/0050773.

Re Claims 1, 15, Tayyar teaches a classifier<sup>14</sup> (a packet characteristic extraction unit; a grouping unit ) that classifies each of the received packets in accordance to the QoS (packet traffic characteristics) and its associated session (a common session) [0037+]. Tayyar fails to explicitly teach “a session analyzer....to identify a session type.”. However, one skilled in the art recognizes that the session type is typically associated with service profile or the QoS requirement, i.e., delay tolerance for voice type or data type sessions. One skilled in the art would have been motivated to determine the session type in Tayyar to prioritize the flow in accordance to the QoS requirement of the session. Therefore it would have been obvious to one skilled in the art to do so.

Re Claim 2, refer to Claim 1, wherein the Scheduler 23 allocates resources for the plurality of sessions.

Re Claim 3, refer to Claim 1, wherein by identifying the session type the session can be manage in accordance to the QoS.

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Re Claims 5, 6, 10, 18, 19, 22, refer to Claim 1, wherein the Time Stamper (a thresholder) for determine the arrival time (inter-arrival period) between successive packets within the same session [0047].

Re Claims 7, 8, 9, 20, refer to Claim 1, examiner takes notice that packet can include session IDs (packet marker) for grouping the packets associated with the common session.

Re Claims 12, 13, refer to Claim 1, wherein the Scheduler allocates resource for each session and type.

Re Claims 16, 17, refer to Claim 15, wherein once the session type is known i.e., voice or data, the session can be managed in accordance with QoS requirement.

Re Claim 21, refer to Claim 15, wherein the packets are grouped with common QoS parameters (parameter patterns common)

3. Claims 4, 11, 14, 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tayyar et al PG PUB 2007/0050773 in view of Freedman et al PG PUB 2004/0249650.

Re Claims 4, 11, 14, 23 and 24, Tayyar fails to explicitly teaches the neural network for the session analyzer. However, Freedman et al teaches learning function by the neural network to analyzing the session [0055]. One skilled in the art would have been motivated to use the known learning function for analyzing the session. Therefore, it would have been obvious to one ordinary skilled to have combined the teachings.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:



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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Re Claims 1 and 14, it is unclear what is meant by "similar as probably belonging to a common session".

### ***Response to Arguments***

6. Applicant's arguments filed 3/7/11 have been fully considered but they are not persuasive.

In page 1, applicant argues "...packets are compared with other packets" . This limitation is not claimed. Further argues "...or that characteristics of traffic of the packets are analyzed". Examiner disagrees, each packet QoS is analyzed.

In page 2, applicant argues Tayyar does not characteristics of the packet, nor does group together packets with similar transport characteristics. This limitation not claimed.

In page 3, applicant argues Tayyar does not teach "extraction unit....a succession of packets". Examiner disagrees. The classifier classifies each packet. Each packet is a succession of packets. Furthermore, whether Tayyar only referring to QoS of the known session is irrelevant to the "a succession of packets". What is relevant is whether a series of packets are classified in succession. In this case, the classifier does receive a flow/session of packets wherein each flow includes a succession of packets.

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***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANDREW LEE whose telephone number is (571)272-3130. The examiner can normally be reached on Monday to Friday from 8:30AM to 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, HASSAN KIZOU can be reached on 571-272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ANDREW LEE/  
Primary Examiner, Art Unit 2472

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of.:	§		
	§		
Avi ORON	§	Confirmation	3332
	§		
Serial No.: 12/513,510	§		
	§		
Filed: May 5, 2009	§	Group Art Unit:	2472
	§		
For: MEDIA SESSION	§		
IDENTIFICATION METHOD	§		
FOR IP NETWORKS	§		
	§	Attorney Docket:	<b>46203</b>
	§		
Examiner: Chi Ho A. LEE	§		

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**RESPONSE**

Sir:

This is in response to the United States Patent and Trademark Office Action mailed December 7, 2010, which response is being made before March 7, 2011, and for which no extension of time fees are due.

Applicant submits this response for entry into the record, in which:

**Amendments to the Claims** begin on page 2.

**Remarks** begin on page 8.

Please amend the above-identified application as follows:

In re Application of: Avi ORON et al  
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Filed: May 5, 2009  
Office Action Mailing Date: December 7, 2010

Examiner: Chi Ho A. LEE  
Group Art Unit: 2472  
Attorney Docket: 46203  
Confirmation No.: 3332

**WHAT IS CLAIMED IS:**

1. (Currently Amended) Electronic network apparatus for identifying media sessions over IP and network packets as belonging or not belonging to a media session, comprising:

a packet characteristic extraction unit configured for obtaining ~~packet-session~~ characteristics from ~~each of a~~ succession of packets, said characteristics comprising packet traffic characteristics;

a grouping unit associated with said packet characteristic extraction unit, configured to group together those packets ~~having similar~~ whose extracted packet traffic characteristics are similar as probably belonging to a common session, and

a session analyzer configured for analyzing said grouped packets for session characteristics, therewith to identify a session type of said probable common session.

2. (Original) The apparatus of claim 1 further comprising a resource allocator for allocating at least one member of the group consisting of resources, provisioning features and control features to said session.

3. (Original) The apparatus of claim 1, wherein said session type identification comprises identifying a session managing entity generating or managing said session.

4. (Original) The apparatus of claim 1, wherein said session analyzer comprises a neural network, using characteristics automatically built into said neural network during a neural network training phase.

5. (Original) Apparatus according to claim 1, further comprising a thresholder for thresholding said traffic characteristics, and a packet session identifier configured to identify those packets whose characteristics are mutually within said

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thresholds for said grouping unit to group said packets as belonging to said common session.

6. (Original) The apparatus of claim 1, wherein said traffic characteristics comprise at least one member of the group consisting of packet length, inter-arrival period, and average bandwidth.

7. (Original) The apparatus of claim 1, wherein said grouping unit comprises a packet marker, associated with said packet session identifier, configured for inserting into a header of a respective packet an indication of said common session with which said respective packet has been identified.

8. (Original) The apparatus of claim 7, further comprising a session analyzer associated with said packet marker, configured to obtain packets marked as belonging to said common session and to determine, from said packets, characteristics belonging to said common session, therefrom to identify a session type.

9. (Original) The apparatus of claim 8, wherein said session analyzer is configured to obtain said characteristics belonging to said common session from parameter patterns common to said packets.

10. (Currently Amended) The apparatus of claim 8, wherein said session analyzer is configured to use at least one member of the group consisting of:

- packet length
- inter-arrival period
- variance of inter-arrival period
- variance of length
- covariance of inter-arrival period
- covariance of length

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- a statistical derivative obtained from multi records of packet length
- a statistical derivative obtained from multi records of inter-arrival period
- a histogram built of at least one of the following;
  - i. packet length
  - ii. inter-arrival period
  - iii. variance of inter-arrival period
  - iv. variance of length
  - v. covariance of inter-arrival period
  - vi. covariance of length
  - vii. a statistical derivative obtained from multi records of packet length
  - viii. a statistical derivative obtained from multi records of inter-arrival period
- a matrix histogram built of at least one of the following;
  - i. packet length
  - ii. inter-arrival period
  - iii. variance of inter-arrival period
  - iv. variance of length
  - v. covariance of inter-arrival period
  - vi. covariance of length
  - vii. a statistical derivative obtained from multi records of packet length
  - viii. a statistical derivative obtained from multi records of inter-arrival period.

11. (Original) The apparatus of claim 8, wherein said session analyzer comprises a neural network, using characteristics automatically built into said neural network during a neural network training phase.

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12. (Original) The apparatus of claim 1, further comprising a resource allocator configured to allocate resources on a network according to said identified common session.

13. (Currently Amended) The apparatus of claim 8, further comprising a resource allocator, configured to allocate resources on a network according to said identified session type.

14. (Original) The apparatus of claim 1, wherein at least one of said packet session analyzer, said extraction unit and said grouping unit comprises a neural network.

15. (Currently Amended) A method of identifying session type, comprising categorizing passing packets using traffic packet characteristics of said passing packets;

grouping together those packets having similar values of said traffic characteristics into a presumed session, and

analyzing said grouped packets of said presumed session for session characteristics,

thereby to identify a session type of said presumed session.

16. (Original) The method of claim 15 wherein said identifying a session type comprises identifying a session managing entity generating or managing said session.

17. (Original) The method of claim 15 wherein said identifying a session type is followed by at least one of the group comprising: providing provisioning and providing control actions to the session.



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18. (Original) Method according to claim 15, further comprising thresholding said traffic characteristics, and identifying those packets whose characteristics are mutually within said thresholds for said grouping.

19. (Original) The method of claim 15, wherein said characteristics comprise at least one member of the group consisting of packet length, inter-arrival period, and average bandwidth.

20. (Currently Amended) The method of claim 15, further comprising inserting into a header of a respective packet an indication of said ~~common~~-presumed session with which said respective packet has been identified.

21. (Currently Amended) The method of claim 15, comprising obtaining said characteristics belonging to said ~~common~~-presumed session from parameter patterns common to said packets.

22. (Original) The method of claim 15, comprising using at least one member of the group consisting of:

- packet length
- inter-arrival period
- variance of inter-arrival period
- variance of length
- covariance of inter-arrival period
- covariance of length
- a statistical derivative obtained from multi records of packet length
- a statistical derivative obtained from multi records of inter-arrival period
- a histogram built of at least one of the following;
  - i. packet length

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- ii. inter-arrival period
- iii. variance of inter-arrival period
- iv. variance of length
- v. covariance of inter-arrival period
- vi. covariance of length
- vii. a statistical derivative obtained from multi records of packet length
- viii. a statistical derivative obtained from multi records of inter-arrival period
- a matrix histogram built of at least one of the following;
  - i. packet length
  - ii. inter-arrival period
  - iii. variance of inter-arrival period
  - iv. variance of length
  - v. covariance of inter-arrival period
  - vi. covariance of length
  - vii. a statistical derivative obtained from multi records of packet length
  - viii. a statistical derivative obtained from multi records of inter-arrival period.

23. (Original) The method of claim 15, comprising using a neural network and characteristics automatically built into said neural network during a neural network training phase.

24. (Original) The method of claim 16, further comprising using a neural network and characteristics automatically built into said neural network during a neural network training phase.

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### **REMARKS**

Reconsideration of the above-identified application in view of the amendments above and the remarks following is respectfully requested.

Claims 1 -24 are in this Application. Claims 1 - 24 have been rejected under 35 U.S.C. § 103. Claims 1, 10, 13, 15, 20 and 21 have been amended herewith.

### **Amendments To The Claims**

#### **Informalities**

Claims 10 and 13 are amended to correct informalities that came to applicant's attention.

#### **35 U.S.C. § 103 Rejections**

Examiner rejects the independent claims over Tayyar et al.

Tayyar teaches that packets are grouped into -queues of already known sessions. Once the packets are grouped into sessions *then* it is decided how to schedule the packets of the session to be sent forward.

In this respect Examiner's attention is directed to Tayyar paragraph 37, where it states (lines 3 – 5) that "a classifier classifies each of the incoming packets as being associated with one of a plurality of sessions". The implication is that *individual packets* are simply associated with a specific *session*.

In the following sentence (Tayyar Paragraph 37 from line 5) it is mentioned that the sessions may correspond to a certain level of quality of service. At no point does paragraph 37 of Tayyar contain the information that the *quality of service* information is used to *identify which session* the packet belongs to. Neither is there any information that the packets are compared with *other packets or that characteristics of traffic of the packets are analyzed*. Rather the traffic characteristics are simply *obtained*.

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That is to say, it appears from the disclosure as a whole that the sessions are *already known about* and that Tayyar simply *adds* a new packet to an *existing* session. Note in particular component 22 in Figure 1 of Tayyar where the session queues appear to be present and known about. Also note Tayyar paragraph 20, where information about entities and sessions is *provided* to the scheduler.

In addition, at numerous locations in Tayyar, there is reference to packets arriving that belong to an *idle* session. See for example Paragraphs 45, and 48. A single packet belonging to an idle session can *only* be considered as part of a *known* session.

In addition, Examiner's attention is drawn to paragraph 70 where it is explained that only two non-trivial calculations need to be carried out by the method, namely the calculation of the virtual time and the finish time. If indeed Tayyar had been grouping packets according to transport characteristics then the grouping itself would be an *additional* non-trivial calculation.

It is therefore submitted that Tayyar trivially uses an identification in the packet header (usually port number) to add a packet to a known session queue, the identification being a session name or a session title.

It is pointed out that the Classifier unit is not described by Tayyar as it is not relevant to his scheduling mechanism patent – while in the present application, classification is the core issue.

Tayyar does *not* look at the transport characteristics of the packet, nor does he group together packets with similar transport characteristics and nor does he infer the existence of a session from the grouped packets.

Tayyar therefore fails to teach the claimed feature of:

a grouping unit associated with said packet characteristic extraction unit, configured to group together those packets whose *extracted* packet traffic characteristics are *similar as probably* belonging to a *common* session, '

since this teaches comparing packet with packet, and Tayyar collects a packet as part of a known session. Tayyar groups together packets having a common session

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*identifier* into the corresponding session queue, the session already being known about. Tayyar does *not* have extracted packet traffic characteristics since there is no evidence that the classifier ever extracts such data, and Tayyar therefore never compares transport characteristics of different packets.

Furthermore Tayyar fails to teach

'a packet characteristic extraction unit configured for obtaining packet characteristics from *a succession of packets*, said characteristics comprising packet traffic characteristics'

since Tayyar only refers to quality of service as a property of the known sessions.

Tayyar further fails to teach:

"a session analyzer configured for analyzing said grouped packets for session characteristics, therewith to identify a session type of said probable common session"

since the session type already seems to be known. See for example the last three lines of Tayyar paragraph 37 where it is stated that the sessions may correspond to a group of packets for which *it is desired to provide* a certain level of QoS. There is no indication in this paragraph as to how the desire referred to comes about, however the Examiner's attention is again drawn to Tayyar paragraph 20 where it is quite clear that the scheduler receives entities to be scheduled and that the entities include sessions. This would be interpreted by the skilled person as meaning that the scheduler is *told* about the sessions, and the QoS characteristics are *provided* along with the scheduling information, as opposed to being gleaned from the grouped packets.

Furthermore, as mentioned, Tayyar refers at several locations to packets arriving that belong to an idle session. Single packets of idle sessions *cannot be grouped*, since there are no other packets to group them *with*. Single packets of idle sessions *can* however be *added to sessions that are already known about* and for which queues *exist*. This is thus regarded as further evidence that Tayyar is *not* talking about grouping of packets according to their individually extracted transport

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characteristics but rather about *adding* packets to *session* queues according to *session identifiers*.

For the above reasons it is believed that claim 1 as amended is new and inventive over the prior art.

Independent claim 15 has been amended to include the same features and is believed to be allowable for the same reasons.

Claims 20 and 21 are amended to accord with amendments to claim 15.

Claims 2 – 14 and 16 – 24 are dependent claims and are believed to be allowable for at least the reason that they are dependent on allowable main claims.

In view of the above amendments and remarks it is respectfully submitted that claims 1 - 24 are now in condition for allowance. A prompt notice of allowance is respectfully and earnestly solicited.

Respectfully submitted,

**/Jason H. Rosenblum/**

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Date: March 7, 2011



# UNITED STATES PATENT AND TRADEMARK OFFICE

EX2003  
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/513,510	05/05/2009	Avi Oron	46203	3332
67801	7590	12/07/2010		
MARTIN D. MOYNIHAN d/b/a PRTSI, INC.			EXAMINER	
P.O. BOX 16446			LEE, CHI HO A	
ARLINGTON, VA 22215				
			ART UNIT	PAPER NUMBER
			2472	
			MAIL DATE	DELIVERY MODE
			12/07/2010	PAPER

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

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

<b>Office Action Summary</b>	<b>Application No.</b> 12/513,510	<b>Applicant(s)</b> ORON, AVI	
	<b>Examiner</b> Andrew Lee	<b>Art Unit</b> 2472	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 May 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/24/10</u> .   | 6) <input type="checkbox"/> Other: _____                          |



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## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 5-10, 12, 13, 15-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tayyar et al PG PUB 2007/0050773.

Re Claims 1, 15, Tayyar teaches a classifier<sup>14</sup> (a packet characteristic extraction unit; a grouping unit ) that classifies each of the received packets in accordance to the QoS (packet traffic characteristics) and its associated session (a common session) [0037+]. Tayyar fails to explicitly teach “a session analyzer....to identify a session type.”. However, one skilled in the art recognizes that the session type is typically associated with service profile or the QoS requirement, i.e., delay tolerance for voice type or data type sessions. One skilled in the art would have been motivated to determine the session type in Tayyar to prioritize the flow in accordance to the QoS requirement of the session. Therefore it would have been obvious to one skilled in the art to do so.

Re Claim 2, refer to Claim 1, wherein the Scheduler 23 allocates resources for the plurality of sessions.

Re Claim 3, refer to Claim 1, wherein by identifying the session type the session can be manage in accordance to the QoS.

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Re Claims 5, 6, 10, 18, 19, 22, refer to Claim 1, wherein the Time Stamper (a thresholder) for determine the arrival time (inter-arrival period) between successive packets within the same session [0047].

Re Claims 7, 8, 9, 20, refer to Claim 1, examiner takes notice that packet can include session IDs (packet marker) for grouping the packets associated with the common session.

Re Claims 12, 13, refer to Claim 1, wherein the Scheduler allocates resource for each session and type.

Re Claims 16, 17, refer to Claim 15, wherein once the session type is known i.e., voice or data, the session can be managed in accordance with QoS requirement.

Re Claim 21, refer to Claim 15, wherein the packets are grouped with common QoS parameters (parameter patterns common)

3. Claims 4, 11, 14, 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tayyar et al PG PUB 2007/0050773 in view of Freedman et al PG PUB 2004/0249650.

Re Claims 4, 11, 14, 23 and 24, Tayyar fails to explicitly teaches the neural network for the session analyzer. However, Freedman et al teaches learning function by the neural network to analyzing the session [0055]. One skilled in the art would have been motivated to use the known learning function for analyzing the session. Therefore, it would have been obvious to one ordinary skilled to have combined the teachings.

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4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Lee whose telephone number is 571-272-3130. The examiner can normally be reached on Monday to Friday from 8:30AM to 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Trost can be reached on 571-272-7872. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Andrew Lee/  
Primary Examiner, Art Unit 2472