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Request to Retrieve Electronic Priority Application(s) Send completed form to: Commissioner for Patents P.O. Box 1450, Alexandria, VA 22313-1450	<i>COMPLETE IF KNOWN</i>	
	Application Number	Not Yet Assigned
	Filing Date	Concurrently Herewith
	First Named Inventor	SANG WAN KIM
	Art Unit	N/A
	Examiner Name	Not Yet Assigned
	Attorney Docket Number	PK7-042

The undersigned hereby requests the USPTO retrieve an electronic copy of each of the following foreign applications for which priority has been claimed under 35 U.S.C. 119(a)-(d) from a foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement:

Please retrieve (check all that apply)

- ☒ From EPO, JPO, or KIPO (participating foreign intellectual property office) a priority application
Column A. Participating office where application was originally filed
Column B. Application number and filing date of the application
 From WIPO (participating foreign intellectual property office) a DAS registered priority application
Column A. DAS Depositing Office where application was originally filed
Column B. Application number and filing date of the application
- ☐ Copy of certified copy of non-participating office priority document from within a participating foreign intellectual property office application (EPO or JPO)
Column A. Participating office where certified copy of priority document is located
Column B. Application number and filing date of the EPO/JPO application
Column C. Two letter country code and application number of the non-EPO/JPO priority document

	A	B		C	
	Participating Office (e.g., EPO, JPO, KIPO) or DAS Depositing Office (e.g., IB)	Application to be retrieved or application containing the non-participating priority application		Non-Participating priority application to be retrieved	
		App. No.	Filing Date	Country Code	App. No.
1	KIPO	10-2012-0040556	04/18/2012		
2					
3					
4					
5					
6					

This Request to Retrieve Electronic Priority Application(s) (Request) should be filed within the later of four months from the date of filing of the above-identified U.S. application claiming foreign priority, or sixteen months from the filing date of the foreign application to which priority is claimed.

This Request should be submitted concurrently with the claim for priority, or thereafter. The USPTO will not attempt to retrieve the identified priority application(s) until applicant indicates the identified priority application(s) on the oath or declaration or an application data sheet in compliance with 37 CFR 1.63(c).

Applicants are advised to consult Private PAIR (accessed through www.uspto.gov) to assure that the retrieval has been successful. The applicant remains ultimately responsible for the submission of the certified copy of the foreign application(s) within the period set forth in 37 CFR 1.55(a) (before the U.S. application issues as a patent) if the USPTO does not timely retrieve the identified priority application(s).

I hereby declare that I have the authority to grant access to the above-identified foreign application(s).

Signature	/EuiHoon Lee/	Date	October 4, 2012
Printed or Typed Name	EuiHoon Lee	Telephone Number	(617) 202-4625
Title	Attorney for Applicant(s)	Registration Number, if applicable	62,375

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being transmitted via the Office electronic filing system in accordance with 37 CFR § 1.6(a)(4).

Dated: October 4, 2012

Electronic Signature for EuiHoon Lee: /EuiHoon Lee/

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being transmitted via the Office electronic filing system in accordance with 37 CFR § 1.6(a)(4).

Dated: October 4, 2012
Electronic Signature for EuiHoon Lee: /EuiHoon Lee/

Docket No.: PK7-042
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
SANG WAN KIM *et al.*

Application No.: Not Yet Assigned

Confirmation No.: N/A

Filed: Concurrently Herewith

Art Unit: N/A

For: METHOD OF CONTROLLING TRAFFIC BY
TIME-BASED POLICY

Examiner: Not Yet Assigned

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

INFORMATION DISCLOSURE STATEMENT (IDS)

Dear Madam:

Pursuant to 37 CFR 1.56, 1.97 and 1.98, the attention of the Patent and Trademark Office is hereby directed to the references listed on the attached PTO/SB/08. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the references be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

This Information Disclosure Statement accompanies the new patent application submitted herewith.

In accordance with 37 CFR 1.98(a)(2)(ii), Applicants have not submitted copies of U.S. patents and U.S. patent applications. Applicants submit herewith a copy of the cited foreign patent in accordance with 37 CFR 1.98(a)(2).

In accordance with 37 CFR 1.97(g), the filing of this Information Disclosure Statement shall not be construed to mean that a search has been made or that no other material information as

defined in 37 CFR 1.56(a) exists. In accordance with 37 CFR 1.97(h), the filing of this Information Disclosure Statement shall not be construed to be an admission that any patent, publication or other information referred to therein is "prior art" for this invention unless specifically designated as such.

It is submitted that the Information Disclosure Statement is in compliance with 37 CFR 1.98 and the Examiner is respectfully requested to consider the listed references.

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 12-0080, under Order No. PK7-042.

Dated: October 4, 2012

Respectfully submitted,

EHL/mch

Electronic signature: /EuiHoon Lee/
EuiHoon Lee
Registration No.: 62,375
Nelson Mullins Riley & Scarborough LLP
One Post Office Square
Boston, Massachusetts 02109-2127
(617) 573-4700
(617) 742-4214 (Fax)
Attorney/Agent For Applicants

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number			
	Filing Date			
	First Named Inventor	SANG WAN KIM		
	Art Unit	N/A		
	Examiner Name	Not Yet Assigned		
	Attorney Docket Number	PK7-042		

U.S. PATENTS							Remove	
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear		
	1	7853678	B2	2010-12-14	Khemani et al.			
If you wish to add additional U.S. Patent citation information please click the Add button.							Add	
U.S. PATENT APPLICATION PUBLICATIONS							Remove	
Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear		
	1	20080225708	A1	2008-09-18	Lange			
If you wish to add additional U.S. Published Application citation information please click the Add button.							Add	
FOREIGN PATENT DOCUMENTS							Remove	
Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ² j	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1	2003-0003593	KR		2003-01-10	HackersLab, Co., Ltd.		☒
If you wish to add additional Foreign Patent Document citation information please click the Add button							Add	
NON-PATENT LITERATURE DOCUMENTS							Remove	
Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.						T ⁵

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		
	First Named Inventor	SANG WAN KIM	
	Art Unit	N/A	
	Examiner Name	Not Yet Assigned	
	Attorney Docket Number	PK7-042	

	1		☐
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If you wish to add additional non-patent literature document citation information please click the Add button **Add**

EXAMINER SIGNATURE

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		
	First Named Inventor	SANG WAN KIM	
	Art Unit	N/A	
	Examiner Name	Not Yet Assigned	
	Attorney Docket Number	PK7-042	

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/EuiHoon Lee/	Date (YYYY-MM-DD)	2012-10-04
Name/Print	EuiHoon Lee	Registration Number	62375

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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, VA 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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 the Freedom of Information Act requires disclosure of these records.
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 inspections 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.

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B or equivalent) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5. If the Power of Attorney by Applicant form is not accompanied by this transmittal form or an equivalent, the Power of Attorney will not be recognized in the application.

Application Number	Not Yet Assigned
Filing Date	Concurrently Herewith
First Named Inventor	SANG WAN KIM
Title	METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY
Art Unit	N/A
Examiner Name	Not Yet Assigned
Attorney Docket Number	PK7-042

SIGNATURE of Applicant or Patent Practitioner

Signature	/EuiHoon Lee/	Date	October 4, 2012
Name	EuiHoon Lee	Telephone	
Registration Number	62,375		

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications.

☒ X

*Total of 1 forms are submitted.

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being transmitted via the Office electronic filing system in accordance with 37 CFR § 1.6(a)(4).

Dated: October 4, 2012

Electronic Signature for EuiHoon Lee: /EuiHoon Lee/

POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in the attached transmittal letter.

☒ I hereby appoint Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A or equivalent):

00959

OR

☐ I hereby appoint Practitioner(s) named below as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A or equivalent):

Name Registration	Number	Name Registration	Number

Please recognize or change the correspondence address for the above-identified patent to:

☐ The address associated with the above-mentioned Customer Number:

OR

☒ The address associated with Customer Number:

00959

OR

☐ Firm or Individual Name	EuiHoon Lee NELSON MULLINS RILEY & SCARBOROUGH LLP				
Address	One Post Office Square				
City	Boston	State	MA	Zip	02109
Country	US				
Telephone	617-573-4700	Email	ipboston.docketing@nelsonmullins.com		

I am the Applicant:

- ☐ Inventor or Joint Inventor
- ☐ Legal Representative of a Deceased or Legally Incapacitated Inventor
- ☒ Assignee or Person to Whom the Inventor is Under an Obligation to Assign
- ☐ Person Who Otherwise Shows a Sufficient *Proprietary* Interest (e.g., a petition under 37 CFR 1.46 was granted in the application or is concurrently being filed with this document)

SIGNATURE of Applicant for Patent

Signature		Date	September 25, 2012
Name	KIM, Gilwon	Telephone	042-860-4908
Title and Company	Director and Electronics & Telecommunications Research Institute		

NOTE: Signature - This form must be signed by the applicant or applicant's representative in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature, see below *.

☒ *Total of 1 forms are submitted.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	PK7-042
		Application Number	
Title of Invention	METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)
--

Inventor Information:

Inventor 1					Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	SANG WAN		KIM		
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service					
City	Daejeon	Country of Residence	;	KR	
Mailing Address of Inventor:					
Address 1	106-1201 Songnim maeul 1 danji				
Address 2	Hagi-dong, Yuseong-gu				
City	Daejeon	State/Province			
Postal Code	305-759	Country	!	KR	
Inventor 2					Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Joon Kyung		LEE		
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service					
City	Daejeon	Country of Residence	;	KR	
Mailing Address of Inventor:					
Address 1	6-501 Garam Apt.				
Address 2	Dunsanbuk-ro, Seo-gu				
City	Daejeon	State/Province			
Postal Code	302-121	Country	!	KR	
Inventor 3					Remove
Legal Name					

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	PK7-042
		Application Number	
Title of Invention	METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY		

Prefix	Given Name	Middle Name	Family Name	Suffix
	Dong Won		KANG	
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service				
City	Daejeon	Country of Residence i	KR	

Mailing Address of Inventor:

Address 1	115-206, Nuri Apt.			
Address 2	Wolpyung-dong, Seo-gu			
City	Daejeon	State/Province		
Postal Code	302-280	Country i	KR	

Inventor 4

Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Wang Bong		LEE	
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service				
City	Daejeon	Country of Residence i	KR	

Mailing Address of Inventor:

Address 1	2-1504, Hanmaru Apt.			
Address 2	Dunsan 1-dong, Seo-gu			
City	Daejeon	State/Province		
Postal Code	302-773	Country i	KR	

Inventor 5

Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Sang Kil		PARK	
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service				
City	Daejeon	Country of Residence i	KR	

Mailing Address of Inventor:

Address 1	111-902, Hanbit Apt.			
Address 2	Eoeun-dong, Yuseong-gu			
City	Daejeon	State/Province		
Postal Code	305-755	Country i	KR	

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	PK7-042
		Application Number	
Title of Invention	METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY		

Inventor 6					Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Sangsik		YOON		
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service					
City	Daejeon	Country of Residence	i	KR	
Mailing Address of Inventor:					
Address 1	306, Cheongwoon Villa				
Address 2	210-64, Sinseong-dong, Yuseong-gu				
City	Daejeon	State/Province			
Postal Code	305-805	Country	i	KR	
Inventor 7					Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Jong Dae		PARK		
Residence Information (Select One) ☐ US Residency ☒ Non US Residency ☐ Active US Military Service					
City	Daejeon	Country of Residence	i	KR	
Mailing Address of Inventor:					
Address 1	105-1508, Sejong Apt.				
Address 2	Jeonmin-dong, Yuseong-gu				
City	Daejeon	State/Province			
Postal Code	305-728	Country	i	KR	
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.					Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).	
☐ An Address is being provided for the correspondence information of this application.	
Customer Number	00959
Email Address	ipboston.docketing@nelsonmullins.com
	Add Email Remove Email

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	PK7-042
		Application Number	
Title of Invention	METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY		

Application Information:

Title of the Invention	METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY		
Attorney Docket Number	PK7-042	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Suggested Class (if any)		Sub Class (if any)	
Suggested Technology Center (if any)	N/A		
Total Number of Drawing Sheets (if any)	4	Suggested Figure for Publication (if any)	

Publication Information:

☐	Request Early Publication (Fee required at time of Request 37 CFR 1.219)
☐	Request Not to Publish. I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application has not and will not be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.			
Please Select One:			
☒	Customer Number	☐	US Patent Practitioner
☐	Limited Recognition (37 CFR 11.9)		
Customer Number	00959		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c) or indicate National Stage entry from a PCT application. Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.			
Prior Application Status		Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.			Add

Foreign Priority Information:

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	PK7-042
		Application Number	
Title of Invention	METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY		
This section allows for the applicant to claim benefit of foreign priority and to identify any prior foreign application for which priority is not claimed. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(a).			
			Remove
Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Priority Claimed
10-2012-0040556	KR	2012-04-18	☒ Yes ☐ No
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			Add

Authorization to Permit Access:

☐ Authorization to Permit Access to the Instant Application by the Participating Offices
If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application. In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application. In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing this Authorization.

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.
--

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	PK7-042
		Application Number	
Title of Invention	METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY		

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Remove

- ☒ Assignee
 ☐ Legal Representative under 35 U.S.C. 117
☐ Person to whom the inventor is obligated to assign.
 ☐ Person who shows sufficient proprietary interest

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor :

If the Assignee is an Organization check here. ☒

Organization Name Electronics and Telecommunications Research Institute

Mailing Address Information:

Address 1 161 Gajeong-dong, Yuseong-gu

Address 2

City Daejeon

State/Province

Country ⁱ KR

Postal Code

305-700

Phone Number

Fax Number

Email Address

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Signature:

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Signature /EuiHoon Lee/

Date (YYYY-MM-DD)

2012-10-04

First Name EuiHoon

Last Name

Lee

Registration Number

62375

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	PK7-042
		Application Number	
Title of Invention	METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY		

This collection of information is required by 37 CFR 1.76. 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 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet 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, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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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.
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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.

Electronic Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:		METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY		
First Named Inventor/Applicant Name:		SANG WAN KIM		
Filer:		EuiHoon Lee/Angela Hession		
Attorney Docket Number:		PK7-042		
Filed as Small Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Utility filing Fee (Electronic filing)	4011	1	95	95
Utility Search Fee	2111	1	310	310
Utility Examination Fee	2311	1	125	125
Pages:				
Claims:				
Independent claims in excess of 3	2201	1	125	125
Miscellaneous-Filing:				
Petition:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				655

Electronic Acknowledgement Receipt	
EFS ID:	13900421
Application Number:	13645090
International Application Number:	
Confirmation Number:	3860
Title of Invention:	METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY
First Named Inventor/Applicant Name:	SANG WAN KIM
Customer Number:	959
Filer:	EuiHoon Lee/Angela Hession
Filer Authorized By:	EuiHoon Lee
Attorney Docket Number:	PK7-042
Receipt Date:	04-OCT-2012
Filing Date:	
Time Stamp:	17:02:04
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$655
RAM confirmation Number	5892
Deposit Account	120080
Authorized User	
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File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Drawings-only black and white line drawings	PK7-042_Drawings.pdf	87830	no	4
			9a92a7c9c2c56273fa1a72ca34fb96a1022e8d79		
Warnings:					
Information:					
2	Oath or Declaration filed	PK7-042_Executed_Declaration.pdf	478277	no	7
			9ec9418d8d91d7470baa3e4e747d79912382faa9		
Warnings:					
Information:					
3	Foreign Reference	PK7-042_KR2003-0003593.pdf	1911277	no	18
			bdlb7f70acd22b7667bbd0781b180092f721d4cc0		
Warnings:					
Information:					
4		pk7042_spec.pdf	72579	yes	17
			7cafbd4228f4ac53d6e272dc67d0037a084b58e8e		
	Multipart Description/PDF files in .zip description				
	Document Description	Start	End		
	Specification	1	13		
	Claims	14	16		
	Abstract	17	17		
Warnings:					
Information:					
5	Transmittal of New Application	pk7042_transmittal.pdf	36002	no	1
			2f3bb5e510a44a499e04d2288a9a3d9230bb9d9cf		
Warnings:					
Information:					
6	Request for USPTO to retrieve priority docs	pk7042_sb38.pdf	26666	no	1
			b4d13e090a68744efc32e8d5d4b0e2729311ecfc		
Warnings:					
Information:					
7	Transmittal Letter	pk7042_ids.pdf	24848	no	2
			100911227d3589a4a7dd5177859e37c65bb75073		

Warnings:					
Information:					
8	Information Disclosure Statement (IDS) Form (SB08)	pk7042_sb08.pdf	612225	no	4
			41bf0681e85a9a3a795ca9cd8132c3f9cd9750ea		
Warnings:					
Information:					
9	Power of Attorney	pk7042_applicantpoa.pdf	78488	no	2
			84823a8e5afadc22f5eb90a0e14247db43f955f5		
Warnings:					
Information:					
10	Application Data Sheet	pk7042_ApplicationDataSheet.pdf	1882382	no	8
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Warnings:					
Information:					
11	Fee Worksheet (SB06)	fee-info.pdf	36597	no	2
			9b248435d28763d52007f943bc500e09aa548d18		
Warnings:					
Information:					
Total Files Size (in bytes):			5247171		
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FIG. 1

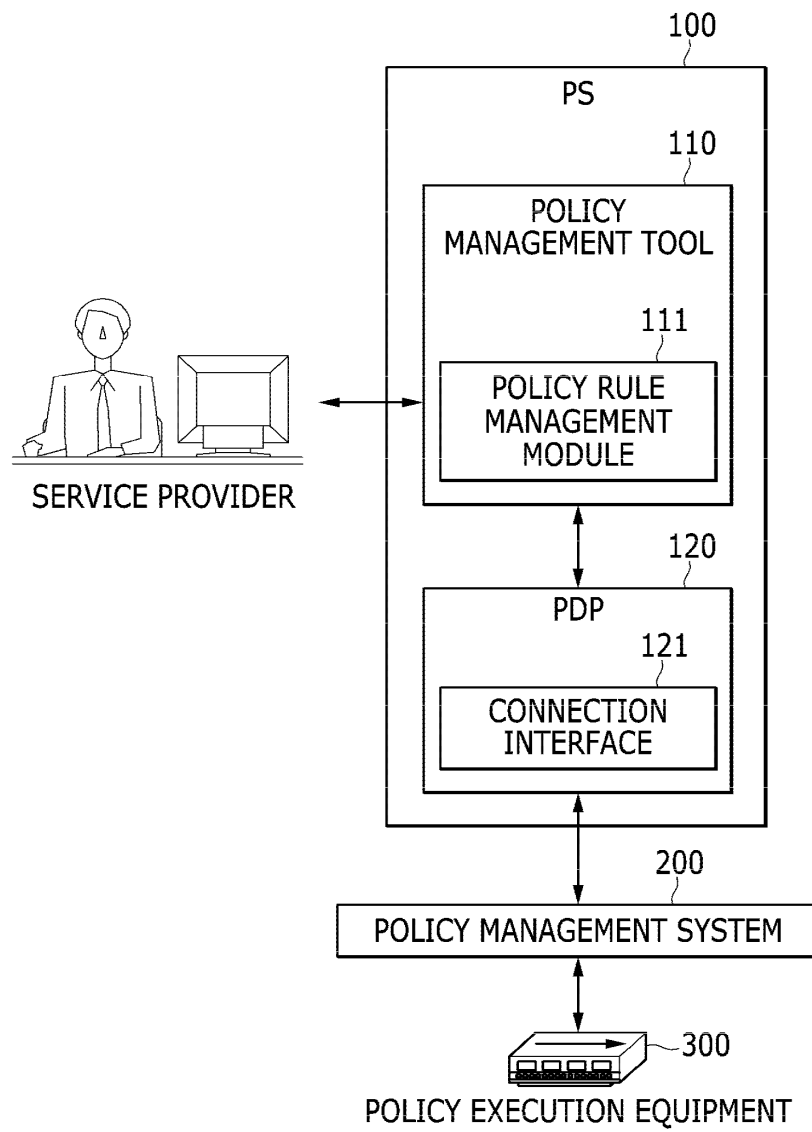


FIG. 2

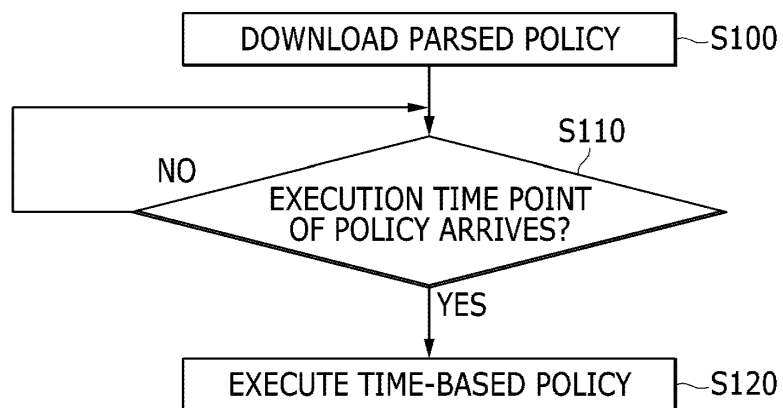


FIG. 3

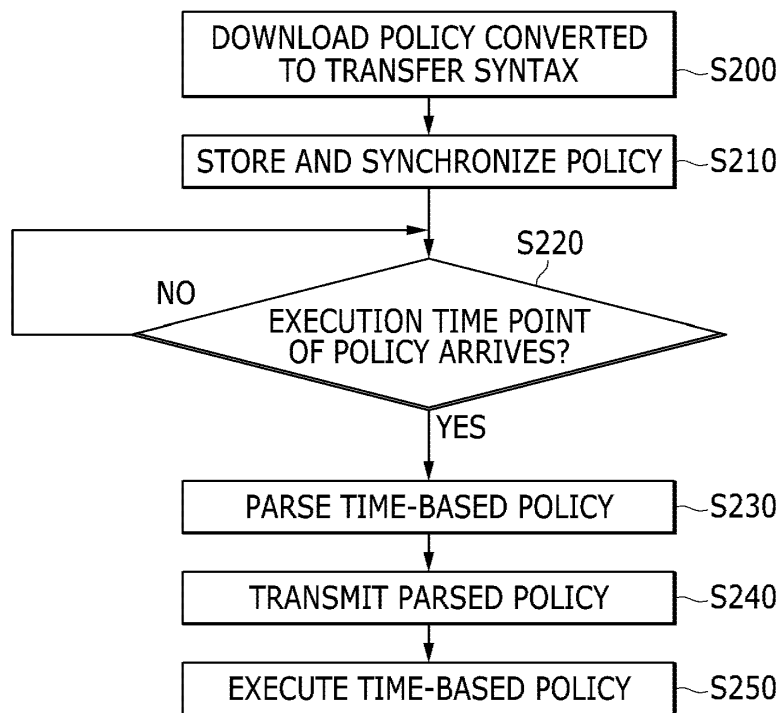
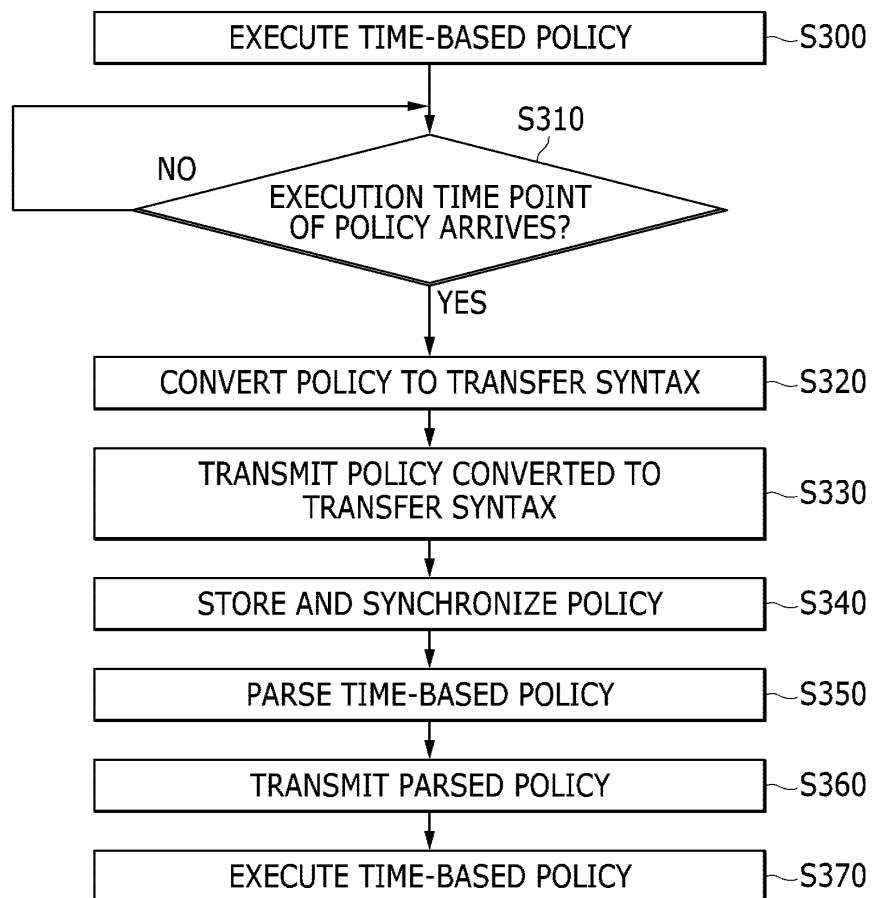


FIG. 4



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DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY
-------------------------------	---

As the below named inventor, I hereby declare that:

This declaration is directed to:
 ☒ The attached application, or
 ☐ United States application or PCT international application number _____
 filed on _____.

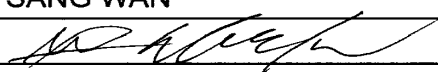
The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

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LEGAL NAME OF INVENTOR	
Inventor: KIM, SANG WAN	Date (Optional): <u>2012.09.20</u>
Signature: <u></u>	

Note: An application data sheet (PTO/AIA/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use an additional PTO/SB/AIA01 form for each additional inventor.

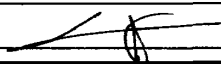
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 ☒ The attached application, or
☐ United States application or PCT international application number _____
 filed on _____.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

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LEGAL NAME OF INVENTOR	
Inventor: <u>Lee, Wang Bong</u>	Date (Optional): <u>Sep. 20, 2012</u>
Signature: <u></u>	

Note: An application data sheet (PTO/AIA/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use an additional PTO/SB/AIA01 form for each additional inventor.

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The above-identified application was made or authorized to be made by me.

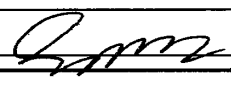
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LEGAL NAME OF INVENTOR

Inventor: Park, Sang Kil Date (Optional): Sept. 21, 2012
 Signature: 

Note: An application data sheet (PTO/AIA/14 or equivalent), including naming the entire inventive entity, must accompany this form. Use an additional PTO/SB/AIA01 form for each additional inventor.

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**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)****Title of
Invention****METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY**

As the below named inventor, I hereby declare that:

This declaration
is directed to:

The attached application, or



United States application or PCT international application number _____

filed on _____

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001
by fine or imprisonment of not more than five (5) years, or both.**WARNING:**

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LEGAL NAME OF INVENTOR

Inventor: Yoon, SangSik

Date (Optional):

Sep. 21, 2012Signature: 

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**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN
APPLICATION DATA SHEET (37 CFR 1.76)**

Title of Invention	METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY
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As the below named inventor, I hereby declare that:

This declaration
is directed to:

The attached application, or

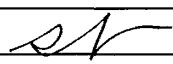
United States application or PCT international application number _____
filed on _____.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001
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LEGAL NAME OF INVENTORInventor: **Park, Jong Dae**Date (Optional): SEP. 21, 2012Signature: 

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Unexamined Publication No	The KR2003-0003593.
Unexamined Publication Date	2003-01-10
Agent	Kim, Sam Soo
Inventor	PARK, CHUNKOO
Applicant	HackersLab, Co. Ltd.
Title of Invention	NETWORK SECURITY SYSTEM AND METHOD FOR APPLYING SECURITY RULE FOR RESTRICTED CONDITION

Abstract

The invention relates to the network security system and the method for setting up the temporary security policy which can be applied to on the outside or the inside for the time limit during and/or the limited frequency and applying. And it is made of the security policy application phase applicable even to the network the security policy registration step, and the security policy deletion and the cancellation stage deleting the security policy. The security policy application phase applicable even to the network the security policy registration step, the applied to the definite number number for the limitation provisional security policy registers it stores the predetermined time and/or the provisional security policy and the registered security policy. The security policy deletion and the cancellation stage deleting the security policy is stored when the limitation is satisfied and lifts the application state of the corresponding security policy.

If the invention is used the administrator efficiently can manage the network security policy temporarily applied to for the predetermined time and/or the constant collection in the in-network · outside. And the proxy service implementation can be simplified.

Representative drawing

Fig. 4

Keyword(s)

The time limit, limited frequency, network, security policy.

Description

■ Background Art

The invention relates to the network device for applying and the security method using the same the specific security policy for the limitation, the network security system which can set up the temporary security policy which can be more specifically applied on the outside or the inside for the time limit during and/or the limited frequency and can apply, and the method.

The firewall used for the security between network implies the system transmitted and received through the access control to network inside and outside and user authentication to the specific network only the authenticated information.

According to this firewall is the IP address of by technique, source and destination location or the port number, it divides into the packet filtering gateway, restricting the pass of packet and the circuit level gateway (Circuit-Level Gateway), restricting the TCP connection and application gateway etc. relays each application at the application layer.

Moreover, it can compartmentalize into the screened subnet firewall merging with the dual-homed gateway firewall of the dual-homed gateway firewall, consisting of the host including the screened host firewall, and two network interfaces consisting of the packet filtering firewall embodying as constructed by type as one packet filtering router, and the application gateway (one network interface inclusion) locating in one packet filtering router and the subnet and screened host firewall and form. The application gateway (one network interface inclusion) locating in one packet filtering router and the subnet is protect with this.

Until administrator varies the corresponding security policy or the network device including this existing firewall etc. deletes, if it defines the security policy (Rule) the security policy is continually applied to. In case of being necessary the temporary change of the security policy applied to it has to eliminate the conventional security policy and administrator has to define the new security policy. And administrator again has to delete in the time when the new security policy is not necessary.

Therefore, it is difficult with the change of the security policy. And soft the in that case very troublesome task to temporarily apply the

security rule for restricted condition is needed.

In order that this disadvantage is overcome by introducing the notion of time to the security policy the apparatus in which the specific duration during (day or the specific duration) the security policy is applied to is proposed. However, the time limit at such method has the disadvantage determining only the time of application of the already defined security policy and of being similar to the conventional method in the point which deletes the security policy which already expires in order to apply the other security policy in which the corresponding time passes and has to define the new security policy.

That is, the conventional security policy defines and applies the provisional security policy having pro re nata, the predetermined time or the case, to the definite number number apply the provisional security policy as described above, the time limit it is applied. The provisional security policy in which the time passes is passively erased.

It need in temporary change silver various situations of the security policy. Therefore if in case of being many the security policy is passively again defined and it deletes then security can be maintained. There are many consumption of cost and time.

Moreover, it operates with the outside equipment including the intrusion detection system (Intrusion Detection System: IDS) etc. The security policy can be updated automatically in the outside. And in this case, the constant during the period the security policy is mostly applied.

At this time, in the outside equipment for changing the security policy, by altogether implementing the timer after the specified period passes the security policy is again deleted. It is inefficient since the timer has to be separately implemented in the outside equipment everyone. And the security policy has to be moreover again deleted through the network. Therefore in case the intruder snatches the packet on the network and the forgery packet is made the security policy can be arbitrarily deleted. And the security policy erasure packet is modulated and the security policy is not deleted.

In the meantime, using the security policy implementation which is temporarily applied to when very much implementing the used proxy server in the firewall, the problem of the security problem or the program bug can be solved. But it uses in internet environment for various applications and network protocol being continually caused firewall using this proxy server but it can have many problems. The proxy function is used or to solve this the packet coming in from the outside is elementarily prevented the firewall, a part service has to be opened so that the packet comes in from the outside. If the security policy is opened in order to come in from the outside because it can be dangerous with security the proxy function is used. And if the specific condition is under the proxy function the packet coming in from the outside is temporarily permitted. The classical proxy in which the end user has to designate the proxy server and the transparent proxy which operates in the center even if the user does not set up have as to the proxy function. And it separately has to prepare this proxy function according to each application or the protocol. In case of not being so while closing the security policy in case of using this proxy function in case the service is not any more used it can gain in security deformity. Therefore it is desirable to close the security policy after the predetermined time when making the proxy server. For this, since the timer has to be separately implemented in the proxy server for all applications or the protocol when implementing the proxy service the proxy server is troublesome.

Provisional security policy having the time limit and/or the recovery limitationi in the inside or the outside disadvantage is complemented of such conventional network security system of the present invention are defined. Provisional security policy having the time limit and/or the recovery limitationi in the inside or the outside disadvantage is complemented make the provisional security policy application of the network smooth by later automatically deleting the provisional security policy.

■ Summary of Invention

Effects of the Invention

If the network security policy application method is used the administrator efficiently can play the network security policy temporarily applied to for the predetermined time and/or the constant collection administration (the establishment, and the application and deletion). And even when using the external device it is simple the administrator can manage the provisional security policy without the concern of the hacking.

Moreover, the timer for each application or the protocol is no need to be separately implemented even in case of implementing the proxy service. Therefore the implementation of the proxy function can be simplified.

■ Brief explanation of the drawing

Figure 1 shows the hardware configuration of the network security system.

Figure 2 is a functional block diagram of the software for being proceed the network security method.

Figure 3 is a general flowchart of the network security method.

More specifically, fig. 4 shows the flow illustrated in Figure 3.

■ Technical Task

An object of the present invention is to provide the network device and the security policy application method in which the fixed the period or the collection passes the specified period and/or the definite number number defines the applied provisional security policy in the apparatus outside and which later automatically deletes the security policy.

Another object of the present invention is that in the external device, when the security policy applied to for the specified period is added the network device and the security policy application method which can maintain the improved security since it does not need to use the packet in which the timer implementation is unnecessary and deleting the security policy from the outside equipment are provided.

Since the provisional security policy is automatically deleted after the time limit it provides the simple network device and security policy application method the implementation of the proxy service it is another purpose of the present invention.

■ Structure & Operation of the Invention

With the hardware which the network security system like stating before includes the central processing unit, main storage device, secondary storage, one or more network interfaces.

1) Using the security policy database which stores at least one security policy, and security policy editing program installed at the security policy program, consisting of 2) database administration module, security policy editing API module, the security policy check module, timer module and 3) security policy editing program, and 4) outside equipment, it is made of the software consisting of the security policy service daemon which is for the temporary security policy in the database with the storage (registration) below.

The invention relates to the security policy of the provisional security policy previous the state applied to the security policy stored in the next in which the time limit and limited frequency pass is cancelled the provisional security policy is applied for the time limit and limited frequency. And it has the feature to return.

Therefore, the provisional security policy the security policy. And the security policy check module the function of confirming the fixed provisional security policy and applying the security policy to network. And the security policy editing API module the function of offering the security policy edit function to outside. The function of canceling the secure king's seat hand (the access authority or the network connection etc) registering the security policy delete event and deletes the corresponding security policy which is saved when the corresponding event generated and is allowed with the security policy is.

Moreover, the network security policy application method is made of the security policy application phase applicable even to the network the registered security policy registration step: security policy it registers it stores the provisional security policy, and the security policy deletion and the cancellation stage deleting the security policy. The security policy application phase applicable even to the network the registered security policy registration step: security policy it registers it stores the provisional security policy and is applied to within the fixation frequency for the middle at least one limitation within the predetermined time it is performed by the network device for including the software defined in the upper part. The security policy deletion and the cancellation stage deleting the security policy is stored when the limitation is satisfied and lifts the application state of the corresponding security policy.

Using the security policy editing API module the security policy registration step enforces the security policy editing program, using the remote security policy editing program installed at the outside equipment it is performed, it can be performed by connecting to the security policy service daemon.

Moreover, a process of registering the security policy delete event in the timer module it is limited in the security policy registration step in case the limitation is the predetermined time is included additionally.

The security policy application phase comprises the security policy check module which is the packet filtering, passing only the packet the access restriction through the authentication, the network connection limit etc of the address which performs about the network packet or the log-in etc. and which is allowed.

The security policy deletion and cancellation stage are performed by the timer module in case the limitation is the predetermined time. And the security policy deletion and cancellation stage can be performed by the security policy check module in case the limitation is the definite number number. Moreover, in the security policy deletion and cancellation stage, a process of lifting the application state of the security policy it deletes is the corresponding security policy stored in the security policy database performed. And more specifically, it illustrates for this content in the lower part.

Fig. 1 is made of the central processing unit (110) the hardware configuration of the network security system is shown, and the main storage device (120), and the secondary storage (130) and at least one network interface (140).

In the main storage device or the secondary storage, the used software is stored in the invention illustrated in the lower part. And a series of operation of being made is performed by software in the central processing unit.

The network interface is connected to the other terminal and outside equipment. The information transmitted and received between all equipments for being connected in this apparatus is transmitted with the central processing unit. In that way the packet entering each equipment is filtered according to the security policy defined in the invention or it makes the login authentication of each terminal user possible.

The configuration of this hardware is similar to the network protective device including the conventional packet filtering router, the host system, the proxy server etc. And the conventional firewall (the network security system) and difference are had but in the software side.

Figure 2 is a functional block diagram of the software for performing the security policy application method.

In the software is the kernel (OS) level or the application layer (Application Level), it is included of a lot, the security policy database (210), security policy program (220), and the security policy editing program (230) and security policy service daemon (daemon: 240) while realizable.

In the security policy database (210), the provisional security policy is used for the present invention, in other words, the predetermined time and/or the definite number manual inside stores the security policy temporarily applied to and it registers. And in order to cancel the security policy application in case the guaranteed policy in which the security policy program is stored and which is registered is applied to the network according to the fixed limitation and the condition is completed the condition is used.

The security policy database (210) implies data construct embodying in the main storage device of the hardware of the above-described network device or the secondary storage to the thing for storing the security policy inputted by user. For this, the different object (entity) having the field which altogether can show attribute of the security policy applied to the present invention is included. And it can show in the table type.

In order to store the desired provisional security policy in the database and register it uses.

Detail the security policy program (220) is made of the database administration module (221), security policy editing API module (222), security policy check module (223), timer module (224).

In program such as the firewall data base administration module (221) can use the commercial DB management system including the relational database management system (RDBMS), like the operational reception of announcements by coded line electronics (Oracle), informix (Infomix), sybase, DB2 or the Gemston, the Orion, the O2 etc. the security policy for the security policy database (210) as storage, deletion, and for renewing, it is more desirable that the database is interior implemented because there is much data amount managed.

The necessary security policy database is built in the invention. It is adequately embodyable in the technical field in which the invention belongs with a person skilled in the art to manage. Therefore the detailed explanation about that omits.

The security policy editing API module (222) is used in order to offer the security policy edit function to outside. The combination generation of the instruction which it makes so that the security policy editing program (230) use.

The instruction list which it provides for the system call or the subroutine library so that in the API (Application Programing Interface), the other any kind of one application use any kind of data that respectively becomes in the other application. When to using the basic function of the operating system in application, instruction is called here.

According to the provisional security policy which the security policy check module (223) is registered, it is the module applying the security policy to the network. The function of filtering the network packet in which it is necessary to have the security policy or authenticating the log-in of the network terminal device user is done. Moreover, in case the registered provisional security policy single or the definite number manual inside described in the above is applied in case the times in which the security policy is applied to is checked and the target condition is satisfied the corresponding security policy is deleted. By lifting the application state of the security policy it moreover can have. Of returning to the previous security policy state.

In case the provisional security policy applied to for the time limit is registered the timer module (224) is used. If the above-described provisional security policy is registered the security policy delete event is registered by the timer module. And the timer module deletes the corresponding security policy from the database if the fixed time passes. The function of lifting the action, authorized by the corresponding security policy for example, the access authority or the network connection etc. is done.

The security policy editing API module which the security policy editing program (220) describes in the above can be used to provide the service which is safe edits the security policy at remote.

The demon (daemon) is the program practicing the work related to the operation of the system in the back ground (background) state. If the working condition processed in the demon program is produced it is started in the automatically and the task corresponding to the request is processed.

It interlinks to the security policy service daemon (240) and the remote security policy editing program (250) having in the outside equipment edits the security policy. The edited provisional security policy is stored in database.

Figure 3 is a general flowchart of the network security policy application method. A lot, it is made of the security policy application phase (S320) applicable even to the network the security policy for the limitation of the security policy registration step (S310), and the step (S340). The security policy application phase (S320) applicable even to the network the security policy for the limitation of the security policy registration step (S310), stores the provisional security policy which the administrator edits in the database and registered and predetermined time and/or the definite number number. The step (S340) deletes the security policy in case it is satisfied the limit (the cancel release) condition since the predetermined time passes or the definite number manual inside security policy is applied and revokes the security policy application state.

More specifically, fig. 4 shows the flow illustrated in Figure 3.

Firstly, using the remote security policy editing program installed at the external device it connects to the network security system (S420) by the invention using security policy service daemon in the case (S420) using the administrator to use is the external device, the security policy application method, the security policy is edited (S421). The edited provisional security policy is stored in the security policy database and it registers (S440).

In case administrator directly uses the network security system, the security policy editing API module, of the security policy program and the security policy which wants by using the security policy editing program is edited (S430). That is stored in the security policy database and it registers (S440).

In case of being the security policy in which the registered provisional security policy is applied for the predetermined time the security policy delete event is registered in the timer module of the security policy program (S451). The security policy which the security policy delete event is registered when the fixed time passes may be referred to the event which deletes and which is activated in order to revoke the security policy application state.

If the security policy is registered the packet transmitted and received according to the registered security policy to the network is filtered from the security policy check module or the corresponding security policy is applied to the network by doing the access restriction through the log-in, the network connection etc (S452, S461).

If the fixed time or the fixed collection passes the timer module or the security policy check module revokes the security state deleting the registered security policy from the database and was applied (S454, S463). However, in case of being the security policy which 1 time is applied to the security policy application is confirmed by the check module. Simultaneously deletion and the above-described release action are performed.

In at this time, the applied security policy follows any kind of security policy like and various implementation methods can be used. For example, in case of the firewall, the mode, which it later finds this after it indicates the corresponding security policy in the connection allowed with the security policy and it erases the mode etc. can be used lifts when the allowed connection is compared with the security policy returning, being contrary firstly after it deletes the security policy and etc. return to the previous security policy state. etc. is desirable on the whole, to consider the kind (state) of the network, in which the corresponding security policy is applied the frequency of the security policy deletion, the number of the state (the action) allowed by the security policy etc. if any mode be used and determine.

Scope of Claims

■ Claim 1:

The apparatus for applying the provisional security policy applied to within the constant collection for the middle at least one limitation to the network within the predetermined time comprising: the software consisting of the security policy service daemon which using the security policy database which stores 1) at least one security policy, and security policy editing program installed at the security policy program, consisting of 2) database administration module, the security policy editing API module, the security policy check module, the timer module and 3) security policy editing program, and 4) outside equipment, is for the temporary security policy in the database with the storage (registration) below, wherein the provisional security policy is applied for the time limit or the limited frequency; and the state applied to the security policy stored in the next in which the time limit and limited frequency pass is cancelled and the state returns to the security policy of the provisional security policy previous.

■ Claim 2:

The network security method applying the security rule for restricted condition for the limitation made of the security policy application phase applicable even to the network the security policy registration step: security policy, and the security policy deletion and the cancellation stage deleting the security policy. As to the security policy application phase applicable even to the network the security policy registration step: security policy, the security policy check module is registered it registers it stores the provisional security policy which and is applied to within the fixation frequency for the middle at least one limitation in the security policy database within the predetermined time it is the network security method performed by the network security system by claim 1. As to the security policy deletion and the cancellation stage, one is stored among the security policy check module and timer module when the limitation is satisfied and lifts the application state of the corresponding security policy.

■ Claim 3:

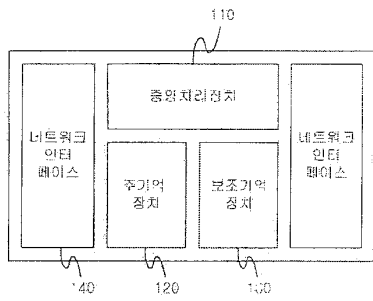
As for claim 2, the network security method applying the security rule for restricted condition for the limitation, wherein the security policy registration step using the security policy editing API module the security policy editing program is enforced, using the remote security policy editing program installed at the first method, for performing and outside equipment, it is performed by at least one method among the second method for being performed by connecting to the security policy service daemon.

■ Claim 4:

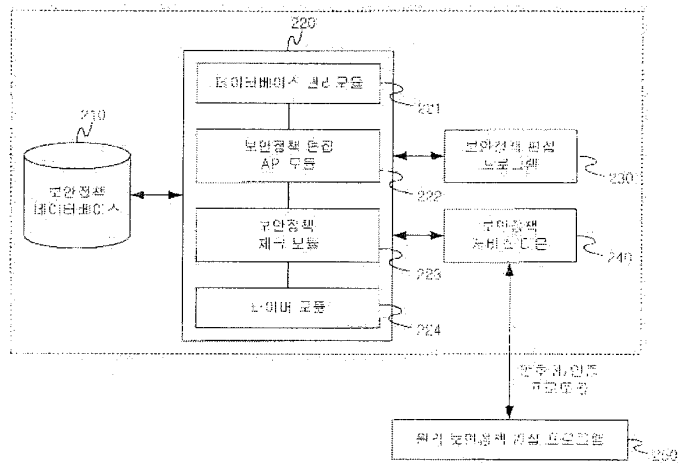
The network security method applying the security rule for restricted condition for the limitation which additionally includes the process of claim 2 or 3, wherein in the security policy registration step, it limits in case limitation is the predetermined time and the security policy delete event is registered in the timer module.

Drawing

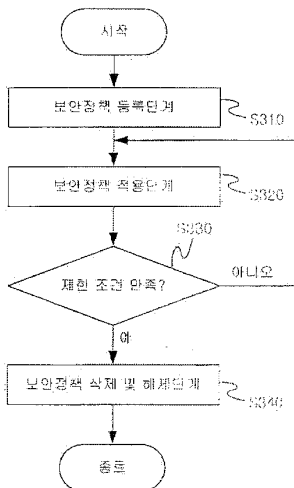
■ Fig. 1



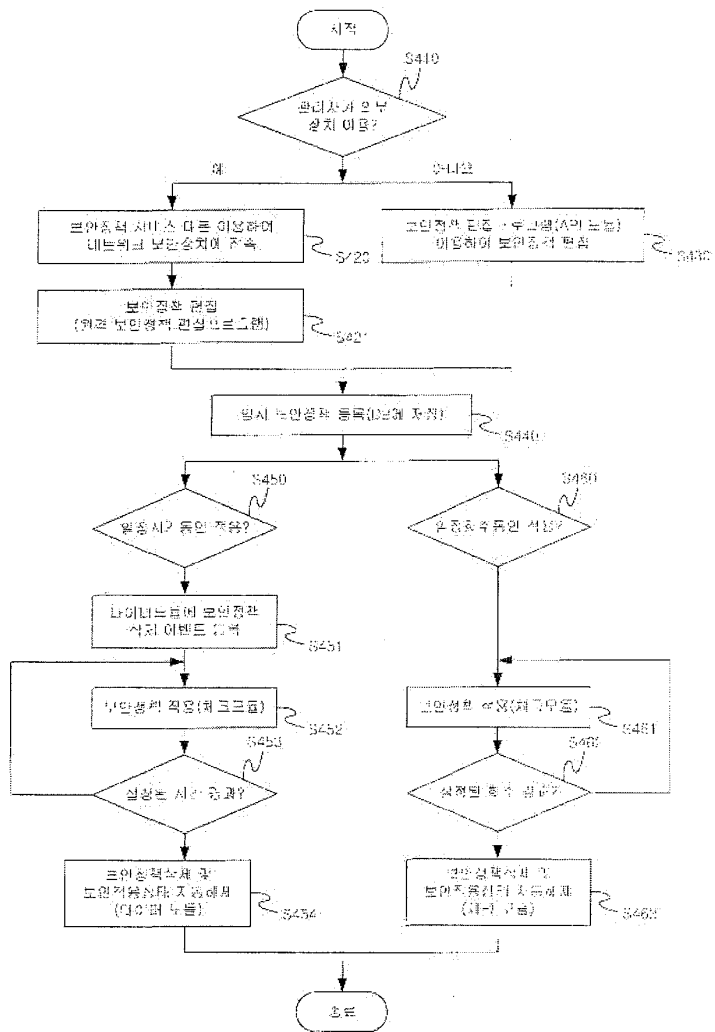
■ Fig. 2



■ Fig. 3



■ Fig. 4



Legal Status

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2001.07.03	Patent Application	수리 (Acceptance)
2001.07.04	Submission of Attached Electronic Document	수리 (Acceptance)
2003.07.11	Request for Prior Art Search	수리 (Acceptance)
2003.08.12	Report of Prior Art Search	수리 (Acceptance)
2004.02.20	Notification of reason for refusal	발송처리완료 (Dispatched)
2004.04.20	Written Opinion	수리 (Acceptance)
2004.04.20	Amendment to Description, etc.	보정승인간주 (Regarded as an acceptance of amendment)
2004.10.28	Decision to Refuse a Patent	발송처리완료 (Dispatched)

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(54) 제한조건 동안 특정 보안정책을 적용할 수 있는 네트워크보안장치 및 네트워크 보안방법

요약

본 발명은 외부 또는 내부에서 제한시간동안 및/또는 제한 회수 동안만 적용될 수 있는 임시의 보안정책을 설정하고 적용할 수 있는 네트워크 보안장치 및 방법에 관한 것으로, 일정시간 및/또는 일정회수로 이루어지는 제한조건동안 적용되는 임시 보안정책을 저장하여 등록하는 보안정책 등록단계와, 등록된 보안정책을 네트워크에 적용하는 보안정책 적용단계와, 제한조건이 만족하는 때에 저장된 보안정책을 삭제하고, 해당 보안정책의 적용상태를 해제하는 보안정책 삭제 및 해제단계로 이루어진다.

본 발명을 이용하면, 관리자가 일정 시간 및/또는 일정 회수동안만 임시로 적용되는 네트워크 보안정책을 네트워크 내 · 외부에서 효율적으로 관리할 수 있으며, 프로시 서비스 구현을 간단히 할 수 있다.

대표도

도 4

색인어
제한시간, 제한회수, 네트워크, 보안정책

명세서

도면의 간단한 설명

즉, 통상적인 보안정책이 적용되는 도중에 임시로 일정시간 또는 일정회수만 임시 보안정책을 적용하고자 하는 경우, 상기와의 관이 시간제한을 가지는 임시 보안정책을 정의하여 적용하고, 그 시간이 경과한 후에는 임시 보안정책을 자동으로 삭제하고 새로운 보안정책을 정의하여야 하는 점에서 종래의 방법과 유사한 단점을 가진다.

따라서, 보안정책의 유연한 변경이 어려우며, 임시로 특정 보안정책을 적용하고자 하는 경우 매우 번거로운 작업을 요하게 된다.

이러한 기존의 방화벽(firewall) 등의 네트워크 장치는 보안정책(Rule)을 정의하면 관리자가 해당 보안정책을 변경하거나 삭제할 때까지 그 보안 정책이 계속적으로 적용된다. 적용되고 있는 보안정책의 임시적인 변경이 필요할 경우 관리자는 종래의 보안정책을 제거하고 새로운 보안 정책을 정의하여야 하며, 새로운 보안 정책이 필요하지 않게 된 때에는 관리자가 다시 삭제하여야 한다.

또한 구축된 형태로, 하나의 패킷 필터링 라우터로 구현되는 패킷 필터링 방화벽과, 하나의 패킷 필터링 라우터와 이 방화벽(Screened Host Firewall)과, 두 개의 네트워크 인터페이스를 포함하는 호스트로 이루어지는 듀얼홈 게이트웨이 방화벽(Dual-homed Gateway Firewall)과, 상기 스크린 호스트 방화벽과 듀얼홈 게이트웨이 방화벽을 통합한 형태의 스크린 서브네트 방화벽(Screened Subnet Firewall)로 구현할 수 있다.

네트워크 사이의 보안을 위하여 사용되는 방화벽(firewall)은 네트워크 내부로의 접근제어(Access Control) 및 사용자 인증(Authentication)을 통하여 특정한 네트워크로 인증된 정보만이 수신될 수 있게 하는 시스템을 의미한다. 이러한 방화벽은 기능별로, 주소와 목적지의 IP주소 또는 포트번호에 따라 패킷의 통과를 제한하는 패킷 필터링 게이트웨이(Packet Filtering Gateway)와, TCP 연결을 제한하는 회로레벨 게이트웨이(Circuit-Level Gateway)와, 응용 계층에서 각 응용 프로그램은 중계해주는 응용게이트웨이(Application gateway) 등으로 나뉘어진다.

본 발명은 제한조건 동안 특정한 보안정책을 적용할 수 있는 네트워크 장치 및 그를 이용한 보안방법, 더 상세하게는 외부 또는 내부에서 제한시간동안 및/또는 제한 회수 동안만 적용될 수 있는 임시의 보안정책을 설정하고 적용할 수 있는 네트워크 보안장치 및 방법에 관한 것이다.

발명이 속하는 기술 및 그 분야의 종래기술

발명의 목적

발명의 상세한 설명

도 4는 도 3에 도시된 흐름을 더 상세하게 도시한 것이다.

도 3은 본 발명에 의한 네트워크 보안방법의 대략적인 흐름도이다.

도 2는 본 발명에 의한 네트워크 보안방법을 수행하기 위한 소프트웨어의 기능별 블록도이다.

도 1은 본 발명에 의한 네트워크 보안장치의 하드웨어 구성을 도시한다.

보안정책의 임시적인 변경은 여러 가지 상황에서 필요한 것이므로, 이러한 많은 경우 수동으로 보안정책을 다시 정의하고 삭제하여야 보안을 유지할 수 있어서, 시간 및 비용의 소모가 많았다.

또한, 침입탐지시스템(Intrusion Detection System; IDS) 등 외부 장비와 연동하여, 외부에서 자동으로 보안정책을 업데이트할 수도 있는 바, 이러한 경우 대부분 일정 기간 동안만 보안정책이 적용되게 한다.

이 때 보안정책을 바꿀 수 있는 외부 장비에서 모두 타이머(Timer)를 구현함으로써 일정기간이 경과한 후에 보안정책을 다시 삭제하도록 하여야 한다. 외부 장비들 모두에 타이머(Timer)를 따로 구현해야 하므로 비효율적이며, 또한 다시 네트워크를 통하여 보안정책을 삭제하여야 하므로, 침입자가 네트워크 상의 패킷을 가로채어 위조 패킷을 만들 경우 보안정책을 임의로 삭제할 수 있으며, 보안정책 삭제 패킷을 변조하여 보안정책이 삭제되지 않도록 할 수도 있다.

한편, 방화벽에서 많이 사용되는 프록시(proxy)서버를 구현할 때 임시로 적용되는 보안정책구현을 이용하여 보안문제나 프로그램 버그의 문제를 해결할 수 있다. 그러나, 이러한 프록시 서버를 이용하여 방화벽을 여러 가지 애플리케이션과 네트워크 프로토콜이 계속적으로 발생하는 인터넷 환경에서 사용하는 데에는 여러 가지 문제점이 있을 수 있다. 방화벽은 기본적으로 외부에서 들어오는 패킷을 막는데, 이를 해결하기 위하여 프록시 기능을 이용하거나 외부에서 패킷이 들어올 수 있도록 일부 서비스를 열어주어야 한다. 외부에서 들어올 수 있도록 보안정책을 열어주면 보안상 위험할 수도 있기 때문에 프록시 기능을 이용하며, 프록시 기능하에서는 특정한 조건이 되면 외부에서 들어오는 패킷을 임시로 허가하도록 할 수 있다. 프록시 기능은 엔드사용자(end user)가 프록시 서버를 지정하여야 하는 일반 프록시(classical proxy)와 사용자가 설정하지 않아도 중간에서 투명하게 동작하는 투명프록시(transparent proxy)가 있으며, 이러한 프록시 기능은 각각의 애플리케이션이나 프로토콜별로 따로 작성해야 한다. 이러한 프록시 기능을 이용하는 경우에는 더 이상 서비스가 사용되지 않을 경우 보안정책을 닫아주어야 하며 그렇지 아니할 경우 보안상 결함이 생길 수 있기 때문에, 프록시 서버를 만들 때 보안정책을 일정시간 이후에 닫도록 하는 것이 바람직하다. 이를 위하여 프록시 서비스를 구현할 때에는 모든 애플리케이션이나 프로토콜 각각을 위한 프록시 서버에 타이머를 각각 별도로 구현하여야 하므로 번거롭다.

본 발명의 이러한 종래 네트워크 보안장치의 단점을 보완하기 위하여 착안된 것으로, 내부 또는 외부에서 시간제한 및/또는 회수제한을 가지는 임시보안정책을 정의할 수 있도록 하고, 해당 시간 및/또는 회수가 경과한 후에는 자동으로 임시 보안정책을 삭제함으로써 네트워크의 임시 보안정책 적용을 원활하게 한다.

발명이 이루고자 하는 기술적 과제

본 발명의 목적은 일정기간 및/또는 일정회수만 적용되도록 하는 임시보안정책을 장치 내외부에서 정의하고, 설정된 기간이나 회수가 경과한 후에는 자동으로 보안정책을 삭제하는 네트워크장치 및 보안정책 적용방법을 제공하는 것이다.

본 발명의 다른 목적은 외부장치에서 일정기간동안 적용되는 보안정책을 추가할 때, 외부장치에서 타이머 구현이 필요 없으며 보안정책을 삭제하는 패킷을 이용하지 않아도 되므로 향상된 보안을 유지시킬 수 있는 네트워크 장치 및 보안정책 적용방법을 제공하는 것이다.

본 발명의 또다른 목적은 임시 보안정책이 제한시간 이후에 자동으로 삭제되도록 함으로써 프록시 서비스의 구현을 간단하게 할 수 있는 네트워크 장치 및 보안정책 적용방법을 제공하는 것이다.

발명의 구성 및 작용

전술한 바와 같은 목적을 달성하기 위하여 본 발명에 의한 네트워크 보안장치는 중앙처리장치, 주기억장치, 보조기억장치, 하나 이상의 네트워크 인터페이스를 포함하는 하드웨어와;

주기역장치 또는 보조기역장치에는 아래에서 설명할 본 발명에서 이용되는 소프트웨어가 저장되며, 중앙처리부에서는 상기 소프트웨어에 의하여 이루어지는 일련의 동작이 수행된다.

도 1은 본 발명에 의한 네트워크 보안장치의 하드웨어 구성을 도시하는 것으로, 중앙처리장치(110)와, 주기역장치(120), 보조기역장치(130) 및 하나 이상의 네트워크 인터페이스(140)로 이루어져 있다.

도 1은 본 발명에 의한 네트워크 보안장치의 하드웨어 구성을 도시하는 것으로, 중앙처리장치(110)와, 주기역장치(120), 보조기역장치(130) 및 하나 이상의 네트워크 인터페이스(140)로 이루어져 있다.

본 발명에 의한 네트워크 보안장치는 제한조건이 일정시간인 경우에는 타이머모듈에 의하여 수행되며, 제한조건이 일정회수인 경우에는 보안정책 체크모듈에 의하여 수행될 수 있다. 또한, 보안정책 삭제 및 해제단계에서는 보안정책 데이터베이스에 저장되어 있던 해당 보안정책을 삭제함과 동시에, 보안정책의 적용상태를 해제하는 과정이 수행되며, 이러한 내용에 대해서는 아래에서 더 상세하게 설명한다.

본 발명에 의한 네트워크 보안장치는 보안정책 체크모듈이 네트워크 패킷이나 로그인 등에 대하여 수행하는 것으로, 허용된 어드레스의 패킷만을 통과시키는 패킷 필터링, 인증을 통한 액세스 제한, 네트워크 연결 제한 등을 포함한다.

본 발명에 의한 네트워크 보안장치는 제한조건이 일정시간인 경우에 한하여 타이머 모듈에 보안정책 삭제이벤트를 등록하는 과정을 추가할 수 있다.

또한, 보안정책 등록단계에서는, 제한조건이 일정시간인 경우에 한하여 타이머 모듈에 보안정책 삭제이벤트를 등록하는 과정을 추가할 수 있다.

본 발명에 의한 네트워크 보안장치는 보안정책 체크모듈이 프로세스를 실행하고 보안정책 편집 API모듈을 이용하여 수행되거나, 외부 장비에 설치되어 있는 원격 보안정책 편집 프로그램을 이용하여 보안정책 서비스 데몬(service daemon)에 연결함으로써 수행될 수 있다.

본 발명에 의한 네트워크 보안장치는 보안정책 체크모듈이 프로세스를 실행하고 보안정책 편집 API모듈을 이용하여 수행되거나, 외부 장비에 설치되어 있는 원격 보안정책 편집 프로그램은 이용하여 보안정책 서비스 데몬(service daemon)에 연결함으로써 수행될 수 있다.

본 발명에 의한 네트워크 보안장치는 보안정책 체크모듈이 프로세스를 실행하고 보안정책 편집 API모듈을 이용하여 수행되거나, 외부 장비에 설치되어 있는 원격 보안정책 편집 프로그램은 이용하여 보안정책 서비스 데몬(service daemon)에 연결함으로써 수행될 수 있다.

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네트워크 인터페이스는 다른 단말기 및 외부 장비와 연동되어 있어서, 본 장치에 연동되어 있는 모든 장비 사이에서 송수신되는 정보를 중앙처리부로 전송함으로써, 본 발명에서 정의하는 보안정책에 따라 각 장비로 들어가는 패킷을 필터링하거나, 각 단말기 사용자의 로그인 인증을 가능하게 한다.

이러한 하드웨어의 구성은 종래의 패킷 필터 라우터, 호스트 시스템, 포터블 서버 등의 네트워크 보안장치와 유사하며, 다만 소프트웨어적인 면에서 종래의 방화벽(네트워크 보안장치)과 차이점을 가진다.

도 2는 본 발명에 의한 보안정책 적용방법을 수행하기 위한 소프트웨어의 기능별 블록도이다.

본 발명에 의한 소프트웨어는 커널(OS) 레벨이나 응용계층(Application Level)에서 구현 가능하며, 보안정책 데이터베이스(210)와, 보안정책 프로그램(220)과, 보안정책 편집프로그램(230), 및 보안정책 서비스 데몬(daemon; 240)으로 이루어져 있다.

보안정책 데이터베이스(210)에는 본 발명에 이용되는 임시 보안정책, 즉 일정시간 및/또는 일정회수동안만 임시로 적용되는 보안정책을 저장·등록하며, 보안정책 프로그램은 저장·등록된 보정정책을 설정된 제한조건에 따라 네트워크에 적용하고 조건이 완료된 경우에 보안정책 적용을 해제하기 위하여 사용된다.

보안정책 데이터베이스(210)는 사용자에 의하여 입력된 보안정책을 저장하기 위한 것으로, 전송된 네트워크 장치의 하드웨어의 추가장치 또는 보조장치에 구현되는 데이터구조를 의미한다. 이를 위하여 본 발명에 적용되는 보안정책의 속성을 모두 나타낼 수 있는 필드를 가지는 여러 객체(entity)를 구비하며, 테이블 형태로 나타낼 수 있다.

보안정책 편집 프로그램(230)은 보안정책 프로그램(220)과 연동하여 사용자가 임시 보안정책을 편집하여 저장·등록할 수 있도록 하며, 보안정책 서비스 데몬(service daemon; 240)은 외부의 관리자가 침입탐지시스템과 같은 외부 장비에 설치된 원격 보안정책 편집 프로그램에 의하여 원하는 임시 보안정책을 데이터베이스에 저장·등록하기 위하여 사용한다.

보안정책 프로그램(220)은 세부적으로, 데이터베이스 관리모듈(221), 보안정책 편집 API 모듈(222), 보안정책 체크 모듈(223), 타이머 모듈(224)로 이루어져 있다.

데이터베이스 관리모듈(221)은 보안정책 데이터베이스(210)에 보안정책을 저장, 삭제, 갱신하기 위한 것으로, 오라클(Oracle), 인포믹스(Informix), 사이베이스(Sybase), DB2와 같은 관계형 데이터베이스 관리 시스템(RDBMS)이나, Gemston, 오러온(Orion), O2 등과 같은 상용 DB관리 시스템을 이용할 수도 있으나, 일반적으로 방화벽 같은 프로그램에서는 관리할 데이터량이 많지 않기 때문에 내부적으로 데이터베이스를 구현하는 것이 더 바람직하다.

본 발명에 필요한 보안정책 데이터베이스를 구축하고, 관리하는 것은 본 발명이 속하는 기술분야에서 통상의 지식을 가진 자에 의하여 충분히 용이하게 구현가능하기 때문에, 그에 대한 상세한 설명은 생략한다.

보안정책 편집 API 모듈(222)은 보안정책 편집기능을 외부에 제공하기 위하여 사용되는 것으로, 보안정책 편집 프로그램(230)이 이용할 수 있도록 만든 명령어의 집합이다.

API(Application Programming Interface)는 각기 다른 응용프로그램에서 생성된 어떤 데이터를 다른 어떤 응용프로그램이 이용할 수 있도록 시스템 콜이나 서브루틴 라이브러리에 대해 규정한 명령어 집합으로서, 응용 프로그램에서 운영체제의 기본적인 기능을 사용할 필요가 있을 때 여기에서 명령어를 호출한다.

보안정책 체크모듈(223)은 등록된 임시 보안정책에 따라 네트워크에 보안정책을 적용하는 모듈로서, 구체적으로는 보안정책이 필요한 네트워크 패킷을 필터링하거나 네트워크 단말장치 사용자의 로그인 인증하는 기능을 한다. 또한, 등록된 임시 보안정책이 한 번 또는 그 이상의 일정회수동안만 적용되도록 하는 경우에, 보안 정책이 적용되는 횟수를 체크하여 해당 조건이 만족하는 경우에 해당 보안정책을 삭제하고, 보안정책의 적용상태를 해제함으로써 이전 보안정책 상태로 복귀시키는 기능 또한 가질 수 있다.

타이머모듈(224)은 제한시간동안 적용되는 임시보안정책이 등록된 경우에 사용되는 것으로, 전술한 임시 보안정책이 등록되면 타이머 모듈에 보안정책 삭제 이벤트(event)가 등록되며, 타이머 모듈은 설정된 시간이 경과하면 해당 보안정책을 데이터베이스로부터 삭제하고, 해당 보안정책에 의하여 허용된 행위, 예를 들면 액세스 권한이나 네트워크 연결 등을 해제하는 기능을 한다.

보안정책 편집 프로그램(220)은 전술한 보안정책 편집 API 모듈을 이용하여 사용자가 원하는 보안정책을 편집하고 이를 데이터베이스에 저장·등록하기 위하여 사용되며, 보안정책 서비스 데몬(service daemon; 240)은 암호와 인증 프로토콜(protocol)을 이용하여 원격에서 안전하게 보안정책을 편집할 수 있도록 하는 서비스를 제공한다.

데몬(daemon)은 시스템의 운영에 관련된 작업을 백그라운드(background) 상태에서 실행하는 프로그램으로서, 데몬 프로그램에서 처리하는 작업 조건이 발생하면, 자동적으로 기동되어 요청에 해당되는 작업을 처리한다.

외부 장비에 있는 원격 보안정책 편집프로그램(250)은 보안정책 서비스 데몬(240)에 연결하여 보안정책을 편집하고, 편집된 임시 보안정책을 데이터베이스에 저장한다.

도 3은 본 발명에 의한 네트워크 보안정책 적용방법의 대략적인 흐름도로서, 크게 관리자가 편집한 임시 보안정책을 데이터베이스에 저장하여 등록하는 보안정책 등록단계(S310)와, 일정시간 및/또는 일정회수의 제한조건 동안 보안정책을 네트워크에 적용하는 보안정책 적용단계(S320)와, 일정시간이 경과하거나 일정회수동안 보안정책이 적용됨으로써 제한(해제)조건을 만족하게 된 경우 보안정책을 삭제하고 보안정책 적용상태를 해제하는 단계(S340)로 이루어진다.

도 4는 도 3에 도시된 흐름을 더 상세하게 도시한 것이다.

우선 본 발명에 의한 보안정책 적용방법을 이용하려는 관리자가 외부 장치를 이용하는 경우(S420)에는, 보안정책 서비스 데몬을 이용하여 본 발명에 의한 네트워크 보안장치에 접속한 다음(S420), 외부 장치에 설치되어 있는 원격 보안정책 편집 프로그램을 이용하여 보안정책을 편집하고(S421), 편집된 임시 보안정책을 보안정책 데이터베이스에 저장·등록한다(S440).

관리자가 본 발명에 의한 네트워크 보안장치를 직접 이용하는 경우에는 보안정책 프로그램의 보안정책 편집 API 모듈과, 보안정책 편집 프로그램을 이용하여 원하는 보안정책을 편집하고(S430), 그를 보안정책 데이터베이스에 저장·등록한다(S440).

등록된 임시 보안정책이 일정시간동안 적용되는 보안정책인 경우에는 보안정책 프로그램의 타이머 모듈에 보안정책 삭제 이벤트를 등록한다(S451). 보안정책 삭제 이벤트는 설정된 시간이 경과한 때 등록된 보안정책을 삭제하고, 보안정책 적용상태를 해제하도록 활성화되는 이벤트이다.

보안정책이 등록되면 보안정책 체크모듈은 등록된 보안정책에 따라 네트워크로 송수신되는 패킷을 필터링하거나, 로그인을 통한 액세스 제한, 네트워크 연결 등을 함으로써 네트워크에 해당 보안정책을 적용한다(S452, S461).

설정된 시간 또는 설정된 회수가 경과되면, 타이머 모듈 또는 보안정책 체크모듈은 등록된 보안정책을 데이터베이스로부터 삭제하고 적용되었던 보안상태를 해제한다(S454, S463). 단 1회만 적용되는 보안정책인 경우에는 체크모듈에 의하여 보안정책 적용이 확인됨과 동시에, 전술한 삭제 및 해제 동작을 수행하도록 할 수 있다.

이때에는, 적용되었던 보안정책이 어떤 보안정책이냐에 따라 여러 가지 구현방식이 이용될 수 있다. 그 예로서, 방화벽의 경우 보안정책에 의하여 허용된 연결에 해당 보안정책을 표시한 후 나중에 이를 찾아 지우는 방식, 우선 보안정책을 삭제하여 이전 보안정책상태로 복귀시킨 후 현재 허용된 연결을 복귀한 보안정책과 비교하여 위배되는 것을 해제하는 방식 등이 이용될 수 있다. 어떠한 방식을 이용하느냐는 해당 보안정책이 적용될 네트워크의 종류(상태), 보안정책 삭제의 빈도수, 보안정책에 의하여 허용된 상태(행위)의 수 등을 전체적으로 고려하여 결정하는 것이 바람직하다.

상기 보안정책 등록단계는

제 2 항에 있어서,

청구항 3.

보안정책 체크모듈이 등록된 보안정책을 네트워크에 적용하는 보안정책 적용단계;
상기 보안정책 체크모듈 및 데이터 모듈 중 하나가 상기 제한조건이 만족하는 때에 저장된 보안정책을 삭제하고, 해당 보안정책의 적용상태를 해제하는 보안정책 삭제 및 해제단계;로 이루어지는 것을 특징으로 하는 제한조건 동안 특정 보안정책을 적용할 수 있는 네트워크 보안방법.

보안정책 체크모듈이 등록된 보안정책을 네트워크에 적용하는 보안정책 적용단계;

일정시간내 및 일정횟수내 중 하나 이상의 제한조건동안 적용되는 임시 보안정책을 상기 보안정책 데이터베이스에 저장하여 등록하는 보안정책 등록단계;

상기 제 1 항에 의한 네트워크 보안장치에 의하여 수행되는 네트워크 보안방법으로서,

청구항 2.

상기 임시 보안정책이 제한시간 또는 제한회수 동안만 적용되고, 제한시간 및 제한회수가 경과된 다음에는 자동으로 저장된 보안정책 및 적용된 상태가 해제되어 임시 보안정책 이전의 보안정책으로 복귀하도록 하는 것을 특징으로 하는 제한조건 동안 특정 보안정책을 적용할 수 있는 네트워크 보안장치.

4) 외부 장비에 설치된 보안정책 편집프로그램을 이용하여 상기 데이터베이스에 임시의 보안정책을 저장(등록)하기 위한 보안정책 서비스 데몬(service daemon)으로 이루어진 소프트웨어를 포함하며,

3) 보안정책 편집 프로그램과,

2) 데이터베이스 관리모듈, 보안정책편집 API 모듈, 보안정책 체크모듈, 데이터모듈로 이루어지는 보안정책 프로그램과,

1) 하나 이상의 보안정책을 저장하는 보안정책 데이터베이스와,

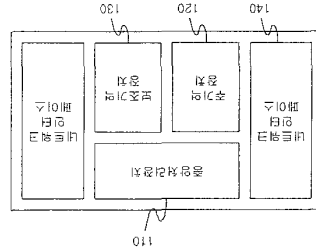
일정시간내 및 일정횟수내 중 하나 이상의 제한조건동안만 적용되는 임시 보안정책을 네트워크에 적용하기 위한 장치로서,

청구항 1.

(57) 청구의 범위

본 발명에 의한 네트워크 보안정책 적용방법을 이용하면, 관리자가 일정 시간 및/또는 일정 회수동안만 임시로 적용되는 네트워크 보안정책을 효율적으로 관리(설정, 적용 및 삭제)할 수 있으며, 관리자가 외부 장치를 이용할 때에도 해킹의 우려없이 간단하게 임시 보안정책을 관리할 수 있다.
또한, 포커시 서비스를 구현하는 경우에도 각 애플리케이션이나 프로토콜 각각을 위한 타이머를 별도로 구현할 필요가 없으므로, 포커시 기능의 구현을 간단히 할 수 있다.

발명의 효과



도면 1

도면

제한조건이 일정시간인 경우에 한하여 타이머 모듈에 보안정책 삭제이벤트를 등록하는 과정을 추가로 포함하는 것을 특징으로 하는 제한조건 동안 특정 보안정책을 적용할 수 있는 네트워크 보안방법.

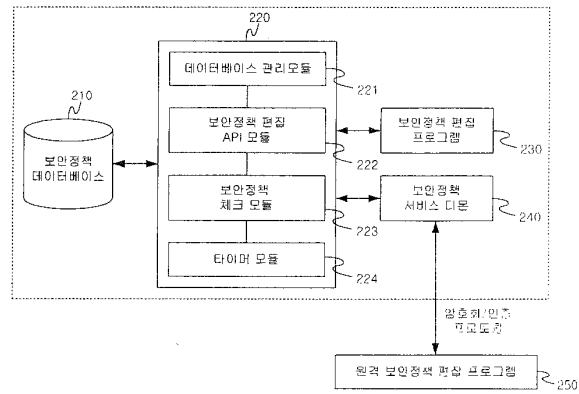
상기 보안정책 등록단계에서는,

제 2 항 또는 제 3 항에 있어서,

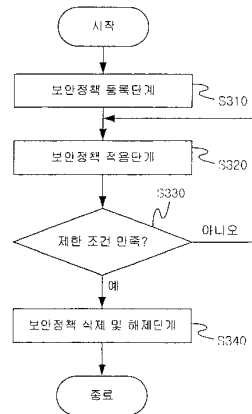
청구항 4.

네트워크 보안방법.
외부 장비에 설치되어 있는 원격 보안정책 편집 프로그램은 이용하여 보안정책 서비스 데몬에 연결함으로써 수행되는 제 2 방법 중 하나 이상의 방법에 의하여 수행되는 것을 특징으로 하는 제한조건 동안 특정 보안정책을 적용할 수 있는 보안정책 편집 프로그램은 실행하고 상기 보안정책 편집 API모듈을 이용하여 수행하는 제 1 방법과,

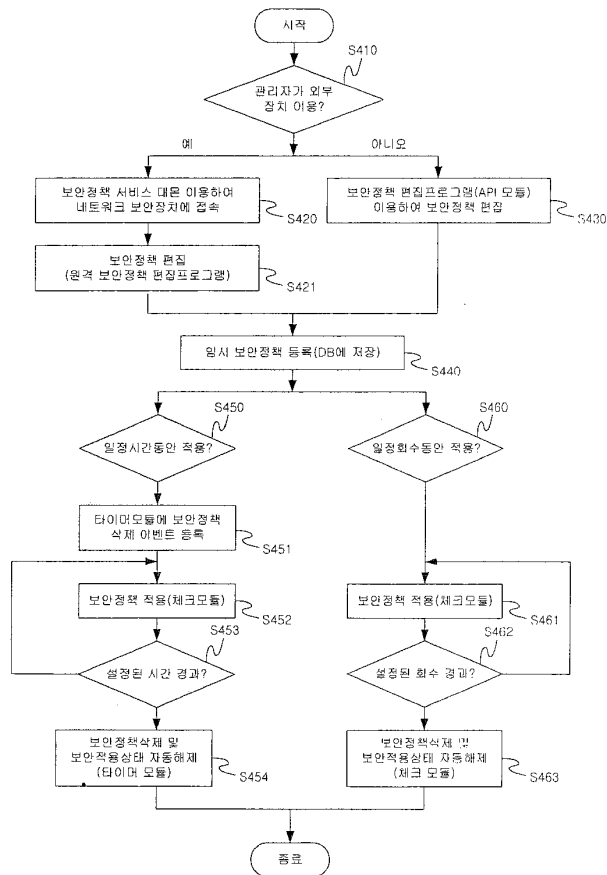
도면 2



도면 3



도면 4



TITLE OF THE INVENTION

METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY

CROSS-REFERENCE TO RELATED APPLICATION

5 This application claims priority to and the benefit of Korean Patent Application No. 10-2012-0040556 filed in the Korean Intellectual Property Office on April 18, 2012, the entire contents of which are incorporated herein by reference.

10 BACKGROUND OF THE INVENTION

(a) Field of the Invention

 The present invention relates to a method of controlling traffic. More particularly, the present invention relates to a method of setting a traffic control policy in which a time condition is added as a condition that controls traffic and of
15 determining and executing an execution time point of a preset time-based policy.

(b) Description of the Related Art

 Traffic generally indicates a load that is applied to a communication apparatus or a system, and in a network, traffic indicates a quantity of data that are exchanged through the network. In order to provide a smooth network
20 service or to apply a reasonable accounting model, a service provider monitors and controls a traffic situation. In this case, a policy is set to operate a network, and when transmission of data is requested from the outside of a server through the network, a service provider controls traffic according to the set policy.

 Such traffic includes a packet in which information such as a 5-tuple

(source IP address, destination IP address, source port, destination port, and protocol) and a 7-tuple (source IP address, destination IP address, source port, destination port, protocol, input port number, and signature) is stored, and a general policy is set based on information such as a 7-tuple that is included in a packet of traffic. A policy that is set at a policy server is executed in a policy execution point (PEP) and controls traffic.

Conventionally, because the above policy was set using only information that is included in a packet within traffic, a condition combination for setting a policy was limited to the information, and thus there was a limitation in controlling traffic with various methods.

SUMMARY OF THE INVENTION

The present invention has been made in an effort to provide a method of controlling traffic having advantages of controlling traffic with various methods by adding a time condition to policy setting that controls traffic and suggesting a method of executing a time-based policy in each stage of a network.

An exemplary embodiment of the present invention provides a method of setting a time-based policy that controls traffic. The method includes: extracting at least one of tuple information that is included in a packet; setting a time condition; and setting a time-based traffic control policy by combining the set time condition and the at least one tuple information that is included in the extracted packet.

Another embodiment of the present invention provides a method of executing a time-based policy in a policy server stage of a network. The method includes: determining, by a policy server (PS) to which the policy is set,

whether an execution time point of the time-based policy arrives; continuing, if an execution time point of the time-based policy does not arrive, to determine an execution time point of the time-based policy; and transmitting, if an execution time point of the time-based policy arrives, the time-based policy to a policy management system (PMS), wherein the PMS is connected to policy execution equipment (PEE) that executes the time-based policy.

The method may further include converting, by the PS, the policy to PMS transfer syntax and transmitting the PMS transfer syntax to the PMS.

Yet another embodiment of the present invention provides a method of executing a time-based policy in a PMS stage in a network. The method includes: downloading, by a PMS that is connected to a PEE that executes the time-based policy, the time-based policy; storing the time-based policy at a database that is included in the PMS; determining whether an execution time point of the time-based policy arrives; continuing, if an execution time point of the time-based policy does not arrive, to determine an execution time point of the time-based policy; and transmitting, if an execution time point of the time-based policy arrives, the time-based policy to the PEE.

The method may further include parsing, by the PMS, the time-based policy to a structure that is appropriate for the PEE.

The method may further include synchronizing a time-based policy that is stored at the PMS with the downloaded time-based policy.

Yet another embodiment of the present invention provides a method of executing a time-based policy in a PEE of a network. The method include: downloading, by a PEE that executes the time-based policy, the policy;

determining whether an execution time point of the time-based policy arrives; continuing, if an execution time point of the time-based policy does not arrive, to determine an execution time point of the time-based policy; and executing, if an execution time point of the time-based policy arrives, the time-based policy.

5 **BRIEF DESCRIPTION OF THE DRAWINGS**

FIG. 1 is a diagram illustrating a system that executes a time-based policy according to an exemplary embodiment of the present invention.

FIG. 2 is a flowchart illustrating a method of executing a time-based policy in a policy execution equipment stage of a network according to an
10 exemplary embodiment of the present invention.

FIG. 3 is a flowchart illustrating a method of executing a time-based policy in a policy management system stage of a network according to an exemplary embodiment of the present invention.

FIG. 4 is a flowchart illustrating a method of executing a time-based
15 policy in a policy server stage of a network according to an exemplary embodiment of the present invention.

DETAILED DESCRIPTION OF THE EMBODIMENTS

In the following detailed description, only certain exemplary embodiments of the present invention have been shown and described, simply
20 by way of illustration. As those skilled in the art would realize, the described embodiments may be modified in various different ways, all without departing from the spirit or scope of the present invention. Accordingly, the drawings and description are to be regarded as illustrative in nature and not restrictive. Like reference numerals designate like elements throughout the specification.

In addition, in the entire specification and claims, unless explicitly described to the contrary, the word “comprise” and variations such as “comprises” or “comprising” will be understood to imply the inclusion of stated elements but not the exclusion of any other elements.

5 Hereinafter, a method of controlling traffic through a time-based policy according to an exemplary embodiment of the present invention will be described in detail with reference to the drawings.

FIG. 1 is a diagram illustrating a system that executes a time-based policy according to an exemplary embodiment of the present invention.

10 Referring to FIG. 1, a time-based policy is set at a policy server (PS) 100 and is executed in policy execution equipment (PEE) 300 via a policy management system (PMS) 200.

A network service provider first connects to a policy management tool 110 and sets a time-based policy using a policy rule management module 111.

15 A policy that is set in this case is set by combining information (5-tuple, 7-tuple, etc.) that is included in a packet, a traffic flow form, and a time condition. That is, by combining a kind of tuple data that are included in the packet, a traffic pattern, and a time condition, a time-based policy may be set.

For example, in a specific time zone, a policy that allows traffic of a
20 specific IP address may be set, and during a specific period, a policy that determines total traffic that uses a specific port or address may be set. In this way, as a time condition is reflected to policy setting that controls traffic, a policy may be subdivided and diversified.

The time-based policy that is set at the policy rule management module

111 is converted to policy management system transfer syntax at a policy decision point (PDP) 120, and the policy management system transfer syntax is transmitted to the policy management system (PMS) 200.

The PMS 200 is connected to the PEE 300, which is hardware that
5 executes a policy that controls traffic, and is a software step of a network.

Conversion to PMS transfer syntax may be performed in a connection interface 121 of the PDP 120. The PMS 200 stores the received time-based policy at a database and synchronizes the time-based policy in real time.

The PMS 200 parses the received time-based policy to a structure
10 appropriate for the PEE 300, and transmits the parsed time-based policy to each PEE 300.

In this case, a plurality of PEEs 300 may be connected to the PMS 200, and the PEE 300 may become various network equipment according to a location at which a corresponding time-based policy of a network is executed, a
15 type of a network, or a network providing vender.

Thereafter, as the time-based policy is executed in the PEE 300, a time condition is reflected to a traffic control and thus a related application service can be provided.

An execution time point of a time-based policy to which a time condition
20 is reflected may be determined at each stage of the system. FIGS. 2 to 4 are flowcharts illustrating a method of executing a time-based policy in each stage of a network system in which a time-based policy is executed according to an exemplary embodiment of the present invention.

FIG. 2 is a flowchart illustrating a method of executing a time-based

policy in a PEE stage of a network according to an exemplary embodiment of the present invention.

Referring to FIG. 2, the PEE 300 downloads a time-based policy that is parsed from the PMS 200 (S100).

5 As shown in FIG. 1, the time-based policy is set at the PS 100, is converted to PMS transfer syntax to be transmitted to the PMS 200, and is parsed appropriately for each PEE 300 in the PMS 200. Thereafter, the PEE 300 analyzes the time-based policy and determines whether an execution time point of the time-based policy has arrived (S110).

10 If an execution time point of the time-based policy does not arrive, the PEE 300 continues to determine an execution time point of the time-based policy. If an execution time point of the time-based policy arrives, the PEE 300 executes the time-based policy (S120).

15 As described above, according to an exemplary embodiment of the present invention, when the PEE 300 determines an execution time point of the time-based policy, an execution time point is determined in an execution stage of a policy of a network system, and thus the time-based policy can be rapidly executed without a delay time from a determination time point of the time-based policy.

20 However, because the PEE 300 is hardware, in order to perform the above method, a function that can determine an execution time point of a time-based policy should be loaded when producing hardware, or a corresponding function should be additionally loaded through upgrade of firmware. Further, even if a function that can determine an execution time point

of a time-based policy is loaded, an execution time point of the time-based policy should be monitored in real time and thus performance may be deteriorated with consumption of hardware resources.

Therefore, in a general-purpose PEE 300 in which the function is not
5 loaded, when it is necessary to execute a time-based policy, or when available resources do not fully exist in the hardware, an execution time point of the time-based policy should be determined in a higher level stage than that of the PEE 300 of a time-based policy execution system.

Hereinafter, a method of determining an execution time point of a
10 time-based policy at a PS stage or a PMS stage will be described with reference to FIGS. 3 and 4.

FIG. 3 is a flowchart illustrating a method of executing a time-based policy in a PMS stage of a network according to an exemplary embodiment of the present invention.

15 Referring to FIG. 1, in a system in which a time-based policy is executed, the PMS 200 is in a higher level stage than that at which the PEE 300 is positioned, and is in a software-based stage.

Referring to FIG. 3, the PMS 200 downloads a time-based policy that is converted to PMS transfer syntax from the PS 100 (S200).

20 In this case, as shown in FIG. 1, a policy may be set at the policy management tool 110 of the PS 100 by a network service provider, the PDP 120 may transmit the policy to the PMS 200, and the connection interface 121 of the PDP 120 may convert the time-based policy to the PMS transfer syntax.

The PMS 200 stores the downloaded time-based policy at a database,

and synchronizes the stored time-based policy (S210).

Next, the PMS 200 determines whether an execution time point of the time-based policy arrives (S220). If an execution time point of the time-based policy does not arrive, the PMS 200 continues to determine an execution time
5 point of the time-based policy.

If an execution time point of the time-based policy arrives, in order to execute the time-based policy in the PEE 300, the PMS 200 parses the time-based policy to a structure that is appropriate for each PEE 300 (S230).

In this case, parsing of a time-based policy may be performed earlier
10 than step S220 of determining whether an execution time point of the time-based policy arrives, and in this case, the parsed time-based policy may be stored at a separate storage space, and when an execution time point of the policy arrives, the policy may be transmitted to the PEE 300.

That is, after a time-based policy is first parsed by the PMS 200 to a
15 structure that is appropriate for the PEE 300 to execute the time-based policy, the PMS 200 may determine an execution time point of the time-based policy.

The PMS 200 transmits the parsed time-based policy in which an execution time point arrives to the PEE 300 (S240).

Thereafter, the PEE 300 executes the time-based policy (S250).

20 At the software step of the PMS 200, i.e., a system that executes the time-based policy, an execution time point of the time-based policy may be determined through the above process.

In this case, because an execution time point of the time-based policy is determined in a higher level stage than that of a point at which the policy is

executed, after some time delay from the execution time point, the policy may be executed in the PEE 300.

However, a problem of time delay can be solved by setting an environment to determine a time point that is somewhat earlier than an execution time point of a time-based policy as an execution time point in
5 consideration of a time that is parsed to a structure that is appropriate for the PEE 300 or a time to transmit a parsed policy to the PEE 300.

FIG. 4 is a flowchart illustrating a method of executing a time-based policy in a PS stage of a network according to an exemplary embodiment of the
10 present invention.

Referring to FIG. 1, in a system in which a time-based policy is executed, the PS 100 is in a higher level stage than that in which the PEE 300, in which hardware is positioned.

Referring to FIG. 4, a time-based policy is set at the PS 100 through
15 connection to a network service provider (S300).

Thereafter, the PS 100 determines whether an execution time point of the time-based policy arrives based on the set time-based policy (S310).

If an execution time point of the time-based policy does not arrive, the PS 100 continues to determine an execution time point of the time-based policy.

20 If an execution time point of the time-based policy arrives, the PS 100 converts the time-based policy to PMS transfer syntax (S320).

In this case, step S320 of converting the time-based policy to PMS transfer syntax may be performed earlier than step S310 of determining whether an execution time point of the time-based policy arrives.

That is, the PS 100 may first convert a time-based policy to PMS transfer syntax or may determine an execution time point of a time-based policy while converting the time-based policy to PMS transfer syntax.

5 Thereafter, when the time-based policy is converted to PMS transfer syntax and an execution time point of the time-based policy arrives, the PS 100 transmits the time-based policy to the PMS 200 (S330).

10 Thereafter, the PMS 200, having downloaded the time-based policy stores and synchronized the policy (S340), parses the policy to a structure that is appropriate for each PEE 300 (S350), and transmits the policy to the PEE 300 (S360).

 The PEE 300, having downloaded the parsed time-based policy, executes the time-based policy (S370).

 Through the above process, even in a stage of the PS 100, an execution time point of the time-based policy may be determined.

15 Even in this case, after an execution time point of the time-based policy is determined, the policy may be executed after some time delay, but by determining an execution time point of the time-based policy in consideration of a time that is parsed to a structure that is appropriate for the PEE 300, a time delay problem can be solved.

20 According to an exemplary embodiment of the present invention, in a stage of the PS 100 or the PMS 200 of a network system, as an execution time point of the time-based policy is determined, a burden of a hardware-based stage (the PEE 300) can be reduced.

 Further, according to an exemplary embodiment of the present invention,

as the network service provider adjusts traffic of a network by executing the time-based policy, an application service in which an accounting model and traffic for a specific period are coupled can be provided. When using a policy in which a time condition is combined, the network service provider may intercept a
5 corresponding network user from using a network to exceed limited traffic.

For example, after a mobile phone user pays a predetermined amount of money and contracts to use data traffic of 1 Gbps at a month, when a month has passed from a specific time point or when used data traffic reaches 1 Gbps, a network service provider may intercept data traffic of a corresponding mobile
10 phone user.

Further, according to another exemplary embodiment of the present invention, an application service that intercepts use of a network at a specific time zone may be provided.

For example, while a student is at a school, an application service that
15 enables the student to only use an emergency call and that intercepts traffic that is generated by a text message, mobile Internet, etc., may be provided.

Further, according to another exemplary embodiment of the present invention, various QoS services can be provided according to a specific time zone. When some user uses a specific application service in a specific time
20 zone, a preferential processing service in a network side can be provided to a corresponding user.

In this way, according to an exemplary embodiment of the present invention, when a policy for traffic control is set, as the policy is combined by reflecting a time condition, various policies can be provided and various

application services that use the policy can be provided. Further, by enabling each stage of a system that executes a time-based policy to determine an execution time point of the time-based policy, the time-based policy can be efficiently, rapidly, and correctly executed.

5 According to an exemplary embodiment of the present invention, by reflecting a time condition to policy setting that controls traffic, a policy for efficient operation of a network can be subdivided and diversified.

 According to another exemplary embodiment of the present invention, at a software-based step of a system that executes a time-based policy, by
10 determining an execution time point of the time-based policy, a burden of hardware (e.g., policy execution equipment) that substantially controls traffic can be reduced.

 According to another exemplary embodiment of the present invention, at the hardware step (e.g., operation step of policy execution equipment) of a
15 system that executes a time-based policy, by determining an execution time point of the time-based policy, an execution time point can be determined at an execution time point of the policy, and thus the time-based policy can be rapidly executed without time delay from a determination time point of execution

 While this invention has been described in connection with what is
20 presently considered to be practical exemplary embodiments, it is to be understood that the invention is not limited to the disclosed embodiments, but, on the contrary, is intended to cover various modifications and equivalent arrangements included within the spirit and scope of the appended claims. .

WHAT IS CLAIMED IS:

1. A method of setting a time-based policy that controls traffic, the method comprising:

5 extracting at least one of tuple information that is included in a packet;
setting a time condition; and
setting a time-based traffic control policy by combining the set time condition and the at least one tuple information that is included in the extracted packet.

10

2. A method of determining an execution time point of a time-based policy that controls traffic, the method comprising:

determining, by a policy server (PS) to which the policy is set, whether an execution time point of the policy arrives;

15 continuing, if an execution time point of the policy does not arrive, to determine an execution time point of the policy; and

transmitting, if an execution time point of the policy arrives, the policy to a policy management system (PMS),

wherein the PMS is connected to policy execution equipment (PEE) that
20 executes the policy.

3. The method of claim 2, further comprising converting, by the PS, the policy to PMS transfer syntax and transmitting the PMS transfer syntax to the PMS.

4. A method of determining an execution time point of a time-based policy that controls traffic, the method comprising:

5 downloading, by a PMS that is connected to a PEE that executes the policy, the policy;
 storing the policy at a database that is included in the PMS;
 determining whether an execution time point of the policy arrives;
 continuing, if an execution time point of the policy does not arrive, to determine an execution time point of the policy; and
 10 transmitting, if an execution time point of the policy arrives, the policy to the PEE.

5. The method of claim 4, further comprising parsing, before the transmitting of the policy to the PEE, by the PMS, the policy to a structure that is
 15 appropriate for the PEE.

6. The method of claim 4, further comprising synchronizing a time-based policy that is stored at the PMS with the downloaded policy.

20 7. A method of executing a time-based policy that controls traffic, the method comprising:

downloading, by a PEE that executes the policy, the policy;
 determining whether an execution time point of the policy arrives;

continuing, if an execution time point of the policy does not arrive, to
determine an execution time point of the policy; and
executing, if an execution time point of the policy arrives, the policy.

ABSTRACT

A method of controlling traffic, particularly, a method of setting and executing a traffic control policy in which a time condition is additionally combined is provided. At any specific step of a network that executes a
5 time-based policy, an execution time point of the time-based policy can be determined. Further, a network service provider can provide various application services to a network user using a time-based policy.

UTILITY PATENT APPLICATION TRANSMITTAL (ONLY FOR NEW NONPROVISIONAL APPLICATIONS UNDER 37 CFR 1.53(B))		Attorney Docket No. PK7-042	
		First Inventor SANG WAN KIM	
		Title	METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY
		Express Mail Label No.	Electronic Filing

APPLICATION ELEMENTS See MPEP chapter 600 concerning utility patent application contents.	Commissioner for Patents ADDRESS TO: P.O. Box 1450 Alexandria, VA 22313-1450
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1. ☐ Fee Transmittal Form. (PTO/SB/17 or equivalent) 2. ☒ Applicant claims small entity status. See 37 CFR 1.27. 3. ☒ Specification. [Total Pages <u>17</u>] Both the claims and abstract must start on a new page (For information on the preferred arrangement, see MPEP § 608.01(a)) 4. ☒ Drawing(s). (35 U.S.C. 113) [Total Sheets <u>4</u>] 5. Inventor's Oath or Declaration. [Total Sheets <u>7</u>] (including substitute statements under 37 CFR 1.64 and assignments serving as an oath or declaration under 37 CFR 1.63(e)) a. ☒ Newly executed (original or copy) b. ☐ A copy from a prior application (37 CFR 1.63(d)) 6. ☒ Application Data Sheet. *See note below See 37 CFR 1.76 (PTO/AIA/14 of equivalent) 7. ☐ CD-ROM or CD-R. In duplicate, large table or Computer Program (Appendix) ☐ Landscape Table on CD 8. Nucleotide and/or Amino Acid Sequence Submission (if applicable, items a. – c. are required) a. ☐ Computer Readable Form (CRF) b. Specification Sequence Listing on: i. ☐ CD-ROM or CD-R (2 copies); or ii. ☐ Paper c. ☐ Statements verifying identity of above copies	ACCOMPANYING APPLICATION PARTS 9. ☐ Assignment Papers (cover sheet & document(s)) 10. ☐ 37 CFR 3.73(c) Statement. ☐ Power of Attorney. (when there is an assignee) 11. ☐ English Translation Document. (if applicable) 12. ☒ Information Disclosure Statement. (PTO/SB/08 or PTO-1449) ☒ Copies of citations attached 13. ☐ Preliminary Amendment. 14. ☐ Return Receipt Postcard. (MPEP § 503) (Should be specifically itemized) 15. ☐ Certified Copy of Priority Document(s). (if foreign priority is claimed) 16. ☐ Nonpublication Request. Under 35 U.S.C. 122 (b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent. 17. ☒ Other: SB38 - Request to Retrieve Priority Documents
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***Note:** (1) Benefit claims under 37 CFR 1.78 and foreign priority claims under 1.55 **must** be included in an Application Data Sheet (ADS).
 (2) For applications filed under 35 U.S.C. 111, the application must contain an ADS specifying the applicant if the applicant is an assignee, person to whom the inventor is under an obligation to assign, or person who otherwise shows sufficient proprietary interest in the matter. See 37 CFR 1.46(b).

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Dated: October 4, 2012	Electronic Signature for EuiHoon Lee: /EuiHoon Lee/



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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
13/645,090	10/04/2012	2465	655	PK7-042	7	4

CONFIRMATION NO. 3860

959

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FILING RECEIPT



OC000000057240112

Date Mailed: 10/24/2012

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

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Assignment For Published Patent Application

Electronics and Telecommunications Research Institute, Daejeon, KOREA, REPUBLIC OF

Power of Attorney: The patent practitioners associated with Customer Number 00959

Domestic Priority data as claimed by applicant

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.)

REPUBLIC OF KOREA 10-2012-0040556 04/18/2012

Request to Retrieve - This application either claims priority to one or more applications filed in an intellectual property Office that participates in the Priority Document Exchange (PDX) program or contains a proper **Request to Retrieve Electronic Priority Application(s)** (PTO/SB/38 or its equivalent). Consequently, the USPTO will attempt to electronically retrieve these priority documents.

If Required, Foreign Filing License Granted: 10/23/2012

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/645,090**

Projected Publication Date: 10/24/2013

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY

Preliminary Class

370

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 13/645,090	
APPLICATION AS FILED - PART I							
(Column 1)		(Column 2)		SMALL ENTITY		OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	98		N/A	
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A	310		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	125		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	7	minus 20 = *	x 31	= 0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	4	minus 3 = *	x 125	= 125			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	658		TOTAL	
APPLICATION AS AMENDED - PART II							
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY	
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)
	Total (37 CFR 1.16(i))	*	Minus **	=	x	=	OR
	Independent (37 CFR 1.16(h))	*	Minus ***	=	x	=	OR
	Application Size Fee (37 CFR 1.16(s))					OR	
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					OR	
TOTAL ADD'L FEE					OR	TOTAL ADD'L FEE	
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY	
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)
	Total (37 CFR 1.16(i))	*	Minus **	=	x	=	OR
	Independent (37 CFR 1.16(h))	*	Minus ***	=	x	=	OR
	Application Size Fee (37 CFR 1.16(s))					OR	
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					OR	
TOTAL ADD'L FEE					OR	TOTAL ADD'L FEE	
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.							



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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/645,090	10/04/2012	SANG WAN KIM	PK7-042

CONFIRMATION NO. 3860

POA ACCEPTANCE LETTER

959
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Date Mailed: 10/24/2012

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 10/04/2012.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/gkejela/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being transmitted via the Office electronic filing system in accordance with 37 CFR § 1.6(a)(4).

Dated: November 15, 2012
Electronic Signature for EuiHoon Lee: /EuiHoon Lee/

Docket No. PK7-042
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Sang Wan Kim *et al.*

Application No. 13/645,090

Confirmation No. 3860

Filed: October 4, 2012

Art Unit: 2465

For: METHOD OF CONTROLLING TRAFFIC BY
TIME-BASED POLICY

Examiner: Not Yet Assigned

REQUEST FOR CORRECTED FILING RECEIPT

Office of Initial Patent Examination's Filing Receipt Corrections
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Madam:

Applicants hereby request that a corrected Filing Receipt be issued in the above-identified patent application. The official Filing Receipt received by Applicants has an error in the **Inventor(s)** section, as follows:

~~Sangsik~~ SangSik Yoon, Daejeon, KOREA, REPUBLIC OF;

A Supplemental Application Data Sheet is submitted herewith, in support of this request.

Applicants additionally request that all pertinent U.S. Patent and Trademark Office records relating to the subject application be changed to reflect this correction.

Dated: November 15, 2012

Respectfully submitted,

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Application Data Sheet

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Postal or Zip Code of mailing address:: 305-728

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Correspondence Customer Number:: 00959

Application Information

Application Number:: 13/645,090
Filing Date:: 10/04/12
Application Type:: Regular
Subject Matter:: Utility
CD-ROM or CD-R?: None
Sequence submission?: None
Computer Readable Form (CRF)?:: No
Title:: METHOD OF CONTROLLING TRAFFIC BY
TIME-BASED POLICY
Attorney Docket Number:: PK7-042
Request for Early Publication?: No
Request for Non-Publication?: No
Total Drawing Sheets:: 4
Small Entity?: Yes
Petition included?: No
Secrecy Order in Parent Appl.?: No
Authorization to Permit Access:: YES

Representative Information

Representative Customer Number:: 00959

Domestic Priority Information**Foreign Priority Information**

Country::	Application number::	Filing Date::	Priority Claimed::
Korea, Republic of	10-2012-0040556	04/18/12	Yes

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Postal or Zip Code of mailing address:: 305-700

Signature:

A signature of the applicant or representative is required in accordance with 37 CFR 1.33 and 10.18. Please see 37 CFR 1.4(d) for the form of the signature.			
Signature	/EuiHoon Lee/	Date	November 15, 2012
Name (Print/Type)	EuiHoon Lee	Registration No. (Attorney/Agent)	62,375

Electronic Acknowledgement Receipt	
EFS ID:	14226939
Application Number:	13645090
International Application Number:	
Confirmation Number:	3860
Title of Invention:	METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY
First Named Inventor/Applicant Name:	SANG WAN KIM
Customer Number:	959
Filer:	EuiHoon Lee/Nicole Turner
Filer Authorized By:	EuiHoon Lee
Attorney Docket Number:	PK7-042
Receipt Date:	15-NOV-2012
Filing Date:	04-OCT-2012
Time Stamp:	10:31:58
Application Type:	Utility under 35 USC 111(a)

Payment information:

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Corrected Filing Receipt	PK7_042_Request_for_Corrected_Filing_Receipt.pdf	21937 4ac8be66ec2adff1d2dea79d3cc678a9715c33c5d	no	1

Warnings:

Information:

2	Application Data Sheet	PK7_042_Supplemental_ADS. pdf	18925 b2b001b44d703e858a88b558b2020deb887 e12406	no	5
Warnings:					
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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	TOT CLAIMS	IND CLAIMS
13/645,090	10/04/2012	2646	655	PK7-042	7	4

CONFIRMATION NO. 3860

CORRECTED FILING RECEIPT



OC000000057791017

959

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FLOOR 30, SUITE 3000
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BOSTON, MA 02109

Date Mailed: 11/29/2012

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

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Assignment For Published Patent Application

Electronics and Telecommunications Research Institute, Daejeon, KOREA, REPUBLIC OF

Power of Attorney: The patent practitioners associated with Customer Number 00959

Domestic Applications for which benefit is claimed - None.

A proper domestic benefit claim must be provided in an Application Data Sheet in order to constitute a claim for domestic benefit. See 37 CFR 1.76 and 1.78.

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.)
REPUBLIC OF KOREA 10-2012-0040556 04/18/2012

Request to Retrieve - This application either claims priority to one or more applications filed in an intellectual property Office that participates in the Priority Document Exchange (PDX) program or contains a proper **Request to**

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If Required, Foreign Filing License Granted: 10/23/2012

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/645,090**

Projected Publication Date: 10/24/2013

Non-Publication Request: No

Early Publication Request: No

**** SMALL ENTITY ****

Title

METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY

Preliminary Class

455

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/645,090	10/04/2012	SANG WAN KIM	PK7-042

CONFIRMATION NO. 3860

959

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BOSTON, MA 02109

PUBLICATION NOTICE



OC000000064581820

Title:METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY

Publication No.US-2013-0281075-A1

Publication Date:10/24/2013

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

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출 원 번 호 : 10-2012-0040556
Application Number

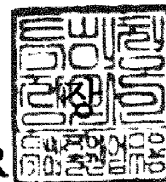
출 원 년 월 일 : 2012년 04월 18일
Filing Date APR. 18, 2012

출 원 인 : 한국전자통신연구원
Applicant(s) Electronics and Telecommunications
Research Institute

2013년 11월 18일

특 허 청

COMMISSIONER



제출 일자 : 2012-04-18

【서지사항】

【서류명】 특허출원서

【참조번호】 5314

【출원구분】 특허출원

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【명칭】 한국전자통신연구원

【출원인코드】 3-1998-007763-8

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【명칭】 팬코리아특허법인

【대리인코드】 9-2007-100081-9

【지정된변리사】 김재만, 이석암

【포괄위임등록번호】 2010-068065-2

【발명의 국문명칭】 시간기반 정책을 통한 트래픽 제어 방법

【발명의 영문명칭】 Method for controlling traffic by time-based policy

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【성명】 김상완

【성명의 영문표기】 KIM, SANG WAN

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【성명의 영문표기】 YOON, SANGSIK

제출 일자 : 2012-04-18

【주민등록번호】 710805-1XXXXXX

【우편번호】 305-805

【주소】 대전시 유성구 신성동 210-64 청운빌라 306호

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【성명의 영문표기】 PARK, JONG DAE

【주민등록번호】 630715-1XXXXXX

【우편번호】 305-728

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【기술양도】 희망

【실시권허여】 희망

【기술지도】 희망

【이 발명을 지원한 국가연구개발사업】

【과제고유번호】 09913-05005

【부처명】 방송통신위원회

【연구사업명】 방송통신기술개발사업(원천기술개발사업)

【연구과제명】 클린인터넷과 공정접속 환경 제공을 위한 실시간 트래픽 통
합제어플랫폼 기술 개발

【주관기관】 한국전자통신연구원

【연구기간】 2009.03.01~2013.02.28

제출 일자 : 2012-04-18

【취지】 위와 같이 특허청장에게 제출합니다.

대리인 팬코리아특허법인 (서명 또는 인)

【수수료】

【출원료】 0 면 38,000 원

【가산출원료】 21 면 0 원

【우선권주장료】 0 건 0 원

【심사청구료】 0 항 0 원

【합계】 38,000 원

【감면사유】 정부출연연구기관

【감면후 수수료】 19,000 원

【수수료 자동납부번호】 064-094949-04-013

【명세서】

【발명의 명칭】

시간기반 정책을 통한 트래픽 제어 방법{Method for controlling traffic by time-based policy}

【기술분야】

<1> 본 발명은 트래픽을 제어하는 방법에 관한 것으로, 특히, 트래픽을 제어하는 조건으로서 시간 조건이 추가된 트래픽 제어 정책을 설정하고, 설정된 시간기반 정책의 실행 시점을 판단한 후 실행하는 방법에 관한 것이다.

【배경기술】

<2> 트래픽이란 일반적으로 통신장치나 시스템에 걸리는 부하를 말하며, 네트워크에서는 네트워크를 통해 교환되는 데이터의 양을 말한다. 원활한 네트워크 서비스를 제공하기 위해서 또는 합리적인 과금모델을 적용하기 위해, 서비스 제공자는 트래픽 상황을 감시하고, 이를 제어한다. 이때 네트워크를 운영하기 위해 설정되는 것이 정책이며, 서버의 외부에서 네트워크를 통해 데이터의 전송이 요청되면 서비스 제공자는 설정된 정책에 따라 트래픽을 제어한다.

<3> 이러한 트래픽에는 5-튜플(tuple)(source ip address, destination ip address, source port, destination port, protocol), 7-튜플(source ip address, destination ip address, source port, destination port, protocol, input port

제출 일자 : 2012-04-18

number, signature) 등의 정보가 저장된 패킷이 포함되며, 일반적인 정책은, 트래픽의 패킷에 포함된 7-튜플과 같은 정보를 기반으로 설정될 수 있다. 한편, 정책 서버에서 설정된 정책은 정책 실행 포인트(policy execution point, PEP)에서 실행되어, 트래픽을 제어할 수 있다.

<4> 종래에는 트래픽 안의 패킷에 포함된 정보만을 이용하여 위와 같은 정책을 설정했기 때문에, 정책 설정을 위한 조건 조합이 상기 정보에 국한되어 제한적으로 이루어졌고, 트래픽을 다양한 방법으로 제어하는데 한계가 있었다.

【발명의 내용】

【해결하려는 과제】

<5> 본 발명이 이루고자 하는 과제는 트래픽을 제어하기 위한 정책 설정에 시간 조건을 추가하여 트래픽을 다양한 방법으로 제어하고, 네트워크의 각 단에서 시간 기반 정책을 실행하는 방법을 제시함으로써, 새로운 응용 서비스를 제공하는데 있다.

【과제의 해결 수단】

<6> 본 발명의 한 특징에 따르면, 트래픽을 제어하는 시간기반 정책을 설정하는 방법이 제공된다. 상기 시간기반 트래픽 제어 정책의 설정 방법은, 트래픽을 제어하는 시간기반 정책을 설정하는 방법에 있어서, 패킷에 포함된 튜플 정보 중, 적어

를 판단하는 단계, 그리고 상기 판단결과 시간기반 정책의 실행 시점이 도래한 시간기반 정책의 실행 시점이 도래하지 않은 경우, 계속 시간기반 정책의 실행 시점에 저장하는 단계, 시간기반 정책의 실행 시점을 판단하는 단계, 상기 판단 결과에 내려 받는 단계, 시간기반 정책을 상기 정책관리시스템에 포함된 데이터베이스 시간기반 정책을 실행하는 정책실행장비와 연결된 정책관리시스템이 시간기반 정책만 정책 실행 방법이 제공된다. 상기 시간기반 트래픽 제어 정책의 실행 방법은, 본 발명의 다른 특징에 따르면, 네트워크의 정책관리시스템단에서의 시간기

<9>

할 수 있다.

리시스템 전송구문으로 변환한 후 상기 정책관리시스템으로 전송하는 단계를 더 포함 시간기반 정책의 실행 방법은, 상기 정책서버에서 상기 정책을 정책판은 시간기반 정책을 실행하는 정책실행장비와 연결된다.

<8>

정책을 정책관리시스템으로 전송하는 단계를 포함하며, 이때, 상기 정책관리시스템 하는 단계, 그리고 판단결과 시간기반 정책의 실행 시점이 도래한 경우, 시간기반 정책의 실행 시점이 도래하지 않은 경우, 계속 시간기반 정책의 실행 시점을 판단 정된 정책서버가 시간기반 정책의 실행 시점을 판단하는 단계, 판단결과 시간기반 실행 방법이 제공된다. 상기 시간기반 트래픽 제어 정책의 실행 방법은, 정책이 실행 본 발명의 다른 특징에 따르면, 네트워크의 정책서버단에서의 시간기반 정책

<7>

여 시간기반 트래픽 제어 정책을 설정하는 단계를 포함한다.

추출된 패킷에 포함된 적어도 하나 이상의 튜플 정보와 설정된 시간 조건을 조합하 도 하나 이상의 튜플 정보를 추출하는 단계, 시간 조건을 설정하는 단계, 그리고

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수 있다.

에 반영됨으로써, 네트워크의 효율적 운영을 위한 정책이 더 세분화되고, 다양해질
<13> 문 란명의 한 실시 예에 따르면, 시간 조건이 트래픽을 제어하는 정책 설정

【란명의 효과】

포함한다.

클과 시간기반 정책의 실행 시점이 드래그한 경우, 시간기반 정책을 실행하는 단계를
하지 않은 경우, 계속 상기 정책의 실행 시점을 판단하는 단계, 그리고 상기 판단
의 실행 시점을 판단하는 단계, 상기 판단결과 시간기반 정책의 실행 시점이 드래
기반 정책을 실행하는 정책실행장비가 상기 정책을 내려 받는 단계, 시간기반 정책
정책 실행 방법이 제공된다. 상기 시간기반 트래픽 제어 정책의 실행 방법은, 시간
<12> 문 란명의 다른 특징에 따르면, 네트워크의 정책실행장비단에서의 시간기반

다 포함할 수 있다.

에 저장된 시간기반 정책을 내려 받은 상기 시간기반 정책으로 동기화 하는 단계를
<11> 또한, 상기 시간기반 트래픽 제어 정책의 실행 방법은, 상기 정책관리시스템

있다.

시간기반 정책을 상기 정책실행장비에 적합한 구조로 파싱하는 단계를 더 포함할 수
<10> 상기 시간기반 트래픽 제어 정책의 실행 방법은, 상기 정책관리시스템이 시

경우, 시간기반 정책을 상기 정책실행장비로 전송하는 단계를 포함한다.

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정책을 실행하는 방법을 나타낸 도면이다.

도 4는 본 발명의 한 실시 예에 따른 네트워크의 정책서버단에서 시간기반

기반 정책을 실행하는 방법을 나타낸 도면이다.

도 3은 본 발명의 한 실시 예에 따른 네트워크의 정책관리시스템단에서 시간

간 정책을 실행하는 방법을 나타낸 도면이다.

도 2는 본 발명의 한 실시 예에 따른 네트워크의 정책실행장비단에서 시간기

반 도면이다.

<16> 도 1은 본 발명의 실시 예에 따른 시간기반 정책이 실행되는 시스템을 나타

【도면의 간단한 설명】

실행될 수 있는 효과가 있다.

되어 실행의 판단 시점으로부터 시간이 지면되지 않고 신속하게 시간기반 정책이

이 판단됨으로써, 정책의 실행 포인트에서 실행 시점의 판단이 이루어질 수 있게

웨이 단계에서(예를 들어, 정책실행장비의 동작 단계) 시간기반 정책의 실행 시점

<15> 본 발명의 다른 실시 예에 따르면, 시간기반 정책을 실행하는 시스템의 하드

웨어를 제어하는 하드웨어(예를 들어, 정책실행장비)의 부품을 줄일 수 있다.

트웨어 기반 단계에서 시간기반 정책의 실행 시점이 판단됨으로써, 실질적으로 트

<14> 본 발명의 다른 실시 예에 따르면, 시간기반 정책을 실행하는 시스템의 소프트웨어

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【발명을 실시하기 위한 구체적인 내용】

- <17> 아래에서는 첨부한 도면을 참고로 하여 본 발명의 실시 예에 대하여 본 발명이 속하는 기술 분야에서 통상의 지식을 가진 자가 용이하게 실시할 수 있도록 상세히 설명한다. 그러나 본 발명은 여러 가지 상이한 형태로 구현될 수 있으며 여기에서 설명하는 실시 예에 한정되지 않는다. 그리고 도면에서 본 발명을 명확하게 설명하기 위해서 설명과 관계없는 부분은 생략하였으며, 명세서 전체를 통하여 유사한 부분에 대해서는 유사한 도면 부호를 붙였다.
- <18> 명세서 및 청구범위 전체에서, 어떤 부분이 어떤 구성요소를 "포함"한다고 할 때, 이는 특별히 반대되는 기재가 없는 한 다른 구성요소를 제외하는 것이 아니라 다른 구성요소를 더 포함할 수 있는 것을 의미한다.
- <19> 이제 본 발명의 실시 예에 따른 시간 기반 정책을 통해 트래픽을 제어하는 방법에 대하여 도면을 참고로 하여 상세하게 설명한다.
- <20> 도 1은 본 발명의 실시 예에 따른 시간기반 정책이 실행되는 시스템을 나타낸 도면이다.
- <21> 도 1을 참고하면, 시간기반 정책은 정책서버(policy server, PS)(100)에서 설정되어, 정책관리서버(policy management server, PMS)(200)를 거쳐 정책실행포인트(policy execution point, PEP)(300)에서 실행될 수 있다.
- <22> 최초, 네트워크 서비스 제공자는 정책관리툴(policy management tool)(110)에 접속한 후, 정책설정관리(policy rule management)(111) 모듈을 이용하여 시간

기반 정책을 설정할 수 있다.

- <23> 이때 설정되는 정책은 패킷에 포함된 정보(5-튜플, 7-튜플 등) 및 트래픽 플로우의 형태 등과, 시간 조건을 조합하여 설정된다. 즉, 패킷에 포함된 튜플 데이터의 종류, 트래픽 패턴 등과 시간 조건을 조합하여 시간기반 정책을 설정할 수 있다.
- <24> 예를 들어, 특정 시간대에 특정 아이피 어드레스의 트래픽을 허용하는 정책이 설정될 수 있고, 특정 기간 동안에는 특정 포트 또는 어드레스에서 사용하는 총 트래픽을 정하는 정책이 설정될 수 있다. 이와 같이 시간 조건이 트래픽을 제어하는 정책 설정에 반영됨으로써, 정책이 더 세분화되고, 다양해질 수 있다.
- <25> 정책설정관리(111) 모듈에서 설정된 상기 시간기반 정책은 정책결정포인트(policy decision point, PDP)(120)에서 정책관리시스템 전송구분으로 변환되어 정책관리시스템(policy management system, PMS)(200)으로 전송된다.
- <26> 정책관리시스템(200)은 트래픽을 제어하는 정책이 실행되는 하드웨어인 정책실행장비(300)와 연결되며, 네트워크의 소프트웨어적 단계이다.
- <27> 정책관리시스템 전송구분으로의 변환은 정책결정포인트(120)의 연결 인터페이스(121)에서 수행될 수 있다. 정책관리시스템(200)에서는 전송 받은 시간기반 정책을 데이터베이스에 저장하고 실시간으로 동기화 할 수 있다.
- <28> 정책관리시스템(200)은 전송 받은 시간기반 정책을 정책실행장비(policy execution point, PEP)(300)에 적합한 구조로 파싱(parsing)하고, 파싱된 시간기반

정책을 각 정책실행장비(300)에 전송한다.

<29> 이때, 복수의 정책실행장비(300)가 정책관리시스템(200)과 연결될 수 있고, 정책실행장비(300)는 네트워크의 해당 시간기반 정책이 실행되는 지점, 네트워크의 유형 또는 네트워크 제공 벤더에 따라 다양한 네트워크 장비가 될 수 있다.

<30> 이후, 정책관리장비(300)에서 상기 시간기반 정책이 실행됨으로써, 시간 조건이 트래픽 제어에 반영되어 관련된 응용 서비스를 제공하는 것이 가능하다.

<31> 한편, 상기 시간 조건이 반영된 시간기반 정책은 상기 시스템의 각 단에서 실행 시점이 판단될 수 있다. 도 2 내지 도 4는 본 발명의 실시 예에 따른 시간기반 정책이 실행되는 네트워크 시스템의 각 단에서 시간기반 정책을 실행하는 방법을 나타낸 도면이다.

<32> 도 2는 본 발명의 한 실시 예에 따른 네트워크의 정책실행장비단에서 시간기반 정책을 실행하는 방법을 나타낸 도면이다.

<33> 도 2에 따르면, 정책실행장비(300)는 정책관리시스템(200)으로부터 파싱된 시간기반 정책을 내려 받는다(S100).

<34> 상기 시간기반 정책은 도 1에서 설명한 바와 같이, 정책 서버(100)에서 설정되어, 정책관리시스템(200) 전송구문으로 변환된 후, 정책관리시스템(200)으로 전송되고, 정책관리시스템(200)에서 각 정책실행장비(300)에 적합하도록 파싱될 수 있다. 이후, 정책실행장비(300)는 시간기반 정책을 분석하여, 시간기반 정책의 실행 시점을 판단한다(S110).

- <39> 이하, 도 3 및 도 4를 통하여 정책시버전 또는 정책관리시스템단에서 시간기
 기만 정책의 실행 시점이 판단될 필요가 있다.
- 음에는, 시간기만 정책 실행 시스템의 정책실행장비(300) 보다 상위 단계에서 시간
 기만 정책이 실행될 필요가 있을 때 또는 하드웨어에 사용자가 원하지 않을 때
 <38> 이 때문에, 상기 기능이 탑재되지 않은 범용의 정책실행장비(300)에서 시간
 기 때문에, 하드웨어가 소모되어 성능이 저하될 수 있다.
- 되어 있더라도, 시간기만 정책의 실행 시점을 실시간으로 모니터링하고 있어야 하
 탑재되어야 한다. 또한, 시간기만 정책의 실행 시점을 판단할 수 있는 기능이 탑재
 기능을 탑재하고 있거나, 또는 펌웨어 업그레이드 등을 통하여 추가로 해당 기능이
 위해서는, 하드웨어가 생산될 때부터 시간기만 정책의 실행 시점을 판단할 수 있는
 <37> 하지만, 정책실행장비(300)는 하드웨어이므로 상기와 같은 방법이 구현되기
 시간기만 정책이 실행될 수 있는 효과가 있다.
- 이 이루어지므로 시간기만 정책의 판단 시점으로부터 지연되는 시간 없이 신속하게
 의 실행 시점을 판단하면, 네트워크 시스템의 정책의 실행단에서 실행 시점의 판단
 <36> 이와 같이 본 발명의 한 실시 예에 따라 정책실행장비(300)가 시간기만 정책
 한다(S120).
- 기만 정책의 실행 시점이 도래했다면, 정책실행장비(300)는 시간기만 정책을 실행
 의 실행 시점을 판단한다. 그러나, 시간기만 정책의 실행 시점을 판단한 결과 시간
 <35> 아직 시간기만 정책의 실행 시점이 도래하지 않았다면, 계속 시간기만 정책

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반 정책의 실행 시점이 판단되는 방법을 설명한다.

<40> 도 3은 본 발명의 한 실시 예에 따른 네트워크의 정책관리시스템단에서 시간 기반 정책을 실행하는 방법을 나타낸 도면이다.

<41> 도 1을 참고하면, 정책관리시스템(200)은 시간기반 정책이 실행되는 시스템에서 정책실행장비(300)가 위치한 단보다 상위이며, 소프트웨어 기반인 단이다.

<42> 도 3에 따르면, 정책관리시스템(200)은 정책서버(100)로부터 정책관리시스템 전송구분으로 변환된 시간기반 정책을 내려 받는다(S200).

<43> 이때, 도 1에서 설명한 바와 같이, 정책의 설정은 네트워크 서비스 제공자에 의해 정책서버(100)의 정책관리툴(110)에서 이루어질 수 있고, 정책관리시스템(200)으로의 전송은 정책결정포인트(120)에서 이루어질 수 있으며, 상기 시간기반 정책을 정책관리시스템 전송구분으로 변환하는 것은 정책결정포인트(120)의 연결 인터페이스(121)에서 이루어질 수 있다.

<44> 정책관리시스템(200)은 내려 받은 시간기반 정책을 데이터베이스에 저장하고, 저장되어 있던 시간기반 정책을 동기화시킨다(S210).

<45> 다음, 정책관리시스템(200)은 시간기반 정책의 실행 시점을 판단한다(S220). 시간기반 정책의 실행 시점을 판단한 결과, 아직 시간기반 정책의 실행 시점이 도래하지 않았다면, 계속 시간기반 정책의 실행 시점을 판단한다.

<46> 그러나, 시간기반 정책의 실행 시점이 도래했다면, 정책관리시스템(200)은 시간기반 정책이 정책실행장비(300)에서 실행될 수 있도록 시간기반 정책을 각 정

책실행장비(300)에 적합한 구조로 파싱한다(S230).

<47> 이때, 시간기반 정책의 실행 시점 판단단계(S220) 보다 시간기반 정책의 파싱이 먼저 수행될 수 있으며, 이 경우 파싱된 시간기반 정책은 별도의 저장공간에 저장되었다가 정책의 실행 시점이 되면 정책실행장비(300)로 전송된다.

<48> 즉, 정책관리시스템이 시간기반 정책을 시간기반 정책이 실행될 정책실행장비(300)에 적합한 구조로 먼저 파싱한 후, 시간기반 정책의 실행 시점을 판단할 수도 있다.

<49> 정책관리시스템(200)은 실행 시점이 도래한 파싱된 시간기반 정책을 정책실행장비(300)로 전송한다(S240).

<50> 그 후, 정책실행장비(300)는 시간기반 정책을 실행한다(S250).

<51> 위와 같은 과정을 통해, 정책관리시스템(200), 즉 시간기반 정책이 실행되는 시스템의 소프트웨어 단계에서 시간기반 정책의 실행 시점이 판단될 수 있다.

<52> 이 경우, 정책이 실행되는 지점보다 상위 단계에서 시간기반 정책의 실행 시점이 판단되기 때문에, 실행 시점으로부터 약간의 시간이 지연된 후에야 비로소 정책실행장비(300)에서 상기 정책이 실행될 수 있다.

<53> 하지만, 시간지연의 문제는 정책실행장비(300)에 적합한 구조로 파싱되는 시간 또는 파싱된 정책을 정책실행장비(300)로 전송하는 시간 등을 고려하여, 시간기반 정책의 실행 시점보다 조금 이른 시점을 실행 시점으로 판단하도록 환경설정 해둠으로써 해결될 수 있다.

- (200)으로 권속한다(S330).
- <62> 이후, 시간기반 정책이 정책관리시스템 전송구문으로 변환되고, 시간기반 정책의 실행 시점이 도래하면, 정책서버(100)는 시간기반 정책을 정책관리시스템에 환하거나 또는 변환하면서, 시간기반 정책의 실행 시점을 판단할 수도 있다.
- <61> 즉, 정책서버(100)가 시간기반 정책을 정책관리시스템 전송구문으로 먼저 변환관리시스템 전송구문으로 변환하는 단계(S320)가 먼저 수행될 수도 있다.
- <60> 이때, 시간기반 정책의 실행 시점 판단단계(S310)보다 시간기반 정책을 정만 정책을 정책관리시스템 전송구문으로 변환한다(S320).
- <59> 그러나, 시간기반 정책의 실행 시점이 도래했다면, 정책서버(100)는 시간기반 정책의 실행 시점을 판단한다.
- <58> 아직 시간기반 정책의 실행 시점이 도래하지 않았다면, 계속 시간기반 정책을 실행 시점을 판단한다(S310).
- <57> 이후, 정책서버(100)는 설정된 시간기반 정책을 바탕으로 시간기반 정책의(100)에 시간기반 정책이 설정된다(S300).
- <56> 도 4에 따르면, 쿼즈, 네트워크 서비스 제공자와의 연결을 통해 정책서버드웨이인 정책실행장비(300)가 위치한다. 단보다 상위이다.
- <55> 도 1을 참고하면, 정책서버(100)는 시간기반 정책이 실행되는 시스템에서 하정책을 실행하는 방법을 나타낸 도면이다.
- <54> 도 4는 본 발명의 한 실시 예에 따른 네트워크의 정책서버단에서 시간기반

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<63> 이후, 상기 시간기반 정책을 내려 받은 정책관리시스템(200)은 상기 정책을 저장하고 동기화한 후(S340), 각 정책실행장비(300)에 적합한 구조로 파싱(S350)하여 정책실행장비(300)로 전송한다(S360).

<64> 상기 파싱된 시간기반 정책을 내려 받은 정책실행장비(300)는 시간기반 정책을 실행한다(S370).

<65> 위와 같은 과정을 통해, 정책서버(100) 단계에서도 시간기반 정책의 실행 시점이 판단될 수 있다.

<66> 이 경우에도 시간기반 정책의 실행 시점이 판단된 후 약간의 시간이 지연된 후에 정책이 실행될 수 있지만, 정책실행장비(300)에 적합한 구조로 파싱되는 시간들을 고려하여 시간기반 정책의 실행 시점을 판단함으로써 시간의 지연문제가 해결될 수 있다.

<67> 이와 같이 본 발명의 한 실시 예에 따르면, 네트워크 시스템의 정책서버(100) 또는 정책관리시스템(200)단에서 시간기반 정책의 실행 시점이 판단됨으로써, 하드웨어가 기반인 단(정책실행장비(300))의 부담을 줄일 수 있는 효과가 있다.

<68> 또한 본 발명의 한 실시 예에 따르면, 네트워크 서비스 제공자는 시간기반 정책의 실행으로 네트워크의 트래픽을 조절하여, 과금 모델과 특정 기간 동안의 트래픽을 결합한 응용 서비스를 제공할 수 있다. 시간 조건이 조합된 정책을 사용하면, 네트워크 서비스 제공자는 해당 네트워크 사용자가 제한된 트래픽 이상으로 네

트위크를 사용할 수 없도록 차단할 수 있다.

<69> 예를 들면, 휴대폰 사용자가 일정한 금액을 납부함으로써 한 달에 1Gbps의 데이터 트래픽을 사용하기로 계약한 후, 특정 시점부터 한 달이 되거나, 사용 데이터 트래픽이 1Gbps에 다다르면, 네트워크 서비스 제공자는 해당 휴대폰 사용자의 데이터 트래픽을 차단할 수 있다.

<70> 또한 본 발명의 다른 실시 예에 따르면, 특정 시간대의 네트워크 사용을 차단하는 응용 서비스를 제공할 수 있다.

<71> 예를 들면, 학생이 학교에 있는 동안에는 긴급전화만 사용할 수 있도록 하고, 문자메시지, 모바일 인터넷 등이 발생시키는 트래픽은 차단시키는 응용 서비스를 제공할 수 있다.

<72> 또한 본 발명의 다른 실시 예에 따르면, 특정 시간대에 따라 다양한 QoS 서비스를 제공할 수 있다. 어떤 사용자가 특정 시간대에 특정 응용 서비스를 사용하면, 해당 사용자에게 네트워크 측면에서의 우선적인 처리 서비스를 제공할 수 있다.

<73> 이와 같이, 본 발명의 실시 예에 따르면, 트래픽 제어를 위한 정책을 설정할 때, 시간 조건을 반영하여 조합함으로써, 다양한 정책을 제공하고, 상기 정책을 이용한 다양한 응용 서비스를 제공할 수 있다. 또한, 시간기반 정책을 실행하는 시스템의 각 단에서 시간기반 정책의 실행 시점을 판단할 수 있게 됨으로써, 효율적이고 신속하고 정확하게 시간기반 정책이 실행될 수 있다.

<74> 이상에서 본 발명의 실시 예에 대하여 상세하게 설명하였지만, 본 발명의 권리범위는 이에 한정되는 것은 아니고 다음의 청구범위에서 정의하고 있는 본 발명의 기본 개념을 이용한 당업자의 여러 변형 및 개량 형태 또한 본 발명의 권리범위에 속하는 것이다.

<75>

100:	정책 서버	200:	정책 관리 시스템
300:	정책 실행 장비		

시간기만 트래픽 제어 정책의 실행 방법.
 상기 정책관리시스템은 상기 정책을 실행하는 정책실행장비와 연결되는

를 포함하며,

시스템으로 전송하는 단계

상기 판단결과 상기 정책의 실행 시점이 도래한 경우, 상기 정책을 정책관리

책의 실행 시점을 판단하는 단계, 그리고

상기 판단결과 상기 정책의 실행 시점이 도래하지 않은 경우, 계속 상기 정

상기 정책이 설정된 정책서버가 상기 정책의 실행 시점을 판단하는 단계,

트래픽을 제어하는 시간기만 정책의 실행 시점을 판단하는 방법에 있어서,

【 청구항 2】

를 포함하는 시간기만 트래픽 제어 정책의 설정 방법,

간 조건을 조합하여 시간기만 트래픽 제어 정책을 설정하는 단계

상기 추출된 패킷에 포함된 적어도 하나 이상의 튜플 정보를 상기 설정된 시

시간 조건을 설정하는 단계, 그리고

하는 단계,

패킷에 포함된 튜플(tuple) 정보 중, 적어도 하나 이상의 튜플 정보를 추출

트래픽을 제어하는 시간기만 정책을 설정하는 방법에 있어서,

【 청구항 1】

【특허 청구범위】

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【청구항 3】

제2항에서,

상기 정책서버에서 상기 정책을 정책관리시스템 전송구분으로 변환한 후 상기 정책관리시스템으로 전송하는 단계

를 더 포함하는 시간기반 트래픽 제어 정책의 실행 방법.

【청구항 4】

트래픽을 제어하는 시간기반 정책의 실행 시점을 판단하는 방법에 있어서,

상기 정책을 실행하는 정책실행장비와 연결된 정책관리시스템이 상기 정책을 내려 받는 단계,

상기 정책을 상기 정책관리시스템에 포함된 데이터베이스에 저장하는 단계,

상기 정책의 실행 시점을 판단하는 단계,

상기 판단 결과 상기 정책의 실행 시점이 도래하지 않은 경우, 계속 상기 정책의 실행 시점을 판단하는 단계, 그리고

상기 판단결과 상기 정책의 실행 시점이 도래한 경우, 상기 정책을 상기 정책실행장비로 전송하는 단계,

를 포함하는 시간기반 트래픽 제어 정책의 실행 방법.

【청구항 5】

제4항에서,

상기 정책을 정책실행장비로 전송하는 단계 이전에,

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상기 정책관리시스템이 상기 정책을 상기 정책실행장비에 적합한 구조로 파싱하는 단계

를 더 포함하는 시간기반 트래픽 제어 정책의 실행 방법.

【청구항 6】

제4항에서,

상기 정책관리시스템에 저장된 시간기반 정책을 내려 받은 상기 정책으로 동기화 하는 단계,

를 더 포함하는 시간기반 트래픽 제어 정책의 실행 방법.

【청구항 7】

트래픽을 제어하는 시간기반 정책을 실행하는 방법에 있어서,

상기 정책을 실행하는 정책실행장비가 상기 정책을 내려 받는 단계,

상기 정책의 실행 시점을 판단하는 단계,

상기 판단결과 상기 정책의 실행 시점이 도래하지 않은 경우, 계속 상기 정책의 실행 시점을 판단하는 단계, 그리고

상기 판단결과 상기 정책의 실행 시점이 도래한 경우, 상기 정책을 실행하는 단계

를 포함하는 시간기반 트래픽 제어 정책의 실행 방법.

【요약서】

【요약】

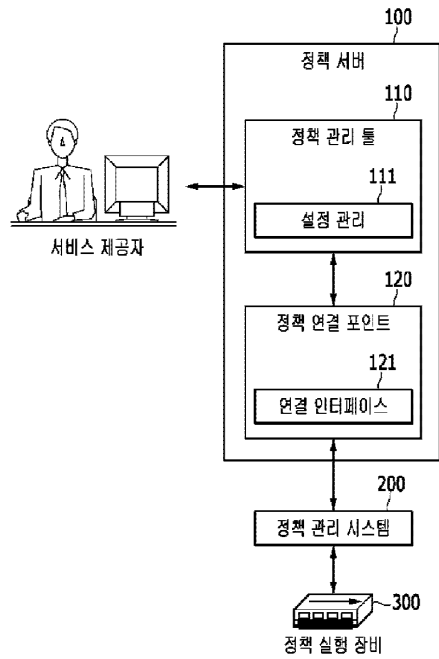
본 발명은 트래픽을 제어하는 방법에 관한 것으로, 특히, 시간 조건이 추가로 조합된 트래픽 제어 정책을 설정하고 실행할 수 있다. 또한, 시간기반 정책을 실행하는 네트워크의 어느 특정 단계에서 시간기반 정책의 실행 시점을 판단할 수 있다. 또한, 네트워크 서비스의 제공자는 시간기반 정책을 이용하여 다양한 응용 서비스를 네트워크 사용자에게 제공할 수 있다.

【대표도】

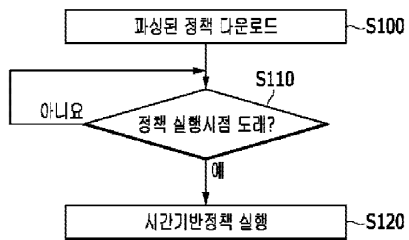
도 4

【도면】

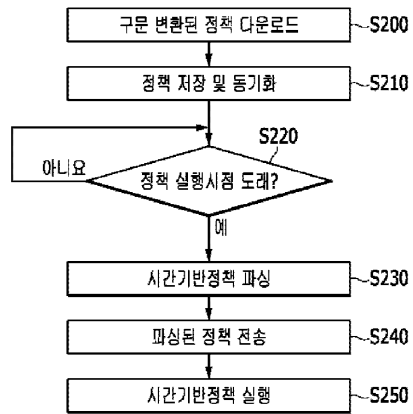
【도 1】



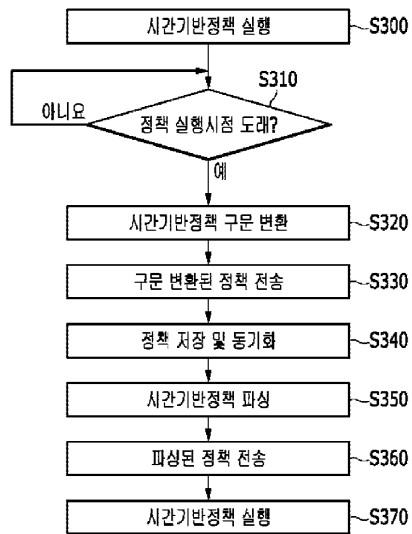
【도 2】



【도 3】



【도 4】





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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/645,090	10/04/2012	SANG WAN KIM	PK7-042	3860
959 7590 05/09/2014 NELSON MULLINS RILEY & SCARBOROUGH LLP FLOOR 30, SUITE 3000 ONE POST OFFICE SQUARE BOSTON, MA 02109			EXAMINER BEAMER, TEMICA M	
			ART UNIT 2646	PAPER NUMBER
			NOTIFICATION DATE 05/09/2014	DELIVERY MODE ELECTRONIC

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.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ipboston.docketing@nelsonmullins.com
melissa.hansel@nelsonmullins.com
chris.schlauch@nelsonmullins.com

Office Action Summary	Application No. 13/645,090	Applicant(s) KIM ET AL.	
	Examiner TEMICA M. BEAMER	Art Unit 2646	AIA (First Inventor to File) Status No

-- 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 MONTHS 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 10/4/2012.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ 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.
- 4) ☐ 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*

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

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ 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).

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).

Certified copies:

- 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)).

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

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)
Paper No(s)/Mail Date ____.
- 3) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 4) ☐ Other: ____.

DETAILED ACTION

The present application is being examined under the pre-AIA first to invent provisions.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of pre-AIA 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-7 are rejected under pre-AIA 35 U.S.C. 102(b) as being anticipated by Riddle et al., U.S. Patent Pub. No. 2008/0316922.

Regarding claims 1 and 7, Riddle discloses a method of setting a time-based policy that controls traffic, the method comprising: extracting at least one of tuple information that is included in a packet (0048); setting a time condition; and setting a time-based traffic control policy by combining the set time condition and the at least one tuple information that is included in the extracted packet (0056, 0084, 0113).

Regarding claim 2, Riddle discloses a method of determining an execution time point of a time-based policy that controls traffic, the method comprising: determining, by a policy server (PS) to which the policy is set, whether an execution time point of the policy arrives (0084); continuing, if an execution time point of the policy does not arrive,

to determine an execution time point of the policy; and transmitting, if an execution time point of the policy arrives, the policy to a policy management system (PMS), wherein the PMS is connected to policy execution equipment (PEE) that executes the policy (0084, 0091-0093).

Regarding claim 3, Riddle discloses the method of claim 2, further comprising converting, by the PS, the policy to PMS transfer syntax and transmitting the PMS transfer syntax to the PMS (0106).

Regarding claims 4 and 7, Riddle discloses a method of determining an execution time point of a time-based policy that controls traffic, the method comprising: downloading, by a PMS that is connected to a PEE that executes the policy, the policy; storing the policy at a database that is included in the PMS; determining whether an execution time point of the policy arrives; continuing, if an execution time point of the policy does not arrive, to determine an execution time point of the policy; and transmitting, if an execution time point of the policy arrives, the policy to the PEE (0063, 0084, 0091-0094).

Regarding claim 5, Riddle discloses the method of claim 4, further comprising parsing, before the transmitting of the policy to the PEE, by the PMS, the policy to a structure that is appropriate for the PEE (0104).

Regarding claim 6, Riddle discloses the method of claim 4, further comprising synchronizing a time-based policy that is stored at the PMS with the downloaded policy (0063).

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Narad et al., U.S. Patent No. 6,859,841, discloses a programmable system for processing a partitioned network infrastructure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TEMICA M. BEAMER whose telephone number is (571)272-7797. The examiner can normally be reached on Monday-Thursday (alternate Fridays) 9:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on (571) 272-7922. 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.

Application/Control Number: 13/645,090
Art Unit: 2646

Page 5

/TEMICA M. BEAMER/
Primary Examiner, Art Unit 2646

Notice of References Cited	Application/Control No. 13/645,090	Applicant(s)/Patent Under Reexamination KIM ET AL.	
	Examiner TEMICA M. BEAMER	Art Unit 2646	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2008/0316922	12-2008	Riddle et al.	370/230
*	B	US-6,859,841	02-2005	Narad et al.	709/236
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

<i>Index of Claims</i> 	Application/Control No. 13645090	Applicant(s)/Patent Under Reexamination KIM ET AL.
	Examiner TEMICA M BEAMER	Art Unit 2646

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47										
CLAIM		DATE								
Final	Original	05/05/2014								
	1	✓								
	2	✓								
	3	✓								
	4	✓								
	5	✓								
	6	✓								
	7	✓								

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number			
	Filing Date			
	First Named Inventor	SANG WAN KIM		
	Art Unit	N/A		
	Examiner Name	Not Yet Assigned		
	Attorney Docket Number	PK7-042		

U.S. PATENTS							Remove	
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear		
/T.B./	1	7853678	B2	2010-12-14	Khemani et al.			
If you wish to add additional U.S. Patent citation information please click the Add button. Add								
U.S. PATENT APPLICATION PUBLICATIONS							Remove	
Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear		
/T.B./	1	20080225708	A1	2008-09-18	Lange			
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FOREIGN PATENT DOCUMENTS							Remove	
Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ² j	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
/T.B./	1	2003-0003593	KR		2003-01-10	HackersLab, Co., Ltd.		☒
If you wish to add additional Foreign Patent Document citation information please click the Add button Add								
NON-PATENT LITERATURE DOCUMENTS							Remove	
Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.						T ⁵

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		
	First Named Inventor	SANG WAN KIM	
	Art Unit	N/A	
	Examiner Name	Not Yet Assigned	
	Attorney Docket Number	PK7-042	

	1		☐
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If you wish to add additional non-patent literature document citation information please click the Add button **Add**

EXAMINER SIGNATURE

Examiner Signature	/Temica Beamer/	Date Considered	05/05/2014
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		
	First Named Inventor	SANG WAN KIM	
	Art Unit	N/A	
	Examiner Name	Not Yet Assigned	
	Attorney Docket Number	PK7-042	

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/EuiHoon Lee/	Date (YYYY-MM-DD)	2012-10-04
Name/Print	EuiHoon Lee	Registration Number	62375

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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, VA 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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 the Freedom of Information Act requires disclosure of these records.
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 inspections 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.



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BIB DATA SHEET

CONFIRMATION NO. 3860

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.		
13/645,090	10/04/2012	455	2646	PK7-042		
APPLICANTS ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INT, Daejeon, KOREA, REPUBLIC OF INVENTORS SANG WAN KIM, Daejeon, KOREA, REPUBLIC OF; Joon Kyung LEE, Daejeon, KOREA, REPUBLIC OF; Dong Won KANG, Daejeon, KOREA, REPUBLIC OF; Wang Bong LEE, Daejeon, KOREA, REPUBLIC OF; Sang Kil PARK, Daejeon, KOREA, REPUBLIC OF; SangSik YOON, Daejeon, KOREA, REPUBLIC OF; Jong Dae PARK, Daejeon, KOREA, REPUBLIC OF; ** CONTINUING DATA ***** ** FOREIGN APPLICATIONS ***** REPUBLIC OF KOREA 10-2012-0040556 04/18/2012 ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** ** SMALL ENTITY ** 10/23/2012						
Foreign Priority claimed ☒ Yes ☐ No 35 USC 119(a-d) conditions met ☒ Yes ☐ No Verified and Acknowledged <u>/TEMICA M BEAMER/</u> Examiner's Signature		☐ Met after Allowance Initials	STATE OR COUNTRY KOREA, REPUBLIC OF	SHEETS DRAWINGS 4	TOTAL CLAIMS 7	INDEPENDENT CLAIMS 4
ADDRESS NELSON MULLINS RILEY & SCARBOROUGH LLP FLOOR 30, SUITE 3000 ONE POST OFFICE SQUARE BOSTON, MA 02109 UNITED STATES						
TITLE METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY						
FILING FEE RECEIVED 655	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:			☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit		

Search Notes 	Application/Control No. 13645090	Applicant(s)/Patent Under Reexamination KIM ET AL.
	Examiner TEMICA M BEAMER	Art Unit 2646

CPC- SEARCHED		
Symbol	Date	Examiner
H04W 24/00; 8/245; 72/00	4/21/2014	TMB
H04L 47/10, 12, 15, 22, 125; 12/5695	4/21/2014	TMB

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
455	418, 419, 453	4/21/2014	TMB
370	230, 230.1, 392, 395.2, 443, 468, 471	4/21/2014	TMB

SEARCH NOTES		
Search Notes	Date	Examiner
WEST	4/21/2014	TMB

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

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I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being transmitted via the Office electronic filing system in accordance with 37 CFR § 1.6(a)(4).

Dated: September 9, 2014
Electronic Signature for Kevin J. Canning: /Kevin J. Canning/

Docket No.: PK7-042
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Sang Wan Kim *et al.*

Application No.: 13/645,090

Confirmation No.: 3860

Filed: October 4, 2012

Art Unit: 2646

For: METHOD OF CONTROLLING TRAFFIC BY
TIME-BASED POLICY

Examiner: Beamer, Temica M.

AMENDMENT IN RESPONSE TO NON-FINAL OFFICE ACTION UNDER 37 C.F.R.
1.111

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

Dear Madam:

INTRODUCTORY COMMENTS

In response to the Office Action dated May 9, 2014, please amend the above-identified U.S. patent application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 4 of this paper.

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method of setting a time-based policy that controls traffic, the method comprising:

extracting at least one of tuple information that is included in a packet from the traffic;

setting a time condition independently from the traffic; and

setting a time-based traffic control policy by combining the set time condition and the at least one tuple information that is included in the extracted packet.

2. (Currently Amended) A method of determining an execution time point of a time-based policy that controls traffic, the method comprising:

determining, by a policy server (PS) to which the policy is set, whether an execution time point of the policy arrives;

continuing, if an execution time point of the policy does not arrive, to determine an execution time point of the policy; and

transmitting, if an execution time point of the policy arrives, the policy to a policy management system (PMS), wherein the PMS is connected to policy execution equipment (PEE) that executes the policy, and wherein the execution time point reflects a time condition that is provided independently from the traffic.

3. (Original) The method of claim 2, further comprising converting, by the PS, the policy to PMS transfer syntax and transmitting the PMS transfer syntax to the PMS.

4. (Currently Amended) A method of determining an execution time point of a time-based policy that controls traffic, the method comprising:

downloading, by a PMS that is connected to a PEE that executes the policy, the policy;

storing the policy at a database that is included in the PMS;

determining whether an execution time point of the policy arrives;

continuing, if an execution time point of the policy does not arrive, to determine an execution time point of the policy, wherein the execution time point reflects a time condition that is provided independently from the traffic; and

transmitting, if an execution time point of the policy arrives, the policy to the PEE.

5. (Original) The method of claim 4, further comprising parsing, before the transmitting of the policy to the PEE, by the PMS, the policy to a structure that is appropriate for the PEE.

6. (Original) The method of claim 4, further comprising synchronizing a time-based policy that is stored at the PMS with the downloaded policy.

7. (Currently Amended) A method of executing a time-based policy that controls traffic, the method comprising:

downloading, by a PEE that executes the policy, the policy;

determining whether an execution time point of the policy arrives;

continuing, if an execution time point of the policy does not arrive, to determine an execution time point of the policy, wherein the execution time point reflects a time condition that is provided independently from the traffic; and

executing, if an execution time point of the policy arrives, the policy.

REMARKS

This amendment is in response to the Non-Final Office Action mailed on May 9, 2014. All objections and rejections are respectfully traversed.

Claims 1, 2, 4, and 7 are amended to better claim the invention. No new matter is added by way of this response.

On entry of this amendment, claims 1, 2, 4, and 7 are currently pending in the application.

Reconsideration and further examination of the application, as amended, is hereby requested.

The present invention relates to a method of setting a traffic control policy in which a time condition is added as a condition that controls traffic. See Specification, para. [0003]. Traffic indicates a load that is applied to a communication apparatus, or when in a network, a quantity of data that is exchanged through the network. In order to provide smooth network service, a service provider monitors and controls traffic, often through the use of a policy that operates a network. See Specification, para. [0005]. Traffic is physically defined as a packet in which information, in forms such as 5-tuple or 7-tuple, is stored. A policy that controls traffic is set at a policy server and executed at a policy execution point (PEP) . See Specification, para. [0006]. Conventionally, traffic policy is set using only information included in a packet within the traffic. See Specification, para. [0007].

The present invention provides a method of controlling traffic that adds a time condition to a policy setting that controls traffic, and a method for executing the time based policy in each stage of the network. See Specification, para. [0008]. Specifically a policy is set by combining information that is included in the packet, a traffic flow form, and a time condition. See Specification, para. [0026]. A policy may be subdivided and diversified. For example, in a specific time zone, a policy may allow traffic for a specific IP address, and in addition, for a specific period of that time zone, the policy may determine the total traffic that uses a specific port or address. See Specification, para. [0027]. Therefore, a network service provider can adjust the traffic of a network as the time based policy is executed. See Specification, para.

[0071]. For example, if a user has only signed up for 30 days of a particular service, the network service provider can intercept data traffic in accordance with the time policy. See Specification, para. [0072]. In addition, each stage of a system that executes a time based policy can determine an execution time point of the time based policy. See Specification, para. [0076].

A method of setting a time-based policy that controls traffic. The method comprises: extracting at least one of tuple information that is included in a packet from the traffic; *setting a time condition independently from the traffic*; and setting a time-based traffic control policy by combining the set time condition and the at least one tuple information that is included in the extracted packet.

Claims 1-7 are rejected under pre-AIA 35 U.S.C. §102(b) as being anticipated by U.S. Patent Pub. No. 2008/0316922 of Riddle et al. (hereinafter "Riddle").

Riddle does not disclose, "*setting a time condition independently from the traffic*" as recited in claim 1, and "*wherein the execution time point reflects a time condition that is provided independently from the traffic*" as recited in claims 2, 4, and 7.

Riddle teaches a network device system architecture that increases throughput of devices that process network traffic. A network processing unit is configured to process network traffic according to a data plan configuration, and sample selected packets of a data flow to the network device. The control plane of the network device processes the sampled packets and adjusts the data plane configuration and sampled packets, and adjusts the data plane configuration, responsive to the sampled packets of the data flow. The control plane and data plane implement a server side triggered policy caching mechanism that allows for previous classification policy decisions made for previous data flows to be applied to subsequent new flows. See Riddle, para. [0048]. An application traffic management unit performs various control plane operations on sampled packets, such as packet classifications, policy identification, etc. A network application traffic management unit receives sampled packets of a data flow, and classifies the sampled packets to identify control policies. The network application traffic management unit then transmits a control message identifying traffic classifications and policies that is applied to packets of the data flow. The network processing unit then applies one or more policies to subsequent packets of the same data flow. See Riddle, para. [0056]. A "triggerexpiration"

parameter indicates the length of time that a cached policy decision is valid. See Riddle, para. [0084].

However, the "triggerexpiration" parameter is part of a SizingData message that is transmitted by the network application traffic management unit. See Riddle, para. [0081]. Therefore, similar to conventional art that sets traffic control policy only using information included in a packet within traffic, see Specification, para. [0007], Riddle teaches a "triggerexpiration" parameter that is within a packet that is transmitted with network traffic.

In contrast, the present invention provides a time condition independent from the traffic in a network. The execution time point is the reflection of a time condition. See Specification, para. [0034]. The Specification states that: (i) conventional art provides policy information only from information included in a packet within traffic, (ii) the present invention remedies this issues within the conventional art, (iii) information is extracted is from a packet, and (iv) the time condition is a separate entity from the information provided. See Specification, paras. [0007]-[0008] and [0026]. While the Specification does not explicitly state that the time condition is provided independently from the traffic, one skilled in the art would know that the time condition is provided independently from the packets in the present invention. Therefore, amended claims 1, 2, 4, and 7 further define an important feature of the present invention, i.e. that the time condition is provided independently from the traffic within the network, thereby distinguishing the present invention from the cited references.

Claim 3 depends from claim 2 and therefore includes all of the features of claim 2. Claims 5-6 depend from claim 4 and therefore include all of the features of claim 4. As a result, Riddle must support a 35 U.S.C. §102 rejection of claim 2 and 4 in order to support a rejection of dependent claims 3 and 5-6, respectively. As previously discussed in connection with claims 3 and 5-6, Riddle does not disclose, "*wherein the execution time point reflects a time condition that is provided independently from the traffic*" as recited in claims 2, and 4. Therefore, Riddle cannot support a valid 35 U.S.C. §102(b) rejection of claims 2 and 4 or of dependent claims 3 and 5-6, respectively.

For at least the reasons set forth above, Applicant respectfully urges that Riddle fails to disclose all of the features of claims 1-7. Therefore, Applicant respectfully requests that the above 35 U.S.C. §102(b) rejection of claims 1-7 be withdrawn.

CONCLUSION

In view of the foregoing claim amendments and remarks, Applicant believes that all claims should be passed to allowance. Should the Examiner feel that a teleconference would expedite the prosecution of this application, the Examiner is urged to contact the Applicant's attorney at (617) 202-4636.

As Applicant's remarks with respect to the Examiner's rejections and/or objections overcome the rejections and/or objections, Applicant's silence as to certain assertions by the Examiner in the Office Action or certain requirements that may be applicable to such rejections and/or objections (e.g., whether a reference constitutes prior art, reasons to modify a reference and/or combine references, assertions as to dependent claims) is not a concession by Applicant that such assertions are accurate or that such requirements have been met, and Applicant reserves the right to dispute these assertions/requirements in the future.

Please charge any shortage or credit any overpayment of fees to our Deposit Account No. 12-0080, under Order No. PK7-042. In the event that a petition for an extension of time is required to be submitted herewith, and the requisite petition does not accompany this response, the undersigned hereby petitions under 37 C.F.R. § 1.136(a) for an extension of time for as many months as are required to render this submission timely. Any fee due is authorized to be charged to the aforementioned Deposit Account.

Dated: September 9, 2014

Respectfully submitted,

Electronic signature: /Kevin J. Canning/
Kevin J. Canning
Registration No. 35,470
NELSON MULLINS RILEY &
SCARBOROUGH LLP
One Post Office Square
Boston, Massachusetts 02109-2127
(800) 237-2000
(617) 742-4214 (Fax)

Electronic Patent Application Fee Transmittal				
Application Number:		13645090		
Filing Date:		04-Oct-2012		
Title of Invention:		METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY		
First Named Inventor/Applicant Name:		SANG WAN KIM		
Filer:		Kevin J. Canning/Christina Andrews		
Attorney Docket Number:		PK7-042		
Filed as Small Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 1 month with \$0 paid	2251	1	100	100

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Total in USD (\$)				100

Electronic Acknowledgement Receipt	
EFS ID:	20090492
Application Number:	13645090
International Application Number:	
Confirmation Number:	3860
Title of Invention:	METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY
First Named Inventor/Applicant Name:	SANG WAN KIM
Customer Number:	959
Filer:	Kevin J. Canning/Christina Andrews
Filer Authorized By:	Kevin J. Canning
Attorney Docket Number:	PK7-042
Receipt Date:	09-SEP-2014
Filing Date:	04-OCT-2012
Time Stamp:	18:12:20
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$100
RAM confirmation Number	2596
Deposit Account	120080
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
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1	Extension of Time	PK7042_Extension.pdf	22742 5b3337f72b8c346f6bfc953d75c821e0cb61efe8	no	1
Warnings:					
Information:					
2		PK7042_Response.pdf	42151 e4826d8cb2ef77b5def9b269d7a55d70f783df8e	yes	8
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Amendment/Req. Reconsideration-After Non-Final Reject		1	1	
	Claims		2	3	
	Applicant Arguments/Remarks Made in an Amendment		4	8	
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30533 3ecc6fd4ff9e2756645b1552789cb2ac1795846	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			95426		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)		Docket Number (Optional) PK7-042	
Application Number 13/645,090-Conf. #3860		Filed October 4, 2012	
For METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY			
Art Unit 2646		Examiner Beamer, Temica M.	
This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application. The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):			
	<u>Fee</u>	<u>Small Entity Fee</u>	<u>Micro Entity Fee</u>
☒ One month (37 CFR 1.17(a)(1))	\$200	\$100	\$50 \$ 100.00
☐ Two months (37 CFR 1.17(a)(2))	\$600	\$300	\$150 \$
☐ Three months (37 CFR 1.17(a)(3))	\$1,400	\$700	\$350 \$
☐ Four months (37 CFR 1.17(a)(4))	\$2,200	\$1,100	\$550 \$
☐ Five months (37 CFR 1.17(a)(5))	\$3000	\$1,500	\$750 \$
☒ Applicant asserts small entity status. See 37 CFR 1.27. ☐ Applicant certifies micro entity status. See 37 CFR 1.29. Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously. ☐ A check in the amount of the fee is enclosed. ☐ Payment by credit card. Form PTO-2038 is attached. ☒ The Director has already been authorized to charge fees in this application to a Deposit Account. ☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 12-0080 . ☒ Payment made via EFS-Web.			
WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.			
I am the			
☐ applicant. ☒ attorney or agent of record. Registration Number 35,470 . ☐ attorney or agent acting under 37 CFR 1.34. Registration number .			
_____ /Kevin J. Canning/ Signature		_____ September 9, 2014 Date	
_____ Kevin J. Canning Typed or printed name		_____ (617) 202-4616 Telephone Number	
NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.			

☐ *Total of 1 forms are submitted.

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being transmitted via the Office electronic filing system in accordance with 37 CFR § 1.6(a)(4).	
Dated: September 9, 2014	Electronic Signature for Kevin J. Canning: /Kevin J. Canning/

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 13/645,090		Filing Date 10/04/2012		☐ To be Mailed					
ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO													
APPLICATION AS FILED – PART I													
(Column 1)		(Column 2)											
FOR		NUMBER FILED		NUMBER EXTRA		RATE (\$)		FEE (\$)					
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))		N/A		N/A		N/A							
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))		N/A		N/A		N/A							
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A		N/A		N/A							
TOTAL CLAIMS (37 CFR 1.16(i))		minus 20 =		*		X \$		=					
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 =		*		X \$		=					
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))		If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).											
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))													
* If the difference in column 1 is less than zero, enter "0" in column 2.						TOTAL							
APPLICATION AS AMENDED – PART II													
(Column 1)		(Column 2)		(Column 3)									
AMENDMENT	09/09/2014		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR		PRESENT EXTRA		RATE (\$)		ADDITIONAL FEE (\$)		
	Total (37 CFR 1.16(i))		* 7		Minus ** 20		= 0		X \$40 =		0		
	Independent (37 CFR 1.16(h))		* 4		Minus *** 4		= 0		X \$210 =		0		
	☐ Application Size Fee (37 CFR 1.16(s))												
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))												
						TOTAL ADD'L FEE		0					
(Column 1)		(Column 2)		(Column 3)									
AMENDMENT			CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR		PRESENT EXTRA		RATE (\$)		ADDITIONAL FEE (\$)		
	Total (37 CFR 1.16(i))		*		Minus **		=		X \$		=		
	Independent (37 CFR 1.16(h))		*		Minus ***		=		X \$		=		
	☐ Application Size Fee (37 CFR 1.16(s))												
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))												
						TOTAL ADD'L FEE							
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.										LIE /RUTH GRADEN/			

This collection of information is required by 37 CFR 1.16. 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, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/645,090	10/04/2012	SANG WAN KIM	PK7-042	3860
959 7590 01/02/2015 NELSON MULLINS RILEY & SCARBOROUGH LLP FLOOR 30, SUITE 3000 ONE POST OFFICE SQUARE BOSTON, MA 02109			EXAMINER BEAMER, TEMICA M	
			ART UNIT 2646	PAPER NUMBER
			NOTIFICATION DATE 01/02/2015	DELIVERY MODE ELECTRONIC

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.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ipboston.docketing@nelsonmullins.com
chris.schlauch@nelsonmullins.com
ipqualityassuranceboston@nelsonmullins.com

Office Action Summary	Application No. 13/645,090	Applicant(s) KIM ET AL.	
	Examiner TEMICA M. BEAMER	Art Unit 2646	AIA (First Inventor to File) Status No

-- 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 MONTHS 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 9/9/14.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ 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.
- 4) ☐ 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*

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

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ 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).

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).

Certified copies:

- 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)).

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

Attachment(s)

- | | |
|--|--|
| 1) ☒ Notice of References Cited (PTO-892) | 3) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)
Paper No(s)/Mail Date ____ | 4) ☐ Other: ____ |

DETAILED ACTION

1. The present application is being examined under the pre-AIA first to invent provisions.

Response to Arguments

2. Applicant's arguments with respect to claims 1-7 have been considered but are moot based on the new grounds of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of pre-AIA 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.

4. Claims 1-7 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Riddle et al. (Riddle), U.S. Patent Pub. No. 2008/0316922 in view of Friedman et al. (Friedman), U.S. Patent Pub. No. 2013/0117847.

Regarding claims 1 and 7, Riddle discloses a method of setting a time-based policy that controls traffic, the method comprising: extracting at least one of tuple information that is included in a packet from the traffic (0048, 0104, 0110); setting a time condition; and setting a time-based traffic control policy by combining the set time condition and the at least one tuple information that is included in the extracted packet (0056, 0084, 0113).

Riddle, however, fails to disclose wherein the time condition is set independently from the traffic.

In a similar field of endeavor, Friedman discloses a streaming method and system for processing network metadata. Friedman further discloses setting a time condition independently from traffic (policies are provided by the administrator) (0021, 0060, 0064, 0075-0077).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify Riddle with the teachings of Friedman as such an implementation would provide versatility and increased visibility into conditions and activities on the system (see Friedman, 0063 and 0064).

Regarding claim 2, Riddle discloses a method of determining an execution time point of a time-based policy that controls traffic, the method comprising: determining, by a policy server (PS) to which the policy is set, whether an execution time point of the policy arrives (0084); continuing, if an execution time point of the policy does not arrive, to determine an execution time point of the policy; and transmitting, if an execution time point of the policy arrives, the policy to a policy management system (PMS), wherein the PMS is connected to policy execution equipment (PEE) that executes the policy (0084, 0091-0093).

Riddle, however, fails to disclose wherein the execution time point reflects a time condition that is provided independently from the traffic.

Friedman discloses wherein the execution time point reflects a time condition that is provided independently from the traffic (policies are provided by the administrator) (0021, 0060, 0064, 0075-0077).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify Riddle with the teachings of Friedman as such an implementation would provide versatility and increased visibility into conditions and activities on the system (see Friedman, 0063 and 0064).

Regarding claim 3, Riddle as modified discloses the method of claim 2, further comprising converting, by the PS, the policy to PMS transfer syntax and transmitting the PMS transfer syntax to the PMS (0106).

Regarding claims 4 and 7, Riddle discloses a method of determining an execution time point of a time-based policy that controls traffic, the method comprising: downloading, by a PMS that is connected to a PEE that executes the policy, the policy; storing the policy at a database that is included in the PMS; determining whether an execution time point of the policy arrives; continuing, if an execution time point of the policy does not arrive, to determine an execution time point of the policy; and transmitting, if an execution time point of the policy arrives, the policy to the PEE (0063, 0084, 0091-0094).

Riddle, however, fails to disclose wherein the execution time point reflects a time condition that is provided independently from the traffic.

Friedman discloses wherein the execution time point reflects a time condition that is provided independently from the traffic (policies are provided by the administrator) (0021, 0060, 0064, 0075-0077).

At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify Riddle with the teachings of Friedman as such an implementation would provide versatility and increased visibility into conditions and activities on the system (see Friedman, 0063 and 0064).

Regarding claim 5, Riddle as modified discloses the method of claim 4, further comprising parsing, before the transmitting of the policy to the PEE, by the PMS, the policy to a structure that is appropriate for the PEE (0104).

Regarding claim 6, Riddle discloses the method of claim 4, further comprising synchronizing a time-based policy that is stored at the PMS with the downloaded policy (0063).

Conclusion

5. 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.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TEMICA M. BEAMER whose telephone number is (571)272-7797. The examiner can normally be reached on Monday-Thursday (alternate Fridays) 9:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on (571) 272-7922. 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.

/TEMICA M. BEAMER/
Primary Examiner, Art Unit 2646

Notice of References Cited	Application/Control No. 13/645,090		Applicant(s)/Patent Under Reexamination KIM ET AL.	
	Examiner TEMICA M. BEAMER		Art Unit 2646	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2013/0117847	05-2013	Friedman et al.	726/22
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

<i>Index of Claims</i> 	Application/Control No. 13645090	Applicant(s)/Patent Under Reexamination KIM ET AL.
	Examiner TEMICA M BEAMER	Art Unit 2646

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant				☐ CPA				☐ T.D.				☐ R.1.47			
CLAIM		DATE													
Final	Original	05/05/2014	12/29/2014												
	1	✓	✓												
	2	✓	✓												
	3	✓	✓												
	4	✓	✓												
	5	✓	✓												
	6	✓	✓												
	7	✓	✓												

Search Notes 	Application/Control No. 13645090	Applicant(s)/Patent Under Reexamination KIM ET AL.
	Examiner TEMICA M BEAMER	Art Unit 2646

CPC- SEARCHED		
Symbol	Date	Examiner
H04W 24/00; 8/245; 72/00	4/21/2014	TMB
H04L 47/10, 12, 15, 22, 125; 12/5695	4/21/2014	TMB
updated search	12/29/2014	TMB

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
455	418, 419, 453	4/21/2014	TMB
370	230, 230.1, 392, 395.2, 443, 468, 471	4/21/2014	TMB
	updated search	12/29/2014	TMB

SEARCH NOTES		
Search Notes	Date	Examiner
WEST	4/21/2014	TMB
WEST	12/29/2014	TMB

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

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Doc code: RCEX

Doc description: Request for Continued Examination (RCE)

PTO/SB/30EFS (07-09)

Approved for use through 07/31/2012. OMB 0851-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL **(Submitted Only via EFS-Web)**

Application Number	13645090	Filing Date	2012-10-04	Docket Number (if applicable)	PK7-042RCE	Art Unit	2646
First Named Inventor	SANG WAN KIM			Examiner Name	T. M. Beamer		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.

Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

☐ Other _____

☒ Enclosed

☒ Amendment/Reply

☐ Information Disclosure Statement (IDS)

☐ Affidavit(s)/ Declaration(s)

☐ Other _____

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____.
 (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

☒ The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to
 Deposit Account No. 12-0080

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

☐ Applicant Signature

Doc code: RCEX

Doc description: Request for Continued Examination (RCE)

PTO/SB/30EFS (07-09)

Approved for use through 07/31/2012. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Signature of Registered U.S. Patent Practitioner			
Signature	/Kevin J. Canning/	Date (YYYY-MM-DD)	2015-04-02
Name	Kevin J. Canning	Registration Number	35470

This collection of information is required by 37 CFR 1.114. 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 1.11 and 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, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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 the Freedom of Information Act requires disclosure of these records.
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 inspections 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.

I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being transmitted via the Office electronic filing system in accordance with 37 CFR § 1.6(a)(4).

Dated: April 2, 2015
Electronic Signature for Kevin J. Canning: /Kevin J. Canning/

Docket No.: PK7-042RCE
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
SANG WAN KIM *et al.*

Application No.: 13/645,090

Confirmation No.: 3860

Filed: October 4, 2012

Art Unit: 2646

For: METHOD OF CONTROLLING TRAFFIC BY
TIME-BASED POLICY

Examiner: T. M. Beamer

**AMENDMENT AFTER FINAL OFFICE ACTION UNDER 37 C.F.R. 1.116
SUBMITTED IN CONJUNCTION WITH A REQUEST FOR CONTINUED
EXAMINATION(RCE)**

MS RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Madam:

INTRODUCTORY COMMENTS

In response to the final Office Action dated January 2, 2015, please amend the above-identified U.S. patent application as set forth below. This Amendment is being filed in conjunction with a Request for Continued Examination (RCE).

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 4 of this paper.

AMENDMENTS TO THE CLAIMS

1. (Previously Presented) A method of setting a time-based policy that controls traffic, the method comprising:

extracting at least one of tuple information that is included in a packet from the traffic;

setting a time condition independently from the traffic; and

setting a time-based traffic control policy by combining the set time condition and the at least one tuple information that is included in the extracted packet.

2. (Currently Amended) A method of determining an execution time point of a time-based policy that controls traffic, the method comprising:

determining, by a policy server (PS) to which the policy is set, whether an execution time point of the policy arrives;

continuing, if an execution time point of the policy does not arrive, to determine an execution time point of the policy; and

transmitting, if an execution time point of the policy arrives, the policy to a policy management system (PMS), wherein the PMS is connected to policy execution equipment (PEE) that executes the policy, and wherein the execution time point reflects a time condition that is provided independently from the traffic;

wherein the time-based policy is set based on the tuple information that is included in a packet from the traffic and the time condition by the policy server.

3. (Original) The method of claim 2, further comprising converting, by the PS, the policy to PMS transfer syntax and transmitting the PMS transfer syntax to the PMS.

4. (Currently Amended) A method of determining an execution time point of a time-based policy that controls traffic, the method comprising:

downloading, by a PMS that is connected to a PEE that executes the policy, the policy;

storing the policy at a database that is included in the PMS;

determining whether an execution time point of the policy arrives;

continuing, if an execution time point of the policy does not arrive, to determine an execution time point of the policy, wherein the execution time point reflects a time condition that is provided independently from the traffic; ~~and~~

~~transmitting, if an execution time point of the policy arrives, the policy to the PEE, wherein the time-based policy is set based on tuple information that is included in a packet from the traffic and the time condition by a policy server.~~

5. (Original) The method of claim 4, further comprising parsing, before the transmitting of the policy to the PEE, by the PMS, the policy to a structure that is appropriate for the PEE.

6. (Original) The method of claim 4, further comprising synchronizing a time-based policy that is stored at the PMS with the downloaded policy.

7. (Currently Amended) A method of executing a time-based policy that controls traffic, the method comprising:

downloading, by a PEE that executes the policy, the policy;

determining whether an execution time point of the policy arrives;

continuing, if an execution time point of the policy does not arrive, to determine an execution time point of the policy, wherein the execution time point reflects a time condition that is provided independently from the traffic; and

executing, if an execution time point of the policy arrives, the policy; ~~wherein the time-based policy is set based on tuple information that is included in a packet from the traffic and the time condition by a policy server.~~

REMARKS

This amendment is in response to the Final Office Action mailed on January 2, 2015. All objections and rejections are respectfully traversed.

Claims 2, 4, and 7 are amended to better claim the invention. No new matter is added by way of this response.

On entry of this amendment, claims 1-7 are currently pending in the application.

Reconsideration and further examination of the application, as amended, is hereby requested.

In conventional traffic control policies for networks, the policies are based upon information contained within packets in the traffic, such as source IP address, destination IP address, source port, destination port, protocol and the like. These policies have not been based on a time condition.

The invention of this application allows traffic to be controlled based on a time-based policy. Claim 1 of the present application sets forth the steps performed for setting the time-based policy. In particular, tuple information is extracted from a packet that is included in the traffic to be controlled. A time condition is set independently from the traffic and then a time-based traffic control policy is set by combining the time condition and the tuple information from the packet.

In the embodiments described in the application, there is a policy server (PS), a policy management system (PMS) and policy execution equipment (PEE). The policy server is responsible for setting the policy. The policy is converted into a PMS transfer syntax and then transferred to the policy management system. The policy is parsed at the policy management system and sent to policy execution equipment, where the policy is executed.

Independent Claim 2 focuses on the method of determining an execution time point for a time-based policy. In accordance with this method, the policy server at which the policy is set determines whether an execution time point for the policy has arrived. If the execution point has not arrived, the policy server continues to determine an execution time point of the policy. In

contrast, if the execution time point of the policy arrives, the policy is transmitted to the policy management system where the policy management system is connected to policy execution equipment for executing the policy.

Independent Claim 4 focuses on the method of determining an execution time point of a time-based policy that controls traffic from the perspective of a policy management system. In this method, the policy management system is connected to policy execution equipment and downloads the policy for storage in a data base. When the execution time point of the policy arrives, the policy is transmitted to the policy execution equipment.

Claim 7 concerns the activities of the policy execution equipment. In Claim 7, the policy execution equipment downloads the policy, determines whether the execution time point of the policy arrives, and executes the policy if the time point arrives. The execution time point reflects a time condition that is provided independently from the traffic. The time based policy is set based on the tuple information that is included in a packet from the traffic and the time considered by the policy server.

Rejections

The Examiner has rejected claims 1-7 under pre-AIA 35 USC § 103(a) as being unpatentable over U.S. Patent Application Publication No. 2008/0316922, to Riddle et al (hereinafter "Riddle") in view of U.S. Patent Application Publication No. 2013/0117847, to Friedman et al (hereinafter "Friedman"). See Office Action, page 2.

Riddle recognizes that in a network, the network traffic received by various network devices may vary. For example, firewall and intrusion detection systems are typically deployed at the edges of network to filter incoming and outgoing traffic. These network devices may process large amounts of network traffic unlike other network device and thus must possess a good deal computing resources to perform this filtering. In general, prior approaches had increased the performance of the network devices by increasing the computation power.

Riddle seeks to increase throughput devices that process network traffic. Riddle seeks to provide policies that help to increase the throughput. Riddle deploys a FlowInfo message that is sent from the control plane to the data plane to cause the data plane to create a flow block for

storing various attributes of a given flow. The FlowInfo message may also contain a trigger parameter indicating whether the control plane should cache the policy decisions. Riddle may apply cached policies rather than default policies to new data flows.

Friedman concerns a method and system for processing network metadata. Friedman seeks to analyze large volumes of network metadata in real time and convert these volumes of metadata into a common format so that the volume of incoming data may be reduced significantly. Friedman may establish policies to detect unusual network events that might be indicative of security attacks, traffic spikes and the like. Friedman mentions that the policies can be general purpose or time-based. For example, Friedman notes that the policy may be triggered by the time of day.

Claim 1 is not rendered obvious by the combination of Riddle and Friedman. Neither reference extracts tuple information, sets a time condition, and then sets a policy by combining the tuple information and the set time condition. Thus, Claim 1 distinguishes over these references. As such Applicants, request reconsideration and withdrawal of the rejection of Claim 1.

Claims 2-7 are non-obvious over Riddle and Friedman for reasons similar to those discussed relative to Claim 1. Each of these claims recites "wherein the time-based policy is set based on tuple information that is included in a packet from the traffic and the time condition from the policy server. " Riddle and Friedman fail to teach or suggest this claim feature. As such, Applicants respectfully request reconsideration and withdrawal of the rejection of Claims 2-7.

CONCLUSION

In view of the foregoing claim amendments and remarks, Applicant believes that all claims should be passed to allowance. Should the Examiner feel that a teleconference would expedite the prosecution of this application, the Examiner is urged to contact the Applicant's attorney at (617) 202-4616.

As Applicant's remarks with respect to the Examiner's rejections and/or objections overcome the rejections and/or objections, Applicant's silence as to certain assertions by the Examiner in the Office Action or certain requirements that may be applicable to such rejections and/or objections (e.g., whether a reference constitutes prior art, reasons to modify a reference and/or combine references, assertions as to dependent claims) is not a concession by Applicant that such assertions are accurate or that such requirements have been met, and Applicant reserves the right to dispute these assertions/requirements in the future.

Please charge any shortage or credit any overpayment of fees to our Deposit Account No. 12-0080, under Order No. PK7-042RCE. In the event that a petition for an extension of time is required to be submitted herewith, and the requisite petition does not accompany this response, the undersigned hereby petitions under 37 C.F.R. § 1.136(a) for an extension of time for as many months as are required to render this submission timely. Any fee due is authorized to be charged to the aforementioned Deposit Account.

Dated: April 2, 2015

Respectfully submitted,

Electronic signature: /Kevin J. Canning/
Kevin J. Canning
Registration No. 35,470
Nelson Mullins Riley & Scarborough LLP
One Post Office Square
Boston, Massachusetts 02109-2127
(800) 237-2000
(617) 742-4214 (Fax)

Electronic Patent Application Fee Transmittal				
Application Number:		13645090		
Filing Date:		04-Oct-2012		
Title of Invention:		METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY		
First Named Inventor/Applicant Name:		SANG WAN KIM		
Filer:		Kevin J. Canning/Nicole Turner		
Attorney Docket Number:		PK7-042RCE		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Request for Continued Examination	2801	1	600	600
Total in USD (\$)				600

Electronic Acknowledgement Receipt	
EFS ID:	21954435
Application Number:	13645090
International Application Number:	
Confirmation Number:	3860
Title of Invention:	METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY
First Named Inventor/Applicant Name:	SANG WAN KIM
Customer Number:	959
Filer:	Kevin J. Canning/Nicole Turner
Filer Authorized By:	Kevin J. Canning
Attorney Docket Number:	PK7-042RCE
Receipt Date:	02-APR-2015
Filing Date:	04-OCT-2012
Time Stamp:	14:45:48
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$ 600
RAM confirmation Number	1056
Deposit Account	120080
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Continued Examination (RCE)	PK7_042RCE_Request_for_Continued_Examination.pdf	697757 c310f0c84abe0b19030e44092ee5f762f8e5d070	no	3
Warnings:					
Information:					
2	Amendment Submitted/Entered with Filing of CPA/RCE	PK7_042RCE_Amendment_After_Final_Office_Action_with_RCE.pdf	40794 c1c4ae672979196470d913cd4e79e3d853d2e624	no	7
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30887 3c9bf1f847910b633316383b6e369253970f63a6	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			769438		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD				Application or Docket Number		Filing Date		☐ To be Mailed	
Substitute for Form PTO-875				13/645,090		10/04/2012			
ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO									
APPLICATION AS FILED – PART I									
(Column 1)		(Column 2)							
FOR	NUMBER FILED	NUMBER EXTRA		RATE (\$)		FEE (\$)			
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A					
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A					
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A					
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		X \$ =					
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		X \$ =					
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).								
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))									
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL					
APPLICATION AS AMENDED – PART II									
(Column 1)		(Column 2)		(Column 3)					
AMENDMENT	04/02/2015	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	* 7	Minus	** 20	= 0	X \$40 =		0	
	Independent (37 CFR 1.16(h))	* 4	Minus	*** 4	= 0	X \$210 =		0	
	☐ Application Size Fee (37 CFR 1.16(s))								
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
TOTAL ADD'L FEE						0			
(Column 1)		(Column 2)		(Column 3)					
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	*	Minus	**	=	X \$ =			
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =			
	☐ Application Size Fee (37 CFR 1.16(s))								
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))								
TOTAL ADD'L FEE									
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.									

This collection of information is required by 37 CFR 1.16. 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, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/645,090	10/04/2012	SANG WAN KIM	PK7-042RCE	3860
959 7590 05/22/2015 NELSON MULLINS RILEY & SCARBOROUGH LLP FLOOR 30, SUITE 3000 ONE POST OFFICE SQUARE BOSTON, MA 02109			EXAMINER BEAMER, TEMICA M	
			ART UNIT 2646	PAPER NUMBER
			NOTIFICATION DATE 05/22/2015	DELIVERY MODE ELECTRONIC

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.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ipboston.docketing@nelsonmullins.com
chris.schlauch@nelsonmullins.com
ipqualityassuranceboston@nelsonmullins.com

Office Action Summary	Application No. 13/645,090	Applicant(s) KIM ET AL.	
	Examiner TEMICA M. BEAMER	Art Unit 2646	AIA (First Inventor to File) Status No

-- 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 MONTHS 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 4/2/2015.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ 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.
- 4) ☐ 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*

- 5) ☒ Claim(s) 1-7 is/are pending in the application.
5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☒ Claim(s) 2-7 is/are allowed.
- 7) ☒ Claim(s) 1 is/are rejected.
- 8) ☐ Claim(s) ____ is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ 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).

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).

Certified copies:

- 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)).

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

Attachment(s)

- | | |
|--|---|
| 1) ☐ Notice of References Cited (PTO-892) | 3) ☐ Interview Summary (PTO-413) |
| 2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) | Paper No(s)/Mail Date. ____. |
| Paper No(s)/Mail Date ____. | 4) ☐ Other: ____. |

1. The present application is being examined under the pre-AIA first to invent provisions.

DETAILED ACTION

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 1 is rejected under 35 U.S.C. 101 because the claimed invention is not directed to patent eligible subject matter. Based upon consideration of all of the relevant factors with respect to the claim as a whole, claim(s) 1 is/are determined to be directed to an abstract idea. The rationale for this determination is explained below:
Claim 1 describes a method that is not tied to an apparatus, therefore, the claim is directed to an abstract idea. Correction is required.

Allowable Subject Matter

4. Claims 2-7 are allowed.
5. Once the 101 rejection to claim 1 has been overcome, it will be in condition for allowance.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TEMICA M. BEAMER whose telephone number is

(571)272-7797. The examiner can normally be reached on Monday-Thursday (alternate Fridays) 9:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on (571) 272-7922. 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.

/TEMICA M. BEAMER/
Primary Examiner, Art Unit 2646

<i>Index of Claims</i> 	Application/Control No. 13645090	Applicant(s)/Patent Under Reexamination KIM ET AL.
	Examiner TEMICA M BEAMER	Art Unit 2646

✓	Rejected
=	Allowed

-	Cancelled
÷	Restricted

N	Non-Elected
I	Interference

A	Appeal
O	Objected

☐ Claims renumbered in the same order as presented by applicant					☐ CPA					☐ T.D.					☐ R.1.47				
CLAIM		DATE																	
Final	Original	05/05/2014	12/29/2014	05/18/2015															
	1	✓	✓	✓															
	2	✓	✓	=															
	3	✓	✓	=															
	4	✓	✓	=															
	5	✓	✓	=															
	6	✓	✓	=															
	7	✓	✓	=															

Search Notes 	Application/Control No. 13645090	Applicant(s)/Patent Under Reexamination KIM ET AL.
	Examiner TEMICA M BEAMER	Art Unit 2646

CPC- SEARCHED		
Symbol	Date	Examiner
H04W 24/00; 8/245; 72/00	4/21/2014	TMB
H04L 47/10, 12, 15, 22, 125; 12/5695	4/21/2014	TMB
updated search	12/29/2014	TMB
updated search	5/18/2015	TMB

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
455	418, 419, 453	4/21/2014	TMB
370	230, 230.1, 392, 395.2, 443, 468, 471	4/21/2014	TMB
	updated search	12/29/2014	TMB
	updated search	5/18/2015	TMB

SEARCH NOTES		
Search Notes	Date	Examiner
WEST	4/21/2014	TMB
WEST	12/29/2014	TMB
WEST	5/18/2015	TMB

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

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I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being transmitted via the Office electronic filing system in accordance with 37 CFR § 1.6(a)(4).

Dated: August 24, 2015
Electronic Signature for Michael Malone: /Michael Malone/

Docket No.: PK7-042RCE
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Sang Wan Kim *et al.*

Application No.: 13/645,090

Confirmation No.: 3860

Filed: October 4, 2012

Art Unit: 2646

For: METHOD OF CONTROLLING TRAFFIC BY
TIME-BASED POLICY

Examiner: T. M. Beamer

**AMENDMENT IN RESPONSE TO NON-FINAL OFFICE ACTION UNDER 37 C.F.R. §
1.111**

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

Dear Sir:

INTRODUCTORY COMMENTS

In response to the Office Action dated May 22, 2015, please amend the above-identified U.S. patent application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 4 of this paper.

AMENDMENTS TO THE CLAIMS

1. (Canceled)

2. (Previously Presented) A method of determining an execution time point of a time-based policy that controls traffic, the method comprising:

determining, by a policy server (PS) to which the policy is set, whether an execution time point of the policy arrives;

continuing, if an execution time point of the policy does not arrive, to determine an execution time point of the policy; and

transmitting, if an execution time point of the policy arrives, the policy to a policy management system (PMS), wherein the PMS is connected to policy execution equipment (PEE) that executes the policy, and wherein the execution time point reflects a time condition that is provided independently from the traffic,

wherein the time-based policy is set based on the tuple information that is included in a packet from the traffic and the time condition by the policy server.

3. (Original) The method of claim 2, further comprising converting, by the PS, the policy to PMS transfer syntax and transmitting the PMS transfer syntax to the PMS.

4. (Currently Amended) A method of determining an execution time point of a time-based policy that controls traffic, the method comprising:

downloading, by a policy management system (PMS) that is connected to a policy execution equipment (PEE) that executes the policy, the policy;

storing the policy at a database that is included in the PMS;

determining whether an execution time point of the policy arrives;

continuing, if an execution time point of the policy does not arrive, to determine an execution time point of the policy,

wherein the execution time point reflects a time condition that is provided independently from the traffic,

wherein the time-based policy is set based on tuple information that is included in a packet from the traffic and the time condition by a policy server.

5. (Original) The method of claim 4, further comprising parsing, before the transmitting of the policy to the PEE, by the PMS, the policy to a structure that is appropriate for the PEE.

6. (Original) The method of claim 4, further comprising synchronizing a time-based policy that is stored at the PMS with the downloaded policy.

7. (Currently Amended) A method of executing a time-based policy that controls traffic, the method comprising:

 downloading, by a policy execution equipment (PEE) that executes the policy, the policy;
 determining whether an execution time point of the policy arrives;
 continuing, if an execution time point of the policy does not arrive, to determine an execution time point of the policy, wherein the execution time point reflects a time condition that is provided independently from the traffic; and
 executing, if an execution time point of the policy arrives, the policy, wherein the time-based policy is set based on tuple information that is included in a packet from the traffic and the time condition by a policy server.

REMARKS

This amendment is in response to the Non-final Office Action mailed on May 22, 2015. All objections and rejections are respectfully traversed.

Claims 4 and 7 are amended to better claim the invention. No new matter is added by way of this response.

Claim 1 is canceled without prejudice or disclaimer.

On entry of this amendment, claims 2-7 are currently pending in the application.

Reconsideration and further examination of the application, as amended, is hereby requested.

The claimed invention relates to a method of controlling traffic. More particularly, the claimed invention relates to a method of setting a traffic control policy in which a time condition is added as a condition that controls traffic. The method determines and executes an execution time point of a preset time-based policy. See Specification, ¶ [0003].

The claimed invention discloses a method of setting a time-based policy that controls traffic. At least one of tuple information is extracted that is included in a packet. A time condition is set. A time-based traffic control policy is set by combining the set time condition and the at least one tuple information that is included in the extracted packet. See Specification, ¶ [0009].

In the embodiments described in the application, there is a policy server (PS), a policy management system (PMS) and policy execution equipment (PEE). The policy server is responsible for setting the policy. The policy is converted into a PMS transfer syntax and then transferred to the policy management system. The policy is parsed at the policy management system and sent to policy execution equipment, where the policy is executed. See Specification, ¶ [0010].

I. Claim Rejections - 35 USC § 101

Claims 1 is rejected under 35 U.S.C. §101 because the Examiner contends the claimed invention is not directed to patent eligible subject matter. See Office Action, page 2.

Applicant has canceled claim 1 rendering its rejection moot. Accordingly, Applicant respectfully requests the rejection under 35 U.S.C. §101 be reconsidered and withdrawn.

II. Allowed Subject Matter

Applicant thanks the Examiner for indicating claims 2-7 are allowed.

Applicant has amended claims 4 and 7 to spell out acronyms associated with claims 4 and 7. Applicant respectfully requests that the Examiner allow these amendments because they do not require any additional search or consideration since they merely clarify or make explicit what was previous argued or claimed.

CONCLUSION

In view of the foregoing claim amendments and remarks, Applicant believes that all claims should be passed to allowance. Should the Examiner feel that a teleconference would expedite the prosecution of this application, the Examiner is urged to contact the Applicant's attorney at (617) 217-4625.

As Applicant's remarks with respect to the Examiner's rejections and/or objections overcome the rejections and/or objections, Applicant's silence as to certain assertions by the Examiner in the Office Action or certain requirements that may be applicable to such rejections and/or objections (e.g., whether a reference constitutes prior art, reasons to modify a reference and/or combine references, assertions as to dependent claims) is not a concession by Applicant that such assertions are accurate or that such requirements have been met, and Applicant reserves the right to dispute these assertions/requirements in the future.

Please charge any shortage or credit any overpayment of fees to our Deposit Account No. 12-0080, under Order No. PK7-042RCE. In the event that a petition for an extension of time is required to be submitted herewith, and the requisite petition does not accompany this response, the undersigned hereby petitions under 37 C.F.R. § 1.136(a) for an extension of time for as many months as are required to render this submission timely. Any fee due is authorized to be charged to the aforementioned Deposit Account.

Dated: August 24, 2015

Respectfully submitted,

Electronic signature: /Michael Malone/
Michael Malone
Registration No.: 69,117
NELSON MULLINS RILEY &
SCARBOROUGH LLP
One Post Office Square
Boston, Massachusetts 02109-2127
(617) 217-4625 (617) 742-4214 (Fax)
Attorney/Agent For Applicant

Electronic Acknowledgement Receipt	
EFS ID:	23286514
Application Number:	13645090
International Application Number:	
Confirmation Number:	3860
Title of Invention:	METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY
First Named Inventor/Applicant Name:	SANG WAN KIM
Customer Number:	959
Filer:	Michael James Malone/Christina Andrews
Filer Authorized By:	Michael James Malone
Attorney Docket Number:	PK7-042RCE
Receipt Date:	24-AUG-2015
Filing Date:	04-OCT-2012
Time Stamp:	16:35:19
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		PK7042RCE_Response.pdf	35553 673775f68f9fb0cb58af1d1fd2766c9877b24752	yes	6

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Claims	2	3
	Applicant Arguments/Remarks Made in an Amendment	4	6
Warnings:			
Information:			
Total Files Size (in bytes):		35553	
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.			
<u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.			
<u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.			
<u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.			

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 13/645,090		Filing Date 10/04/2012		☐ To be Mailed						
ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO														
APPLICATION AS FILED – PART I														
(Column 1)		(Column 2)												
FOR		NUMBER FILED		NUMBER EXTRA		RATE (\$)		FEE (\$)						
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))		N/A		N/A		N/A								
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))		N/A		N/A		N/A								
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A		N/A		N/A								
TOTAL CLAIMS (37 CFR 1.16(i))		minus 20 =		*		X \$ =								
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 =		*		X \$ =								
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))		If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).												
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))														
* If the difference in column 1 is less than zero, enter "0" in column 2.						TOTAL								
APPLICATION AS AMENDED – PART II														
(Column 1)		(Column 2)		(Column 3)										
AMENDMENT	08/24/2015		CLAIMS REMAINING AFTER AMENDMENT				HIGHEST NUMBER PREVIOUSLY PAID FOR		PRESENT EXTRA		RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))		* 6		Minus		** 20		= 0		X \$40 =		0	
	Independent (37 CFR 1.16(h))		* 3		Minus		*** 4		= 0		X \$210 =		0	
	☐ Application Size Fee (37 CFR 1.16(s))													
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))													
	TOTAL ADD'L FEE										0			
(Column 1)		(Column 2)		(Column 3)										
AMENDMENT			CLAIMS REMAINING AFTER AMENDMENT				HIGHEST NUMBER PREVIOUSLY PAID FOR		PRESENT EXTRA		RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))		*		Minus		**		=		X \$ =			
	Independent (37 CFR 1.16(h))		*		Minus		***		=		X \$ =			
	☐ Application Size Fee (37 CFR 1.16(s))													
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))													
	TOTAL ADD'L FEE													
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.										LIE /LORRAINE E. WALDEN/				

This collection of information is required by 37 CFR 1.16. 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, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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FLOOR 30, SUITE 3000
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BOSTON, MA 02109

EXAMINER

BEAMER, TEMICA M

ART UNIT

PAPER NUMBER

2646

DATE MAILED: 12/07/2015

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/645,090	10/04/2012	SANG WAN KIM	PK7-042RCE	3860

TITLE OF INVENTION: METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$480	\$0	\$0	\$480	03/07/2016

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:

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If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

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

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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)

959 7590 12/07/2015
NELSON MULLINS RILEY & SCARBOROUGH LLP
FLOOR 30, SUITE 3000
ONE POST OFFICE SQUARE
BOSTON, MA 02109

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.

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.
13/645,090	10/04/2012	SANG WAN KIM	PK7-042RCE	3860

TITLE OF INVENTION: METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$480	\$0	\$0	\$480	03/07/2016

EXAMINER	ART UNIT	CLASS-SUBCLASS
BEAMER, TEMICA M	2646	455-418000

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 credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

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

- ☐ Applicant certifying micro entity status. See 37 CFR 1.29
- ☐ Applicant asserting small entity status. See 37 CFR 1.27
- ☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/645,090	10/04/2012	SANG WAN KIM	PK7-042RCE	3860
959 7590 12/07/2015 NELSON MULLINS RILEY & SCARBOROUGH LLP FLOOR 30, SUITE 3000 ONE POST OFFICE SQUARE BOSTON, MA 02109			EXAMINER BEAMER, TEMICA M	
			ART UNIT 2646	PAPER NUMBER

DATE MAILED: 12/07/2015

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

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

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.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B 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. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

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.

Notice of Allowability	Application No. 13/645,090	Applicant(s) KIM ET AL.	
	Examiner TEMICA M. BEAMER	Art Unit 2646	AIA (First Inventor to File) Status No

-- 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 amendment filed 8/24/2015.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

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 2-7 (renumbered as claims 1-6). As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
Certified copies:
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. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
☐ 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).

6. ☐ 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)	5. ☒ Examiner's Amendment/Comment
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____	6. ☐ Examiner's Statement of Reasons for Allowance
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material	7. ☐ Other _____
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____	

/TEMICA M. BEAMER/ Primary Examiner, Art Unit 2646	
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1. The present application is being examined under the pre-AIA first to invent provisions.

DETAILED ACTION

Examiner's Amendment

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Begin Amendment

The application has been amended as follows: In the **claims**:

In **claim 2, line 11**, --the tuple-- has been changed to "tuple".

End Amendment

***Please note that claims 2-7 have been renumbered as claims 1-6.**

Conclusion

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TEMICA M. BEAMER whose telephone number is (571)272-7797. The examiner can normally be reached on Monday-Thursday (alternate Fridays) 9:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on (571) 272-7922. 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.

/TEMICA M. BEAMER/
Primary Examiner, Art Unit 2646

Search Notes 	Application/Control No. 13645090	Applicant(s)/Patent Under Reexamination KIM ET AL.
	Examiner TEMICA M BEAMER	Art Unit 2646

CPC- SEARCHED		
Symbol	Date	Examiner
H04W 24/00; 8/245; 72/00	4/21/2014	TMB
H04L 47/10, 12, 15, 22, 125; 12/5695	4/21/2014	TMB
updated search	12/29/2014	TMB
updated search	5/18/2015	TMB
updated search	12/1/2015	TMB

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
455	418, 419, 453	4/21/2014	TMB
370	230, 230.1, 392, 395.2, 443, 468, 471	4/21/2014	TMB
	updated search	12/29/2014	TMB
	updated search	5/18/2015	TMB
	updated search	12/1/2015	TMB

SEARCH NOTES		
Search Notes	Date	Examiner
WEST	4/21/2014	TMB
WEST	12/29/2014	TMB
WEST	5/18/2015	TMB
WEST	12/1/2015	TMB

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
455	418, 419, 453	12/1/2015	TMB

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INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
370	230, 230.1	12/1/2015	TMB
	PGPUB search	12/1/2015	TMB

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WEST Search History for Application 13645090

Creation Date: 2015120105:49

Interference Searches

Query	DB	Hits	Op.	Plur.	Thes.	Date
(time and based and policy and tuple and traffic and condition).clm.	PGPB	n/a	OR	YES		05-07-2015
(time and based and policy and tuple and traffic and condition).clm.	PGPB	n/a	OR	YES		05-18-2015
(time and based and policy and tuple and traffic and condition).clm.	PGPB	8	OR	YES		12-01-2015

Prior Art Searches

Query	DB	Hits	Op.	Plur.	Thes.	Date
tuple same traffic same packet	PGPB, USPT	n/a	OR	YES		05-07-2015
(tuple same traffic same packet) and (wireless or cellular)	PGPB, USPT	n/a	OR	YES		05-07-2015
(tuple same traffic same packet and (wireless or cellular)) and time same policy	PGPB, USPT	n/a	OR	YES		05-07-2015
(tuple same traffic same packet and (wireless or cellular) and time same policy) and (download\$3 or stor\$3) same memory	PGPB, USPT	n/a	OR	YES		05-07-2015
(tuple same traffic same packet and (wireless or cellular) and time same policy and (download\$3 or stor\$3) same memory) and policy near5 rule	PGPB, USPT	n/a	OR	YES		05-07-2015
(tuple same traffic same packet and (wireless or cellular) and time same policy and (download\$3 or stor\$3) same memory and policy near5 rule) and load\$3	PGPB, USPT	n/a	OR	YES		05-07-2015
(tuple same traffic same packet and (wireless or cellular) and time same policy and (download\$3 or stor\$3) same memory and policy near5 rule and load\$3) and traffic near8 control	PGPB, USPT	n/a	OR	YES		05-07-2015
(tuple same traffic same packet and (wireless or cellular)) and time adj2 policy	PGPB, USPT	n/a	OR	YES		05-07-2015

(tuple same traffic same packet and (wireless or cellular) and time adj2 policy) and extract\$3	PGPB, USPT	n/a	OR	YES		05-07-2015
((h04w24/00) (h04w24/02) (h04w8/245)).cpc.	PGPB, USPT	n/a	OR	YES		05-07-2015
((h04l47/10) (h04l47/15) (h04l47/12) (h04l47/125) (h04l47/22) (h04l12/5695)).cpc.	PGPB, USPT	n/a	OR	YES		05-07-2015
(tuple same traffic same packet) and ((((h04w24/00) (h04w24/02) (h04w8/245)).cpc.) or (((h04l47/10) (h04l47/15) (h04l47/12) (h04l47/125) (h04l47/22) (h04l12/5695)).cpc.))	PGPB, USPT	n/a	OR	YES		05-07-2015
(tuple same traffic same packet and (((h04w24/00) (h04w24/02) (h04w8/245)).cpc. or ((h04l47/10) (h04l47/15) (h04l47/12) (h04l47/125) (h04l47/22) (h04l12/5695)).cpc.)) and extract\$3	PGPB, USPT	n/a	OR	YES		05-07-2015
(tuple same traffic same packet and (((h04w24/00) (h04w24/02) (h04w8/245)).cpc. or ((h04l47/10) (h04l47/15) (h04l47/12) (h04l47/125) (h04l47/22) (h04l12/5695)).cpc.) and extract\$3) and time same policy same (packet or tuple)	PGPB, USPT	n/a	OR	YES		05-07-2015
455/\$.ccls. or 370/\$.ccls.	PGPB, USPT	n/a	OR	YES		05-07-2015
extract\$3 near8 tuple and set\$4 same time adj condition and packet and policy	PGPB, USPT	n/a	OR	YES		05-07-2015
((h04l41/0893)).cpc.	PGPB, USPT	n/a	OR	YES		05-07-2015
((h04l41/0893)).cpc.) and tuple and time and policy and extract\$3	PGPB, USPT	n/a	OR	YES		05-07-2015
((h04l41/0893)).cpc. and tuple and time and policy and extract\$3) and set\$4 same (policy or time or control or condition)	PGPB, USPT	n/a	OR	YES		05-07-2015
((h04l41/0893)).cpc. and tuple and time and policy and extract\$3 and set\$4 same (policy or time or control or condition)) and setting near8 time	PGPB, USPT	n/a	OR	YES		05-07-2015
((h04l41/0893)).cpc. and tuple and time and policy and extract\$3 and set\$4 same (policy or time or control or condition)) and time	PGPB, USPT	n/a	OR	YES		05-07-2015
20080316922.pn. and tuple	PGPB, USPT	n/a	OR	YES		05-07-2015
(20080316922.pn. and tuple) and extract\$3	PGPB, USPT	n/a	OR	YES		05-07-2015

(20080316922.pn. and tuple and extract\$3) and policy and time	PGPB, USPT	n/a	OR	YES		05-07-2015
(20080316922.pn. and tuple and extract\$3 and policy and time) and manag\$5	PGPB, USPT	n/a	OR	YES		05-07-2015
20080316922.pn. and pars\$3	PGPB, USPT	n/a	OR	YES		05-07-2015
(7853678 20080225708).pn.	PGPB, USPT	n/a	OR	YES		05-07-2015
20080316922.pn.	PGPB, USPT	n/a	OR	YES		05-07-2015
20080316922.pn. and packet and tim\$3 and traffic	PGPB, USPT	n/a	OR	YES		05-07-2015
time near5 condition same packet and traffic same policy	PGPB, USPT	n/a	OR	YES		05-07-2015
((((h04w24/00) (h04w24/02) (h04w8/245)).cpc.) or (((h04l47/10) (h04l47/15) (h04l47/12) (h04l47/125) (h04l47/22) (h04l12/5695)).cpc.))	PGPB, USPT	n/a	OR	YES		05-07-2015
(((h04w24/00) (h04w24/02) (h04w8/245)).cpc. or ((h04l47/10) (h04l47/15) (h04l47/12) (h04l47/125) (h04l47/22) (h04l12/5695)).cpc.)) and (time near5 condition same packet and traffic same policy)	PGPB, USPT	n/a	OR	YES		05-07-2015
(((h04w24/00) (h04w24/02) (h04w8/245)).cpc. or ((h04l47/10) (h04l47/15) (h04l47/12) (h04l47/125) (h04l47/22) (h04l12/5695)).cpc.) and time near5 condition same packet and traffic same policy) and tuple	PGPB, USPT	n/a	OR	YES		05-07-2015
traffic near4 control same policy	PGPB, USPT	n/a	OR	YES		05-07-2015
(traffic near4 control same policy) and tuple same (IP or address)	PGPB, USPT	n/a	OR	YES		05-07-2015
(traffic near4 control same policy and tuple same (IP or address)) and policy near8 time-based	PGPB, USPT	n/a	OR	YES		05-07-2015
(traffic near4 control same policy and tuple same (IP or address) and policy near8 time-based) and (((h04w24/00) (h04w24/02) (h04w8/245)).cpc. or ((h04l47/10) (h04l47/15) (h04l47/12) (h04l47/125) (h04l47/22) (h04l12/5695)).cpc.))	PGPB, USPT	n/a	OR	YES		05-07-2015
(20080316922 20130117847).pn.	PGPB, USPT	n/a	OR	YES		05-07-2015
tuple same traffic same packet		n/a	OR	YES		05-18-2015

	PGPB, USPT					
(tuple same traffic same packet) and (wireless or cellular)	PGPB, USPT	n/a	OR	YES		05-18-2015
(tuple same traffic same packet and (wireless or cellular)) and time same policy	PGPB, USPT	n/a	OR	YES		05-18-2015
(tuple same traffic same packet and (wireless or cellular) and time same policy) and (download\$3 or stor\$3) same memory	PGPB, USPT	n/a	OR	YES		05-18-2015
(tuple same traffic same packet and (wireless or cellular) and time same policy and (download\$3 or stor\$3) same memory) and policy near5 rule	PGPB, USPT	n/a	OR	YES		05-18-2015
(tuple same traffic same packet and (wireless or cellular) and time same policy and (download\$3 or stor\$3) same memory and policy near5 rule) and load\$3	PGPB, USPT	n/a	OR	YES		05-18-2015
(tuple same traffic same packet and (wireless or cellular) and time same policy and (download\$3 or stor\$3) same memory and policy near5 rule and load\$3) and traffic near8 control	PGPB, USPT	n/a	OR	YES		05-18-2015
(tuple same traffic same packet and (wireless or cellular)) and time adj2 policy	PGPB, USPT	n/a	OR	YES		05-18-2015
(tuple same traffic same packet and (wireless or cellular) and time adj2 policy) and extract\$3	PGPB, USPT	n/a	OR	YES		05-18-2015
((h04w24/00)) ((h04w24/02)) ((h04w8/245)).cpc.	PGPB, USPT	n/a	OR	YES		05-18-2015
((h04l47/10)) ((h04l47/15)) ((h04l47/12)) ((h04l47/125)) ((h04l47/22)) ((h04l12/5695)).cpc.	PGPB, USPT	n/a	OR	YES		05-18-2015
(tuple same traffic same packet) and ((((h04w24/00)) ((h04w24/02)) ((h04w8/245)).cpc.) or (((h04l47/10)) ((h04l47/15)) ((h04l47/12)) ((h04l47/125)) ((h04l47/22)) ((h04l12/5695)).cpc.))	PGPB, USPT	n/a	OR	YES		05-18-2015
(tuple same traffic same packet and (((h04w24/00)) ((h04w24/02)) ((h04w8/245)).cpc. or (((h04l47/10)) ((h04l47/15)) ((h04l47/12)) ((h04l47/125)) ((h04l47/22)) ((h04l12/5695)).cpc.) and extract\$3	PGPB, USPT	n/a	OR	YES		05-18-2015
(tuple same traffic same packet and (((h04w24/00)) ((h04w24/02)) ((h04w8/245)).cpc. or (((h04l47/10)) ((h04l47/15)) ((h04l47/12)) ((h04l47/125)) ((h04l47/22)) ((h04l12/5695)).cpc.)	PGPB, USPT	n/a	OR	YES		05-18-2015

and extract\$3) and time same policy same (packet or tuple)						
455/\$.ccls. or 370/\$.ccls.	PGPB, USPT	n/a	OR	YES		05-18-2015
extract\$3 near8 tuple and set\$4 same time adj condition and packet and policy	PGPB, USPT	n/a	OR	YES		05-18-2015
((h04l41/0893)).cpc.	PGPB, USPT	n/a	OR	YES		05-18-2015
((h04l41/0893)).cpc.) and tuple and time and policy and extract\$3	PGPB, USPT	n/a	OR	YES		05-18-2015
((h04l41/0893)).cpc. and tuple and time and policy and extract\$3) and set\$4 same (policy or time or control or condition)	PGPB, USPT	n/a	OR	YES		05-18-2015
((h04l41/0893)).cpc. and tuple and time and policy and extract\$3 and set\$4 same (policy or time or control or condition)) and setting near8 time	PGPB, USPT	n/a	OR	YES		05-18-2015
((h04l41/0893)).cpc. and tuple and time and policy and extract\$3 and set\$4 same (policy or time or control or condition)) and time	PGPB, USPT	n/a	OR	YES		05-18-2015
20080316922.pn. and tuple	PGPB, USPT	n/a	OR	YES		05-18-2015
(20080316922.pn. and tuple) and extract\$3	PGPB, USPT	n/a	OR	YES		05-18-2015
(20080316922.pn. and tuple and extract\$3) and policy and time	PGPB, USPT	n/a	OR	YES		05-18-2015
(20080316922.pn. and tuple and extract\$3 and policy and time) and manag\$5	PGPB, USPT	n/a	OR	YES		05-18-2015
20080316922.pn. and pars\$3	PGPB, USPT	n/a	OR	YES		05-18-2015
(7853678 20080225708).pn.	PGPB, USPT	n/a	OR	YES		05-18-2015
20080316922.pn.	PGPB, USPT	n/a	OR	YES		05-18-2015
20080316922.pn. and packet and tim\$3 and traffic	PGPB, USPT	n/a	OR	YES		05-18-2015
time near5 condition same packet and traffic same policy	PGPB, USPT	n/a	OR	YES		05-18-2015
((((h04w24/00)) ((h04w24/02)) ((h04w8/245))).cpc.) or (((h04l47/10))	PGPB, USPT	n/a	OR	YES		05-18-2015

((h04l47/15)) ((h04l47/12)) ((h04l47/125)) ((h04l47/22)) ((h04l12/5695))).cpc.))						
(((((h04w24/00)) ((h04w24/02)) ((h04w8/245))).cpc. or (((h04l47/10)) ((h04l47/15)) ((h04l47/12)) ((h04l47/125)) ((h04l47/22)) ((h04l12/5695))).cpc.)) and (time near5 condition same packet and traffic same policy)	PGPB, USPT	n/a	OR	YES		05-18-2015
(((((h04w24/00)) ((h04w24/02)) ((h04w8/245))).cpc. or (((h04l47/10)) ((h04l47/15)) ((h04l47/12)) ((h04l47/125)) ((h04l47/22)) ((h04l12/5695))).cpc.)) and time near5 condition same packet and traffic same policy) and tuple	PGPB, USPT	n/a	OR	YES		05-18-2015
traffic near4 control same policy	PGPB, USPT	n/a	OR	YES		05-18-2015
(traffic near4 control same policy) and tuple same (IP or address)	PGPB, USPT	n/a	OR	YES		05-18-2015
(traffic near4 control same policy and tuple same (IP or address)) and policy near8 time-based	PGPB, USPT	n/a	OR	YES		05-18-2015
(traffic near4 control same policy and tuple same (IP or address) and policy near8 time-based) and (((((h04w24/00)) ((h04w24/02)) ((h04w8/245))).cpc. or (((h04l47/10)) ((h04l47/15)) ((h04l47/12)) ((h04l47/125)) ((h04l47/22)) ((h04l12/5695))).cpc.))	PGPB, USPT	n/a	OR	YES		05-18-2015
(20080316922 20130117847).pn.	PGPB, USPT	n/a	OR	YES		05-18-2015
tuple same traffic same packet	PGPB, USPT	n/a	OR	YES		12-01-2015
(tuple same traffic same packet) and (wireless or cellular)	PGPB, USPT	n/a	OR	YES		12-01-2015
(tuple same traffic same packet and (wireless or cellular)) and time same policy	PGPB, USPT	n/a	OR	YES		12-01-2015
(tuple same traffic same packet and (wireless or cellular) and time same policy) and (download\$3 or stor\$3) same memory	PGPB, USPT	n/a	OR	YES		12-01-2015
(tuple same traffic same packet and (wireless or cellular) and time same policy and (download\$3 or stor\$3) same memory) and policy near5 rule	PGPB, USPT	n/a	OR	YES		12-01-2015
(tuple same traffic same packet and (wireless or cellular) and time same policy and (download\$3 or stor\$3) same memory and policy near5 rule) and load\$3	PGPB, USPT	n/a	OR	YES		12-01-2015

(tuple same traffic same packet and (wireless or cellular) and time same policy and (download\$3 or stor\$3) same memory and policy near5 rule and load\$3) and traffic near8 control	PGPB, USPT	n/a	OR	YES		12-01-2015
(tuple same traffic same packet and (wireless or cellular)) and time adj2 policy	PGPB, USPT	n/a	OR	YES		12-01-2015
(tuple same traffic same packet and (wireless or cellular) and time adj2 policy) and extract\$3	PGPB, USPT	n/a	OR	YES		12-01-2015
((h04w24/00)) ((h04w24/02)) ((h04w8/245)).cpc.	PGPB, USPT	n/a	OR	YES		12-01-2015
((h04l47/10)) ((h04l47/15)) ((h04l47/12)) ((h04l47/125)) ((h04l47/22)) ((h04l12/5695)).cpc.	PGPB, USPT	n/a	OR	YES		12-01-2015
(tuple same traffic same packet) and ((((h04w24/00)) ((h04w24/02)) ((h04w8/245)).cpc.) or (((h04l47/10)) ((h04l47/15)) ((h04l47/12)) ((h04l47/125)) ((h04l47/22)) ((h04l12/5695)).cpc.))	PGPB, USPT	n/a	OR	YES		12-01-2015
(tuple same traffic same packet and (((h04w24/00)) ((h04w24/02)) ((h04w8/245)).cpc. or ((h04l47/10)) ((h04l47/15)) ((h04l47/12)) ((h04l47/125)) ((h04l47/22)) ((h04l12/5695)).cpc.) and extract\$3	PGPB, USPT	n/a	OR	YES		12-01-2015
(tuple same traffic same packet and (((h04w24/00)) ((h04w24/02)) ((h04w8/245)).cpc. or ((h04l47/10)) ((h04l47/15)) ((h04l47/12)) ((h04l47/125)) ((h04l47/22)) ((h04l12/5695)).cpc.) and extract\$3) and time same policy same (packet or tuple)	PGPB, USPT	n/a	OR	YES		12-01-2015
455/\$.ccls. or (370/\$).ccls.	PGPB, USPT	n/a	OR	YES		12-01-2015
extract\$3 near8 tuple and set\$4 same time adj condition and packet and policy	PGPB, USPT	n/a	OR	YES		12-01-2015
((h04l41/0893)).cpc.	PGPB, USPT	n/a	OR	YES		12-01-2015
((h04l41/0893)).cpc.) and tuple and time and policy and extract\$3	PGPB, USPT	n/a	OR	YES		12-01-2015
((h04l41/0893)).cpc. and tuple and time and policy and extract\$3) and set\$4 same (policy or time or control or condition)	PGPB, USPT	n/a	OR	YES		12-01-2015
((h04l41/0893)).cpc. and tuple and time and policy and extract\$3 and set\$4 same (policy or time or control or condition)) and setting near8 time	PGPB, USPT	n/a	OR	YES		12-01-2015

(((((h04l41/0893))))).cpc. and tuple and time and policy and extract\$3 and set\$4 same (policy or time or control or condition)) and time	PGPB, USPT	n/a	OR	YES		12-01-2015
20080316922.pn. and tuple	PGPB, USPT	n/a	OR	YES		12-01-2015
(20080316922.pn. and tuple) and extract\$3	PGPB, USPT	n/a	OR	YES		12-01-2015
(20080316922.pn. and tuple and extract\$3) and policy and time	PGPB, USPT	n/a	OR	YES		12-01-2015
(20080316922.pn. and tuple and extract\$3 and policy and time) and manag\$5	PGPB, USPT	n/a	OR	YES		12-01-2015
20080316922.pn. and pars\$3	PGPB, USPT	n/a	OR	YES		12-01-2015
(7853678 20080225708).pn.	PGPB, USPT	n/a	OR	YES		12-01-2015
20080316922.pn.	PGPB, USPT	n/a	OR	YES		12-01-2015
20080316922.pn. and packet and tim\$3 and traffic	PGPB, USPT	n/a	OR	YES		12-01-2015
time near5 condition same packet and traffic same policy	PGPB, USPT	n/a	OR	YES		12-01-2015
((((h04w24/00)) ((h04w24/02)) ((h04w8/245))))cpc.) or (((h04l47/10)) ((h04l47/15)) ((h04l47/12)) ((h04l47/125)) ((h04l47/22)) ((h04l12/5695))))cpc.))	PGPB, USPT	n/a	OR	YES		12-01-2015
(((((h04w24/00)) ((h04w24/02)) ((h04w8/245))))cpc. or (((h04l47/10)) ((h04l47/15)) ((h04l47/12)) ((h04l47/125)) ((h04l47/22)) ((h04l12/5695))))cpc.)) and (time near5 condition same packet and traffic same policy)	PGPB, USPT	n/a	OR	YES		12-01-2015
(((((h04w24/00)) ((h04w24/02)) ((h04w8/245))))cpc. or (((h04l47/10)) ((h04l47/15)) ((h04l47/12)) ((h04l47/125)) ((h04l47/22)) ((h04l12/5695))))cpc.) and time near5 condition same packet and traffic same policy) and tuple	PGPB, USPT	n/a	OR	YES		12-01-2015
traffic near4 control same policy	PGPB, USPT	n/a	OR	YES		12-01-2015
(traffic near4 control same policy) and tuple same (IP or address)	PGPB, USPT	n/a	OR	YES		12-01-2015
		n/a	OR	YES		12-01-2015

(traffic near4 control same policy and tuple same (IP or address)) and policy near8 time-based	PGPB, USPT					
(traffic near4 control same policy and tuple same (IP or address) and policy near8 time-based) and (((h04w24/00)) ((h04w24/02)) ((h04w8/245))).cpc. or (((h04l47/10)) ((h04l47/15)) ((h04l47/12)) ((h04l47/125)) ((h04l47/22)) ((h04l12/5695))).cpc.))	PGPB, USPT	n/a	OR	YES		12-01-2015
(20080316922 20130117847).pn.	PGPB, USPT	n/a	OR	YES		12-01-2015

<i>Index of Claims</i> 	Application/Control No. 13645090	Applicant(s)/Patent Under Reexamination KIM ET AL.
	Examiner TEMICA M BEAMER	Art Unit 2646

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant						☐ CPA		☐ T.D.		☐ R.1.47	
CLAIM		DATE									
Final	Original	05/05/2014	12/29/2014	05/18/2015	12/01/2015						
-	1	✓	✓	✓	-						
1	2	✓	✓	=	=						
2	3	✓	✓	=	=						
3	4	✓	✓	=	=						
4	5	✓	✓	=	=						
5	6	✓	✓	=	=						
6	7	✓	✓	=	=						

Issue Classification 	Application/Control No. 13645090	Applicant(s)/Patent Under Reexamination KIM ET AL.
	Examiner TEMICA M BEAMER	Art Unit 2646

CPC						
Symbol				Type	Version	
H04L		41		0893	F	2013-01-01

CPC Combination Sets						
Symbol			Type	Set	Ranking	Version

NONE		Total Claims Allowed:	
		6	
(Assistant Examiner)	(Date)		
/TEMICA M BEAMER/ Primary Examiner.Art Unit 2646	12/1/2015	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

Issue Classification 	Application/Control No. 13645090	Applicant(s)/Patent Under Reexamination KIM ET AL.
	Examiner TEMICA M BEAMER	Art Unit 2646

US ORIGINAL CLASSIFICATION						INTERNATIONAL CLASSIFICATION														
CLASS			SUBCLASS			CLAIMED					NON-CLAIMED									
455			418			H	0	4	M	3 / 00 (2006.01.01)										
CROSS REFERENCE(S)																				
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)																			
455	419	453																		
370	230	230.1																		

NONE		Total Claims Allowed:	
		6	
(Assistant Examiner)	(Date)		
/TEMICA M BEAMER/ Primary Examiner.Art Unit 2646	12/1/2015	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

PART B - FEE(S) TRANSMITTAL

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)

959 7590 12/7/2015
NELSON MULLINS RILEY & SCARBOROUGH LLP
One Post Office Square
Boston, Massachusetts 02109-2127

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.

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.
13/645,090	10/04/2012	Sang Wan KIM	PK7-042RCE	3860

TITLE OF INVENTION: METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$480.00			\$480.00	03/07/2016

EXAMINER	ART UNIT	CLASS-SUBCLASS
BEAMER, Temica M.	2646	455-418000

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,
(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.

1 Nelson Mullins Riley & Scarborough LLP

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)

Electronics and Telecommunications Research Institute

Daejeon, Republic of Korea

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 12-0080 (enclose an extra copy of this form).

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

- ☐ Applicant certifying micro entity status. See 37 CFR 1.29
☐ Applicant asserting small entity status. See 37 CFR 1.27
☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Kevin J. Canning/

Date March 4, 2016

Typed or printed name Kevin J. Canning

Registration No. 35,470

Electronic Patent Application Fee Transmittal				
Application Number:		13645090		
Filing Date:		04-Oct-2012		
Title of Invention:		METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY		
First Named Inventor/Applicant Name:		SANG WAN KIM		
Filer:		Kevin J. Canning		
Attorney Docket Number:		PK7-042RCE		
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl Issue Fee	2501	1	480	480

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				480

Electronic Acknowledgement Receipt	
EFS ID:	25102144
Application Number:	13645090
International Application Number:	
Confirmation Number:	3860
Title of Invention:	METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY
First Named Inventor/Applicant Name:	SANG WAN KIM
Customer Number:	959
Filer:	Kevin J. Canning/Christina Andrews
Filer Authorized By:	Kevin J. Canning
Attorney Docket Number:	PK7-042RCE
Receipt Date:	04-MAR-2016
Filing Date:	04-OCT-2012
Time Stamp:	17:40:51
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$480
RAM confirmation Number	5033
Deposit Account	120080
Authorized User	CANNING, KEVIN J.
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	PK7042RCE_Transmittal.pdf	32047 4becbc0c4594bcd096846917f9138101af727878	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30719 61665a8fce31c753c3c3cf00a99d2e4a3a40d2f71	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			62766		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					



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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/645,090	04/12/2016	9313101	PK7-042RCE	3860

959 7590 03/23/2016
NELSON MULLINS RILEY & SCARBOROUGH LLP
FLOOR 30, SUITE 3000
ONE POST OFFICE SQUARE
BOSTON, MA 02109

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

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

The Patent Term Adjustment is 127 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

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 Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

SANG WAN KIM, Daejeon, KOREA, REPUBLIC OF;
Joon Kyung LEE, Daejeon, KOREA, REPUBLIC OF;
Dong Won KANG, Daejeon, KOREA, REPUBLIC OF;
Wang Bong LEE, Daejeon, KOREA, REPUBLIC OF;
Sang Kil PARK, Daejeon, KOREA, REPUBLIC OF;
SangSik YOON, Daejeon, KOREA, REPUBLIC OF;
Jong Dae PARK, Daejeon, KOREA, REPUBLIC OF;
ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INT, Daejeon, KOREA, REPUBLIC OF

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PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, VA 22313 - 1450
www.uspto.gov

ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #
13/645,090

RECEIPT DATE / TIME
01/22/2025 01:14:18 PM Z ET

ATTORNEY DOCKET #
PK7-042RCE

Title of Invention

METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	9313101
CONFIRMATION #	3860	FILED BY	HYE RAN HAN
PATENT CENTER #	68861682	FILING DATE	10/04/2012
CUSTOMER #	959	FIRST NAMED INVENTOR	SANG WAN KIM
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Lenny Jiang

Documents

TOTAL DOCUMENTS: 3

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
01_432- 0345_Request_to_Change_ Entity_Status.pdf	1	Notification of loss of entitlement to small entity status	15 KB
02_432- 0345_3.73c_Statement.pdf	3	Assignee showing of ownership per 37 CFR 3.73	131 KB
03_432- 0339_et_al._Executed_POA. pdf	3	Power of Attorney	2822 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
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01_432- 0345_Request_to_Change_Enti ty_Status.pdf	1FF07F2CFA5B4E8B52480D86AF1D0A8ACE2A02FBE333DA25 2B9E3675FA3E2B37C54E00506B1C5F23B646685FE8CB9BA78 2047D733A93763F7D0CF24D95102BCA
02_432- 0345_3.73c_Statement.pdf	62C4484C33C81490F34B2FF1563EFA7E4923A52B6366C5BB9 B47F6D8C06EC9E1B5A95C1A8DED4CB630B3F614E337B3DA8 686A1DC8D8951AB44CE68E916B92103
03_432- 0339_et_al._Executed_POA.pd f	F7C927D9EF99CE096311A79C38776112174A53F4591E13C119 151547CCD89D93582B73B9BB54B04E1A0C4C408745D311792 BFE1FEA87743FC7D4671670873D99

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

STATEMENT UNDER 37 CFR 3.73(c)

First Named Inventor/Patent Owner: SANG WAN KIM
Application No./Patent No.: 9,313,101 Filed/Issue Date: April 12, 2016
Titled: METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY
ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INSTITUTE, a Research Institute
(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☒ The assignee of the entire right, title, and interest.
2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):
- ☐ The extent (by percentage) of its ownership interest is ____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.
- ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (e.g., bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

- A. ☒ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel 029079, Frame 0176, or for which a copy thereof is attached*.

- B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached*.

2. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached*.

[Page 1 of 2]

A Federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with an information collection subject to the requirements of the Paperwork Reduction Act of 1995, unless the information collection has a currently valid OMB Control Number. The OMB Control Number for this information collection is 0651-0031. Public burden for this form is estimated to average 12 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection. Send comments regarding this burden estimate or any other aspect of this information collection, including suggestions for reducing this burden to the Chief Administrative Officer, United States Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450 or email InformationCollection@uspto.gov. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached*.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached*.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached*.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached*.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☐ *As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Steve H. Lam/

January 22, 2025

Signature

Date

Steve H. Lam

72,721

Printed or Typed Name

Title or Registration Number

[Page 2 of 2]

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. The United States Patent and Trademark Office (USPTO) collects the information in this record under authority of 35 U.S.C. 2. The USPTO's system of records is used to manage all applicant and owner information including name, citizenship, residence, post office address, and other information with respect to inventors and their legal representatives pertaining to the applicant's/owner's activities in connection with the invention for which a patent is sought or has been granted. The applicable Privacy Act System of Records Notice for the information collected in this form is COMMERCE/PAT-TM-7 Patent Application Files, available in the Federal Register at 78 FR 19243 (March 29, 2013). <https://www.govinfo.gov/content/pkg/FR-2013-03-29/pdf/2013-07341.pdf>

Routine uses of the information in this record may include disclosure to:

- 1) law enforcement, in the event that the system of records indicates a violation or potential violation of law;
- 2) a federal, state, local, or international agency, in response to its request;
- 3) a contractor of the USPTO having need for the information in order to perform a contract;
- 4) the Department of Justice for determination of whether the Freedom of Information Act (FOIA) requires disclosure of the record;
- 5) a Member of Congress submitting a request involving an individual to whom the record pertains, when the individual has requested the Member's assistance with respect to the subject matter of the record;
- 6) a court, magistrate, or administrative tribunal, in the course of presenting evidence, including disclosures to opposing counsel in the course of settlement negotiations;
- 7) the Administrator, General Services Administration (GSA), or their designee, during an inspection of records conducted by GSA under authority of 44 U.S.C. 2904 and 2906, in accordance with the GSA regulations and any other relevant (i.e., GSA or Commerce) directive, where such disclosure shall not be used to make determinations about individuals;
- 8) 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));
- 9) the Office of Personnel Management (OPM) for personnel research purposes; and
- 10) the Office of Management and Budget (OMB) for legislative coordination and clearance.

If you do not furnish the information requested on this form, the USPTO may not be able to process and/or examine your submission, which may result in termination of proceedings, abandonment of the application, and/or expiration of the patent.

PATENT - POWER OF ATTORNEY OR REVOCATION OF POWER OF ATTORNEY WITH A NEW POWER OF ATTORNEY AND CHANGE OF CORRESPONDENCE ADDRESS	Patent Number	Identified in the Appendix
	Issue Date	Identified in the Appendix
	First Named Inventor	Identified in the Appendix
	Title	Identified in the Appendix
	Attorney Docket No.	Identified in the Appendix

I hereby revoke all previous powers of attorney given in the 21 patents identified in the Appendix.

☐ A Power of Attorney is submitted herewith.

OR

☒ I hereby appoint Practitioner(s) associated with the Customer Number identified in the box at right as my/our attorney(s) or agent(s) with respect to the 21 patents identified in the Appendix, and to transact all business in the United States Patent and Trademark Office connected therewith:

145742

OR

☐ I hereby appoint Practitioner(s) named below as my/our attorney(s) or agent(s) with respect to the patent identified above, and to transact all business in the United States Patent and Trademark Office connected therewith:

Practitioner(s) Name	Registration Number

Please recognize or change the correspondence address for the above-identified patent to:

☒ The address associated with the above-identified Customer Number.

OR

☐ The address associated with the Customer Number identified in the box at right:

OR

☐ Firm or
Individual Name

Address

City

State

Zip

Country

Telephone

Email

I am the:

☐ Applicant.

OR

☒ Patent owner.

Statement under 37 CFR 3.73(c) (Form PTO/AIA/96) submitted herewith or filed on _____.

SIGNATURE of Applicant or Patent Owner

Signature

Date

January 20th, 2025

Name

Jang Sik Choi

Telephone

+82-42-860-3967

Title and Company

Director of ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INSTITUTE

NOTE: Signatures of all the applicants or patent owners of the entire interest or their representative(s) are required. If more than one signature is required, submit multiple forms, check the box below, and identify the total number of forms submitted in the blank below.

☒ A total of 1 forms are submitted.

An Appendix listing 21 patents, spanning two pages, begins on the next page.

This collection of information is required by 37 CFR 1.31, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public, which is to update (and by the USPTO to process) the file of a patent or reexamination proceeding. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 3 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, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

APPENDIX

No.	Patent No.	Issue Date	First Named Inventor	Title	Attorney Docket No.
1	8,689,085	April 1, 2014	Jong-Yoon SHIN	METHOD AND APPARATUS FOR TRANSMITTING DATA IN OPTICAL TRANSPORT NETWORK	432-0339
2	8,638,807	January 28, 2014	Dae Ub KIM	METHOD FOR MANAGING ETHERNET RING NETWORK OF VLAN-BASED BRIDGE	432-0340
3	9,030,925	May 12, 2015	Tae Sik Cheung	METHOD AND APPARATUS FOR SHARED MESH PROTECTION SWITCHING	432-0341
4	8,780,887	July 15, 2014	Sun Cheul KIM	METHOD OF NETWORK-BASED COMMUNICATION IN VIRTUAL NETWORK ENVIRONMENT	432-0342
5	8,788,846	July 22, 2014	Jong Youl PARK	CLOUD COMPUTING SYSTEM AND CLOUD SERVER MANAGING METHOD THEREOF	432-0343
6	9,319,241	April 19, 2016	Sachoon KANG	FLOW-BASED PACKET TRANSPORT DEVICE AND PACKET MANAGEMENT METHOD THEREOF	432-0344
7	9,313,101	April 12, 2016	SANG WAN KIM	METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY	432-0345
8	9,112,934	August 18, 2015	Tai-Won UM	APPARATUS AND METHOD FOR CONFIGURING ON-DEMAND CONTENT DELIVERING OVERLAY NETWORK	432-0346
9	9,621,469	April 11, 2017	Kang-Il CHOI	APPARATUS AND METHOD FOR MANAGING FLOW IN SERVER VIRTUALIZATION ENVIRONMENT, AND METHOD FOR APPLYING QOS	432-0347
10	9,136,968	September 15, 2015	Han-Hyub LEE	TIME AND WAVELENGTH DIVISION MULTIPLEXING - PASSIVE OPTICAL NETWORK (TWDM-PON) SYSTEM AND COMMUNICATION LINK METHOD THEREOF	432-0348
11	9,577,924	February 21, 2017	Nam-Seok KO	SDN-BASED NETWORK DEVICE WITH EXTENDED FUNCTION AND METHOD OF PROCESSING PACKET IN THE SAME DEVICE	432-0349
12	10,020,961	July 10, 2018	Sung Hyuk BYUN	METHOD AND APPARATUS FOR NETWORK VIRTUALIZATION	432-0350
13	9,825,710	November 21, 2017	Hark YOO	METHOD AND SYSTEM FOR DETERMINING AND CONTROLLING POWER OF OPTICAL TRANSMITTER OF OPTICAL NETWORK UNIT FOR TIME AND WAVELENGTH DIVISION MULTIPLEXING PASSIVE OPTICAL NETWORK	432-0351
14	10,248,433	April 2, 2019	Sung Won BYON	NETWORK MANAGEMENT APPARATUS AND METHOD FOR REMOTELY CONTROLLING STATE OF IT DEVICE	432-0352
15	11,088,774	August 10, 2021	Han Hyub LEE	METHOD AND APPARATUS FOR WAVELENGTH ALLOCATION FOR BIDIRECTIONAL OPTICAL ACCESS	432-0353
16	8,781,323	July 15, 2014	Yool KWON	PACKET TRANSPORT LAYER PASSIVE OPTICAL NETWORK (PTL-PON) PROVIDING SYSTEM AND METHOD	432-0365

Revocation of Power of Attorney with a New Power of Attorney and Change of Correspondence Address
Owner of Patents: ELECTRONICS AND TELECOMMUNICATIONS RESEARCH INSTITUTE

No.	Patent No.	Issue Date	First Named Inventor	Title	Attorney Docket No.
17	9,197,351	November 24, 2015	Kyeong-Hwan DOO	METHOD OF SELECTING WAVELENGTH OF OPTICAL NETWORK UNIT IN PASSIVE OPTICAL NETWORK	432-0366
18	9,806,939	October 31, 2017	Dae Ub KIM	METHOD AND APPARATUS FOR LINEAR PROTECTION SWITCHING	432-0367
19	9,507,625	November 29, 2016	Byung Yun LEE	APPARATUS AND METHOD FOR GENERATING SOFTWARE DEFINED NETWORK (SDN)-BASED VIRTUAL NETWORK ACCORDING TO USER DEMAND	432-0368
20	10,827,240	November 3, 2020	Hwan Seok CHUNG	COOPERATIVE DYNAMIC BANDWIDTH ALLOCATION METHOD IN MOBILE NETWORK WITH OPTICAL NETWORK, AND DEVICE OF PERFORMING THE COOPERATIVE DYNAMIC BANDWIDTH ALLOCATION METHOD	432-0369
21	11,233,572	January 25, 2022	Han Hyub LEE	SLICE CONNECTION METHOD OF OPTICAL ACCESS NETWORK AND OPTICAL ACCESS NETWORK SYSTEM FOR SLICE CONNECTION	432-0370

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Docket No.: 432-0345

SANG WAN KIM et al.

Confirmation No.: 3860

Patent No.: 9,313,101

Group Art Unit: 2646

Issued: April 12, 2016

Examiner: TEMICA M BEAMER

For: **METHOD OF CONTROLLING TRAFFIC BY TIME-BASED POLICY**

Commissioner for Patents
P.O. BOX 1450
Alexandria, VA 22313-1450

**NOTIFICATION OF LOSS OF ENTITLEMENT TO SMALL ENTITY
STATUS**

Sir:

It is respectfully requested that the status of this patent be changed from small entity to large entity. Small entity status was established in this application in good faith upon filing of this application. It has now been discovered that this application is no longer entitled to small entity status.

Prompt and favorable consideration of this submission is respectfully requested.

Respectfully Submitted,

/Steve H. Lam/

Steve H. Lam
Reg. No. 72,721

PARATUS LAW GROUP, PLLC
1765 Greensboro Station Place
Suite 320
Tysons Corner, Virginia 22102
Tel: 571-313-7556
Fax: 703-935-8473
SHL/SWL
Date: January 22, 2025



UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/645,090	10/04/2012	SANG WAN KIM	PK7-042RCE

CONFIRMATION NO. 3860

145742
Paratus Law Group, PLLC
1765 Greensboro Station Place
Suite 320
Tysons Corner, VA 22102

POA ACCEPTANCE LETTER



OC000000084263236

Date Mailed: 02/12/2025

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 01/22/2025.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/dtdinh/



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/645,090	10/04/2012	SANG WAN KIM	PK7-042RCE

CONFIRMATION NO. 3860

959
NELSON MULLINS RILEY & SCARBOROUGH LLP
ONE FINANCIAL CENTER
SUITE 3500
BOSTON, MA 02111

POWER OF ATTORNEY NOTICE



OC000000084263058

Date Mailed: 02/12/2025

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 01/22/2025.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at (571) 272-4000 or (571) 272-4200 or 1-888-786-0101.

/dtdinh/