### 502292995 03/30/2013

### PATENT ASSIGNMENT

Electronic Version v1.1 Stylesheet Version v1.1

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

### **CONVEYING PARTY DATA**

Name	Execution Date
Joe Sapsford	02/16/2005
Han Wen	02/16/2005
Network Physics, Inc.	10/19/2007

#### **RECEIVING PARTY DATA**

Name:	OPNET Technologies, Inc	
Street Address:	7255 Woodmont Avenue	
City:	Bethesda	
State/Country:	MARYLAND	
Postal Code:	20814	

#### PROPERTY NUMBERS Total: 1

Property Type	Number	
Patent Number:	7885206	

### **CORRESPONDENCE DATA**

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Phone: 804-493-0707
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Correspondent Name: Robert M. McDermott
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Address Line 4: Montross, VIRGINIA 22520

ATTORNEY DOCKET NUMBER:	OP-05219CONT
NAME OF SUBMITTER:	Robert M. McDermott 41 508

Total Attachments: 10

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PATENT REEL: 030119 FRAME: 0522 P \$40.00 /885206

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PATENT REEL: 030119 FRAME: 0523 Attorney's Docket No.: 3997P025

# **ASSIGNMENT**

In consideration of good and valuable consideration, the receipt of which is hereby acknowledged, we, the undersigned:

Joe Sapsford; Han Wen

hereby sell, assign, and transfer to:

#### Network Physics

having a principal place of business at 491 Fairchild Drive, Mountain View, California 94043 ("Assignee"), and its successors, assigns, and legal representatives, the entire right, title, and interest for the United States and all foreign countries, in and to any and all inventions and improvements that are disclosed in the application for the United States patent that has been executed by the undersigned prior hereto or concurrently herewith on the dates indicated below and is entitled:

## Method And System For Topological Navigation Of Hierarchical Data Groups

and in and to said application and all design, utility, divisional, continuing, continuation-in-part, substitute, renewal, reissue, and all other patent applications that have been or shall be filed in the United States and all foreign countries on any of said inventions and improvements; and in and to all original and reissued patents that have been or shall be issued in the United States and all foreign countries on said inventions and improvements; and in and to all rights of priority from the filing of said United States applications;

agree that said Assignee may apply for and receive a patent or patents for said inventions and improvements in its own name; and that, when requested, without charge to, but at the expense of, said Assignee, its successors, assigns, and legal representatives, to carry out in good faith the intent and purpose of this Assignment, the undersigned will execute all design, utility, divisional, continuing, continuation-in-part, substitute, renewal, reissue, and all other patent applications on any and all said inventions and improvements; execute all rightful oaths, assignments, power of attorney, and other papers; communicate to said Assignee, its successors, assigns, and legal representatives all facts known to the undersigned relating to said inventions and improvements and the history thereof; and generally assist said Assignee, its successors, assigns, or legal representatives in securing and maintaining proper patent protection for said inventions and improvements and for vesting title to said inventions and improvements, and all applications for patents and all patents on said improvements, in said Assignee, its successors, assigns, assigns, and legal representatives; and

Page 1 of 2

3997P025

PATENT REEL: 016308 FRAME: 0939 PATENT

covenant with said Assignee, its successors, assigns, and legal representatives that no assignment, grant, mortgage, license, or other agreement affecting the rights and property herein conveyed has been made to others by the undersigned, and that full right to convey the same as herein expressed is possessed by the undersigned.

#### Each Inventor: Please Sign and Date Below:

2/16/05	Ly Sul
2/16/05 Date 2/16/05	Name: Joe Santard
Date	Name: Han Wen
Date	Name:

Assignment Document Return Address: BLAKELY, SOKOLOPF, TAYLOR & ZAFMAN LLP 12400 Wilshire Boulevard, 7th Floor Los Angeles, CA 90025 Telephone: (408) 947-8200

3997P025

Page 2 of 2

PATENT

REEL: 016308\_FRAME: 0940

### PATENT ASSIGNMENT

Electronic Version v1.1 Stylesheet Version v1.1

SUBMISSION TYPE: NEW ASSIGNMENT

ASSIGNMENT

NATURE OF CONVEYANCE: ASSIGNMENT

### **CONVEYING PARTY DATA**

Name	Execution Date
NETWORK PHYSICS, INC.	10/19/2007

### RECEIVING PARTY DATA

Name:	OPNET Technologies, Inc.	
Street Address:	7255 Woodmont Avenue	
City:	Bethesda	
State/Country:	MARYLAND	
Postal Code:	20814-7900	

### PROPERTY NUMBERS Total: 27

Property Type	Number
Patent Number:	6600752
Patent Number:	6674717
Patent Number:	6928472
Patent Number:	6947381
Patent Number:	6990071
Patent Number:	7072297
Patent Number:	7092355
Patent Number:	7248564
Patent Number:	7277843
Application Number:	10915550
Application Number:	10937986
Application Number:	10923576
Application Number:	11001985
Application Number:	11061978
Application Number:	11092226
	PATENT

**PATENT** 

REEL: 019984ERAME: 0376 REEL: 030119 FRAME: 0526 P \$1080.00 6600752

Application Number:	11148055
Application Number:	09846451
Application Number:	09846452
Application Number:	10205135
Application Number:	11193967
Application Number:	10195904
Application Number:	10195905
Application Number:	11173758
Application Number:	11173752
Application Number:	10318633
Application Number:	60340205
Application Number:	60488225

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Boston, MASSACHUSETTS 02210-2604

Δ	rto	RNFY	DOCKET	NUMBER:	
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OPNET

NAME OF SUBMITTER:

Rena Marie Strand

### Total Attachments: 6

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**PATENT** 

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### PATENT ASSIGNMENT

WHEREAS, Network Physics, Inc., a Delaware corporation ("Assignor"), and OPNET Technologies, Inc., a Delaware corporation ("Assignee"), are parties to that certain Asset Purchase Agreement dated as of October \_\_\_\_, 2007 (the "Agreement"); and

WHEREAS, pursuant to the Agreement, the Assignor has agreed to sell, transfer and assign to Assignee, any right, title and interest of the Assignor in and to the Patents and Patent Applications listed on Schedule A attached hereto, and the inventions and discoveries disclosed therein (the "Patents").

NOW, THEREFORE, for good and valuable consideration, receipt of which is hereby acknowledged, Assignor does hereby sell, assign and transfer unto the Assignee all of its right, title and interest in, to and under the patents and patent applications, including any inventions disclosed therein whether or not presently claimed, together with the right to sue and recover for the past infringements of the patents and patent applications, the same to be held and enjoyed by Assignee for its own use and enjoyment, and for the use and enjoyment of its successors, assigns and other legal representatives as fully and entirely as the same would have been held and enjoyed by Assignor had this Assignment not been made.

FURTHER, Assignor agrees to execute and provide promptly after its execution hereof, such further instruments and documents or assignments as may be reasonably necessary to effectuate the purpose of this transaction and consolidate, vest and record in Assignee, Assignor's rights in, to and under the patents and patent applications.

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1

PATENT

REEL: 019984ENRAME: 0378

IN WITNESS WHEREOF, Assignor has caused this assignment to be executed as an instrument under seal by its duly authorized officer this \_\_ day of October, 2007.

Title: CEO

NETWORK PHYSICS, INC.

Name: KENNY FRANCHS

State of California	
Sounty of	
On this	day of October 2007. before me, the undersigned notary public,
personally appeared_	, proved to me through satisfactory evidence of identification,
which were	, to be the person whose name is signed on the
preceding or attached	document, and acknowledged to me that he signed it voluntarily for its
stated purpose.	
	See Atlached
Notary Public	Dee Milmores
My commission expir	es:

[Patent Assignment Signature Page]

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**PATENT** 

Object of October 1					
State of California					
County of Say Mates	ss.				
A 11 W					
On October N, 200 4, before	me, <u>Drian Pavia</u> , Notary Public				
Date	Name and Title of Officer (e.g., "Jane Doe, Notary Public")				
personally appeared <u>Ke</u>	Name(s) of Signer(s)				
	☐ personally known to me				
	proved to me on the basis of satisfactory evidence				
	to be the person(s) whose name(s) is/are subscribed				
BRIAN RAYA	to the within instrument and acknowledged to me tha				
Commission # 1662786	he/she/they executed the same in his/her/thei				
Notary Public - Collomia	authorized capacity <del>(ies)</del> , and that by his/her/thei				
My Comm. Expires May 1, 2010	signature(s) on the instrument the person(e), or the				
	entity upon behalf of which the person(a) acted executed the instrument.				
	/				
	WITNESS my/han/a and official seal.				
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Though the information below is not required	by law, it may prove valuable to persons relying on the document				
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Description of Attached Document	by law, it may prove valuable to persons relying on the document and reattachment of this form to another document.				
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Description of Attached Document Title or Type of Document:  Document Date:  Signer(s) Other Than Named Above:	by law, it may prove valuable to persons relying on the document oval and reattachment of this form to another document.				
Description of Attached Document Title or Type of Document:  Document Date:  Signer(s) Other Than Named Above:  Capacity(ies) Claimed by Signer(s)	by law, it may prove valuable to persons relying on the document oval and reattachment of this form to another document.  Number of Pages:				
Description of Attached Document Title or Type of Document:  Document Date:  Signer(s) Other Than Named Above:  Capacity(ies) Claimed by Signer(s) Signer's Name:	by law, it may prove valuable to persons relying on the document oval and reattachment of this form to another document.  Number of Pages:  Signer's Name:				
Description of Attached Document Title or Type of Document:  Document Date:  Signer(s) Other Than Named Above:  Capacity(ies) Claimed by Signer(s)  Signer's Name:  Individual	Number of Pages:  Signer's Name:				
Description of Attached Document Title or Type of Document:  Document Date:  Signer(s) Other Than Named Above:  Capacity(ies) Claimed by Signer(s)  Signer's Name:  Individual  Corporate Officer — Title(s):	Signer's Name:  Individual  Corporate Officer — Title(s):				
Description of Attached Document  Title or Type of Document:  Document Date:  Signer(s) Other Than Named Above:  Capacity(ies) Claimed by Signer(s)  Signer's Name:  Individual  Corporate Officer — Title(s):  Partner — Limited General  Attorney in Fact  Description fract	Signer's Name:   Individual   Corporate Officer — Title(s):   Partner — D Limited D General Of Signer   Corporate Officer   Corporate Officer				
Description of Attached Document Title or Type of Document:  Document Date:  Signer(s) Other Than Named Above:  Capacity(ies) Claimed by Signer(s)  Signer's Name:  Individual  Corporate Officer — Title(s):  Partner — Limited General Attorney in Fact Trustee	Signer's Name:  Individual  Corporate Officer — Title(s):  Partner — Limited — General  Possible of the document of the document of this form to another document.				
Description of Attached Document Title or Type of Document:  Document Date:  Signer(s) Other Than Named Above:  Capacity(ies) Claimed by Signer(s)  Signer's Name:  Individual  Corporate Officer — Title(s):  Partner — Limited General Attorney in Fact Trustee  Guardian or Conservator	Signer's Name:				
Description of Attached Document  Title or Type of Document:  Document Date:  Signer(s) Other Than Named Above:  Capacity(ies) Claimed by Signer(s)  Signer's Name:  Individual  Corporate Officer — Title(s):  Partner — Limited General  Attorney in Fact	Signer's Name:   Individual   Corporate Officer — Title(s):   Partner —   Limited   General   RIGHT THUMBPRINT OF SIGNER   Top of thumb here				
Description of Attached Document Title or Type of Document:  Document Date:  Signer(s) Other Than Named Above:  Capacity(ies) Claimed by Signer(s)  Signer's Name:  Individual  Corporate Officer — Title(s):  Partner — Limited General  Attorney in Fact  Trustee  Guardian or Conservator  Other:	Signer's Name:				
Description of Attached Document Title or Type of Document:  Document Date:  Signer(s) Other Than Named Above:  Capacity(ies) Claimed by Signer(s)  Signer's Name:  Individual  Corporate Officer — Title(s):  Partner — Limited General Attorney in Fact Trustee  Guardian or Conservator	Signer's Name:				
Description of Attached Document Title or Type of Document:  Document Date:  Signer(s) Other Than Named Above:  Capacity(ies) Claimed by Signer(s)  Signer's Name:  Individual  Corporate Officer — Title(s):  Partner — Limited General  Attorney in Fact  Trustee  Guardian or Conservator  Other:	Signer's Name:				

**PATENT** 

REEL: 019984ERAME: 0380

# Schedule A

# **PATENTS**

Title	Inventor	Assignee	Patent Number	_	Registration Date	Juris- diction
Method for reducing excess queue time in communication nodes	Duong-Van, Minh	Network Physics, Inc.	6,600,752	June 30, 1999		US
Method for reducing packet loss and increasing internet flow by feedback control	Duong-Van, Minh; Pavel, Thomas J.; Wen, Han C.	Network Physics, Inc.	6,674,717	March 30, 2000	January 6, 2004	US
Method for correlating congestion to performance metrics in internet traffic	Wen, Han C.	Network Physics, Inc.	6,928,472	July 23, 2002	August 9, 2005	US
Method for reducing packet loss by phase transition identification in communication networks	Wen, Han C.; Duong-Van, Minh; Pavel, Thomas J.; Crane, Mark	Network Physics, Inc.	6,947,381	April 30, 2001	September 20, 2005	US
Method for reducing fetch time in a congested communication network	Adam, Ian; Pavel, Thomas J.; Wen, Han C.; Duong-Van, Minh; Crane, Mark	Network Physics, Inc.	6,990,071	April 30, 2001	January 24, 2006	US
Method for dynamical identification of network congestion characteristics	Adam, Ian; Pavel, Thomas J.; Wen, Han C.; Duong-Van, Minh; Crane, Mark	Network Physics, Inc.	7,072,297	April 30, 2001	July 4, 2006	US
Method for controlling congested network flow	Duong-Van, Minh	Network Physics, Inc.	7,092,355	June 30, 1999	August 15, 2006	US
Method for determining network congestion and link capacities	Grosdidier, Gilbert; Duong-Van, Minh; Pavel, Thomas J.; Wen, Han C; Adam, Ian et	Network Physics, Inc	7,248,564	May 11, 2001	July 24, 2007	US
Method for real-time auto determination of outliers	Wen, Han; Pavel, Tomas J.	Network Physics, Inc	7,277,843	July 15, 2002	October 2, 2007	US

3

PATENT

REEL: 019984ERAME: 0381 REEL: 030119 FRAME: 0531

## PATENT APPLICATIONS

`itle	Inventor	Assignee	File Number	Filing Date	Juris- diction
Method and apparatus for detecting a computer worm virus	Dwight G. Barker; Han C. Wen; George Zioulas	Network Physics, Inc.	10/915,550	8/9/2004	US
Method and system for grouping diagnostic information	Han C. Wen; George Zioulas; Masood Ahmed	Network Physics, Inc.	10/937,986	9/10/2004	US
Method for prioritizing group data reduction	George Zioulas; Dimitrus Stassinopoulos; Han C. Wen	Network Physics, Inc.	10/923,576	8/20/2004	US
Method for discovery and troubleshooting of network application usage and performance issues	Han C. Wen; George Zioulas; Stephen Guarini; Masood Ahmed; Erik Seilnacht	Network Physics, Inc.	11/001,985	12/1/2004	US
Method and system for topological navigation of hierarchical data groups	Joe Sapsford; Han C. Wen	Network Physics, Inc.	11/061,978	2/18/2005	US
Method and system for managing a distributed network of network monitoring devices	Dimitrus Stassinopoulos; George Zioulas; Han C. Wen	Network Physics, Inc.	11/092,226	3/28/2005	US
Distributed network monitoring system	Stephen Guarini; Thomas J. Pavel; Mark Crane; Erik Seilnacht; Romain Kang	Network Physics, Inc.	11/148,055	6/8/2005	US
Method for reducing packet loss by resonance identification in communication networks	Minh Duong-van; Han C. Wen; Mark Crane; Thomas J. Pavel	Network Physics, Inc.	09/846,451	4/30/2001	US
Method for acceleration TCP flows in communication networks with dynamic control	Han C. Wen; Ian Adam; Minh Duong- Van; Thomas J. Pavel; Mark Crane	Network Physics, Inc.	09/846,452	4/30/2001	US
A Bayesian approach to correlating congestion to performance metrics in internet traffic	Han C. Wen	Network Physics, Inc.	10/205,135	7/23/2002	US
Learning detection engine for network monitoring applications	Minh Duong-van	Network Physics, Inc.	11/193,967	7/28/2005	US
Method for detecting congestion in internet traffic	Han C. Wen; Thomas J. Pavel	Network Physics, Inc.	10/195,904	7/15/2002	US
Method for real-time auto- detection of outliers	Han C. Wen; Thomas J. Pavel	Network Physics, Inc.	10/195,905	7/15/2002	US
Method and system for collecting and consolidating network traffic information	George Zioulas; Wenjie Ding	Network Physics, Inc.	11/173,758	6/30/2005	US

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identifying duplicate packets in flow-based network monitoring		Network Physics, Inc.	11/173,752	6/30/2005	US
system  Method and apparatus for network congestion management	Minh Duong-van	None		NOT YET RIPE	US
Method for guided workflows in network application performance monitoring	Stephen Guarini; Han C. Wen	None		NOT YET RIPE	US
Method and system for managing traffic information of logical groups in a distributed network monitoring system	George Zioulas; Stephen Guarini; Han Wen	None		NOT YET RIPE	US
User interface for network performance monitoring	Han Wen; Nai-ting Hsu; David Trowbridge; John Connelly; Silvia Veronese	?		NOT FILED (draft complete)	US
Neural network predicator for real-time network traffic control using approximately selected variables	Richard Blackenbecler; Minh Duong-van	?		NOT FILED (drafted, sent to client)	US
Method for reducing response time by breathing mode identification in communication networks	Han C. Wen; Matt Langston; Minh Duong-van; Ian Adam; Phomas J. Pavel; Richard Blackenbecler; Mark Crane	?		NOT FILED (drafted, sent to client)	US
Neural network correlation engine	Minh Duong-van	?		NOT FILED (draft complete)	US
	George Zioulas; Stephen Guarini; Han Wen	?		NOT FILED	US
Method and apparatus for reducing packet loss in computer networks – ABANDONED FILING	Minh Duong-van; Richard Blankenbecker; Robert Cheng	None	10/318,633	12/12/2002	US
Method and apparatus for reducing packet loss in computer networks – EXPIRED	Minh Duong-van; Richard Blankenbecker; Robert Cheng	None	60/340,205	12/12/2002	US
	Minh Duong-van; Dimitrus Stassinopoulos; Silvia Veronese; Ludovic Milin	None	60/488,225	7/16/2003	US
Method for reducing packet loss and increasing internet flow by feedback control – EXPIRED (but US patent with same title is issued)	Minh Duong-van; Thomas J. Pavel; Han C. Wen	Network Physics, Inc.	US00/41174	10/16/2000	PCT

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**RECORDED: 10/19/2007** 

**RECORDED: 03/30/2013** 

PATENT REEL: 019984 ERAME: 0383 REEL: 030119 FRAME: 0533