

AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Eastern District of Texas, Marshall Division on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.);

DOCKET NO. 2:21-cv-00450	DATE FILED 12/13/2022	U.S. DISTRICT COURT Eastern District of Texas, Marshall Division
PLAINTIFF PACSEC3, LLC		DEFENDANT FORTINET, INC
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 US 6,789,190	9/7/2004	PACSEC3, LLC
2 US 7,047,564	5/16/2006	PACSEC3, LLC
3 US 7,523,497	4/21/2009	PACSEC3, LLC
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In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading		
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK	
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT In light of the stipulation, which the Court ACCEPTS AND ACKNOWLEDGES, and pursuant to Rule 41(a)(1)(A)(i), all pending claims and causes of action in the above-captioned case are DISMISSED WITH PREJUDICE.
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CLERK <i>David A. O'Toole</i>	(BY) DEPUTY CLERK nikl	DATE 3/11/22
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Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
 Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Eastern District of Texas on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.);

DOCKET NO. 2:21-cv-00140	DATE FILED 4/21/2021	U.S. DISTRICT COURT Eastern District of Texas
PLAINTIFF PACSEC3, LLC		DEFENDANT MCAFEE, LLC
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 US 6,789,190	9/7/2004	PACSEC3, LLC
2 US 7,047,564	5/16/2006	PACSEC3, LLC
3 US 7,523,497	4/21/2009	PACSEC3, LLC
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In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading		
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK	
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT Accordingly, it is ORDRED, pursuant to Rule 41(a)(1)(A)(ii), that all claims for relief that were asserted or could have been asserted by PacSec3 against McAfee in the above-captioned action are DISMISSED WITH PREJUDICE and all claims, defenses, and/or counterclaims for relief that were asserted or could have been asserted by McAfee against PacSec3 in the above-captioned action are DISMISSED WITHOUT PREJUDICE

CLERK <i>David A. O'Poole</i>	(BY) DEPUTY CLERK nkl	DATE 2/25/22
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Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
 Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

AO 120 (Rev. 08/10)

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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Eastern District of Texas, Marshall Division on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.);

DOCKET NO. 2:22-cv-00056	DATE FILED 2/18/2022	U.S. DISTRICT COURT Eastern District of Texas, Marshall Division
PLAINTIFF PACSEC3, LLC		DEFENDANT SPLUNK, INC.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 US 7,523,497	4/21/2009	PACSEC3, LLC
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In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading		
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK	
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
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Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Western District of Texas, Waco Division on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO. 6:22-cv-00167	DATE FILED 2/17/2022	U.S. DISTRICT COURT Western District of Texas, Waco Division
PLAINTIFF PACSEC3, LLC		DEFENDANT IMPERVA, INC.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 US 7,523,497	4/21/2009	PACSEC3, LLC
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In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Western District of Texas, Waco Division on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.);

DOCKET NO. 6:22-cv-00168	DATE FILED 2/17/2022	U.S. DISTRICT COURT Western District of Texas, Waco Division
PLAINTIFF PACSEC3, LLC		DEFENDANT RAPID7, INC.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 US 7,523,497	4/21/2009	PACSEC3, LLC
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In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
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Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Eastern District of Texas, Marshall Division on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.);

DOCKET NO. 2:22-cv-00055	DATE FILED 2/17/2022	U.S. DISTRICT COURT Eastern District of Texas, Marshall Division
PLAINTIFF PACSEC3, LLC		DEFENDANT FORESCOUT TECHNOLOGIES, INC.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 US 7,523,497	4/21/2009	PACSEC3, LLC
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In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading		
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK	
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☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.);

DOCKET NO. 6:22-cv-00126	DATE FILED 2/4/2022	U.S. DISTRICT COURT Western District of Texas, Waco Division
PLAINTIFF PACSEC3, LLC		DEFENDANT DARKTRACE, PLC
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 US 7,523,497	4/21/2009	PACSEC3, LLC
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In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Western District of Texas, Waco Division on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.);

DOCKET NO. 6:22-cv-00127	DATE FILED 2/4/2022	U.S. DISTRICT COURT Western District of Texas, Waco Division
PLAINTIFF PACSEC3, LLC		DEFENDANT CROWDSTRIKE HOLDINGS, INC.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 US 7,523,497	4/21/2009	PACSEC3, LLC
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In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
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AO 120 (Rev. 08/10)

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☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.);

DOCKET NO. 6:22-cv-00129	DATE FILED 2/4/2022	U.S. DISTRICT COURT Western District of Texas, Waco Division
PLAINTIFF PACSEC3, LLC		DEFENDANT CLOUDFLARE, INC.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 US 7,523,497	4/21/2009	PACSEC3, LLC
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In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
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☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.);

DOCKET NO. 6:22-cv-00128	DATE FILED 2/4/2022	U.S. DISTRICT COURT Western District of Texas, Waco Division
PLAINTIFF PACSEC3, LLC		DEFENDANT BLACKBERRY CORPORATION
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 US 7,523,497	4/21/2009	PACSEC3, LLC
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In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading		
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK	
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
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Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
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☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.);

DOCKET NO. 2:21-cv-00450	DATE FILED 12/13/2022	U.S. DISTRICT COURT Eastern District of Texas, Marshall Division
PLAINTIFF PACSEC3, LLC		DEFENDANT FORTINET, INC
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 US 6,789,190	9/7/2004	PACSEC3, LLC
2 US 7,047,564	5/16/2006	PACSEC3, LLC
3 US 7,523,497	4/21/2009	PACSEC3, LLC
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In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
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Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Western District of Texas, Waco Division on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.)

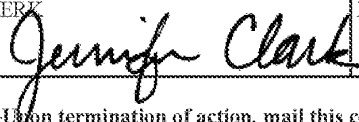
DOCKET NO. 6:21-cv-00633	DATE FILED 6/18/2021	U.S. DISTRICT COURT Western District of Texas, Waco Division
PLAINTIFF PACSEC3, LLC		DEFENDANT WATCHGUARD TECHNOLOGIES, INC.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 US 6,789,190	9/7/2004	PACSEC3, LLC
2 US 7,047,564	5/16/2006	PACSEC3, LLC
3 US 7,523,497	4/21/2009	PACSEC3, LLC
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In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT 12/06/2021 - Voluntary Dismissal
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CLERK Jeannette J. Clack	(BY) DEPUTY CLERK 	DATE 12/06/2021
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Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

AO 120 (Rev. 08/10)

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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Eastern District of Texas on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO. 2:21-cv-00141	DATE FILED 4/21/2021	U.S. DISTRICT COURT Eastern District of Texas
PLAINTIFF PACSEC3, LLC		DEFENDANT PALO ALTO NETWORKS, INC.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 US 6,789,190	9/7/2004	PACSEC3, LLC
2 US 7,047,564	5/16/2006	PACSEC3, LLC
3 US 7,523,497	4/21/2009	PACSEC3, LLC
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In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading		
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK	
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT Having considered the Stipulation, which the Court ACCEPTS AND ACKNOWLEDGES, it is ORDERED that all claims for relief that were asserted or could have asserted by PacSec3 against PAN in the above-captioned action are DISMISSED WITH PREJUDICE and all claims, defenses, and/or counterclaims for relief that were asserted or could have asserted by PAN against PacSec3 in the above-captioned action are DISMISSED WITHOUT PREJUDICE.
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CLERK <i>David A. O'Poole</i>	(BY) DEPUTY CLERK nkl	DATE 11/18/21
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☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO. 6:21-cv-00388	DATE FILED 4/21/2021	U.S. DISTRICT COURT Western District of Texas
PLAINTIFF PACSEC3, LLC		DEFENDANT CISCO SYSTEMS, INC.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 US 6,789,190	9/7/2004	PACSEC3, LLC
2 US 7,047,564	5/16/2006	PACSEC3, LLC
3 US 7,523,497	4/21/2009	PACSEC3, LLC
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In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT 11/01/2021 - Joint Stipulation of Dismissal

CLERK Jeannette J. Clack	(BY) DEPUTY CLERK <i>Jeannette Clark</i>	DATE 11/01/2021
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Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Western District of Texas, Waco Division on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.);

DOCKET NO. 6:21-cv-00633	DATE FILED 6/18/2021	U.S. DISTRICT COURT Western District of Texas, Waco Division
PLAINTIFF PACSEC3, LLC		DEFENDANT WATCHGUARD TECHNOLOGIES, INC.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 US 6,789,190	9/7/2004	PACSEC3, LLC
2 US 7,047,564	5/16/2006	PACSEC3, LLC
3 US 7,523,497	4/21/2009	PACSEC3, LLC
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In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading		
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK	
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
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Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been
filed in the U.S. District Court Eastern District of Texas on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.);

DOCKET NO. 2:21-cv-00228	DATE FILED 6/23/2021	U.S. DISTRICT COURT Eastern District of Texas
PLAINTIFF PACSEC3, LLC		DEFENDANT JUNIPER NETWORKS, INC.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 US 6,789,190	9/7/2014	PACSEC3, LLC
2 US 7,047,564	5/16/2006	PACSEC3, LLC
3 US 7,523,497	4/21/2009	PACSEC3, LLC
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In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
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Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Western District of Texas, Waco Division on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.);

DOCKET NO. 6:21-cv-00633	DATE FILED 6/18/2021	U.S. DISTRICT COURT Western District of Texas, Waco Division
PLAINTIFF PACSEC3, LLC		DEFENDANT WATCHGUARD TECHNOLOGIES, INC.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 US 6,789,190	9/7/2004	PACSEC3, LLC
2 US 7,047,564	5/16/2006	PACSEC3, LLC
3 US 7,523,497	4/21/2009	PACSEC3, LLC
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In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
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Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
 Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

AO 121 (Rev. 08/10)

To: Mail Stop 8 Director of Patents and Trademarks PO BOX 1450 Alexandria VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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In compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116, you are hereby advised that a court action

has been filed in the **U.S. District Court for the District of Utah** on the following

☐ Trademarks or ☒ Patents (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
2:20-cv-00697-JCB	10/02/2020	District of Utah 351 S West Temple, Room 1.100, Salt Lake City, UT 84101
PLAINTIFF		DEFENDANT
PACSEC3, LLC		F5 Networks, Inc.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 6,789,190 B1	09/07/2004	Computing Services Support Solutions, Inc.
2 7,047,564 B2	06/16/2006	Computing Services Support Solutions, Inc.
3 7,523,497 B2	04/21/2009	Computing Services Support Solutions, Inc.
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In the above-entitled case, the following patent(s) have been included:

DATE INCLUDED	INCLUDED BY
	☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK
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In the above-entitled case, a final decision had been rendered or judgment issued:

DECISION / JUDGMENT

CLERK	(BY) DEPUTY CLERK	DATE
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DISTRIBUTION : 1) Upon initiation of action
mail copy to Director

2) Upon filing of document adding patent(s),
mail copy to Director

3) Upon termination of action ,
mail copy to Director

AO 121 (Rev. 08/10)

To: Mail Stop 8 Director of Patents and Trademarks PO BOX 1450 Alexandria VA 22313-1450	AMENDED REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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In compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116, you are hereby advised that a court action

has been filed in the **U.S. District Court for the District of Utah** on the following

☐ Trademarks or ☒ Patents (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO.	DATE FILED	U.S. DISTRICT COURT
2:20-cv-00697-JCB	10/02/2020	District of Utah 351 S West Temple, Room 1.100, Salt Lake City, UT 84101
PLAINTIFF		DEFENDANT
PACSEC3, LLC		F5 Networks, Inc.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 6,789,190 B1	09/07/2004	See Complaint
2 7,047,564 B2	06/16/2006	See Complaint
3 7,523,497 B2	04/21/2009	See Complaint
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In the above-entitled case, the following patents(s) have been included:

DATE INCLUDED	INCLUDED BY
	☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK
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In the above-entitled case, a final decision had been rendered or judgment issued:

DECISION / JUDGMENT

CLERK	(BY) DEPUTY CLERK	DATE
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DISTRIBUTION : 1) Upon initiation of action
mail copy to Director

2) Upon filing of document adding patent(s),
mail copy to Director

3) Upon termination of action ,
mail copy to Director

AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Eastern District of Texas on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.);

DOCKET NO. 2:21-cv-00141	DATE FILED 4/21/2021	U.S. DISTRICT COURT Eastern District of Texas
PLAINTIFF PACSEC3, LLC		DEFENDANT PALO ALTO NETWORKS, INC.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 US 6,789,190	9/7/2004	PACSEC3, LLC
2 US 7,047,564	5/16/2006	PACSEC3, LLC
3 US 7,523,497	4/21/2009	PACSEC3, LLC
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In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading		
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK	
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
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Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been
filed in the U.S. District Court Western District of Texas on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.);

DOCKET NO. 6:21-cv-00387	DATE FILED 4/21/2021	U.S. DISTRICT COURT Western District of Texas
PLAINTIFF PACSEC3, LLC		DEFENDANT JUNIPER NETWORKS, INC.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 US 6,789,190	9/7/2004	PACSEC3, LLC
2 US 7,047,564	5/16/2006	PACSEC3, LLC
3 US 7,523,497	4/21/2009	PACSEC3, LLC
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In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
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In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT

CLERK	(BY) DEPUTY CLERK	DATE
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Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

AO 120 (Rev. 08/10)

TO: Mail Stop 8 Director of the U.S. Patent and Trademark Office P.O. Box 1450 Alexandria, VA 22313-1450	REPORT ON THE FILING OR DETERMINATION OF AN ACTION REGARDING A PATENT OR TRADEMARK
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been
filed in the U.S. District Court Western District of Texas on the following

☐ Trademarks or ☒ Patents. (☐ the patent action involves 35 U.S.C. § 292.):

DOCKET NO. 6:21-cv-00388	DATE FILED 4/21/2021	U.S. DISTRICT COURT Western District of Texas
PLAINTIFF PACSEC3, LLC		DEFENDANT CISCO SYSTEMS, INC.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 US 6,789,190	9/7/2004	PACSEC3, LLC
2 US 7,047,564	5/16/2006	PACSEC3, LLC
3 US 7,523,497	4/21/2009	PACSEC3, LLC
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In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY ☐ Amendment ☐ Answer ☐ Cross Bill ☐ Other Pleading		
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK	
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CLERK	(BY) DEPUTY CLERK	DATE
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Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director
Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
 Stylesheet Version v1.2

EPAS ID: PAT6255749

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT
CONVEYING PARTY DATA	
Name	Execution Date
COMPUTING SERVICES SUPPORT SOLUTIONS, INC.	08/12/2020
RECEIVING PARTY DATA	
Name:	PACSEC3 LLC
Street Address:	5218 CHANDLER STREET
City:	HOUSTON
State/Country:	TEXAS
Postal Code:	77007
PROPERTY NUMBERS Total: 3	
Property Type	Number
Patent Number:	6789190
Patent Number:	7047564
Patent Number:	7523497
CORRESPONDENCE DATA	
Fax Number:	(713)481-0031
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i>	
Phone:	7134810031
Email:	carlos@dynaipdeals.com
Correspondent Name:	CARLOS GORRICHATEGUI
Address Line 1:	5218 CHANDLER STREET
Address Line 4:	HOUSTON, TEXAS 77007
ATTORNEY DOCKET NUMBER:	Q982-DB
NAME OF SUBMITTER:	CARLOS GORRICHATEGUI
SIGNATURE:	/DrCOGIII/
DATE SIGNED:	08/18/2020
	This document serves as an Oath/Declaration (37 CFR 1.63).
Total Attachments: 1	
source=Cs3 Inc - PacSec3 LLC Assignment#page1.tif	

EXHIBIT B -- ASSIGNMENT OF PATENT RIGHTS

This Assignment Agreement (the "Agreement") is made and entered into this 12th day of August 12, 2020 (the "Effective Date"), by Computing Services Support Solutions dba Cs3 Inc., a California S corporation, having an address at 5777 W Century Blvd, Suite 1185, Los Angeles, CA 90045 ("Assignor") and PacSec3 LLC, a Texas limited liability company, having an address at 5218 Chandler Street, Houston, TX, 77007 ("Assignee").

RECITALS

A. Assignor is the owner of:

- the United States Patents set forth on Exhibit A hereto (the "US Patents");
- the non-United States patents set forth on Exhibit B.1 hereto (the "Foreign Patents");
- the United States patent applications set forth on Exhibit B.2 hereto (the "US Patent Applications");
- the United States provisional patent applications set forth on Exhibit B.3 hereto (the "US Provisional Patent Applications"); and/or
- the foreign patent applications set forth on Exhibit B.4 hereto (the "Foreign Patent Applications");

which collectively shall be referred to herein as the "Patents".

B. Assignor and Assignee have agreed by way of a purchase agreement (the "Purchase Agreement") dated April 23rd, 2020 «EFFECTIVE_DATE», by and between Assignor and Assignee, that Assignor shall sell, transfer, and assign and set over unto Assignee and Assignee shall accept, all rights, title and interest in and to the Patents.

AGREEMENT

NOW, THEREFORE, in consideration of the foregoing premises, and the covenants and agreements in this Assignment, Assignor and Assignee agree as follows:

1. Assignor does hereby sell, transfer, convey, assign and deliver to Assignee all of Assignor's right, privilege, title and interest in, to and under the Patents and in the case of patent applications in and to any patents that may issue therefrom, including, in all instances, any counterparts of any of the foregoing in any jurisdiction throughout the world, and any and all divisions, continuations, reissues or reexaminations of any of the foregoing, and, further, all applications for industrial property protection, including without limitation, all applications for patents, utility models, copyright, and designs which may hereafter be filed





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 NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/841,064	04/21/2009	7523497	04-165-B	9716

31718 7590 04/01/2009
BELASCO, JACOBS & TOWNSLEY LLP
HOWARD HUGHES CENTER
6701 CENTER DRIVE
14th Floor
LOS ANGELES, CA 90045

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 719 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

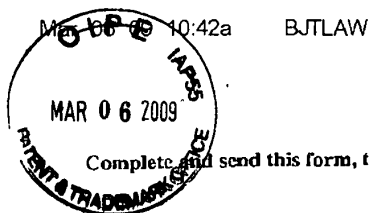
If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

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 Customer Service Center of the Office of Patent Publication at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

Donald N. Cohen, Los Angeles, CA;



310-743-1189

p.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)

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.

31718 7500 12/23/2008

BELASCO, JACOBS & TOWNSLEY LLP
HOWARD HUGHES CENTER
6100 CENTER DRIVE
SUITE 630
LOS ANGELES, CA 90045

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.

Donna Miller (Depositor's name)
Donna Miller (Signature)
3/6/09 (Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/841,064	05/07/2004	Donald N. Cohen	04-165-B	9716

TITLE OF INVENTION: PACKET FLOODING DEFENSE SYSTEM

APP. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$755	\$300	\$0	\$1055	03/23/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
BAUM, RONALD	2439	726-022000

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/147; 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. David A. Belasco
2. Belasco Jacobs &
3. Townsley, LLP

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 3.111. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

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

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

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

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

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

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

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

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

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

Authorized Signature

Date

Typed or printed name

Registration No.

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

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.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

OMB 0651-0033

U.S. Patent and Trademark Office

01 FC:2501
02 FC:1504

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PAGE 1/2 * RCVD AT 3/6/2009 1:36:32 PM [Eastern Standard Time] * SVR:USPTO-EFXXF-6/18 * DNIS:2732885 * CSID:310 743 1189 * DURATION (mm-ss):01-06

03/06/2009 EAREGAY2 00000131 10841064

01 FC:2501
02 FC:1504

755.00 OP
300.00 OP



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

NOTICE OF ALLOWANCE AND FEE(S) DUE

31718 7590 12/23/2008

BELASCO, JACOBS & TOWNSLEY LLP
HOWARD HUGHES CENTER
6100 CENTER DRIVE
SUITE 630
LOS ANGELES, CA 90045

EXAMINER

BAUM, RONALD

ART UNIT

PAPER NUMBER

2439

DATE MAILED: 12/23/2008

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/841,064	05/07/2004	Donald N. Cohen	04-165-B	9716

TITLE OF INVENTION: PACKET FLOODING DEFENSE SYSTEM

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$755	\$300	\$0	\$1055	03/23/2009

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

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

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

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

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

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

If the SMALL ENTITY is shown as NO:

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

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

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

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

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

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **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)

31718 7590 12/23/2008

BELASCO, JACOBS & TOWNSLEY LLP
HOWARD HUGHES CENTER
6100 CENTER DRIVE
SUITE 630
LOS ANGELES, CA 90045

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.
10/841,064	05/07/2004	Donald N. Cohen	04-165-B	9716

TITLE OF INVENTION: PACKET FLOODING DEFENSE SYSTEM

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$755	\$300	\$0	\$1055	03/23/2009

EXAMINER	ART UNIT	CLASS-SUBCLASS
BAUM, RONALD	2439	726-022000

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

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev. 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____
- 3 _____

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

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

(A) NAME OF ASSIGNEE

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

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

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

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

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

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

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

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

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

Authorized Signature _____

Date _____

Typed or printed name _____

Registration No. _____

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

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/841,064	05/07/2004	Donald N. Cohen	04-165-B	9716
31718	7590	12/23/2008	EXAMINER	
BELASCO, JACOBS & TOWNSLEY LLP HOWARD HUGHES CENTER 6100 CENTER DRIVE SUITE 630 LOS ANGELES, CA 90045			BAUM, RONALD	
			ART UNIT	PAPER NUMBER
			2439	
			DATE MAILED: 12/23/2008	

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)

(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 719 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 719 day(s).

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

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

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

Notice of Allowability	Application No.		Applicant(s)	
	10/841,064		COHEN, DONALD N.	
	Examiner		Art Unit	
	RONALD BAUM		2439	

-- 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 16 October 2008.

2. ☒ The allowed claim(s) is/are 1-18.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
* Certified copies not received: _____.

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

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

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
(b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

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

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) 2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948) 3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____ 4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material	5. ☐ Notice of Informal Patent Application 6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ 7. ☐ Examiner's Amendment/Comment 8. ☒ Examiner's Statement of Reasons for Allowance 9. ☐ Other _____
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DETAILED ACTION

Examiner's Statement of Reasons for Allowance

1. Claims 1-18 are allowed over prior art.
2. This action is in reply to applicant's correspondence of 16 October 2008.
3. The following is an examiner's statement of reasons for the indication of allowable claimed subject matter.
4. As per claims 1, 2, 4, 7, 8, 10, 11, 13, 14, 16 and 17 generally, prior art of record, Chang et al, U.S. Patent 5,367,523, fails to anticipate, disclose, teach or suggest alone, or in combination, at the time of the invention, the features as set forth in the claims in this application as allowed, and not necessarily as summarized and/or characterized by the examiner, whether or not as italicized, as discussed and remarked upon in the response of 16 October 2008 to office action of 13 June 2008.

Specifically, (as per claim 1, for example) prior art dealing with DDoS defense against various attack scenarios (e.g., path identification DDoS defense scheme utilizing a deterministic packet marking scheme allowing a DDoS victim to filter out attack packets via router originated information; Yaar, A., et al, 'StackPi: New Packet Marking and Filtering Mechanisms for DDoS and IP Spoofing Defense', IEEE JOURNAL ON SELECTED AREAS IN COMMUNICATIONS, VOL. 24, NO. 10, OCTOBER 2006, entire document, <http://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=01705617>), is generally known per se. Nowhere in the prior art is found collectively the *italicized* claim elements (i.e., path information forwarding along the entire path to the victim, said path information encompassing the entire path through the associated routers, and subsequent use of said information to effect filtering via allocation of

packet processing rate), at the *time of the invention*, serving to patently distinguish the invention from said prior art;

“1. A *packet flooding defense system* for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said system comprising:

means for

classifying data packets received at a host computer into
wanted data packets and
unwanted data packets;

means for

associating a *maximum acceptable processing rate* with
each class of data packet
received at said computer;

means for *said computer*

to *find* information for packets it receives regarding
the path by which said packets came to said computer
via *packet marks provided by routers*
leading to said host computer;

said *path* comprising

all routers in said network via which
said packets are routed to said computer; and

means in said computer for

using said information

to allocate the processing rate *available* for

unwanted data packets to be

less than or equal to

said maximum *acceptable* processing rate”

5. Dependent claims 3, 6, 9, 12, 15 and 18 are allowable by virtue of their dependencies.

Conclusion

6. Any inquiry concerning this communication or earlier communications from examiner should be directed to Ronald Baum, whose telephone number is (571) 272-3861, and whose unofficial Fax number is (571) 273-3861 and unofficial email is Ronald.baum@uspto.gov. The examiner can normally be reached Monday through Thursday from 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kambiz Zand, can be reached at (571) 272-3811. The Fax number for the organization where this application 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. For more 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).

Ronald Baum

Patent Examiner

/R. B./

Examiner, Art Unit 2439

/Kambiz Zand/

Supervisory Patent Examiner, Art Unit 2434

Notice of References Cited	Application/Control No. 10/841,064	Applicant(s)/Patent Under Reexamination COHEN, DONALD N.	
	Examiner RONALD BAUM	Art Unit 2439	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-			
	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	Yaar, A., et al, 'StackPi: New Packet Marking and Filtering Mechanisms for DDoS and IP Spoofing Defense', IEEE JOURNAL ON SELECTED AREAS IN COMMUNICATIONS, VOL. 24, NO. 10, OCTOBER 2006, entire document, http://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=01705617
	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.

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L2	162	(726/22.ccls.) and @ad<"20001116"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/17 15:24
L3	62	("370"/\$.ccls. "380"/\$.ccls. "709"/\$.ccls. "713"/\$.ccls. "726"/\$.ccls.) and (packet adj1 flow adj2 (augment\$ managem\$ control allocat\$ congest\$ ((high large overflow ascend\$ expand\$) adj1 (traffic through\$))) and router\$) and @ad<"20001116"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/17 15:25
L4	178	(713/201.ccls. 709/238-244.ccls. 370/229-240.ccls.) and (router and denial adj1 service and bandwidth)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/17 15:26
L5	10	(713/201.ccls. 709/238-244.ccls. 370/229-240.ccls.) and (router and denial adj1 service and bandwidth) and @ad<"20001116"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/17 15:26
L6	40	("713"/\$.ccls. "709"/\$.ccls. "726"/\$.ccls.) and (router and denial adj1 service and bandwidth) and @ad<"20001116"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/17 15:27
L7	48	("713"/\$.ccls. "709"/\$.ccls. "726"/\$.ccls.) and (router\$ and ((denial adj1 service) (dos with attack)) and bandwidth) and @ad<"20001116"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/12/17 15:28
L8	5	(router\$ and ((denial adj1 service) (dos with attack)) and bandwidth).clm.	US-PGPUB	OR	OFF	2008/12/17 15:29
S1	2070	713/201.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/06/01 11:35

S2	3	713/201.ccls. and packet with flooding and router	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 11:56
S3	3	713/201.ccls. and packet with flooding and router	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 11:56
S4	94	packet with flooding and router	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/02/23 16:03
S5	5	packet with flooding and router and denial and bandwidth	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 11:57
S6	495	router and denial and bandwidth	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 11:59
S7	471	router and denial adj1 service	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 11:59
S8	329	router and denial adj1 service and bandwidth	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/02/23 16:06
S9	64	router and denial and bandwidth and transmi\$ adj1 rate	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:00
S10	8	router and denial and bandwidth and send\$ adj1 rate	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:00
S11	982	network same router and flood\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:01

S12	118	network same router and flood\$ and defen\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:01
S13	130	router and flood\$ and defen\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:01
S14	91	ddos	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:02
S15	30	packet adj1 class\$ and denial adj1 service	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:02
S16	6	throttI\$ with bandwidth and denial	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:03
S17	8	709/238-244.ccls. and denial and allocate	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:05
S18	4	709/238-244.ccls. and flood\$ with rate	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:07
S19	241	709/238-244.ccls. and transmi\$ with rate	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:07
S20	126	router with flow adj1 control	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:08
S21	7	packet adj1 flood\$ and defense	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:08

S22	446	packet with overload\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:16
S23	50	packet adj2 overload\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:17
S24	96	packet adj1 flood\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:33
S25	568	packet with flow adj2 (control or allocat\$) and router\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:34
S26	67	packet with flow adj2 (control or allocat\$) and router\$ and (defense or denial)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:50
S27	25	router with flow adj2 (control or allocat\$) and (defense or denial)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/06/01 11:36
S28	2	"5367523".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 13:06
S29	2	"5007052".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 13:09
S30	2	"5699513".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 13:12
S31	2	"6412000".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 13:15

S32	2	"5434860".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 13:17
S33	2	"20020032871".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 13:19
S34	2	"4817080".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 13:21
S35	2	"6088804".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 13:21
S36	10	"5581559".pn. or "6044402".pn. or "5455865".pn. or "5353353".pn. or "5850515".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/02/23 15:51
S37	1	("5581559".pn. or "6044402".pn. or "5455865".pn. or "5353353".pn. or "5850515".pn.) and firewall\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/02/23 15:51
S38	4	370/229-240.ccls. and packet with flooding and router	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/02/23 16:04
S39	17	370/229-240.ccls. and router and denial adj1 service and bandwidth	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/06/01 11:37
S40	5	370/229-240.ccls. and router and denial adj1 service and bandwidth and firewall	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/02/23 16:10

S41	7	(713/201.ccls. or 709/238-244.ccls. or 370/229-240.ccls.) and (router with flow adj2 (control or allocat\$) and (defense or denial))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/06/01 11:57
S42	82	(713/201.ccls. or 709/238-244.ccls. or 370/229-240.ccls.) and (router and denial adj1 service and bandwidth)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/06/01 11:57
S43	0	(713/201.ccls. or 709/238-244.ccls. or 370/229-240.ccls.) and (router with flow adj2 (control or allocat\$) and (defense or denial)) and firewall\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/06/01 11:56
S44	54	(713/201.ccls. or 709/238-244.ccls. or 370/229-240.ccls.) and (router and denial adj1 service and bandwidth) and firewall\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/09/25 15:55
S45	1	(713/201.ccls. or 709/238-244.ccls. or 370/229-240.ccls.) and (router and denial adj1 service and bandwidth) with firewall\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/06/01 11:55
S46	2	(713/201,160.ccls. or 709/238-244.ccls. or 370/229-240.ccls.) and (router and denial adj1 service and bandwidth) with firewall\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/06/01 11:55
S47	0	(713/201,160.ccls. or 709/238-244.ccls. or 370/229-240.ccls.) and (router with flow adj2 (control or allocat\$) and (defense or denial)) and firewall\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/06/01 11:56
S48	7	(713/201,160.ccls. or 709/238-244.ccls. or 370/229-240.ccls.) and (router with flow adj2 (control or allocat\$) and (defense or denial))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/09/25 15:53

S49	32	("370"/\$.ccls. or "380"/\$.ccls. or "709"/\$.ccls. or "713"/\$.ccls. or "726"/\$.ccls.) and (router with flow adj2 (control or allocat\$) and (defense or denial))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/09/25 15:55
S50	444	("370"/\$.ccls. or "380"/\$.ccls. or "709"/\$.ccls. or "713"/\$.ccls. or "726"/\$.ccls.) and (router and denial adj1 service and bandwidth) and firewall\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/09/25 15:56
S51	34	("370"/\$.ccls. or "380"/\$.ccls. or "709"/\$.ccls. or "713"/\$.ccls. or "726"/\$.ccls.) and (router and denial adj1 service and bandwidth) and firewall\$ and @ad<"20001116"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/09/25 15:58
S52	414	("370"/\$.ccls. or "380"/\$.ccls. or "709"/\$.ccls. or "713"/\$.ccls. or "726"/\$.ccls.) and (packet with flow adj2 (control or allocat\$ or congest\$ or ((high or large) adj1 (traffic or through\$))) and router\$) and @ad<"20001116"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/09/25 16:02
S53	140	("370"/\$.ccls. or "380"/\$.ccls. or "709"/\$.ccls. or "713"/\$.ccls. or "726"/\$.ccls.) and (packet adj3 flow adj2 (control or allocat\$ or congest\$ or ((high or large) adj1 (traffic or through\$))) and router\$) and @ad<"20001116"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/09/25 16:02
S54	2	"6789190".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/06/04 14:14
S55	160	(726/22.ccls.) and @ad<"20001116"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/06/04 16:03

S56	0	(726/22.ccls.) and (packet adj3 flow adj2 (control or allocat\$ or congest\$ or ((high or large) adj1 (traffic or through\$))) and router\$) and @ad<"20001116"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/06/04 16:03
S57	2	("726"/\$.ccls.) and (packet adj3 flow adj2 (control or allocat\$ or congest\$ or ((high or large) adj1 (traffic or through\$))) and router\$) and @ad<"20001116"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/06/04 16:04
S58	145	("370"/\$.ccls. "380"/\$.ccls. "709"/\$.ccls. "713"/\$.ccls. "726"/\$.ccls.) and (packet adj3 flow adj2 (augment\$ managem\$ control allocat\$ congest\$ ((high large overflow ascend\$ expand\$) adj1 (traffic through\$))) and router\$) and @ad<"20001116"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/06/04 16:08
S59	62	("370"/\$.ccls. "380"/\$.ccls. "709"/\$.ccls. "713"/\$.ccls. "726"/\$.ccls.) and (packet adj1 flow adj2 (augment\$ managem\$ control allocat\$ congest\$ ((high large overflow ascend\$ expand\$) adj1 (traffic through\$))) and router\$) and @ad<"20001116"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/06/04 16:09

12/17/08 3:32:41 PM

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<i>Index of Claims</i> 	Application/Control No. 10841064	Applicant(s)/Patent Under Reexamination COHEN, DONALD N.
	Examiner RONALD BAUM	Art Unit 2439

✓	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	09/25/2007	06/04/2008	12/17/2008											
1	1	✓	✓	=											
2	2	✓	✓	=											
3	3	✓	✓	=											
4	4	✓	✓	=											
5	5	✓	✓	=											
6	6	✓	✓	=											
7	7	✓	✓	=											
8	8	✓	✓	=											
9	9	✓	✓	=											
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11	11	✓	✓	=											
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13	13	✓	✓	=											
14	14	✓	✓	=											
15	15	✓	✓	=											
16	16	✓	✓	=											
17	17	✓	✓	=											
18	18	✓	✓	=											

Issue Classification 	Application/Control No. 10841064	Applicant(s)/Patent Under Reexamination COHEN, DONALD N.
	Examiner RONALD BAUM	Art Unit 2439

ORIGINAL						INTERNATIONAL CLASSIFICATION									
CLASS			SUBCLASS			CLAIMED					NON-CLAIMED				
726			22			G	0	6	F	11 / 30 (2006.01.01)	G	0	6	F	11 / 30 (2006.01.01)
CROSS REFERENCE(S)															
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)														
726	25														
709	235	238	239	240											
370	229	231	235	237											
				</											

☐	Claims renumbered in the same order as presented by applicant								☐	CPA		☐	T.D.		☐	R.1.47	
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original		
1	1	17	17														
2	2	18	18														
3	3																
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15	15																
16	16																

/RONALD BAUM/ Examiner.Art Unit 2439 (Assistant Examiner)	20081217 (Date)	Total Claims Allowed: 18	
/KAMBIZ ZAND/ Supervisory Patent Examiner.Art Unit 2434 (Primary Examiner)	12/17/2008 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 2

Search Notes 	Application/Control No. 10841064	Applicant(s)/Patent Under Reexamination COHEN, DONALD N.
	Examiner RONALD BAUM	Art Unit 2439

SEARCHED			
Class	Subclass	Date	Examiner
726	22	12/17/08	rjb

SEARCH NOTES		
Search Notes	Date	Examiner
inventor search	12/17/08	rjb
Google(npl):"packet flooding" denial packet rate router classification	12/17/08	rjb
class 709,713,726,370,380 with text patent search: see attached EAST search history	12/17/08	rjb
discuss with primary (C. Laforgia)	12/17/08	rjb
claim text interference patent search: see attached EAST search history	12/17/08	rjb

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner
none	(router\$ and ((denial adj1 service) (dos with attack)) and bandwidth).clm.	12/17/08	rjb

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Doc code: RCEX

Doc description: Request for Continued Examination (RCE)

PTO/SB/30EFS (09-08)

Approved for use through 10/31/2008. 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.

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

Application Number	10/841,064	Filing Date	2004-05-07	Docket Number (if applicable)	04-165-B	Art Unit	2136
First Named Inventor	Cohen			Examiner Name	Baum		

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 _____

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 (09-08)

Approved for use through 10/31/2008. 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	/David A. Belasco/	Date (YYYY-MM-DD)	2008-10-16
Name	David A. Belasco	Registration Number	41609

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.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Cohen	Examiner:	Baum
Serial No.:	10/841,064	Group Art Unit:	2136
Filed:	05/07/2004	Confirmation No.:	9716
Title:	PACKET FLOODING DEFENSE SYSTEM		

AMENDMENT B

In response to the Office Action of June 13, 2008, please amend the above-identified 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 11 of this paper.

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (currently amended): A packet flooding defense system for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said system comprising:

means for classifying data packets received at a host computer into wanted data packets and unwanted data packets;

means for associating a maximum acceptable processing rate with each class of data packet received at said computer;

means for said computer to find information for packets it receives regarding the path by which said packets came to said computer via packet marks provided by routers leading to said host computer; said path comprising all routers in said network via which said packets are routed to said computer; and

means in said computer for using said information to allocate the processing rate available for unwanted data packets to be less than or equal to said maximum acceptable processing rate.

2. (currently amended): A packet flooding defense system for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said system comprising:

means for classifying data packets received at a host computer into wanted data packets and unwanted data packets; said data packets comprising data packets from all routers in said network via which said data packets are routed to said computer;

means for associating a maximum acceptable processing rate with each class of data packet received at said computer;

means for said computer to determine the rate at which data packets of each class are transmitted from a router to said computer;

means for said router to receive information regarding maximum acceptable transmission rate for data packets being transmitted to said computer;

means for said router to control the rate of transmission of data packets from said router to said computer; and

means in said computer for keeping the rate of data packet transmissions received at said computer below the maximum acceptable processing rate for each data packet class by said control of the rate of transmission of data packets from said router, and freeing a portion of the network providing data packet transmission to said computer.

3. (previously presented): A packet flooding defense system as described in Claim 2, wherein:

said router receives information regarding maximum acceptable transmission rate for each class of data packet being transmitted to said computer; and said router controls the rate of transmission of each class of data packet to said computer.

4. (currently amended): A packet flooding defense system for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said system comprising:

means for classifying data packets received at a router into wanted data packets and unwanted data packets;

means for associating a maximum acceptable transmission rate with each class of data packet received at said router;

means for said router to find information for packets it receives regarding the path by which said packets came to said router via packet marks provided by routers leading to said host computer;

said path comprising all routers in said network via which said packets are routed to said computer; and

means in said router for said router to use said information to allocate the transmission rate for unwanted data packets to be less than equal to said maximum acceptable transmission rate.

5. (currently amended): A packet flooding defense system for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said system comprising:

means for classifying data packets received at a first router into wanted data packets and unwanted data packets; said data packets comprising data packets from all routers in said network via which said data packets are routed to said computer;

means for associating a maximum acceptable transmission rate with each class of data packet received at said first router;

means for said first router to determine the rate at which data packets of each class are transmitted from a second router to said first router;

means for said second router to receive information regarding maximum acceptable transmission rate for data packets being transmitted to said first router;

means for said second router to control the rate of transmission of data packets from said second router to said first router; and

means in said first router for keeping the rate of data packet transmissions received at said first router below the maximum acceptable transmission rate for unwanted data packets by said control of the rate of transmission of data packets from said second router, and freeing a portion of the network providing data packet transmission to said first router.

6. (previously presented): A packet flooding defense system as described in Claim 5, wherein:

said second router receives information regarding maximum acceptable transmission rate for each class of data packet being transmitted to said first router; and

said second router controls the rate of transmission of each class of data packet to said first router.

7. (currently amended): A method of providing packet flooding defense for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said method comprising the steps of:

determining a path by which data packets arrive at a host computer via packet marks provided by routers leading to said host computer; said path comprising all routers in said network via which said packets are routed to said computer;

classifying data packets received at said host computer into wanted data packets and unwanted data packets by path;

associating a maximum acceptable processing rate with each class of data packet received at said host computer; and

allocating a processing rate less than or equal to said maximum acceptable processing rate for unwanted data packets.

8. (currently amended): A method of providing packet flooding defense for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said method comprising the steps of:

classifying data packets received at a host computer into wanted data packets and unwanted data packets; said data packets comprising data packets from all routers in said network via which said data packets are routed to said computer;

associating a maximum acceptable processing rate with each class of data packet received at said computer;

determining the rate at which data packets of each class are transmitted from a router to said computer;

receiving a maximum acceptable transmission rate for data packets being transmitted to said computer in said router; and

controlling the rate of transmission of data packets from said router to said computer by said router so that data packet transmissions received at said computer are kept below the maximum acceptable processing rate for each data packet class; and

freeing a portion of the network providing data packet transmission to said computer.

9. (previously presented): A method as described in Claim 8, in which:

said router receives information regarding maximum acceptable transmission rate for each class of data packet being transmitted to said computer; and

said router controls the rate of transmission of each class of data packet to said computer.

10. (currently amended): A method of providing packet flooding defense for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said method comprising the steps of:

determining a path by which data packets arrive at said router via packet marks provided by routers leading to said host computer; said path comprising all routers in said network via which said packets are routed to said computer;

classifying data packets received at said router via packet marks provided by routers leading to said host computer by path;

associating a maximum acceptable transmission rate with each class of data packet received at said router; and

allocating a transmission rate equal to or less than said maximum acceptable transmission rate for unwanted data packets.

11. (currently amended): A method of providing packet flooding defense for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said method comprising the steps of:

classifying data packets received at a first router into wanted data packets and unwanted data packets; said data packets comprising data packets from all routers in said network via which said data packets are routed to said computer;

associating a maximum acceptable transmission rate with each class of data packet received at said first router;

determining by said first router of the rate at which data packets of each class are transmitted from a second router to said first router;

receiving by said second router of information regarding maximum acceptable transmission rate for data packets being transmitted to said first router; and

controlling by said second router of the rate of transmission of data packets from said second router to said first router so that said rate of transmission is below the maximum acceptable transmission rate for each data packet class; and

freeing a portion of the network providing data packet transmission to said first router.

12. (previously presented): A method as described in Claim 11, in which:

said second router receives information regarding maximum acceptable transmission rate for each class of data packet being transmitted to said first router; and

said second router controls the rate of transmission of each class of data packets to said first router.

13. (currently amended): A packet flooding defense system for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said system comprising:

means for determining a path by which data packets arrive at a host computer via packet marks provided by routers leading to said host computer; said path comprising all routers in said network via which said packets are routed to said computer;

means for classifying data packets received at said host computer into wanted data packets and unwanted data packets by path;

means for assigning a maximum acceptable processing rate to each class of data packet; and

means for allocating a processing rate equal to or less than said maximum acceptable processing rate to said unwanted data packets.

14. (currently amended): A packet flooding defense system for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said system comprising:

means for classifying data packets received at a host computer into wanted data packets and unwanted data packets; said data packets comprising data packets from all routers in said network via which said data packets are routed to said computer;

means for associating a maximum acceptable processing rate with each class of data packet received at said computer;

means for said computer to determine the rate at which data packets of each class are transmitted from a router to said computer;

means for said router to receive information regarding maximum acceptable transmission rate for data packets being transmitted to said computer; and

means for said router to control the rate of transmission of data packets from said router to said computer so that the rate of data packet transmissions received at said computer is kept below the maximum acceptable processing rate for each data packet class; and

freeing a portion of the network providing data packet transmission to said computer.

15. (previously presented): A packet flooding defense system as described in Claim 14, in which:

said router receives information regarding maximum acceptable transmission rate for each class of data packet being transmitted to said computer; and

said router controls the rate of transmission of each class of data packet to said computer.

16. (currently amended): A packet flooding defense system for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said system comprising:

means for a router to determine a path by which said packets came to said router via packet marks provided by routers leading to said router; said path comprising all routers in said network via which said packets are routed to said computer;

means for classifying data packets received at said router into wanted data packets and unwanted data packets by path;

means for associating a maximum acceptable transmission rate with each class of data packet received at said router; and

means for said router to allocate the transmission rate for unwanted data packets to be less than equal to said maximum acceptable processing rate.

17. (currently amended): A packet flooding defense system for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said system comprising:

means for classifying data packets received at a first router into wanted data packets and unwanted data packets; said data packets comprising data packets from all routers in said network via which said data packets are routed to said computer;

means for associating a maximum acceptable transmission rate with each class of data packet received at said first router;

means for said first router to determine the rate at which data packets of each class are transmitted from a second router to said first router;

means for said second router to receive information regarding maximum acceptable transmission rate for data packets being transmitted to said first router; and

means for said second router to control the rate of transmission of data packets from said second router to said first router so that the rate of data packet transmission received at said first router is kept below the maximum acceptable transmission rate for each data packet class; and

freeing a portion of the network providing data packet transmission to said first router.

18. (previously presented): A packet flooding defense system as described in Claim 17, wherein:

said second router receives information regarding maximum acceptable transmission rate for each class of data packet being transmitted to said first router; and

said second router controls the rate of transmission of each class of data packet to said first router.

REMARKS/ARGUMENTS

Claim Rejections - 35 USC § 112

The Applicant thanks the examiner for withdrawing his rejection under 35 U.S.C. 112, second paragraph.

Claim Rejections - 35 USC § 102

The Examiner again rejected claims 1-18 under 35 U.S.C. 102(b) as being anticipated by Chang et al., U.S. Patent 5,367,523.

Response to Arguments

The Examiner fully considered the Applicant's arguments, presented in the response to the first Office Action, and found them not to be persuasive. However, the examiner suggested amending the claims "towards the specifics of the 'path determination' aspects, insofar as those specifics that differentiate the inventive concept aspects concerning path determination farther back/more comprehensively, than a single network node backwards (i.e., not just from the host to the previous router back), such that simple packet header protocol aspects (i.e., source/destination address information per se) generally involved in the reference and possible related art, would therefore not necessarily apply."

The Applicant thanks the Examiner for this suggestion and has so amended the claims. The Applicant also thanks the Examiner for his preliminary review of draft claims via e-mail correspondence.

This Amendment is being submitted with a Request for Continued Examination. A fee of \$405 is due with this document. An extension fee of \$525 for a small entity is due because this Amendment is being submitted within the second extension month. Both fees will be electronically paid on electronic filing. Reconsideration of this application and its early allowance are respectfully requested in view of the above presented amendments and remarks.

Respectfully submitted,

/David A. Belasco/

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Electronic Patent Application Fee Transmittal				
Application Number:		10841064		
Filing Date:		07-May-2004		
Title of Invention:		Packet flooding defense system		
First Named Inventor/Applicant Name:		Donald N. Cohen		
Filer:		Norton Russell Townsley		
Attorney Docket Number:		04-165-B		
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 - 2 months with \$0 paid	2252	1	245	245

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Request for continued examination	2801	1	405	405
Total in USD (\$)				650

Electronic Acknowledgement Receipt	
EFS ID:	4128768
Application Number:	10841064
International Application Number:	
Confirmation Number:	9716
Title of Invention:	Packet flooding defense system
First Named Inventor/Applicant Name:	Donald N. Cohen
Customer Number:	31718
Filer:	Norton Russell Townsley
Filer Authorized By:	
Attorney Docket Number:	04-165-B
Receipt Date:	16-OCT-2008
Filing Date:	07-MAY-2004
Time Stamp:	17:27:43
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$ 650
RAM confirmation Number	2590
Deposit Account	
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	Request for Continued Examination (RCE)	RCetransmittal.pdf	697118 e65d964f56e4ab69b3c28330790fe36724de1d1	no	3
Warnings:					
Information:					
2	Amendment Submitted/Entered with Filing of CPA/RCE	AmendmentB.pdf	94164 7f64a02e0960328c670f004c2a80cacb749ed3a6	no	12
Warnings:					
Information:					
3	Fee Worksheet (PTO-06)	fee-info.pdf	31750 9ff6ec3db137fce4cb73675c19971c616235373	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			823032		
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 10/841,064		Filing Date 05/07/2004		☐ To be Mailed									
APPLICATION AS FILED – PART I																		
(Column 1)			(Column 2)			SMALL ENTITY ☒		OR		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				N/A								
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))		N/A		N/A		N/A				N/A								
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))		N/A		N/A		N/A				N/A								
TOTAL CLAIMS (37 CFR 1.16(i))		minus 20 =		*		X \$ =				X \$ =								
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 =		*		X \$ =				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 \$250 (\$125 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				TOTAL								
APPLICATION AS AMENDED – PART II																		
(Column 1)			(Column 2)			(Column 3)			SMALL ENTITY		OR		OTHER THAN SMALL ENTITY					
AMENDMENT	10/16/2008		CLAIMS REMAINING AFTER AMENDMENT				HIGHEST NUMBER PREVIOUSLY PAID FOR		PRESENT EXTRA		RATE (\$)		ADDITIONAL FEE (\$)		RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))		* 18		Minus		** 20		= 0		X \$26 =		0		OR		X \$ =	
	Independent (37 CFR 1.16(h))		* 12		Minus		*** 12		= 0		X \$110 =		0		OR		X \$ =	
	☐ Application Size Fee (37 CFR 1.16(s))																	
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))																	
						TOTAL ADD'L FEE		0		OR		TOTAL ADD'L FEE						
AMENDMENT			CLAIMS REMAINING AFTER AMENDMENT				HIGHEST NUMBER PREVIOUSLY PAID FOR		PRESENT EXTRA		RATE (\$)		ADDITIONAL FEE (\$)		RATE (\$)		ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))		*		Minus		**		=		X \$ =				OR		X \$ =	
	Independent (37 CFR 1.16(h))		*		Minus		***		=		X \$ =				OR		X \$ =	
	☐ Application Size Fee (37 CFR 1.16(s))																	
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))																	
						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 number found in the appropriate box in column 1.											Legal Instrument Examiner: /STEFANIE BRYCE/							

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.
10/841,064	05/07/2004	Donald N. Cohen	04-165-B	9716
31718 7590 06/13/2008 BELASCO, JACOBS & TOWNSLEY LLP HOWARD HUGHES CENTER 6100 CENTER DRIVE SUITE 630 LOS ANGELES, CA 90045			EXAMINER BAUM, RONALD	
			ART UNIT 2139	PAPER NUMBER
			NOTIFICATION DATE 06/13/2008	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):

patmail@bjtlaw.com
donna@bjtlaw.com
denise@bjtlaw.com

Office Action Summary	Application No.	Applicant(s)	
	10/841,064	COHEN, DONALD N.	
	Examiner	Art Unit	
	RONALD BAUM	2139	

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

Period for Reply

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

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

Status

1) ☒ Responsive to communication(s) filed on 05 March 2008.

2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-18 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1-18 is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

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

a) ☐ All b) ☐ Some * c) ☐ None of:

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

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

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

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

Attachment(s)

1) ☐ Notice of References Cited (PTO-892) 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.	4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____. 5) ☐ Notice of Informal Patent Application 6) ☐ Other: _____.
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DETAILED ACTION

1. This action is in reply to applicant's correspondence of 05 March 2008.
2. Claims 1-18 are pending for examination.
3. Claims 1-18 are rejected.

Claim Rejections - 35 USC § 112

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

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

4. The rejection under 35 U.S.C. 112, second paragraph, is withdrawn.

Claim Rejections - 35 USC § 102

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

(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.

5. Claims 1-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Chang et al, U.S. Patent 5,367,523.

6. As per claim 1; "A packet flooding defense system [*col. 1, lines 7-11, col. 2, lines 53-col. 3, line 11, whereas flow and congestion control in packet networks corresponds to a packet flooding defense, and whereas senders, receivers, and intermediate nodes in a packet communications network correspond to network computers per se as well as typically computers configured as gateways, routers, and firewalls (i.e., col. 1, lines 27-col. 2, line 8)*] for a network

comprising a plurality of host computers, routers, communication lines and transmitted data packets *[figure 1 as applied to appropriate figures 2-9 and accompanying descriptions]*, said system comprising:

means for

classifying data packets received at a host computer into

wanted data packets and

unwanted data packets *[col. 3, lines 12-46, col. 10, lines 8-col. 11, line 10,*

whereas the color coded green, yellow, etc., packet characterizations constitute classification, upon which flow and congestion 'control' in packet networks is in itself control of processing rate resources, which in such an environment would broadly constitute a classifying of said packets into wanted and unwanted, rendering that aspect of the claim limitation not patently distinct.];

means for

associating a maximum acceptable processing rate with

each class of data packet

received at said computer *[col. 3, lines 12-46, col. 10, lines 8-col. 11, line 10, whereas the color coded green, yellow, etc., packet characterizations constitute classification, upon which rate criteria is established, which in itself is control of processing rate resources.];*

means for said computer

to find information for packets it receives regarding

the path by which said packets came to said computer

via packet marks provided by routers

leading to said host computer [col. 5, lines 50-col. 6, line 9, col. 6, lines 21-48, whereas the inherent inclusion of a sending network node IP address (i.e., **the** router ' leading to said host computer ') in a given packets header as received by a given destination node (i.e., ' via packet marks provided by router ' associated with **the** 'said host computer '), which would broadly constitute ' [found] information ... regarding the path ', rendering that aspect of the claim limitation not patently distinct.]; and

means in said computer for

using said information

to allocate the processing rate available for

unwanted data packets to be

less than or equal to

said maximum acceptable processing rate [figures 5-9 and accompanying descriptions, col. 3, lines 12-46, col. 10, lines 8-col. 11, line 10, whereas the color coded green, yellow, etc., packet characterizations constitute classification, upon which rate criteria is established, which in itself is control of processing rate resources (i.e., ' allocate the processing rate available ... less than or equal to ... said maximum acceptable processing rate [i.e., the

whole point of the Chang et al reference congestion and flow control[']), and further, the inherent inclusion of a sending network node IP address in a given packets header as received by a given destination node (i.e., 'said information '), rendering that aspect of the claim limitation not patently distinct.]”.

As per claim 7, this claim is the method claim for the means plus function claim 1 above, and is rejected for the same reasons provided for the claim 1 rejection.

As per claim 4, this claim is a narrower router versus a host receiving, and transmission versus processing rate variation of claim 1 above, and is rejected for the same reasons provided for the claim 1 rejection (i.e., the packet communications network includes intermediate congestion control on a “hop by hop” (col. 1, lines 27-40) basis which broadly defined clearly encompasses network routers. Further, (col. 6, lines 2-4, “Such routing decisions...response to information in the header of the data packet.”) determining the path by which the data arrives at the receiver is suggested by the fact that the header contains source / destination (IP) network addressing information which clearly constitutes routing (path) information (a router implemented function)).

As per claim 10, this claim is the method claim for the means plus function claim 4 above, and is rejected for the same reasons provided for the claim 4 rejection.

As per claim 13, this claim is a variation on claim 1 above, whereas the received packet path classification of, or information pertaining to, is used relative to a given limited (i.e., maximum) processing rate to allocate effective processing rate, and is rejected for the same reasons provided for the claim 1 rejection.

As per claim 16, this claim is a narrower router versus a host receiving, and transmission versus processing rate variation of claim 13 above, and is rejected for the same reasons provided for the claim 13 rejection (i.e., the packet communications network includes intermediate congestion control on a “hop by hop” (col. 1, lines 27-40) basis which broadly defined clearly encompasses network routers. Further, (col. 6, lines 2-4, “Such routing decisions...response to information in the header of the data packet.”) determining the path by which the data arrives at the receiver is suggested by the fact that the header contains source / destination (IP) network addressing information which clearly constitutes routing (path) information (a router implemented function)).

7. As per claim 2; “A packet flooding defense system [*col. 1, lines 7-11, col. 2, lines 53-col. 3, line 11, whereas flow and congestion control in packet networks corresponds to a packet flooding defense, and whereas senders, receivers, and intermediate nodes in a packet communications network correspond to network computers per se as well as typically computers configured as gateways, routers, and firewalls (i.e., col. 1, lines 27-col. 2, line 8)*] for a network comprising a plurality of host computers, routers, communication lines and transmitted data

packets [figure 1 as applied to appropriate figures 2-9 and accompanying descriptions], said system comprising:

means for

classifying data packets received at a host computer into

wanted data packets and

unwanted data packets [col. 3, lines 12-46, col. 10, lines 8-col. 11, line 10,

whereas the color coded green, yellow, etc., packet characterizations constitute classification, upon which flow and congestion 'control' in packet networks is in itself control of processing rate resources, which in such an environment would broadly constitute a classifying of said packets into wanted and unwanted, rendering that aspect of the claim limitation not patently distinct.];

means for

associating a maximum acceptable processing rate with

each class of data packet

received at said computer [col. 3, lines 12-46, col. 10, lines 8-col. 11, line 10, *whereas the color coded green, yellow, etc., packet characterizations constitute classification, upon which rate criteria is established, which in itself is control of processing rate resources.];*

means for said computer

to determine the rate at which data packets of each class

are transmitted from

a router to

said computer [col. 3, lines 12-46, col. 10, lines 8-col. 11, line 10,
whereas the color coded green, yellow, etc., packet characterizations
constitute classification, upon which rate criteria is established, which in
itself is control of processing rate resources.];

means for said router

to receive information regarding

maximum acceptable transmission rate for

data packets being transmitted to

said computer [col. 3, lines 12-46, col. 10, lines 8-col. 11,
line 10, whereas the color coded green, yellow, etc., packet
characterizations constitute classification, upon which rate criteria
is established, which in itself is control of processing rate
resources.];

means for said router

to control the rate of transmission of

data packets from

said router to

said computer [figures 5-9 and accompanying descriptions, col. 3,
lines 12-46, col. 10, lines 8-col. 11, line 10, whereas the packet
characterizations constitute classification, upon which rate criteria is
established, which in itself is control of processing rate resources (i.e., 'to

control the rate of transmission of *[i.e., the whole point of the Chang et al reference congestion and flow control]'*); and

means in said computer for

keeping the rate of data packet transmissions

received at said computer

below the maximum acceptable processing rate for

each data packet class by

said control of the rate of transmission of data

packets from said router, and

freeing a portion of

the network providing data packet transmission to

said computer *[figures 5-9 and accompanying descriptions, col. 3, lines 12-46, col. 10, lines 8-col. 11, line 10, whereas the color coded green, yellow, etc., packet characterizations constitute classification, upon which rate criteria is established, which in itself is control of processing rate resources (i.e., 'keeping the rate of data packet ... below the maximum acceptable processing rate for each data packet class ... freeing a portion the network providing [i.e., the whole point of the Chang et al reference congestion and flow control']', rendering that aspect of the claim limitation not patently distinct.]'*."

As per claim 8, this claim is the method claim for the means plus function claim 2 above, and is rejected for the same reasons provided for the claim 2 rejection.

As per claim 14, this claim is a variation on claim 2 above, insofar as the ‘... so that the rate of data packet transmissions ... kept below the maximum ... rate for each data packet class’ aspect is explicitly part of the ‘means for said router to control the rate of transmission’ limitation in claim 14, whereas it is a broader aspect of the entire claim in claim 2, and is rejected for the same reasons provided for the claim 2 rejection.

As per claim 5, this claim is a narrower router versus a host receiving, and transmission versus processing rate variation of claim 2 above, and is rejected for the same reasons provided for the claim 2 rejection (i.e., the packet communications network includes intermediate congestion control on a “hop by hop” (col. 1, lines 27-40) basis which broadly defined clearly encompasses network routers. Further, (col. 6, lines 2-4, “Such routing decisions...response to information in the header of the data packet.”) determining the path by which the data arrives at the receiver is suggested by the fact that the header contains source / destination (IP) network addressing information which clearly constitutes routing (path) information (a router implemented function)).

As per claim 11, this claim is the method claim for the means plus function claim 5 above, and is rejected for the same reasons provided for the claim 5 rejection.

As per claim 17, this claim is a variation on claim 5 above, insofar as the ‘... so that the rate of data packet transmissions ... kept below the maximum ... rate for each data packet class’ aspect is explicitly part of the ‘means for said router to control the rate of transmission’ limitation in claim 17, whereas it is a broader aspect of the entire claim in claim 5, and is rejected for the same reasons provided for the claim 5 rejection.

8. Claim 3 *additionally recites* the limitations that; “A packet flooding defense system as described in claim 2, wherein:

said router is capable of receiving information regarding maximum acceptable transmission rate for each class of data packet being transmitted to said computer; and

said router is capable of control ling the rate of transmission of each class of data packets to said computer.”.

The teachings of Chang et al (figures 5-9 and accompanying descriptions) suggest such limitations.

As per claim 9, this claim is the method claim for the means plus function claim 3 above, and is rejected for the same reasons provided for the claim 3 rejection.

As per claim 15, this claim is a variation on claim 3 above, insofar as the ‘... so that the rate of data packet transmissions ... kept below the maximum ... rate for each data packet class’ aspect is explicitly part of the ‘means for said router to control the rate of transmission’

limitation in claim 14, whereas it is a broader aspect of the entire claim in claim 3, and is rejected for the same reasons provided for the claim 3 rejection.

As per claim 6, this claim is a narrower router versus a host receiving, and transmission versus processing rate variation of claim 3 above, and is rejected for the same reasons provided for the claim 3 rejection (i.e., the packet communications network includes intermediate congestion control on a “hop by hop” (col. 1, lines 27-40) basis which broadly defined clearly encompasses network routers. Further, (col. 6, lines 2-4, “Such routing decisions...response to information in the header of the data packet.”) determining the path by which the data arrives at the receiver is suggested by the fact that the header contains source / destination (IP) network addressing information which clearly constitutes routing (path) information (a router implemented function)).

As per claim 12, this claim is the method claim for the means plus function claim 6 above, and is rejected for the same reasons provided for the claim 6 rejection.

As per claim 18, this claim is a variation on claim 6 above, insofar as the ‘... so that the rate of data packet transmissions ... kept below the maximum ... rate for each data packet class’ aspect is explicitly part of the ‘means for said router to control the rate of transmission’ limitation in claim 18, whereas it is a broader aspect of the entire claim in claim 6, and is rejected for the same reasons provided for the claim 6 rejection.

Response to Arguments

9. As per applicant's argument concerning the lack of teaching by Chang et al of path detection, data mark detection, and classification insofar as a wanted and unwanted classes are established, the examiner has fully considered in this response to amendment; the arguments, and finds them not to be persuasive.

At the very least, the path and associated data mark detection limitation is broadly claimed such that the effective path detection only deals with path detection 1 network node backwards (i.e., see claim 1 rejection above). Further, the 'classification' aspect limitation claimed is likewise, as broadly interpreted by the examiner, insofar as a 'wanted and unwanted' classification is established, not patently distinct (i.e., again, see the claim 1 rejection above) and the Chang et al reference would therefore be applicable in the rejection, collectively encompassing the said claim limitations in their entirety.

10. **THIS ACTION IS MADE FINAL.** 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,

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Art Unit: 2139

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

11. The examiner suggests for the sake of moving prosecution forward that the applicant direct the amendment of claim limitations towards the specifics of the 'path determination' aspects, insofar as those specifics that differentiate the inventive concept aspects concerning path determination farther back/more comprehensively, than a single network node backwards (i.e., not just from the host to the previous router back), such that simple packet header protocol aspects (i.e., source/destination address information per se) generally involved in the reference and possible related art, would therefore not necessarily apply.

12. Any inquiry concerning this communication or earlier communications from examiner should be directed to Ronald Baum, whose telephone number is (571) 272-3861, and whose unofficial Fax number is (571) 273-3861 and unofficial email is Ronald.baum@uspto.gov. The examiner can normally be reached Monday through Thursday from 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kristine Kincaid, can be reached at (571) 272-4063. The Fax number for the organization where this application 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. For more 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).

Application/Control Number: 10/841,064
Art Unit: 2139

Page 16

Ronald Baum

Patent Examiner

/R. B./

Examiner, Art Unit 2139

/Kristine Kincaid/

Supervisory Patent Examiner, Art Unit 2139

<i>Index of Claims</i> 	Application/Control No. 10841064	Applicant(s)/Patent Under Reexamination COHEN, DONALD N.
	Examiner RONALD BAUM	Art Unit 2139

✓	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	09/25/2007	06/04/2008																																				
	1	✓	✓																																				
	2	✓	✓																																				
	3	✓	✓																																				
	4	✓	✓																																				
	5	✓	✓																																				
	6	✓	✓																																				
	7	✓	✓																																				
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Search Notes 	Application/Control No. 10841064	Applicant(s)/Patent Under Reexamination COHEN, DONALD N.
	Examiner RONALD BAUM	Art Unit 2139

SEARCHED			
Class	Subclass	Date	Examiner
726	22	6/4/08	rjb

SEARCH NOTES		
Search Notes	Date	Examiner
inventor search	6/4/08	rjb
Google(npl):packet flooding denial packet rate router classification	6/4/08	rjb
class 709,713,726,370,380 with text patent search: see attached EAST search history	6/4/08	rjb
discuss with C. Laforgia	6/4/08	rjb

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	2	"6789190".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/06/04 14:14
L2	160	(726/22.ccls.) and @ad<"20001116"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/06/04 16:03
L3	0	(726/22.ccls.) and (packet adj3 flow adj2 (control or allocat\$ or congest\$ or ((high or large) adj1 (traffic or through\$))) and router\$) and @ad<"20001116"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/06/04 16:03
L4	2	("726"/\$.ccls.) and (packet adj3 flow adj2 (control or allocat\$ or congest\$ or ((high or large) adj1 (traffic or through\$))) and router\$) and @ad<"20001116"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/06/04 16:04
L5	145	("370"/\$.ccls. "380"/\$. ccls. "709"/\$.ccls. "713"/\$. ccls. "726"/\$.ccls.) and (packet adj3 flow adj2 (augment\$ managem\$ control allocat\$ congest\$ ((high large overflow ascend\$ expand\$) adj1 (traffic through\$))) and router\$) and @ad<"20001116"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/06/04 16:08
L6	62	("370"/\$.ccls. "380"/\$. ccls. "709"/\$.ccls. "713"/\$. ccls. "726"/\$.ccls.) and (packet adj1 flow adj2 (augment\$ managem\$ control allocat\$ congest\$ ((high large overflow ascend\$ expand\$) adj1 (traffic through\$))) and router\$) and @ad<"20001116"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/06/04 16:09

S1	2070	713/201.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/06/01 11:35
S2	3	713/201.ccls. and packet with flooding and router	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 11:56
S3	3	713/201.ccls. and packet with flooding and router	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 11:56
S4	94	packet with flooding and router	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/02/23 16:03
S5	5	packet with flooding and router and denial and bandwidth	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 11:57
S6	495	router and denial and bandwidth	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 11:59
S7	471	router and denial adj1 service	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 11:59
S8	329	router and denial adj1 service and bandwidth	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/02/23 16:06
S9	64	router and denial and bandwidth and transmi\$ adj1 rate	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:00
S10	8	router and denial and bandwidth and send\$ adj1 rate	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:00

S11	982	network same router and flood\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:01
S12	118	network same router and flood\$ and defen\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:01
S13	130	router and flood\$ and defen\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:01
S14	91	ddos	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:02
S15	30	packet adj1 class\$ and denial adj1 service	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:02
S16	6	throttI\$ with bandwidth and denial	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:03
S17	8	709/238-244.ccls. and denial and allocate	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:05
S18	4	709/238-244.ccls. and flood\$ with rate	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:07
S19	241	709/238-244.ccls. and transmi\$ with rate	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:07
S20	126	router with flow adj1 control	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:08

S21	7	packet adj1 flood\$ and defense	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:08
S22	446	packet with overload\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:16
S23	50	packet adj2 overload\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:17
S24	96	packet adj1 flood\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:33
S25	568	packet with flow adj2 (control or allocat\$) and router\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:34
S26	67	packet with flow adj2 (control or allocat\$) and router\$ and (defense or denial)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:50
S27	25	router with flow adj2 (control or allocat\$) and (defense or denial)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/06/01 11:36
S28	2	"5367523".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 13:06
S29	2	"5007052".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 13:09
S30	2	"5699513".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 13:12

S31	2	"6412000".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 13:15
S32	2	"5434860".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 13:17
S33	2	"20020032871".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 13:19
S34	2	"4817080".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 13:21
S35	2	"6088804".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 13:21
S36	10	"5581559".pn. or "6044402".pn. or "5455865".pn. or "5353353".pn. or "5850515".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/02/23 15:51
S37	1	("5581559".pn. or "6044402".pn. or "5455865".pn. or "5353353".pn. or "5850515".pn.) and firewall\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/02/23 15:51
S38	4	370/229-240.ccls. and packet with flooding and router	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/02/23 16:04
S39	17	370/229-240.ccls. and router and denial adj1 service and bandwidth	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/06/01 11:37
S40	5	370/229-240.ccls. and router and denial adj1 service and bandwidth and firewall	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/02/23 16:10

S41	7	(713/201.ccls. or 709/238-244.ccls. or 370/229-240.ccls.) and (router with flow adj2 (control or allocat\$) and (defense or denial))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/06/01 11:57
S42	82	(713/201.ccls. or 709/238-244.ccls. or 370/229-240.ccls.) and (router and denial adj1 service and bandwidth)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/06/01 11:57
S43	0	(713/201.ccls. or 709/238-244.ccls. or 370/229-240.ccls.) and (router with flow adj2 (control or allocat\$) and (defense or denial)) and firewall\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/06/01 11:56
S44	54	(713/201.ccls. or 709/238-244.ccls. or 370/229-240.ccls.) and (router and denial adj1 service and bandwidth) and firewall\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/09/25 15:55
S45	1	(713/201.ccls. or 709/238-244.ccls. or 370/229-240.ccls.) and (router and denial adj1 service and bandwidth) with firewall\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/06/01 11:55
S46	2	(713/201,160.ccls. or 709/238-244.ccls. or 370/229-240.ccls.) and (router and denial adj1 service and bandwidth) with firewall\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/06/01 11:55
S47	0	(713/201,160.ccls. or 709/238-244.ccls. or 370/229-240.ccls.) and (router with flow adj2 (control or allocat\$) and (defense or denial)) and firewall\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/06/01 11:56
S48	7	(713/201,160.ccls. or 709/238-244.ccls. or 370/229-240.ccls.) and (router with flow adj2 (control or allocat\$) and (defense or denial))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/09/25 15:53

S49	32	("370"/\$.ccls. or "380"/\$.ccls. or "709"/\$.ccls. or "713"/\$.ccls. or "726"/\$.ccls.) and (router with flow adj2 (control or allocat\$) and (defense or denial))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/09/25 15:55
S50	444	("370"/\$.ccls. or "380"/\$.ccls. or "709"/\$.ccls. or "713"/\$.ccls. or "726"/\$.ccls.) and (router and denial adj1 service and bandwidth) and firewall\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/09/25 15:56
S51	34	("370"/\$.ccls. or "380"/\$.ccls. or "709"/\$.ccls. or "713"/\$.ccls. or "726"/\$.ccls.) and (router and denial adj1 service and bandwidth) and firewall\$ and @ad<"20001116"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/09/25 15:58
S52	414	("370"/\$.ccls. or "380"/\$.ccls. or "709"/\$.ccls. or "713"/\$.ccls. or "726"/\$.ccls.) and (packet with flow adj2 (control or allocat\$ or congest\$ or ((high or large) adj1 (traffic or through\$))) and router\$) and @ad<"20001116"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/09/25 16:02
S53	140	("370"/\$.ccls. or "380"/\$.ccls. or "709"/\$.ccls. or "713"/\$.ccls. or "726"/\$.ccls.) and (packet adj3 flow adj2 (control or allocat\$ or congest\$ or ((high or large) adj1 (traffic or through\$))) and router\$) and @ad<"20001116"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/09/25 16:02

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Cohen	Examiner:	Baum
Serial No.:	10/841,064	Group Art Unit:	2136
Filed:	05/07/2004	Confirmation No.:	9716
Title:	PACKET FLOODING DEFENSE SYSTEM		

AMENDMENT

In response to the Office action of October 1, 2007, please amend the above-identified 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 11 of this paper.

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (currently amended): A packet flooding defense system for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said system comprising:

means for classifying data packets received at a host computer into wanted data packets and unwanted data packets;

means for associating a maximum acceptable processing rate with each class of data packet received at said computer;

means for said computer to find information for packets it receives regarding the path by which said packets came to said computer via packet marks provided by routers leading to said host computer; and

~~whereby, said computer can~~ means in said computer for using said information to allocate the processing rate available for unwanted data packets of each class in a desired way to be less than or equal to said maximum acceptable processing rate.

2. (currently amended): A packet flooding defense system for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said system comprising:

means for classifying data packets received at a host computer into wanted data packets and unwanted data packets;

means for associating a maximum acceptable processing rate with each class of data packet received at said computer;

means for said computer to determine the rate at which data packets of each class are transmitted from a router to said computer;

means for said router to receive information regarding maximum acceptable transmission rate for data packets being transmitted to said computer;

means for said router to control the rate of transmission of data packets from said router to said computer; and

~~whereby, means in said computer for keeping~~ the rate of data packet transmissions received at said computer ~~is kept~~ below the maximum acceptable processing rate for each data packet class by said control of the rate of transmission of data packets from said router, ~~thereby and~~ freeing a portion of the network providing data packet transmission to said computer.

3. (currently amended): A packet flooding defense system as described in Claim 2, wherein:

said router ~~is capable of receiving~~ receives information regarding maximum acceptable transmission rate for each class of data packet being transmitted to said computer; and

said router ~~is capable of controlling~~ controls the rate of transmission of each class of data packets to said computer.

4. (currently amended): A packet flooding defense system for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said system comprising:

means for classifying data packets received at a router into wanted data packets and unwanted data packets;

means for associating a maximum acceptable transmission rate with each class of data packet received at said router;

means for said router to find information for packets it receives regarding the path by which said packets came to said router via packet marks provided by routers leading to said host computer;
and

~~whereby, means in said router for~~ said router ~~can to~~ use said information to allocate the transmission rate for ~~each class in a desired way~~ unwanted data packets to be less than equal to said maximum acceptable transmission rate.

5. (currently amended): A packet flooding defense system for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said system comprising:

means for classifying data packets received at a first router into wanted data packets and unwanted data packets;

means for associating a maximum acceptable transmission rate with each class of data packet received at said first router;

means for said first router to determine the rate at which data packets of each class are transmitted from a second router to said first router;

means for said second router to receive information regarding maximum acceptable transmission rate for data packets being transmitted to said first router;

means for said second router to control the rate of transmission of data packets from said second router to said first router; and

~~whereby, means in said first router for keeping~~ the rate of data packet transmissions received at said first router ~~is kept~~ below the maximum acceptable transmission rate for ~~each~~ unwanted data packets ~~class~~ by said control of the rate of transmission of data packets from said second router, ~~thereby and~~ freeing a portion of the network providing data packet transmission to said first router.

6. (currently amended): A packet flooding defense system as described in Claim 5, wherein:

said second router ~~is capable of receiving~~ receives information regarding maximum acceptable transmission rate for each class of data packet being transmitted to said first router; and

said second router ~~is capable of controlling~~ the rate of transmission of each class of data packets to said first router.

7. (currently amended): A method of providing packet flooding defense for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said method comprising the steps of:

determining a path by which data packets arrive at a host computer via packet marks provided by routers leading to said host computer;

classifying data packets received at a ~~said~~ host computer into wanted data packets and unwanted data packets by path;

associating a maximum acceptable processing rate with each class of data packet received at said host computer; and

allocating a processing rate less than or equal to said maximum acceptable processing rate for unwanted data packets ~~of each class in a desired way~~.

8. (currently amended): A method of providing packet flooding defense for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said method comprising the steps of:

classifying data packets received at a host computer into wanted data packets and unwanted data packets;

associating a maximum acceptable processing rate with each class of data packet received at said computer;

determining the rate at which data packets of each class are transmitted from a router to said computer;

receiving a maximum acceptable transmission rate for data packets being transmitted to said computer in said router; and

controlling the rate of transmission of data packets from said router to said computer by said router so that data packet transmissions received at said computer are kept below the maximum acceptable processing rate for each data packet class; and

~~thereby~~ freeing a portion of the network providing data packet transmission to said computer.

9. (currently amended): A method as described in Claim 8, in which:

said router ~~is capable of receiving~~ receives information regarding maximum acceptable transmission rate for each class of data packet being transmitted to said computer; and

said router ~~is capable of controlling~~ controls the rate of transmission of each class of data packets to said computer.

10. (currently amended): A method of providing packet flooding defense for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said method comprising the steps of:

determining a path by which data packets arrive at said router via packet marks provided by routers leading to said host computer;

classifying data packets received at ~~a~~ said router via packet marks provided by routers leading to said host computer by path;

associating a maximum acceptable transmission rate with each class of data packet received at said router; and

allocating a transmission rate equal to or less than said maximum acceptable transmission rate for ~~each class~~unwanted data packets in a desired way.

11. (currently amended): A method of providing packet flooding defense for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said method comprising the steps of:

classifying data packets received at a first router into wanted data packets and unwanted data packets;

associating a maximum acceptable transmission rate with each class of data packet received at said first router;

determining by said first router of the rate at which data packets of each class are transmitted from a second router to said first router;

receiving by said second router of information regarding maximum acceptable transmission rate for data packets being transmitted to said first router; and

controlling by said second router of the rate of transmission of data packets from said second router to said first router so that said rate of transmission is below the maximum acceptable transmission rate for each data packet class; and

~~thereby~~ freeing a portion of the network providing data packet transmission to said first router.

12. (currently amended): A method as described in Claim 11, in which:

said second router ~~is capable of receiving~~ing information regarding maximum acceptable transmission rate for each class of data packet being transmitted to said first router; and

said second router ~~is capable of controlling~~ controls the rate of transmission of each class of data packets to said first router.

13. (currently amended): A packet flooding defense system for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said system comprising:

means for determining a path by which data packets arrive at a host computer via packet marks provided by routers leading to said host computer;

means for classifying data packets received at said host computer into wanted data packets and unwanted data packets by path;

means for assigning a maximum acceptable processing rate to each class of data packet; and

means for allocating a processing rate equal to or less than said maximum acceptable processing rate to ~~each class of said unwanted~~ data packets.

14. (currently amended): A packet flooding defense system for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said system comprising:

means for classifying data packets received at a host computer into wanted data packets and unwanted data packets;

means for associating a maximum acceptable processing rate with each class of data packet received at said computer;

means for said computer to determine the rate at which data packets of each class are transmitted from a router to said computer;

means for said router to receive information regarding maximum acceptable transmission rate for data packets being transmitted to said computer; and

means for said router to control the rate of transmission of data packets from said router to said computer so that the rate of data packet transmissions received at said computer is kept below the maximum acceptable processing rate for each data packet class; and

~~thereby~~ freeing a portion of the network providing data packet transmission to said computer.

15. (currently amended): A packet flooding defense system as described in Claim 14, in which:

said router ~~is capable of receiving~~ receives information regarding maximum acceptable transmission rate for each class of data packet being transmitted to said computer; and

said router ~~is capable of controlling~~ controls the rate of transmission of each class of data packet to said computer.

16. (currently amended): A packet flooding defense system for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said system comprising:

means for a router to determine a path by which said packets came to said router via packet marks provided by routers leading to said router;

means for classifying data packets received at a said router into wanted data packets and unwanted data packets by path;

means for associating a maximum acceptable transmission rate with each class of data packet received at said router; and

means for said router to allocate the transmission rate for ~~each class in a desired way~~ unwanted data packets to be less than equal to said maximum acceptable processing rate.

17. (currently amended): A packet flooding defense system for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said system comprising:

means for classifying data packets received at a first router into wanted data packets and unwanted data packets;

means for associating a maximum acceptable transmission rate with each class of data packet received at said first router;

means for said first router to determine the rate at which data packets of each class are transmitted from a second router to said first router;

means for said second router to receive information regarding maximum acceptable transmission rate for data packets being transmitted to said first router; and

means for said second router to control the rate of transmission of data packets from said second router to said first router so that the rate of data packet transmission received at said first router is kept below the maximum acceptable transmission rate for each data packet class; and

~~thereby~~ freeing a portion of the network providing data packet transmission to said first router.

18. (currently amended): A packet flooding defense system as described in Claim 17, wherein:

said second router ~~is capable of receiving~~ receives information regarding maximum acceptable transmission rate for each class of data packet being transmitted to said first router; and

said second router ~~is capable of controlling~~ controls the rate of transmission of each class of data packets to said first router.

REMARKS/ARGUMENTS

The Examiner rejected Claims 1-6, 8, 9, 11, 12, 14, 15, 17 and 18 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner stated the phrases "can use" and "is capable", and the words "thereby" and "whereby" render the claims in which they are used indefinite. In response the Applicant has reworded Claims 1-6, 8, 9, 11, 12, 14, 15, 17 and 18 to eliminate use of these phrases and words.

The Examiner rejected Claims 1-18 35 U.S.C. 102(b) as being anticipated by Chang et al., U.S. Patent No. 5,367,523.

For a prior art reference to anticipate a claim, the reference must disclose each and every element of the claim with sufficient clarity to prove its existence in the prior art. *See In re Spada*, 911 F.2d 705, 708, 15 USPQ 2d 1655, 1657 (Fed. Cir. 1990) ("[T]he [prior art] reference must describe the applicant's claimed invention sufficiently to have placed a person of ordinary skill in the field of the invention in possession of it." (citations omitted)). Although this disclosure requirement presupposes the knowledge of one skilled in the art of the claimed invention, that presumed knowledge does not grant a license to read into the prior art reference teachings that are not there. *Motorola, Inc. v. Interdigital Tech. Corp.*, 43 USPQ 2d 1481, 1490 (Fed. Cir. 1997)

Chang et al. disclose an end-to-end, closed loop flow and congestion control system for packet communications networks which exchanges rate request and rate response messages between data senders and receivers to allow the senders to adjust the data rate to avoid congestion and to control the data flow. Requests and responses are piggy-backed on data packets and result in changes in the input data rate in a direction to optimize data throughput. GREEN, YELLOW and RED operating modes are defined to increase data input, reduce data input and reduce data input drastically, respectively. Incremental changes in data input are altered non-linearly to change more quickly when further away from the optimum operating point than when closer to the optimum operating point. See Abstract and column 2, line 53 to column 4, line 25.

In contrast the instant invention is intended to prevent a packet flooding attack. See page 1, lines 10-12. In the instant invention there is no communication between the receiver and sender. Such communication would be pointless because the attacker intends to overwhelm the victim by

sending a multitude of data packets as rapidly as possible in an attempt to shut down the victim. See page 3, lines 12-16. Thus the attacker will never respond to any requests to reduce the inflow of data packets. As a consequence, the instant invention only detects the path from which the data packets come via packet marks and then sorts data packets into two classes, wanted and unwanted, based on the path from which the data packet come. See page 7, lines 15-21; page 5, lines 20-22; page 6, lines 6-9; and Figures 1-6.

The Applicant has amended claims 1-18 to include the facts that the instant invention detects the path from which the data packets come via packet marks and sorts the data packets into two classes, wanted and unwanted, based on this path. Support for these amendments can be found at page 7, lines 15-21; page 5, lines 20-22; page 6, lines 6-9; and Figures 1-6. No new matter has been added.

Chang et al. do not disclose each and every element in the instant claims, as amended. Specifically, Chang et al. do not disclose: detecting the path from which the data packets come; detecting packet marks; and sorting data packets into two classes, wanted and unwanted. Further, Chang et al. require feedback from the receiver to the sender, which is not found in the instant invention. Thus the instant claims, as amended, are patentably distinct from Chang et al.

An extension fee of \$525 for a small entity is due because this Amendment is being submitted within the third extension month. This fee will be electronically paid on electronic filing of this amendment. Reconsideration of this application and its early allowance are respectfully requested in view of the above presented amendments and remarks.

Amendment

Serial No. 10/841,064

Page 13 of 13

Respectfully submitted,

A handwritten signature in black ink, appearing to read "David A. Belasco", with a long horizontal flourish extending to the right.

David A. Belasco
Applicant's Attorney
Registration No. 41,609

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Electronic Patent Application Fee Transmittal				
Application Number:		10841064		
Filing Date:		07-May-2004		
Title of Invention:		Packet flooding defense system		
First Named Inventor/Applicant Name:		Donald N. Cohen		
Filer:		David Allen Belasco/Donna Miller		
Attorney Docket Number:		04-165-B		
Filed as Small Entity				
Utility 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 - 3 months with \$0 paid	2253	1	525	525

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Total in USD (\$)				525

Electronic Acknowledgement Receipt

EFS ID:	2954438
Application Number:	10841064
International Application Number:	
Confirmation Number:	9716
Title of Invention:	Packet flooding defense system
First Named Inventor/Applicant Name:	Donald N. Cohen
Customer Number:	31718
Filer:	David Allen Belasco/Donna Miller
Filer Authorized By:	David Allen Belasco
Attorney Docket Number:	04-165-B
Receipt Date:	05-MAR-2008
Filing Date:	07-MAY-2004
Time Stamp:	16:44:53
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	\$525
RAM confirmation Number	1965
Deposit Account	
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	Amendment - After Non-Final Rejection	Amendment.pdf	465939 132fbc19839ca8e3dd66e1ddd388e908 ab179a4e	no	13
Warnings:					
Information:					
2	Fee Worksheet (PTO-06)	fee-info.pdf	8129 04e66a71120b0a722c7ce6f91f17a1927 2b68268	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			474068		
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 10/841,064		Filing Date 05/07/2004		☐ To be Mailed	
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APPLICATION AS FILED – PART I					OTHER THAN SMALL ENTITY					
(Column 1)		(Column 2)		SMALL ENTITY ☒		OR		OTHER THAN SMALL ENTITY		
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)	RATE (\$)	FEE (\$)	RATE (\$)	FEE (\$)	RATE (\$)	FEE (\$)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A		N/A		N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A		N/A		N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A		N/A		N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X \$	=	OR	X \$	=	X \$	=	X \$
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$	=	OR	X \$	=	X \$	=	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 \$250 (\$125 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))										
			TOTAL				TOTAL			

* If the difference in column 1 is less than zero, enter "0" in column 2.

APPLICATION AS AMENDED – PART II					OTHER THAN SMALL ENTITY						
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OR		OTHER THAN SMALL ENTITY	
AMENDMENT	03/05/2008	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	RATE (\$)	ADDITIONAL FEE (\$)	RATE (\$)	ADDITIONAL FEE (\$)	
	Total (37 CFR 1.16(i))	* 18	Minus	** 20	=	0	OR	X \$	=	X \$	
	Independent (37 CFR 1.16(h))	* 12	Minus	*** 12	=	0	OR	X \$	=	X \$	
	☐ Application Size Fee (37 CFR 1.16(s))										
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))										
						TOTAL ADD'L FEE		0		OR	
(Column 1)		(Column 2)		(Column 3)		TOTAL ADD'L FEE		OR		TOTAL ADD'L FEE	

AMENDMENT	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	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		OR	

* 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.

Legal Instrument Examiner:
/EVELYN G. NIMMONS/

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.**

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



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/841,064	05/07/2004	Donald N. Cohen	04-165-B	9716
31718 7590 10/01/2007 BELASCO, JACOBS & TOWNSLEY LLP HOWARD HUGHES CENTER 6100 CENTER DRIVE SUITE 630 LOS ANGELES, CA 90045			EXAMINER BAUM, RONALD	
			ART UNIT 2136	PAPER NUMBER
			NOTIFICATION DATE 10/01/2007	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):

patmail@bjtlaw.com
donna@bjtlaw.com
denise@bjtlaw.com

Office Action Summary	Application No. 10/841,064	Applicant(s) COHEN, DONALD N.	
	Examiner Ronald Baum	Art Unit 2136	

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

Period for Reply

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

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

Status

- 1) ☒ Responsive to communication(s) filed on 07 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 May 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) ☒ Notice of References Cited (PTO-892) | 4) ☐ Interview Summary (PTO-413) |
| 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) ☐ Information Disclosure Statement(s) (PTO/SB/08) | 5) ☐ Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) ☐ Other: _____ |

DETAILED ACTION

1. This action is in reply to applicant's correspondence of 07 May 2004.
2. Claims 1-18 are pending for examination.
3. Claims 1-18 are rejected.

Claim Rejections - 35 USC § 112

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

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

4. Claims 1-6, 8, 9, 11, 12, 14, 15, 17 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1, 4, the phrase "can use" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention (See MPEP § 2173.05(d)), insofar as "can use" is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in the patentable sense. *In re Hutchison*, 69 USPQ 138.

Regarding claims 3, 6, 9, 12, 15 and 18, the phrase "is capable" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention (See MPEP § 2173.05(d)), insofar as "is capable" is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in the patentable sense. *In re Hutchison*, 69 USPQ 138.

Regarding claims 1, 2, 4, 5, 8, 11, 14 and 17 the phrase “thereby” and “whereby” renders the claim indefinite because it has been held that the functional “whereby”, “thereby” statement(s) do not define any structure and accordingly can not serve to distinguish. *In re Mason*, 114 USPQ 127, 44 CCPA 937 (1957).

Claim Rejections - 35 USC § 102

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

(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.

5. Claims 1-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Chang et al, U.S. Patent 5,367,523.

6. As per claim 1; “A packet flooding defense system [col. 1, lines 7-11,col. 2, lines 53-col. 3, line 11, *whereas flow and congestion control in packet networks corresponds to a packet flooding defense, and whereas senders, receivers, and intermediate nodes in a packet communications network correspond to network computers per se as well as typically computers configured as gateways, routers, and firewalls (i.e., col. 1, lines 27-col. 2, line 8)*] for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets [figure 1 as applied to appropriate figures 2-9 and accompanying descriptions], said system comprising: means for classifying data packets received at a host computer; means for associating a maximum acceptable processing rate with each class of data packet received at said computer [col. 3, lines 12-46, col. 10, lines 8-col. 11, line 10, *whereas the color coded*

green, yellow, etc., packet characterizations constitute classification, upon which rate criteria is established, which in itself is control of processing rate resources.], said system comprising:

means for classifying data packets received at a host computer;

means for associating a maximum acceptable processing rate with each class of data packet received at said computer *[col. 3, lines 12-46, col. 10, lines 8-col. 11, line 10, whereas the color coded green, yellow, etc., packet characterizations constitute classification, upon which rate criteria is established, which in itself is control of processing rate resources.];*

means for said computer to find information for packets it receives regarding the path by which said packets came to said computer *[col. 5, lines 50-col. 6, line 9, col. 6, lines 21-48];* and

whereby, said computer can use said information to allocate the processing rate available for packets of each class in a desired way *[figures 5-9 and accompanying descriptions]".*

As per claim 7, this claim is the method claim for the means plus function claim 1 above, and is rejected for the same reasons provided for the claim 1 rejection; "A method of providing packet flooding defense for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said method comprising the steps of:

determining a path by which data packets arrive at a host computer;

classifying data packets received at a host computer by path;

associating a maximum acceptable processing rate with each class of data packet received at said host computer; and

allocating a processing rate less than or equal to said maximum acceptable processing rate for packets of each class in a desired way."

As per claim 4, this claim is a narrower router versus a host receiving, and transmission versus processing rate variation of claim 1 above, and is rejected for the same reasons provided for the claim 1 rejection (i.e., the packet communications network includes intermediate congestion control on a “hop by hop” (col. 1, lines 27-40) basis which broadly defined clearly encompasses network routers. Further, (col. 6, lines 2-4, “Such routing decisions...response to information in the header of the data packet.”) determining the path by which the data arrives at the receiver is suggested by the fact that the header contains source / destination (IP) network addressing information which clearly constitutes routing (path) information (a router implemented function)); “A packet flooding defense system for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said system comprising:

means for classifying data packets received at a router;

means for associating a maximum acceptable transmission rate with each class of data packet received at said router;

means for said router to find information for packets it receives regarding the path by which said packets came to said router; and

whereby, said router can use said information to allocate the transmission rate for each class in a desired way.”.

As per claim 10, this claim is the method claim for the means plus function claim 4 above, and is rejected for the same reasons provided for the claim 4 rejection; “A method of

providing packet flooding defense for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said method comprising the steps of:

- determining a path by which data packets arrive at said router;
- classifying data packets received at a router by path;
- associating a maximum acceptable transmission rate with each class of data packet received at said router; and
- allocating a transmission rate equal to or less than said maximum acceptable transmission rate for each class in a desired way.”.

As per claim 13, this claim is a variation on claim 1 above, whereas the received packet path classification of, or information pertaining to, is used relative to a given limited (i.e., maximum) processing rate to allocate effective processing rate, and is rejected for the same reasons provided for the claim 1 rejection; “A packet flooding defense system for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said system comprising:

- means for determining a path by which data packets arrive at a host computer;
- means for classifying data packets received at said host computer by path;
- means for assigning a maximum acceptable processing rate to each class of data packet;

and

- means for allocating a processing rate equal to or less than said maximum acceptable processing rate to each class of data packet.”.

As per claim 16, this claim is a narrower router versus a host receiving, and transmission versus processing rate variation of claim 13 above, and is rejected for the same reasons provided for the claim 13 rejection (i.e., the packet communications network includes intermediate congestion control on a “hop by hop” (col. 1, lines 27-40) basis which broadly defined clearly encompasses network routers. Further, (col. 6, lines 2-4, “Such routing decisions...response to information in the header of the data packet.”) determining the path by which the data arrives at the receiver is suggested by the fact that the header contains source / destination (IP) network addressing information which clearly constitutes routing (path) information (a router implemented function)); “A packet flooding defense system for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said system comprising:

means for a router to determine a path by which said packets came to said router;

means for classifying data packets received at a router by path;

means for associating a maximum acceptable transmission rate with each class of data packet received at said router; and

means for said router to allocate the transmission rate for each class in a desired way.”.

7. As per claim 2; “A packet flooding defense system [col. 1, lines 7-11, col. 2, lines 53-col. 3, line 11, *whereas flow and congestion control in packet networks corresponds to a packet flooding defense, and whereas senders, receivers, and intermediate nodes in a packet communications network correspond to network computers per se as well as typically computers configured as gateways, routers, and firewalls (i.e., col. 1, lines 27-col. 2, line 8)*] for a network

comprising a plurality of host computers, routers, communication lines and transmitted data packets *[figure 1 as applied to appropriate figures 2-9 and accompanying descriptions]*, said system comprising:

means for classifying data packets received at a host computer;

means for associating a maximum acceptable processing rate with each class of data packet received at said computer *[col. 3, lines 12-46, col. 10, lines 8-col. 11, line 10, whereas the color coded green, yellow, etc., packet characterizations constitute classification, upon which rate criteria is established, which in itself is control of processing rate resources.]*;

means for said computer to determine the rate at which data packets of each class are transmitted from a router to said computer;

means for said router to receive information regarding maximum acceptable transmission rate for data packets being transmitted to said computer;

means for said router to control the rate of transmission of data packets from said router to said computer; and

whereby, the rate of data packet transmissions received at said computer is kept below the maximum acceptable processing rate for each data packet class by said control of the rate of transmission of data packets from said router,

thereby freeing a portion of the network providing data packet transmission to said computer *[figures 5-9 and accompanying descriptions]*.”.

As per claim 8, this claim is the method claim for the means plus function claim 2 above, and is rejected for the same reasons provided for the claim 2 rejection; “A method of providing

packet flooding defense for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said method comprising the steps of:

classifying data packets received at a host computer;

associating a maximum acceptable processing rate with each class of data packet received at said computer;

determining the rate at which data packets of each class are transmitted from a router to said computer;

receiving a maximum acceptable transmission rate for data packets being transmitted to said computer in said router; and

controlling the rate of transmission of data packets from said router to said computer by said router so that data packet transmissions received at said computer are kept below the maximum acceptable processing rate for each data packet class;

thereby freeing a portion of the network providing data packet transmission to said computer.”.

As per claim 14, this claim is a variation on claim 2 above, insofar as the ‘... so that the rate of data packet transmissions ... kept below the maximum ... rate for each data packet class’ aspect is explicitly part of the ‘means for said router to control the rate of transmission’ limitation in claim 14, whereas it is a broader aspect of the entire claim in claim 2, and is rejected for the same reasons provided for the claim 2 rejection; “A packet flooding defense system for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said system comprising:

means for classifying data packets received at a host computer;

means for associating a maximum acceptable processing rate with each class of data packet received at said computer;

means for said computer to determine the rate at which data packets of each class are transmitted from a router to said computer;

means for said router to receive information regarding maximum acceptable transmission rate for data packets being transmitted to said computer; and

means for said router to control the rate of transmission of data packets from said router to said computer so that the rate of data packet transmissions received at said computer is kept below the maximum acceptable processing rate for each data packet class;

thereby freeing a portion of the network providing data packet transmission to said computer.”.

As per claim 5, this claim is a narrower router versus a host receiving, and transmission versus processing rate variation of claim 2 above, and is rejected for the same reasons provided for the claim 2 rejection (i.e., the packet communications network includes intermediate congestion control on a “hop by hop” (col. 1, lines 27-40) basis which broadly defined clearly encompasses network routers. Further, (col. 6, lines 2-4, “Such routing decisions...response to information in the header of the data packet.”) determining the path by which the data arrives at the receiver is suggested by the fact that the header contains source / destination (IP) network addressing information which clearly constitutes routing (path) information (a router implemented function)); “A packet flooding defense system for a network comprising a plurality

of host computers, routers, communication lines and transmitted data packets, said system comprising:

means for classifying data packets received at a first router;

means for associating a maximum acceptable transmission rate with each class of data packet received at said first router;

means for said first router to determine the rate at which data packets of each class are transmitted from a second router to said first router;

means for said second router to receive information regarding maximum acceptable transmission rate for data packets being transmitted to said first router;

means for said second router to control the rate of transmission of data packets from said second router to said first router; and

whereby, the rate of data packet transmissions received at said first router is kept below the maximum acceptable transmission rate for each data packet class by said control of the rate of transmission of data packets from said second router,

thereby freeing a portion of the network providing data packet transmission to said first router.”.

As per claim 11, this claim is the method claim for the means plus function claim 5 above, and is rejected for the same reasons provided for the claim 5 rejection; “A method of providing packet flooding defense for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said method comprising the steps of:

classifying data packets received at a first router;

associating a maximum acceptable transmission rate with each class of data packet received at said first router;

determining by said first router of the rate at which data packets of each class are transmitted from a second router to said first router;

receiving by said second router of information regarding maximum acceptable transmission rate for data packets being transmitted to said first router; and

controlling by said second router of the rate of transmission of data packets from said second router to said first router so that said rate of transmission is below the maximum acceptable transmission rate for each data packet class;

thereby freeing a portion of the network providing data packet transmission to said first router.”.

As per claim 17, this claim is a variation on claim 5 above, insofar as the ‘... so that the rate of data packet transmissions ... kept below the maximum ... rate for each data packet class’ aspect is explicitly part of the ‘means for said router to control the rate of transmission’ limitation in claim 17, whereas it is a broader aspect of the entire claim in claim 5, and is rejected for the same reasons provided for the claim 5 rejection; “A packet flooding defense system for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said system comprising:

means for classifying data packets received at a first router;

means for associating a maximum acceptable transmission rate with each class of data packet received at said first router;

means for said first router to determine the rate at which data packets of each class are transmitted from a second router to said first router;

means for said second router to receive information regarding maximum acceptable transmission rate for data packets being transmitted to said first router; and

means for said second router to control the rate of transmission of data packets from said second router to said first router so that the rate of data packet transmission received at said first router is kept below the maximum acceptable transmission rate for each data packet class;

thereby freeing a portion of the network providing data packet transmission to said first router.”.

8. Claim 3 *additionally recites* the limitations that; “A packet flooding defense system as described in claim 2, wherein:

said router is capable of receiving information regarding maximum acceptable transmission rate for each class of data packet being transmitted to said computer; and

said router is capable of controlling the rate of transmission of each class of data packets to said computer.”.

The teachings of Chang et al (figures 5-9 and accompanying descriptions) suggest such limitations.

As per claim 9, this claim is the method claim for the means plus function claim 3 above, and is rejected for the same reasons provided for the claim 3 rejection; “A method as described in claim 8, in which:

said router is capable of receiving information regarding maximum acceptable transmission rate for each class of data packet being transmitted to said computer; and

said router is capable of controlling the rate of transmission of each class of data packets to said computer.”.

As per claim 15, this claim is a variation on claim 3 above, insofar as the ‘... so that the rate of data packet transmissions ... kept below the maximum ... rate for each data packet class’ aspect is explicitly part of the ‘means for said router to control the rate of transmission’ limitation in claim 14, whereas it is a broader aspect of the entire claim in claim 3, and is rejected for the same reasons provided for the claim 3 rejection; “A packet flooding defense system as described in claim 14, in which:

said router is capable of receiving information regarding maximum acceptable transmission rate for each class of data packet being transmitted to said computer; and

said router is capable of controlling the rate of transmission of each class of data packet to said computer.”.

As per claim 6, this claim is a narrower router versus a host receiving, and transmission versus processing rate variation of claim 3 above, and is rejected for the same reasons provided for the claim 3 rejection (i.e., the packet communications network includes intermediate congestion control on a “hop by hop” (col. 1, lines 27-40) basis which broadly defined clearly encompasses network routers. Further, (col. 6, lines 2-4, “Such routing decisions...response to information in the header of the data packet.”) determining the path by which the data arrives at

the receiver is suggested by the fact that the header contains source / destination (IP) network addressing information which clearly constitutes routing (path) information (a router implemented function)); “A packet flooding defense system as described in claim 5, wherein:

said second router is capable of receiving information regarding maximum acceptable transmission rate for each class of data packet being transmitted to said first router; and

said second router is capable of controlling the rate of transmission of each class of data packets to said first router.”.

The teachings of Chang et al (Abstract, figure 1 and associated description, col. 1, lines 22-col.

As per claim 12, this claim is the method claim for the means plus function claim 6 above, and is rejected for the same reasons provided for the claim 6 rejection; “A method as described in claim 11, in which:

said second router is capable of receiving information regarding maximum acceptable transmission rate for each class of data packet being transmitted to said first router; and

said second router is capable of controlling the rate of transmission of each class of data packets to said first router.”.

As per claim 18, this claim is a variation on claim 6 above, insofar as the ‘... so that the rate of data packet transmissions ... kept below the maximum ... rate for each data packet class’ aspect is explicitly part of the ‘means for said router to control the rate of transmission’ limitation in claim 18, whereas it is a broader aspect of the entire claim in claim 6, and is rejected

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for the same reasons provided for the claim 6 rejection; “A packet flooding defense system as described in claim 17, wherein:

said second router is capable of receiving information regarding maximum acceptable transmission rate for each class of data packet being transmitted to said first router; and

said second router is capable of controlling the rate of transmission of each class of data packets to said first router.”.

Conclusion

9. Any inquiry concerning this communication or earlier communications from examiner should be directed to Ronald Baum, whose telephone number is (571) 272-3861, and whose unofficial Fax number is (571) 273-3861 and unofficial email is Ronald.baum@uspto.gov. The examiner can normally be reached Monday through Thursday from 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nasser Moazzami, can be reached at (571) 272-4195. The Fax number for the organization where this application is assigned is **571-273-8300**.

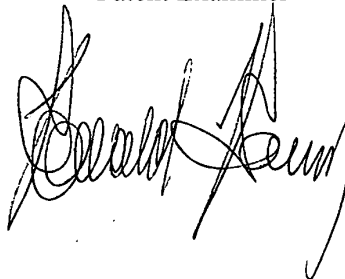
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. For more information for unpublished applications is available through 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).

Ronald Baum

Patent Examiner

NASSER MOAZZAMI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

9,25,07



Notice of References Cited	Application/Control No. 10/841,064	Applicant(s)/Patent Under Reexamination COHEN, DONALD N.	
	Examiner Ronald Baum	Art Unit 2136	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-5,367,523	11-1994	Chang et al.	370/235
*	B	US-5,007,052	04-1991	Flammer, George	370/389
*	C	US-6,412,000	06-2002	Riddle et al.	709/224
*	D	US-5,434,860	07-1995	Riddle, Guy G.	370/232
*	E	US-2002/0032871	03-2002	Malan et al.	713/201
*	F	US-6,088,804	07-2000	Hill et al.	726/25
*	G	US-5,581,559	12-1996	Crayford et al.	370/392
*	H	US-6,044,402	03-2000	Jacobson et al.	709/225
*	I	US-5,455,865	10-1995	Perlman, Radia J.	713/153
*	J	US-5,353,353	10-1994	Vijeh et al.	380/29
*	K	US-5,850,515	12-1998	Lo et al.	714/43
	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.



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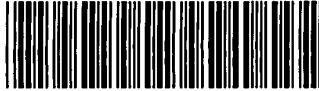
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BIB DATA SHEET

CONFIRMATION NO. 9716

SERIAL NUMBER 10/841,064	FILING or 371(c) DATE 05/07/2004 RULE	CLASS 713	GROUP ART UNIT 2136	ATTORNEY DOCKET NO. 04-165-B
APPLICANTS Donald N. Cohen, Los Angeles, CA; <i>[Signature]</i>				
** CONTINUING DATA ***** This application is a CON of 09/715,813 11/16/2000 PAT 6,789,190 <i>[Signature]</i>				
** FOREIGN APPLICATIONS *****				
** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** ** SMALL ENTITY ** 07/12/2004				
Foreign Priority claimed ☐ Yes ☒ No 35 USC 119(a-d) conditions met ☐ Yes ☒ No Verified and Acknowledged <i>[Signature]</i> Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY CA	SHEETS DRAWINGS 9	TOTAL CLAIMS 18
INDEPENDENT CLAIMS 12				
ADDRESS BELASCO, JACOBS & TOWNSLEY LLP HOWARD HUGHES CENTER 6100 CENTER DRIVE SUITE 630 LOS ANGELES, CA 90045 UNITED STATES				
TITLE Packet flooding defense system				
FILING FEE RECEIVED 772	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	

Index of Claims



Application/Control No.

10/841,064

Examiner

Ronald Baum

Applicant(s)/Patent under Reexamination

COHEN, DONALD N.

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2136

√	Rejected
=	Allowed

—	(Through numeral) Cancelled
+	Restricted

N	Non-Elected
I	Interference

A	Appeal
O	Objected

Claim	Final	Original	9/25/07	Date
1	√			
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Search Notes

Application/Control No.

10/841,064

Examiner

Ronald Baum

Applicant(s)/Patent under
Reexamination

COHEN, DONALD N.

Art Unit

2136

SEARCHED

Class	Subclass	Date	Examiner
none	none	9/25/2007	RJB

INTERFERENCE SEARCHED

Class	Subclass	Date	Examiner

**SEARCH NOTES
(INCLUDING SEARCH STRATEGY)**

	DATE	EXMR
inventor search	9/25/2007	RJB
Google(npl):packet flow control congestion traffic router denial service	9/25/2007	RJB
class 709,713,726,370,380 with text patent search: see attached EAST search history	9/25/2007	RJB

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	32	("370"/\$.ccls. or "380"/\$.ccls. or "709"/\$.ccls. or "713"/\$.ccls. or "726"/\$.ccls.) and (router with flow adj2 (control or allocat\$) and (defense or denial))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/09/25 15:55
L2	444	("370"/\$.ccls. or "380"/\$.ccls. or "709"/\$.ccls. or "713"/\$.ccls. or "726"/\$.ccls.) and (router and denial adj1 service and bandwidth) and firewall\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/09/25 15:56
L3	34	("370"/\$.ccls. or "380"/\$.ccls. or "709"/\$.ccls. or "713"/\$.ccls. or "726"/\$.ccls.) and (router and denial adj1 service and bandwidth) and firewall\$ and @ad<"20001116"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/09/25 15:58
L4	414	("370"/\$.ccls. or "380"/\$.ccls. or "709"/\$.ccls. or "713"/\$.ccls. or "726"/\$.ccls.) and (packet with flow adj2 (control or allocat\$ or congest\$ or ((high or large) adj1 (traffic or through\$))) and router\$) and @ad<"20001116"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/09/25 16:02
L5	140	("370"/\$.ccls. or "380"/\$.ccls. or "709"/\$.ccls. or "713"/\$.ccls. or "726"/\$.ccls.) and (packet adj3 flow adj2 (control or allocat\$ or congest\$ or ((high or large) adj1 (traffic or through\$))) and router\$) and @ad<"20001116"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/09/25 16:02
S1	2070	713/201.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/06/01 11:35
S2	3	713/201.ccls. and packet with flooding and router	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 11:56
S3	3	713/201.ccls. and packet with flooding and router	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 11:56

EAST Search History

S4	94	packet with flooding and router	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/02/23 16:03
S5	5	packet with flooding and router and denial and bandwidth	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 11:57
S6	495	router and denial and bandwidth	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 11:59
S7	471	router and denial adj1 service	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 11:59
S8	329	router and denial adj1 service and bandwidth	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/02/23 16:06
S9	64	router and denial and bandwidth and transmi\$ adj1 rate	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:00
S10	8	router and denial and bandwidth and send\$ adj1 rate	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:00
S11	982	network same router and flood\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:01
S12	118	network same router and flood\$ and defen\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:01
S13	130	router and flood\$ and defen\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:01

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EAST Search History

S14	91	ddos	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:02
S15	30	packet adj1 class\$ and denial adj1 service	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:02
S16	6	thrott1\$ with bandwidth and denial	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:03
S17	8	709/238-244.ccls. and denial and allocate	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:05
S18	4	709/238-244.ccls. and flood\$ with rate	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:07
S19	241	709/238-244.ccls. and transmi\$ with rate	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:07
S20	126	router with flow adj1 control	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:08
S21	7	packet adj1 flood\$ and defense	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:08
S22	446	packet with overload\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:16
S23	50	packet adj2 overload\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:17

EAST Search History

S24	96	packet adj1 flood\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:33
S25	568	packet with flow adj2 (control or allocat\$) and router\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:34
S26	67	packet with flow adj2 (control or allocat\$) and router\$ and (defense or denial)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 12:50
S27	25	router with flow adj2 (control or allocat\$) and (defense or denial)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/06/01 11:36
S28	2	"5367523".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 13:06
S29	2	"5007052".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 13:09
S30	2	"5699513".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 13:12
S31	2	"6412000".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 13:15
S32	2	"5434860".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 13:17
S33	2	"20020032871".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 13:19

EAST Search History

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S35	2	"6088804".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2003/10/23 13:21
S36	10	"5581559".pn. or "6044402".pn. or "5455865".pn. or "5353353".pn. or "5850515".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/02/23 15:51
S37	1	("5581559".pn. or "6044402".pn. or "5455865".pn. or "5353353".pn. or "5850515".pn.) and firewall\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/02/23 15:51
S38	4	370/229-240.ccls. and packet with flooding and router	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/02/23 16:04
S39	17	370/229-240.ccls. and router and denial adj1 service and bandwidth	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/06/01 11:37
S40	5	370/229-240.ccls. and router and denial adj1 service and bandwidth and firewall	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/02/23 16:10
S41	7	(713/201.ccls. or 709/238-244.ccls. or 370/229-240.ccls.) and (router with flow adj2 (control or allocat\$) and (defense or denial))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/06/01 11:57
S42	82	(713/201.ccls. or 709/238-244.ccls. or 370/229-240.ccls.) and (router and denial adj1 service and bandwidth)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/06/01 11:57
S43	0	(713/201.ccls. or 709/238-244.ccls. or 370/229-240.ccls.) and (router with flow adj2 (control or allocat\$) and (defense or denial)) and firewall\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/06/01 11:56

EAST Search History

S44	54	(713/201.ccls. or 709/238-244.ccls. or 370/229-240.ccls.) and (router and denial adj1 service and bandwidth) and firewall\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/09/25 15:55
S45	1	(713/201.ccls. or 709/238-244.ccls. or 370/229-240.ccls.) and (router and denial adj1 service and bandwidth) with firewall\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/06/01 11:55
S46	2	(713/201,160.ccls. or 709/238-244.ccls. or 370/229-240.ccls.) and (router and denial adj1 service and bandwidth) with firewall\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/06/01 11:55
S47	0	(713/201,160.ccls. or 709/238-244.ccls. or 370/229-240.ccls.) and (router with flow adj2 (control or allocat\$) and (defense or denial)) and firewall\$	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2004/06/01 11:56
S48	7	(713/201,160.ccls. or 709/238-244.ccls. or 370/229-240.ccls.) and (router with flow adj2 (control or allocat\$) and (defense or denial))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/09/25 15:53

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

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UTILITY PATENT APPLICATION TRANSMITTAL (Only for new nonprovisional applications under 37 CFR 1.53(b))	Attorney Docket No.	04-165-B
	First Inventor	Donald N. Cohen
	Title	PACKET FLOODING DEFENSE..
	Express Mail Label No.	EV383355458US

APPLICATION ELEMENTS See MPEP chapter 600 concerning utility patent application contents.	ADDRESS TO: Mail Stop Patent Application Commissioner for Patents P.O. Box 1450 Alexandria VA 22313-1450
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1. ☒ Fee Transmittal Form (e.g., PTO/SB/17) (Submit an original and a duplicate for fee processing) 2. ☒ Applicant claims small entity status. See 37 CFR 1.27. 3. ☒ Specification [Total Pages <u>28</u>] (preferred arrangement set forth below) - Descriptive title of the invention - Cross Reference to Related Applications - Statement Regarding Fed sponsored R & D - Reference to sequence listing, a table, or a computer program listing appendix - Background of the Invention - Brief Summary of the Invention - Brief Description of the Drawings (if filed) - Detailed Description - Claim(s) - Abstract of the Disclosure 4. ☒ Drawing(s) (35 U.S.C. 113) [Total Sheets <u>9</u>] 5. Oath or Declaration [Total Sheets <u>2</u>] a. ☐ Newly executed (original or copy) b. ☒ Copy from a prior application (37 CFR 1.63(d)) (for continuation/divisional with Box 18 completed) i. ☐ DELETION OF INVENTOR(S) Signed statement attached deleting inventor(s) name in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b). 6. ☐ Application Data Sheet. See 37 CFR 1.76	7. ☐ CD-ROM or CD-R in duplicate, large table or Computer Program (Appendix) 8. Nucleotide and/or Amino Acid Sequence Submission (if applicable, all necessary) 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
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ACCOMPANYING APPLICATION PARTS

9. ☐ Assignment Papers (cover sheet & document(s))
10. ☐ 37 CFR 3.73(b) Statement ☒ Power of
(when there is an assignee) Attorney
11. ☐ English Translation Document (if applicable)
12. ☐ Information Disclosure ☐ Copies of IDS
Statement (IDS)/PTO-1449 Citations
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 its equivalent.
17. ☒ Other: Credit Card Payment Form.....

18. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in the first sentence of the specification following the title, or in an Application Data Sheet under 37 CFR 1.76:

☒ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No.: 09/715,813.....

Prior application information: Examiner Baum, Ronald Art Unit: 2135
For CONTINUATION OF DIVISIONAL APPS only; The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 5b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

19. CORRESPONDENCE ADDRESS

☒ Customer Number:	<u>31718</u>	OR	☐ Correspondence address below
Name			
Address			
City	State	Zip Code	
Country	Telephone	Fax	
Name (Print/Type)	David A. Belasco	Registration No. (Attorney/Agent)	41,609
Signature	<u>David A. Belasco</u>	Date	May 6, 2004

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14230 U.S. PTO

PTO/SB/17 (10-03)

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**FEE TRANSMITTAL
for FY 2004**

Effective 10/01/2003. Patent fees are subject to annual revision.

☒ Applicant claims small entity status. See 37 CFR 1.27**TOTAL AMOUNT OF PAYMENT** (\$ 772.00)**Complete if Known**

Application Number	Not yet Assigned
Filing Date	
First Named Inventor	Donald N. Cohen
Examiner Name	Not yet Assigned
Art Unit	Not yet Assigned
Attorney Docket No.	04-165-B

METHOD OF PAYMENT (check all that apply)

☐ Check ☒ Credit card ☐ Money Order ☐ Other ☐ None

☐ Deposit Account:

Deposit Account Number

Deposit Account Name

The Director is authorized to: (check all that apply)

☒ Charge fee(s) indicated below ☒ Credit any overpayments

☐ Charge any additional fee(s) or any underpayment of fee(s)

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FEE CALCULATION**1. BASIC FILING FEE**

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code (\$)	Fee (\$)	Fee Code (\$)	Fee (\$)		
1001	770	2001	385	Utility filing fee	385
1002	340	2002	170	Design filing fee	
1003	530	2003	265	Plant filing fee	
1004	770	2004	385	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	
SUBTOTAL (1)					(\$ 385.00)

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

	Extra Claims	Fee from below	Fee Paid
Total Claims	18	-20** = 0	X 9 = 0
Independent Claims	12	-3** = 9	X 43 = 387
Multiple Dependent			145 = 0

Large Entity		Small Entity		Fee Description
Fee Code (\$)	Fee (\$)	Fee Code (\$)	Fee (\$)	
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1201	86	2201	43	Independent claims in excess of 3
1203	290	2203	145	Multiple dependent claim, if not paid
1204	86	2204	43	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent
SUBTOTAL (2) (\$ 387.00)				

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)**3. ADDITIONAL FEES**

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code (\$)	Fee (\$)	Fee Code (\$)	Fee (\$)		
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for <i>ex parte</i> reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
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1252	420	2252	210	Extension for reply within second month	
1253	950	2253	475	Extension for reply within third month	
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1453	1,330	2453	665	Petition to revive - unintentional	
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1502	480	2502	240	Design issue fee	
1503	640	2503	320	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	770	2809	385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	770	2810	385	For each additional invention to be examined (37 CFR 1.129(b))	
1801	770	2801	385	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify)

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$ 0)**SUBMITTED BY**

(Complete if applicable)

Name (Print/Type)	David A. Belasco	Registration No. (Attorney/Agent)	41,609	Telephone	310-743-1188
Signature		Date	May 6, 2004		

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Applicant: Donald N. Cohen
Docket: 04-165-B

EXPRESS MAIL MAILING CERTIFICATE

"Express Mail" mailing label No. EV 383355458 US

Date of Deposit: May 6, 2004

I hereby certify that the following documents:

1. Utility Patent Application Transmittal
2. Fee Transmittal
3. Credit Card Payment Form in the amount of \$772.00
4. Specification Consisting of 28 pages
5. 9 Sheets of Drawings
6. Copy of Declaration
7. Copy of Power of Attorney
8. Return Receipt Postcard

are being deposited in a single envelope with the United States Postal Service "Express Mail Post Office to Addressee" service on the date indicated above and such envelope is addressed to Mail Stop Patent Application, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

Donna Miller
(Name of person mailing documents)


(Signature of person mailing documents)

14280 U.S. PTO
050704

PTO/SB/05 (08-03)
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UTILITY PATENT APPLICATION TRANSMITTAL (Only for new nonprovisional applications under 37 CFR 1.53(b))	Attorney Docket No.	04-165-B
	First Inventor	Donald N. Cohen
	Title	PACKET FLOODING DEFENSE..
	Express Mail Label No.	EV383355458US

APPLICATION ELEMENTS <i>See MPEP chapter 600 concerning utility patent application contents.</i>	ADDRESS TO: Mail Stop Patent Application Commissioner for Patents P.O. Box 1450 Alexandria VA 22313-1450
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1. ☒ Fee Transmittal Form (e.g., PTO/SB/17) (Submit an original and a duplicate for fee processing) 2. ☒ Applicant claims small entity status. See 37 CFR 1.27. 3. ☒ Specification [Total Pages <u>28</u>] (preferred arrangement set forth below) - Descriptive title of the invention - Cross Reference to Related Applications - Statement Regarding Fed sponsored R & D - Reference to sequence listing, a table, or a computer program listing appendix - Background of the Invention - Brief Summary of the Invention - Brief Description of the Drawings (if filed) - Detailed Description - Claim(s) - Abstract of the Disclosure 4. ☒ Drawing(s) (35 U.S.C. 113) [Total Sheets <u>9</u>] 5. Oath or Declaration [Total Sheets <u>2</u>] a. ☐ Newly executed (original or copy) b. ☒ Copy from a prior application (37 CFR 1.63(d)) (for continuation/divisional with Box 18 completed) i. ☐ DELETION OF INVENTOR(S) Signed statement attached deleting inventor(s) name in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b). 6. ☐ Application Data Sheet. See 37 CFR 1.76	7. ☐ CD-ROM or CD-R in duplicate, large table or Computer Program (Appendix) 8. Nucleotide and/or Amino Acid Sequence Submission (if applicable, all necessary) 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
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ACCOMPANYING APPLICATION PARTS	
9. ☐ Assignment Papers (cover sheet & document(s))	
10. ☐ 37 CFR 3.73(b) Statement (when there is an assignee)	☒ Power of Attorney
11. ☐ English Translation Document (if applicable)	
12. ☐ Information Disclosure Statement (IDS)/PTO-1449	☐ Copies of IDS Citations
13. ☐ Preliminary Amendment	
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17. ☒ Other: Credit Card Payment Form.....	

18. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in the first sentence of the specification following the title, or in an Application Data Sheet under 37 CFR 1.76:

☒ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No.: 09/715,813.....

Prior application information: Examiner Baum, Ronald Art Unit: 2135
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19. CORRESPONDENCE ADDRESS					
☒ Customer Number: <u>31718</u>		OR ☐ Correspondence address below			
Name					
Address					
City	State	Zip Code			
Country	Telephone	Fax			
Name (Print/Type)	David A. Belasco	Registration No. (Attorney/Agent)	41,609		
Signature		Date	May 6, 2004		

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14230 U.S. PTO

PTO/SB/17 (10-03)
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**FEE TRANSMITTAL
for FY 2004**

Effective 10/01/2003. Patent fees are subject to annual revision.

☒ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$ 772.00)

Complete if Known

Application Number	Not yet Assigned
Filing Date	
First Named Inventor	Donald N. Cohen
Examiner Name	Not yet Assigned
Art Unit	Not yet Assigned
Attorney Docket No.	04-165-B

METHOD OF PAYMENT (check all that apply)

☐ Check ☒ Credit card ☐ Money Order ☐ Other ☐ None

☐ Deposit Account:

Deposit Account Number

Deposit Account Name

The Director is authorized to: (check all that apply)

☒ Charge fee(s) indicated below ☒ Credit any overpayments

☐ Charge any additional fee(s) or any underpayment of fee(s)

☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.

FEE CALCULATION**1. BASIC FILING FEE**

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1005	160	2005	80	Provisional filing fee	
SUBTOTAL (1)					(\$ 385.00)

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

	Extra Claims	Fee from below	Fee Paid
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Independent Claims	12	-3** = 9	X 43 = 387
Multiple Dependent			145 = 0

Large Entity		Small Entity		Fee Description
Fee Code	Fee (\$)	Fee Code	Fee (\$)	
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1201	86	2201	43	Independent claims in excess of 3
1203	290	2203	145	Multiple dependent claim, if not paid
1204	86	2204	43	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent
SUBTOTAL (2) (\$ 387.00)				

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)**3. ADDITIONAL FEES**

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1051	130	2051	65	Surcharge - late filing fee or oath	
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1453	1,330	2453	665	Petition to revive - unintentional	
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1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify)

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$ 0)

SUBMITTED BY

(Complete if applicable)

Name (Print/Type)	David A. Belasco	Registration No. (Attorney/Agent)	41,609	Telephone	310-743-1188
Signature		Date	May 6, 2004		

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Applicant: Donald N. Cohen
Docket: 04-165-B

EXPRESS MAIL MAILING CERTIFICATE

"Express Mail" mailing label No. EV 383355458 US

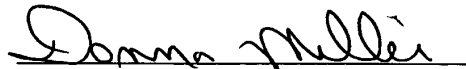
Date of Deposit: May 6, 2004

I hereby certify that the following documents:

1. Utility Patent Application Transmittal
2. Fee Transmittal
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are being deposited in a single envelope with the United States Postal Service "Express Mail Post Office to Addressee" service on the date indicated above and such envelope is addressed to Mail Stop Patent Application, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

Donna Miller
(Name of person mailing documents)


(Signature of person mailing documents)

Packet Flooding Defense System

Cross Reference to Related Applications

5 This Application is a continuation of US Patent Application Serial No. 09/715,813,
filed 11/16/2000.

Field of Invention

10 The invention pertains to network data transmission controls. More particularly, the
invention relates to systems for minimizing the effects of packet flooding attacks directed
against computers or routers connected to a network.

Background of the Invention

15 Various types of systems have been developed for handling unwanted network data
transmission incorporating a number of different technologies. U.S. Patent No. 5,581,559
issued to *Crayford et al.* discloses a method that verifies the integrity of data transmitted over
a network by comparing the destination address for a data packet with end station addresses
20 stored on network repeaters. Where the destination address fails to match the stored end
station addresses, the data packet will be disrupted.

U.S. Patent No. 6,044,402 issued to *Jacobson et al.*, describes a system in which the only data packets that are transmitted between source and destination network addresses are those that satisfy the blocking policies stored by the blocking data structure. Thus only, “pre-approved” data can flow through such a control mechanism. U.S. Patent No. 5,455,865, issued to *Perlman* discloses a system that relies upon a stored list of acceptable packet identifiers at each node in the network. U.S. Patent No. 5,353,353 issued to *Vijeh et al.* describes a system that determines the acceptability of data packets based upon a destination address/source address match and will disrupt any packet not satisfying these criteria. U.S. Patent No. 5,850,515 issued to *Lo et al.* discloses a system that uses source and destination address matching to determine if packets should be transmitted to an end station or the end station disabled from participating in the network. It also employs a system where an end station can be disabled by a program that determines that a certain number of unauthorized packets have been detected. While other variations exist, the above-described designs for handling unwanted network data transmissions are typical of those encountered in the prior art.

US Patent No. 5,367,523 to Chang et al. discloses an end-to-end, closed loop flow and congestion control system for packet communications networks which exchanges rate request and rate response messages between data senders and receivers to allow the sender to adjust the data rate to avoid congestion and to control the data flow. Requests and responses are piggy-backed on data packets and result in changes in the input data rate in a direction to

optimize data throughput. GREEN, YELLOW and RED operating modes are defined to increase data input, reduce data input and reduce data input drastically, respectively. Incremental changes in data input are altered non-linearly to change more quickly when further away from the optimum operating point than when closer to the optimum operating point. Chang, et al, is intended for end-to-end congestion control. Congestion control assumes cooperation between sender and receiver in solving the problem. In a packet flooding defense, the sender, who is the attacker, will never cooperate with the receiver, his victim. In Chang, et al, the information used is the source/destination address pairs in the packet. Chang, et al, assume this information is accurate. In an attack, this information will not be. The attacker will falsify the source address in order to confound the defense if it uses information the attacker controls, such as the source address.

The primary objective of the present invention is to defend against "packet flooding attacks" in which an attacker tries to use up all the bandwidth to the victim by sending data of little or no value (at least to the victim), thereby making more valuable communication with the victim slow or unreliable. A secondary objective is to defend against a related class of attacks in which the attacker tries to use up some other resource by sending more requests of some particular type to the victim than the victim can handle.

One way to view all these attacks is that a resource is being allocated in an unfair way. Well-behaved users request reasonable amounts, while attackers request unreasonable amounts. The most straight-forward allocation mechanism, which might be called "first come

first served", ends up allocating almost all of the resource to the attackers. A more "fair" allocation would reduce the impact of an attacker to that of a normal user.

5 There are two obvious impediments to the "fair service" goal above. One is lack of a reliable way to associate incoming packets with those users among whom bandwidth should be fairly allocated. The other is lack of control over what packets arrive. The solution described here to both of these problems requires help from the routers that forward packets to the victim.

10 The defense is distributed among cooperating sites and routers. A set of transitively connected cooperating machines is called a "cooperating neighborhood". The quality of the defense is related to the size of the cooperating neighborhood, a larger neighborhood providing better defense. Within the neighborhood it is possible to trace the forwarding path of packets. The association of packets with the "users" is approximated by associating packets with "places" in the cooperating neighborhood from which those packets are forwarded. That is, service will be allocated in a fair (or otherwise reasonable) manner among these places. A "place" in this sense is typically a particular interface from which a packet arrived at a cooperating router.

20 One such place is likely to be shared by many actual users. An attack will deny service to those users sharing the same place. The advantage of a large number of such places is that each place is shared by fewer users, so an attack will deny service to fewer users. It is advantageous to a user who wants to communicate with a particular machine, to be in the

cooperating neighborhood of that machine, since no attacker from another machine can deny him service. Conversely, an attacker wishing to deny service to as many users as possible prefers to share an entry point into the cooperating neighborhood with as many users as possible.

5

Routers will supply data about the forwarding path of the packets that arrive at a site. The site can use this data to allocate service as described above among the packets that arrive. This would solve the problem of unfair service if the packets that arrived were a fair sample of those that were sent to the site. This may not be the case, however, if routers are unable to

10 forward all the packets they receive. To some extent fair service is limited by network topology, i.e., too many legitimate users trying to share parts of the same path will inevitably suffer relative to users of uncrowded paths. However another potential cause for this problem is a flooding attack against a router. That problem is solved by letting routers allocate their services in a similar way to that described above for sites. That is, they allocate the limited

15 resource of forwarding bandwidth along any given output in a reasonable way among some set of places in the cooperating neighborhood.

The final step in the defense is that cooperating routers will limit the rate at which they forward packets to places that so request. This may not be essential in the allocation of

20 service, but it is useful for limiting the bandwidth used by "unwanted" packets. The rate-limiting request is to be made when a site detects a high rate of unwanted packets coming from one place. This helps the site because it no longer has to process as many unwanted packets. It helps the network by freeing some of the bandwidth for other use.

5

Even if the traffic is not reduced, the distinction between "wanted" and "unwanted" packets plays an important role in "reasonable" allocation. For a site there are normally some packets (in fact, the great majority) that are expected in a very strong sense. It is reasonable to process these at the highest possible rate. All other packets are not exactly unwanted, but the site is willing to process them at only a limited rate. A reasonable approach is to schedule these as described above (using the places from which they were forwarded) at a limited rate, and regard as "unwanted" those that end up being significantly delayed (or discarded).

Summary of the Invention

The present invention addresses many of the deficiencies of prior network defense systems and satisfies all of the objectives described above.

A packet flooding defense system for a network providing the desired features may be constructed from the following components. The network includes a plurality of host computers, routers, communication lines and transmitted data packets. Means are provided for classifying data packets received at a host computer as are means for associating a maximum acceptable processing rate with each class of data packet received at the computer. Means are also provided for the computer to find information for packets it receives regarding the path by which the packets came to the computer. Thus, the computer can use the information to allocate the processing rate available for packets of each class in a desired way.

In another variant, a packet flooding defense system for a network including a plurality of host computers, routers, communication lines and transmitted data packets includes means for classifying data packets received at a host computer and means for associating a maximum acceptable processing rate with each class of data packet received at the computer. Means are provided for the computer to determine the rate at which data packets of each class are transmitted from a router to the computer as are means for the router to receive information regarding maximum acceptable transmission rate for data packets being transmitted to the computer. Means are provided for the router to control the rate of transmission of data packets from the router to the computer. Thus, the rate of data packet transmissions received at the computer is kept below the maximum acceptable processing rate for each data packet class by the control of the rate of transmission of data packets from the router, thereby freeing a portion of the network providing data packet transmission to the computer.

In this invention a path (which is not controlled by the attacker) is used to determine the actual direction of the packet flow towards the victim. Bandwidth is allocated based upon path (which is done via packet marks provided by routers leading up to the victim). In other words this invention uses attacker-independent information about the path a packet takes to allocate forwarding bandwidth in a router. The part that makes this invention completely different from Chang, et al, is that the information has to be attacker-independent (i.e., sender-independent) in order to work as a defense.

In yet another variant, the router is capable of receiving information regarding maximum acceptable transmission rate for each class of data packet being transmitted to the computer and the router is capable of controlling the rate of transmission of each class of data packets to the computer.

5

In still another variant, a packet flooding defense system for a network including a plurality of host computers, routers, communication lines and transmitted data packets includes means for classifying data packets received at a router and means for associating a maximum acceptable transmission rate with each class of data packet received at the router.

10 Means are provided for the router to find information for packets it receives regarding the path by which the packets came to the router. Thus, the router can use the information to allocate the transmission rate for each class in a desired way.

In a further variant of the invention, a packet flooding defense system for a network
15 including a plurality of host computers, routers, communication lines and transmitted data packets includes means for classifying data packets received at a first router and means for associating a maximum acceptable transmission rate with each class of data packet received at the first router. Means are provided for the first router to determine the rate at which data packets of each class are transmitted from a second router to the first router as are means for
20 the second router to receive information regarding maximum acceptable transmission rate for data packets being transmitted to the first router. Means are provided for the second router to control the rate of transmission of data packets from the second router to the first router. Thus, the rate of data packet transmissions received at the first router is kept below the

maximum acceptable transmission rate for each data packet class by the control of the rate of transmission of data packets from the second router, thereby freeing a portion of the network providing data packet transmission to the first router.

5 In yet a further variant, the second router is capable of receiving information regarding maximum acceptable transmission rate for each class of data packet being transmitted to the first router and the second router is capable of controlling the rate of transmission of each class of data packets to the first router.

10 In another variant, a packet flooding defense system for a network including a plurality of host computers, routers, communication lines and transmitted data packets includes at least one firewall. The firewall includes hardware and software serving to control packet transmission between the network and a host computer connected to an internal network. Means are provided for classifying data packets received at the firewall as are means for
15 associating a maximum acceptable transmission rate with each class of data packet received at the firewall. Means are provided for the firewall to find information for packets it receives regarding the path by which the packets came to the firewall. Thus, the firewall can use the information to allocate the transmission rate for each class in a desired way.

20 In still another variant of the invention, a packet flooding defense system for a network including a plurality of host computers, routers, communication lines and transmitted data packets includes at least one firewall. The firewall includes hardware and software serving to control packet transmission between the network and a host computer connected to an internal

network and means for classifying data packets received at the firewall. Means are provided for associating a maximum acceptable transmission rate with each class of data packet received at the firewall as are means for the firewall to determine the rate at which data packets of each class are transmitted from a router to the firewall. Means are provided for the
5 router to receive information regarding maximum acceptable transmission rate for data packets being transmitted to the firewall as are means for the router to control the rate of transmission of data packets from the router to the firewall. Thus, the rate of data packet transmissions received at the firewall is kept below the maximum acceptable transmission rate for each data packet class by the control of the rate of transmission of data packets from the
10 router, thereby freeing a portion of the network providing data packet transmission to the firewall.

In a final variant of the invention, the router is capable of receiving information regarding maximum acceptable transmission rate for each class of data packet being
15 transmitted to the firewall and the router is capable of controlling the rate of transmission of each class of data packets to the firewall.

An appreciation of the other aims and objectives of the present invention and an understanding of it may be achieved by referring to the accompanying drawings and the
20 detailed description of a preferred embodiment.

Description of the Drawings

Figure 1 is a schematic view of a first embodiment of the invention illustrating the association of maximum acceptable processing rates for each class of packet received at a computer and a path by which the packets came to the computer;

5 **Figure 2** is a schematic view of a second embodiment illustrating the association of maximum acceptable processing rates for each class of packet received at a computer, a path by which the packets came to the computer and illustrating information received at a router regarding maximum acceptable transmission rate for data packets being transmitted to the computer;

10 **Figure 3** is a schematic view of a third embodiment illustrating information received at a router regarding maximum acceptable transmission rate for each class of data packets being transmitted to the computer;

Figure 4 is a schematic view of a fourth embodiment illustrating association of
15 maximum acceptable transmission rates for each class of packet received at a router and a path by which the packets came to the router;

Figure 5 is a schematic view of a fifth embodiment illustrating the association of maximum acceptable transmission rates for each class of packet received at a first router, a
20 path by which the packets came to the first router and illustrating information received at a second router regarding maximum acceptable transmission rate for data packets being transmitted to the first router;

Figure 6 is a schematic view of a sixth embodiment illustrating information received at the second router regarding maximum acceptable transmission rate for each class of data packets being transmitted to the first router;

- 5 **Figure 7** is a schematic view of a seventh embodiment of the invention illustrating the association of maximum acceptable transmission rates for each class of packet received at a firewall and a path by which the packets came to the firewall;

- Figure 8** is a schematic view of an eighth embodiment illustrating the association of
10 maximum acceptable transmission rates for each class of packet received at the firewall, a path by which the packets came to the firewall and illustrating information received at a router regarding maximum acceptable transmission rate for data packets being transmitted to the firewall; and

- 15 **Figure 9** is a schematic view of a ninth embodiment illustrating information received at a router regarding maximum acceptable transmission rate for each class of data packets being transmitted to the firewall.

20 Detailed Description of the Preferred Embodiment

Figure 1 illustrates a packet flooding defense system **10** for a network **14** providing the desired features that may be constructed from the following components. The network **14** includes a plurality of host computers **18**, routers **22**, communication lines **26** and transmitted

data packets 30. Means are provided for classifying data packets 30 received at a host computer 18 as are means for associating a maximum acceptable processing rate 34 with each class 38 of data packet 30 received at the computer 18. Means are also provided for the computer 18 to find information for packets 30 it receives regarding the path 46 by which the packets 30 came to the computer 18. Thus, the computer 18 can use the information to allocate the processing rate for each class 38 in a desired way among the places from which packets 30 are transmitted.

In another variant, as illustrated in **Figure 2**, a packet flooding defense system 10 for a network 14 including a plurality of host computers 18, routers 22, communication lines 26 and transmitted data packets 30 includes means for classifying data packets 30 received at a host computer 18 and means for associating a maximum acceptable processing rate 34 with each class 38 of data packet 30 received at the computer 18. Means are provided for the computer 18 to determine the rate at which data packets 30 of each class 38 are transmitted from a router 22 to the computer 18 as are means for the router 22 to receive information regarding maximum acceptable transmission rate 70 for data packets 30 being transmitted to the computer 18. Means are provided for the router 22 to control the rate of transmission of data packets 30 from the router 22 to the computer 18. Thus, the rate of data packet transmissions received at the computer 18 is kept below the maximum acceptable processing rate 34 for each data packet class 38 by the control of the rate of transmission of data packets 30 from the router 22, thereby freeing a portion of the network 14 providing data packet transmission to the computer 18.

In yet another variant, as illustrated in **Figure 3**, the router **22** is capable of receiving information regarding maximum acceptable transmission rate **70** for each class **38** of data packet **30** being transmitted to the computer **18** and the router **22** is capable of controlling the rate of transmission of each class **38** of data packets **30** to the computer **18**.

5

In still another variant, as illustrated in **Figure 4**, a packet flooding defense system **10** for a network **14** including a plurality of host computers **18**, routers **22**, communication lines **26** and transmitted data packets **30**, includes means for classifying data packets **30** received at a router **22** and means for associating a maximum acceptable transmission rate **74** with each class **38** of data packet **30** received at the router **22**. Means are provided for the router **22** to find information for packets **30** it receives regarding the path **50** by which the packets **30** came to the router **22**. Thus, the router **22** can use the information to allocate the transmission rate for each class **38** in a desired way.

10

In a further variant of the invention, as illustrated in **Figure 5**, a packet flooding defense system **10** for a network **14** including a plurality of host computers **18**, routers **22**, communication lines **26** and transmitted data packets **30** includes means for classifying data packets **30** received at a first router **54** and means for associating a maximum acceptable transmission rate **78** with each class **38** of data packet **30** received at the first router **54**. Means are provided for the first router **54** to determine the rate at which data packets **30** of each class **38** are transmitted from a second router **58** to the first router **54** as are means for the second router **58** to receive information regarding maximum acceptable transmission rate **82** for data packets **30** being transmitted to the first router **54**. Means are provided for the second router

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58 to control the rate of transmission of data packets 30 from the second router 58 to the first router 54. Thus, the rate of data packet transmissions received at the first router 54 is kept below the maximum acceptable transmission rate 78 for each data packet class 38 by the control of the rate of transmission of data packets 30 from the second router 58, thereby
5 freeing a portion of the network 14 providing data packet transmission to the first router 54.

In yet a further variant, as illustrated in **Figure 6**, the second router 58 is capable of receiving information regarding maximum acceptable transmission rate 84 for each class 38 of data packet 30 being transmitted to the first router 54 and the second router 58 is capable of
10 controlling the rate of transmission of each class 38 of data packets 30 to the first router 54.

In another variant, as illustrated in **Figure 7**, a packet flooding defense system 10 for a network 14 including a plurality of host computers 18, routers 22, communication lines 26 and transmitted data packets 30 includes at least one firewall 86. The firewall 86 includes
15 hardware and software serving to control packet transmission between the network 14 and a host computer 18 connected to an internal network 90. Means are provided for classifying data packets 30 received at the firewall 86 as are means for associating a maximum acceptable transmission rate 94 with each class 38 of data packet 30 received at the firewall 86. Means are provided for the firewall 86 to find information for packets 30 it receives regarding the
20 path 98 by which the packets 30 came to the firewall 86. Thus, the firewall 86 can use the information to allocate the transmission rate for each class 38 in a desired way.

In still another variant of the invention, as illustrated in **Figure 8**, a packet flooding defense system **10** for a network **14** including a plurality of host computers **18**, routers **22**, communication lines **26** and transmitted data packets **30** includes at least one firewall **86**. The firewall **86** includes hardware and software serving to control packet transmission between

5 the network **14** and a host computer **18** connected to an internal network **90** and means for classifying data packets **30** received at the firewall **86**. Means are provided for associating a maximum acceptable transmission rate **94** with each class **38** of data packet **30** received at the firewall **86** as are means for the firewall **86** to determine the rate at which data packets **30** of each class **38** are transmitted from a router **22** to the firewall **86**. Means are provided for the

10 router **22** to receive information regarding maximum acceptable transmission rate **92** for data packets **30** being transmitted to the firewall **86** as are means for the router **22** to control the rate of transmission of data packets **30** from the router **22** to the firewall **86**. Thus, the rate of data packet transmissions received at the firewall **86** is kept below the maximum acceptable transmission rate **94** for each data packet class **38** by the control of the rate of transmission of

15 data packets **30** from the router **22**, thereby freeing a portion of the network **14** providing data packet transmission to the firewall **86**.

In a final variant of the invention, as illustrated in **Figure 9**, the router **22** is capable of receiving information regarding maximum acceptable transmission rate **98** for each class **38** of

20 data packet **30** being transmitted to the firewall **86** and the router **22** is capable of controlling the rate of transmission of each class **38** of data packets **30** to the firewall **86**.

The packet flooding defense system 10 has been described with reference to particular embodiments. Other modifications and enhancements can be made without departing from the spirit and scope of the claims that follow.

CLAIMS

1. A packet flooding defense system for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said system comprising:
- 5 means for classifying data packets received at a host computer;
- means for associating a maximum acceptable processing rate with each class of data packet received at said computer;
- means for said computer to find information for packets it receives regarding
- 10 the path by which said packets came to said computer; and
- whereby, said computer can use said information to allocate the processing rate available for packets of each class in a desired way.
2. A packet flooding defense system for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said system comprising:
- 15 means for classifying data packets received at a host computer;
- means for associating a maximum acceptable processing rate with each class of data packet received at said computer;
- 20 means for said computer to determine the rate at which data packets of each class are transmitted from a router to said computer;
- means for said router to receive information regarding maximum acceptable transmission rate for data packets being transmitted to said computer;

means for said router to control the rate of transmission of data packets from
said router to said computer; and
whereby, the rate of data packet transmissions received at said computer is kept
below the maximum acceptable processing rate for each data packet
class by said control of the rate of transmission of data packets from
said router, thereby freeing a portion of the network providing data
packet transmission to said computer.

3. A packet flooding defense system as described in Claim 2, wherein:

said router is capable of receiving information regarding maximum acceptable
transmission rate for each class of data packet being transmitted to said
computer; and
said router is capable of control
ling the rate of transmission of each class of data packets to said computer.

4. A packet flooding defense system for a network comprising a plurality of host
computers, routers, communication lines and transmitted data packets, said system
comprising:

means for classifying data packets received at a router;
means for associating a maximum acceptable transmission rate with each class
of data packet received at said router;
means for said router to find information for packets it receives regarding the
path by which said packets came to said router; and

whereby, said router can use said information to allocate the transmission rate
for each class in a desired way.

5. A packet flooding defense system for a network comprising a plurality of host
5 computers, routers, communication lines and transmitted data packets, said system
comprising:
- means for classifying data packets received at a first router;
 - means for associating a maximum acceptable transmission rate with each class
of data packet received at said first router;
 - 10 means for said first router to determine the rate at which data packets of each
class are transmitted from a second router to said first router;
 - means for said second router to receive information regarding maximum
acceptable transmission rate for data packets being transmitted to said
first router;
 - 15 means for said second router to control the rate of transmission of data packets
from said second router to said first router; and
- whereby, the rate of data packet transmissions received at said first router is
kept below the maximum acceptable transmission rate for each data
packet class by said control of the rate of transmission of data packets
20 from said second router, thereby freeing a portion of the network
providing data packet transmission to said first router.

6. A packet flooding defense system as described in Claim 5, wherein:
- said second router is capable of receiving information regarding maximum acceptable transmission rate for each class of data packet being transmitted to said first router; and
- 5 said second router is capable of controlling the rate of transmission of each class of data packets to said first router.
7. A method of providing packet flooding defense for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said
- 10 method comprising the steps of:
- determining a path by which data packets arrive at a host computer;
- classifying data packets received at a host computer by path;
- associating a maximum acceptable processing rate with each class of data packet received at said host computer; and
- 15 allocating a processing rate less than or equal to said maximum acceptable processing rate for packets of each class in a desired way.
8. A method of providing packet flooding defense for a network comprising a plurality of host computers, routers, communication lines and transmitted data packets, said
- 20 method comprising the steps of:
- classifying data packets received at a host computer;
- associating a maximum acceptable processing rate with each class of data packet received at said computer;

determining the rate at which data packets of each class are transmitted from a
 router to said computer;
 receiving a maximum acceptable transmission rate for data packets being
 transmitted to said computer in said router; and
 5 controlling the rate of transmission of data packets from said router to said
 computer by said router so that data packet transmissions received at
 said computer are kept below the maximum acceptable processing rate
 for each data packet class;
 thereby freeing a portion of the network providing data packet transmission to
 10 said computer.

9. A method as described in Claim 8, in which:
 said router is capable of receiving information regarding maximum acceptable
 transmission rate for each class of data packet being transmitted to said
 15 computer; and
 said router is capable of controlling the rate of transmission of each class of
 data packets to said computer.

10. A method of providing packet flooding defense for a network comprising a plurality of
 20 host computers, routers, communication lines and transmitted data packets, said
 method comprising the steps of:

determining a path by which data packets arrive at said router;
 classifying data packets received at a router by path;

associating a maximum acceptable transmission rate with each class of data
packet received at said router; and
allocating a transmission rate equal to or less than said maximum acceptable
transmission rate for each class in a desired way.

5

11. A method of providing packet flooding defense for a network comprising a plurality of
host computers, routers, communication lines and transmitted data packets, said
method comprising the steps of:

classifying data packets received at a first router;
10 associating a maximum acceptable transmission rate with each class of data
packet received at said first router;
determining by said first router of the rate at which data packets of each class
are transmitted from a second router to said first router;
receiving by said second router of information regarding maximum acceptable
15 transmission rate for data packets being transmitted to said first router;
and
controlling by said second router of the rate of transmission of data packets
from said second router to said first router so that said rate of
transmission is below the maximum acceptable transmission rate for
20 each data packet class;
thereby freeing a portion of the network providing data packet transmission to
said first router.

12. A method as described in Claim 11, in which:

said second router is capable of receiving information regarding maximum

acceptable transmission rate for each class of data packet being

transmitted to said first router; and

5 said second router is capable of controlling the rate of transmission of each

class of data packets to said first router.

13. A packet flooding defense system for a network comprising a plurality of host
computers, routers, communication lines and transmitted data packets, said system
10 comprising:

means for determining a path by which data packets arrive at a host computer;

means for classifying data packets received at said host computer by path;

means for assigning a maximum acceptable processing rate to each class of

data packet; and

15 means for allocating a processing rate equal to or less than said maximum

acceptable processing rate to each class of data packet.

14. A packet flooding defense system for a network comprising a plurality of host
computers, routers, communication lines and transmitted data packets, said system
20 comprising:

means for classifying data packets received at a host computer;

means for associating a maximum acceptable processing rate with each class of

data packet received at said computer;

means for said computer to determine the rate at which data packets of each

class are transmitted from a router to said computer;

means for said router to receive information regarding maximum acceptable

transmission rate for data packets being transmitted to said computer;

5 and

means for said router to control the rate of transmission of data packets from

said router to said computer so that the rate of data packet transmissions

received at said computer is kept below the maximum acceptable

processing rate for each data packet class;

10 thereby freeing a portion of the network providing data packet transmission to

said computer.

15. A packet flooding defense system as described in Claim 14, in which:

said router is capable of receiving information regarding maximum acceptable

15 transmission rate for each class of data packet being transmitted to said

computer; and

said router is capable of controlling the rate of transmission of each class of

data packet to said computer.

20 16. A packet flooding defense system for a network comprising a plurality of host

computers, routers, communication lines and transmitted data packets, said system

comprising:

means for a router to determine a path by which said packets came to said
router;

means for classifying data packets received at a router by path;

means for associating a maximum acceptable transmission rate with each class
5 of data packet received at said router; and

means for said router to allocate the transmission rate for each class in a
desired way.

17. A packet flooding defense system for a network comprising a plurality of host
10 computers, routers, communication lines and transmitted data packets, said system
comprising:

means for classifying data packets received at a first router;

means for associating a maximum acceptable transmission rate with each class
of data packet received at said first router;

15 means for said first router to determine the rate at which data packets of each
class are transmitted from a second router to said first router;

means for said second router to receive information regarding maximum
acceptable transmission rate for data packets being transmitted to said
first router; and

20 means for said second router to control the rate of transmission of data packets
from said second router to said first router so that the rate of data packet
transmission received at said first router is kept below the maximum
acceptable transmission rate for each data packet class;

thereby freeing a portion of the network providing data packet transmission to
said first router.

18. A packet flooding defense system as described in Claim 17, wherein:

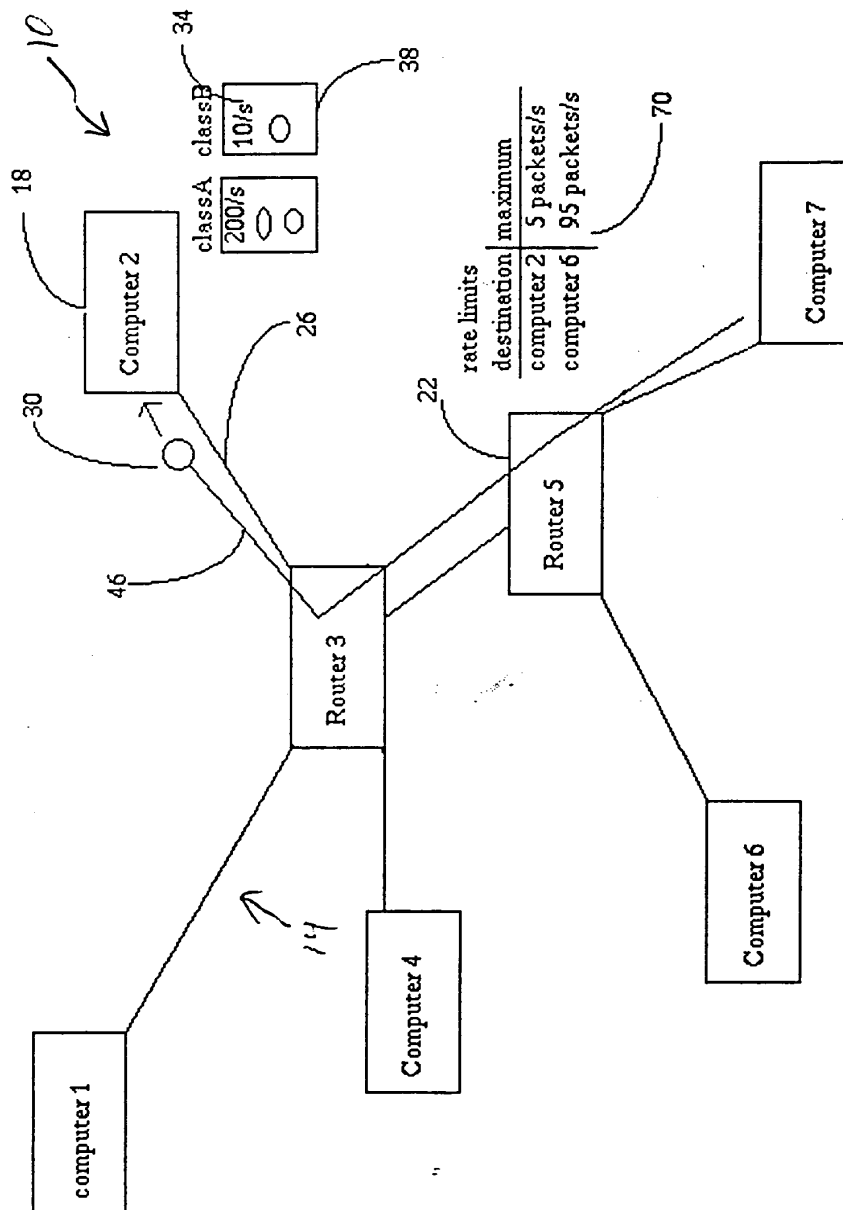
5 said second router is capable of receiving information regarding maximum
 acceptable transmission rate for each class of data packet being
 transmitted to said first router; and
 said second router is capable of controlling the rate of transmission of each
 class of data packets to said first router.

ABSTRACT

The invention prevents "packet flooding", where an attacker uses up all available bandwidth to a victim with useless data. It can also be used to prevent some other related denial of service attacks. The defense is distributed among cooperating sites and routers. The sites identify data they don't want. The routers help sites to determine which routers forward that data. The sites then ask these routers to reduce the rate at which such data is forwarded. Variations of the defense protect against packet flooding attacks on routers and attacks in which an attacker tries to use up some service offered by a site.

[illegible]

Figure 2



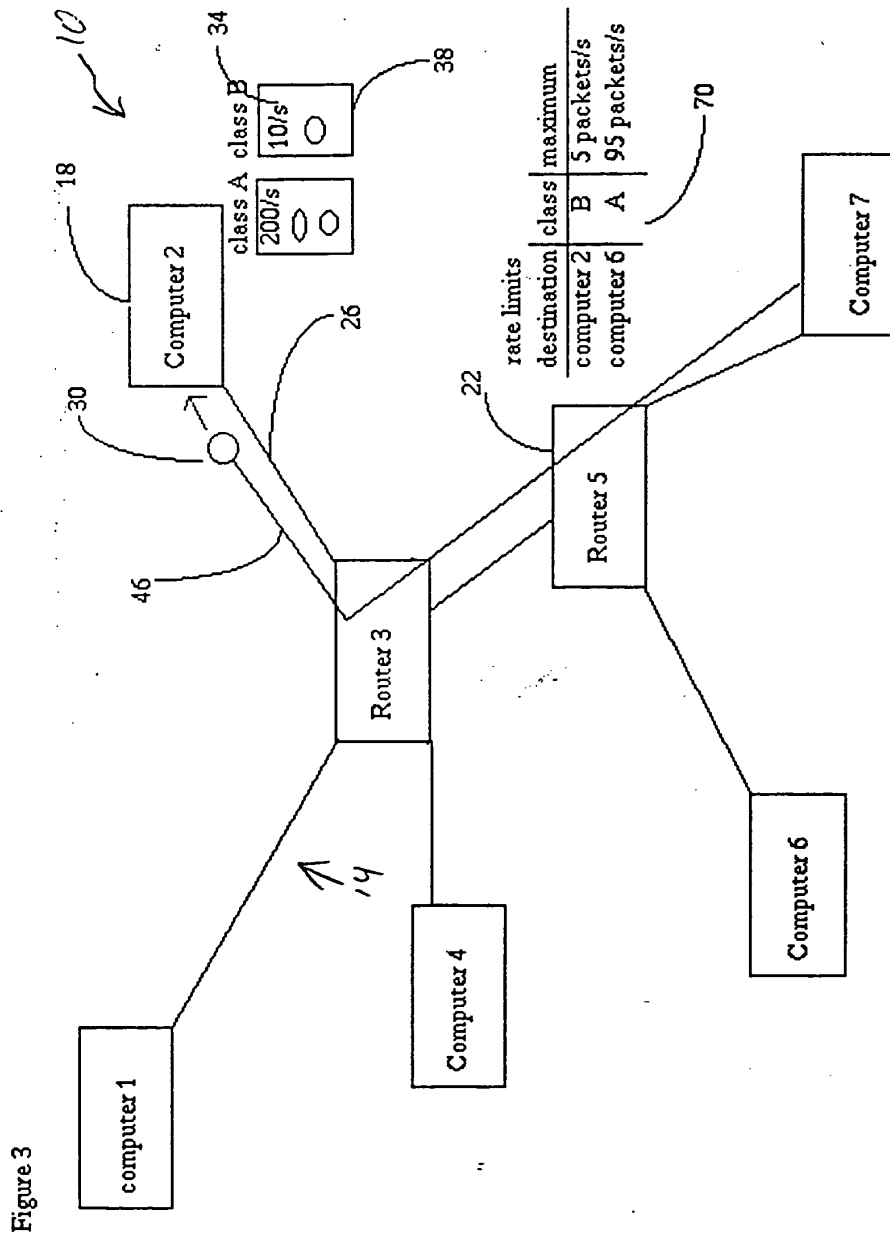
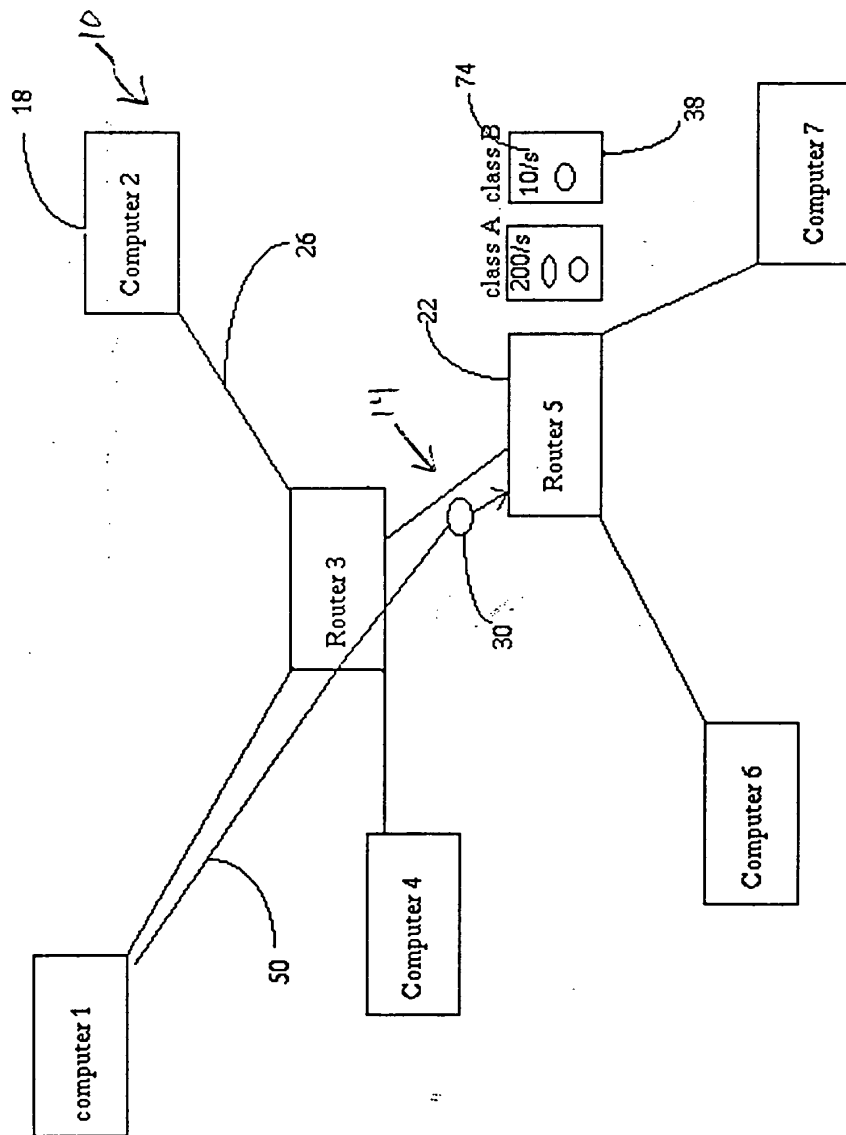


Figure 4



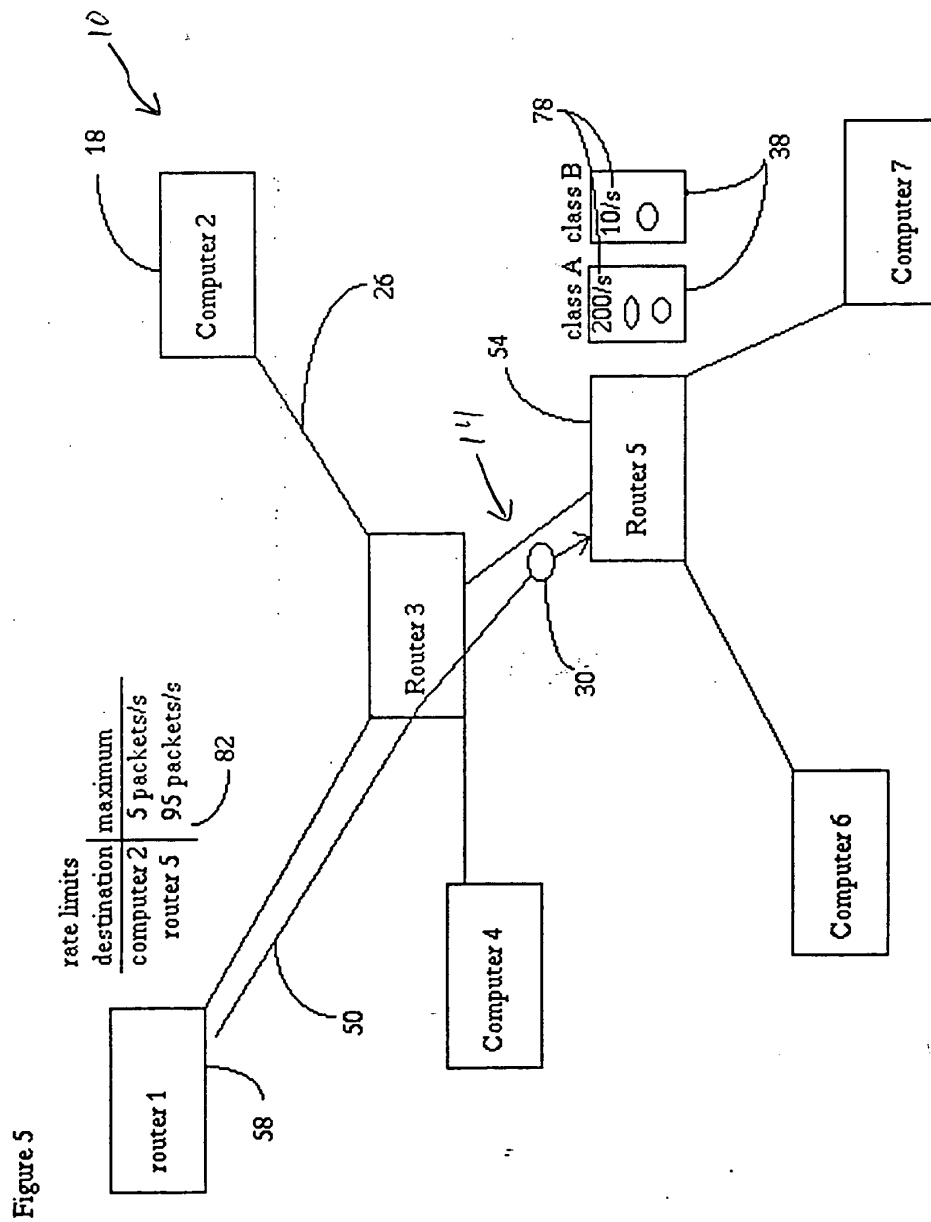


Figure 6

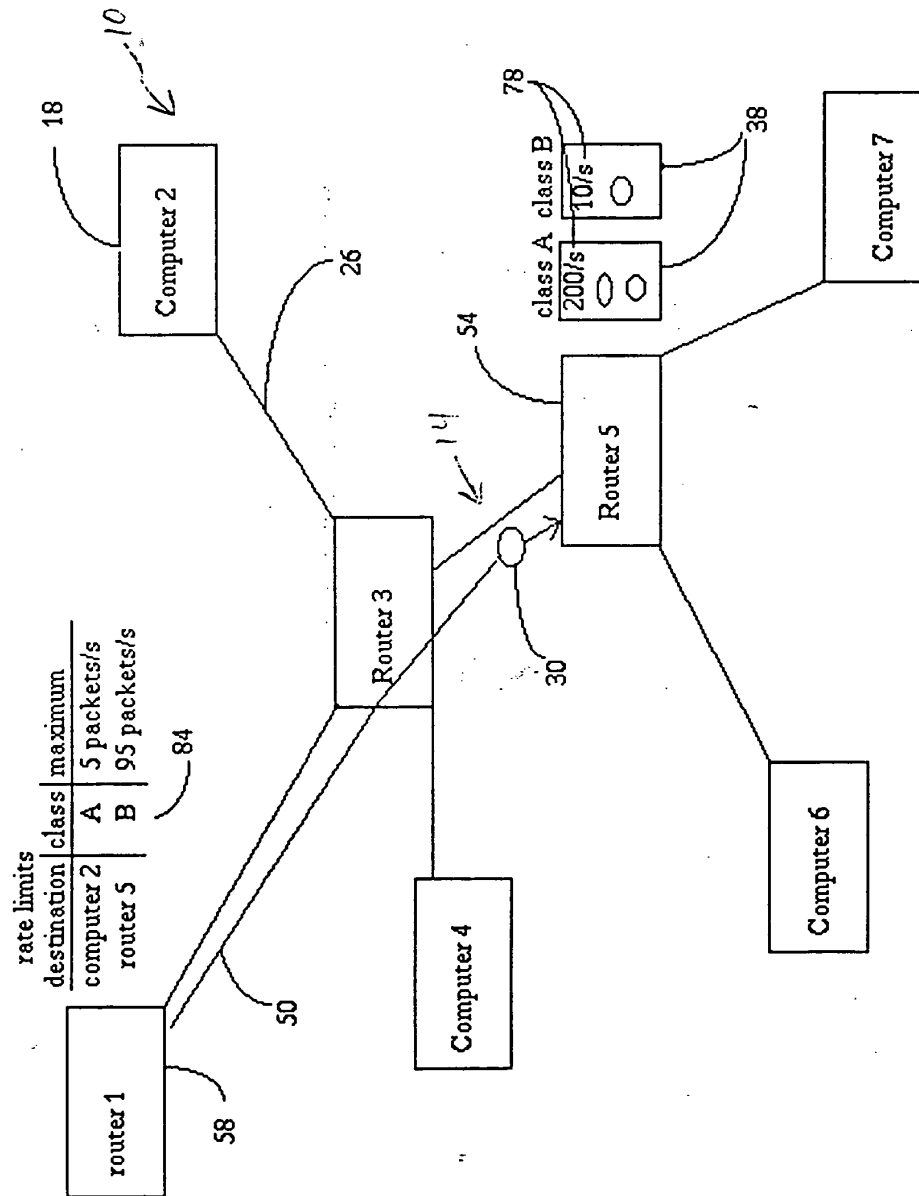


Figure 7

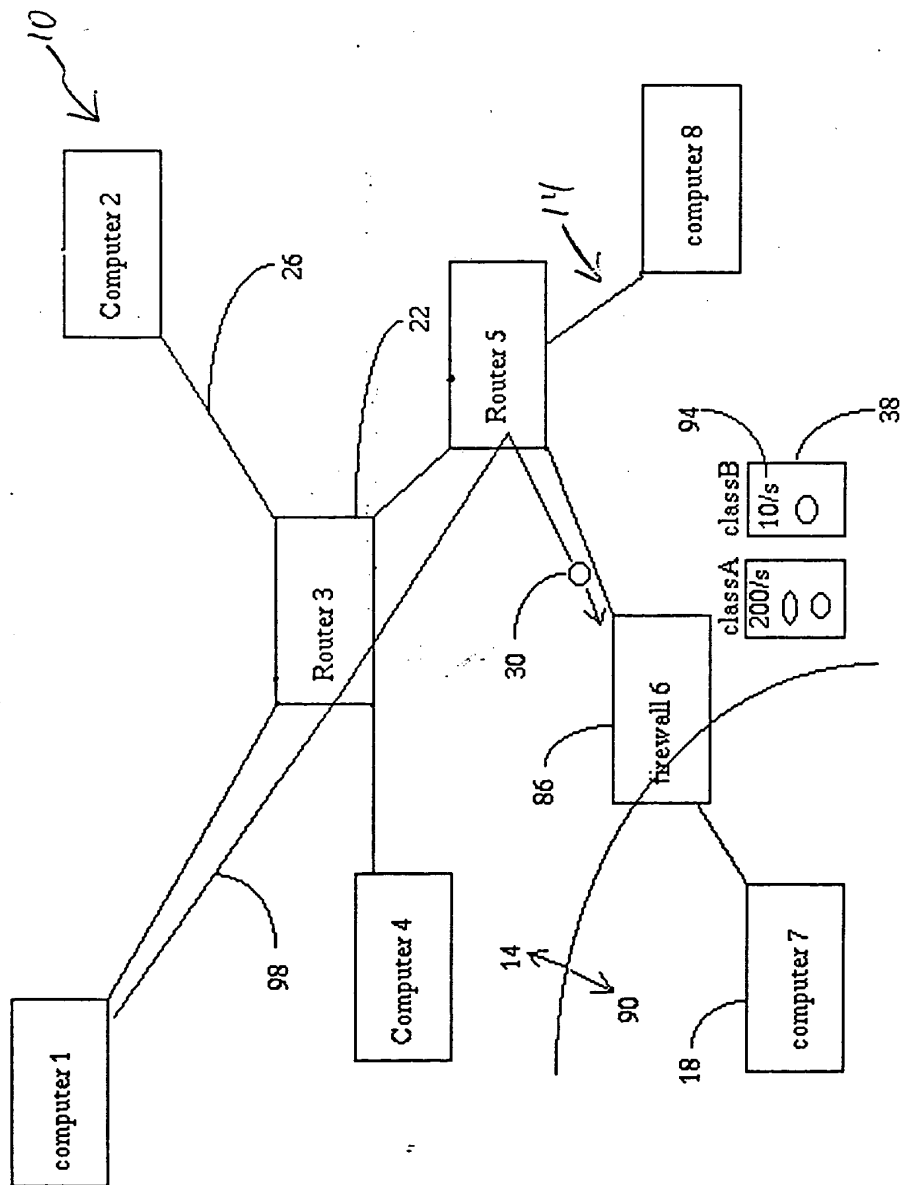


Figure 8

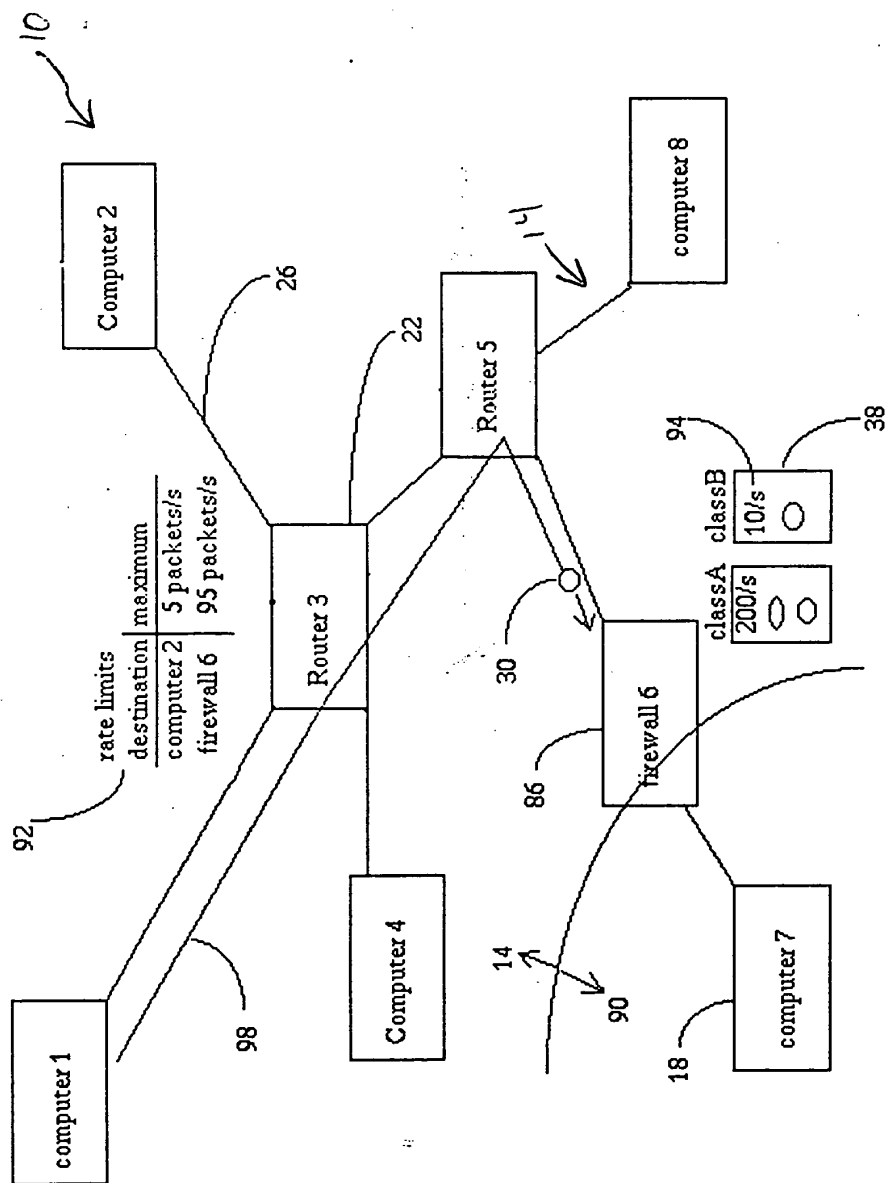
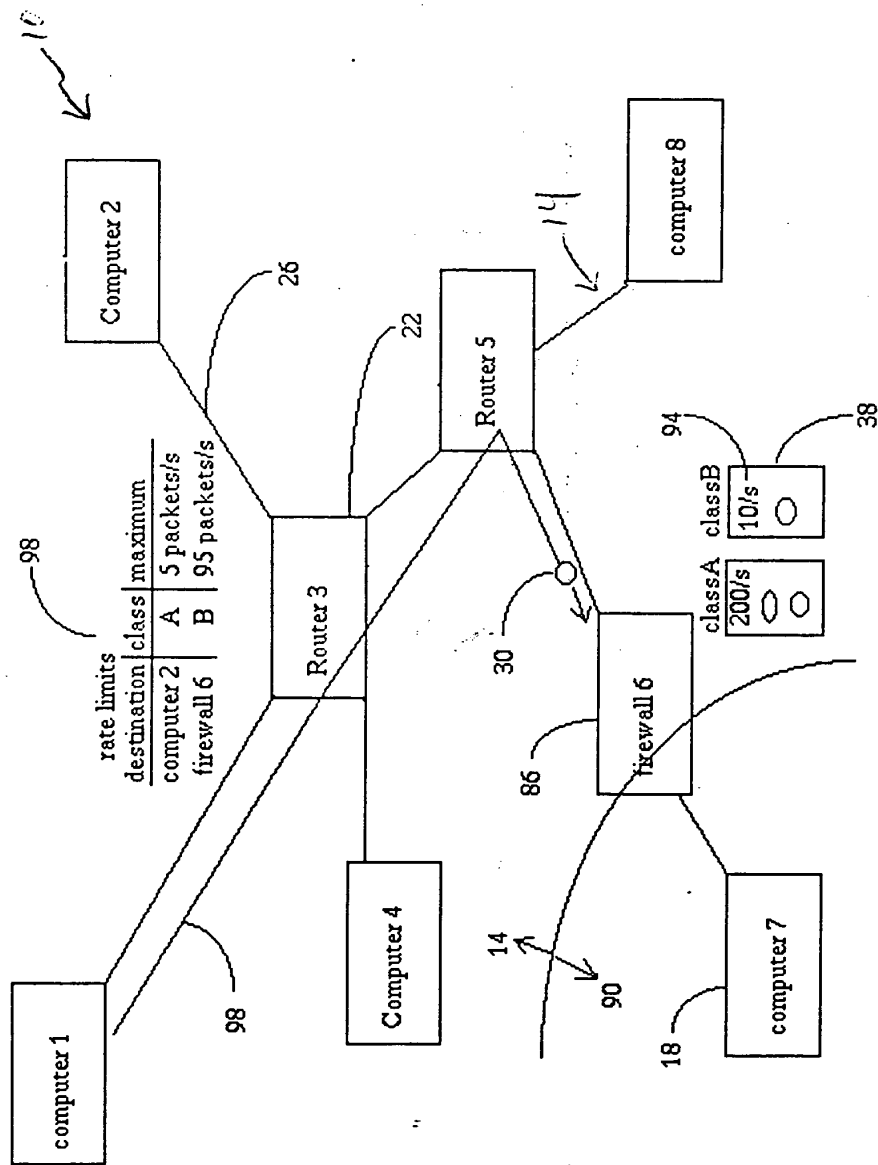


Figure 9



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Application Number	09/715,813
Filing Date	11/16/2000
First Named Inventor	Cohen
Title	Packet Flooding Defense
Group Art Unit	2131
Examiner Name	Not Assigned
Attorney Docket Number	02-322-B (old Q982-DB)

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Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96).

SIGNATURE of Applicant or Assignee of Record

Name

Deborah A. Taylor, President, Computing Services Support Solutions, Inc.

Signature

Date

09 December 2002

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Docket No. Q982-P

Declaration and Power of Attorney For Patent Application

English Language Declaration

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

PACKET FLOODING DEFENSE SYSTEM

the specification of which

(check one)

☒ is attached hereto.

☐ was filed on _____ as United States Application No. or PCT International Application Number _____ and was amended on _____

(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119(a)-(d) or Section 365(b) of any foreign application(s) for patent or inventor's certificate, or Section 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate or PCT International application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)

Priority Not Claimed

_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	☐
_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	☐
_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	☐

I hereby claim the benefit under 35 U.S.C. Section 119(e) of any United States provisional

_____	_____
(Application Serial No.)	(Filing Date)

_____	_____
(Application Serial No.)	(Filing Date)

_____	_____
(Application Serial No.)	(Filing Date)

I hereby claim the benefit under 35 U. S. C. Section 120 of any United States application(s), or Section 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. Section 112, I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, C. F. R., Section 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application:

_____	_____	_____
(Application Serial No.)	(Filing Date)	(Status)
		(patented, pending, abandoned)

_____	_____	_____
(Application Serial No.)	(Filing Date)	(Status)
		(patented, pending, abandoned)

_____	_____	_____
(Application Serial No.)	(Filing Date)	(Status)
		(patented, pending, abandoned)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. *(list name and registration number)*

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Second inventor's signature	Date
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Citizenship	
Post Office Address	

PATENT APPLICATION SERIAL NO. _____

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

05/11/2004 GWORDOF1 00000040 10841064

01 FC:2001	385.00 OP
02 FC:2201	387.00 OP

PTO-1556
(5/87)

*U.S. Government Printing Office: 2002 — 469-267/69033

PATENT APPLICATION FEE DETERMINATION RECORD

Effective October 1, 2003

Application or Docket Number

101841,064

CLAIMS AS FILED - PART I

(Column 1) (Column 2)

TOTAL CLAIMS	18	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	18 minus 20 = *	0
INDEPENDENT CLAIMS	12 minus 3 = *	9
MULTIPLE DEPENDENT CLAIM PRESENT ☐		

* If the difference in column 1 is less than zero, enter "0" in column 2

CLAIMS AS AMENDED - PART II

(Column 1) (Column 2) (Column 3)

AMENDMENT A		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
	Total	*	Minus	**	=
	Independent	*	Minus	***	=
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM ☐				

1, 2, 4, 5, 7, 8, 10, 11, 13, 14, 16, 17

(Column 1) (Column 2) (Column 3)

AMENDMENT B		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
	Total	*	Minus	**	=
	Independent	*	Minus	***	=
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM ☐				

(Column 1) (Column 2) (Column 3)

AMENDMENT C		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
	Total	*	Minus	**	=
	Independent	*	Minus	***	=
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM ☐				

* 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.

SMALL ENTITY TYPE ☐

OR OTHER THAN SMALL ENTITY

RATE	FEE
BASIC FEE	385.00
XS 9=	
X43=	
+145=	
TOTAL	772

RATE	FEE
BASIC FEE	770.00
XS18=	
X86=	
+290=	
TOTAL	

SMALL ENTITY OR

OTHER THAN SMALL ENTITY

RATE	ADDITIONAL FEE
XS 9=	
X43=	
+145=	
TOTAL ADDIT. FEE	

RATE	ADDITIONAL FEE
XS18=	
X86=	
+290=	
TOTAL ADDIT. FEE	

RATE	ADDITIONAL FEE
XS 9=	
X43=	
+145=	
TOTAL ADDIT. FEE	

RATE	ADDITIONAL FEE
XS18=	
X86=	
+290=	
TOTAL ADDIT. FEE	

RATE	ADDITIONAL FEE
XS 9=	
X43=	
+145=	
TOTAL ADDIT. FEE	

RATE	ADDITIONAL FEE
XS18=	
X86=	
+290=	
TOTAL ADDIT. FEE	