PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

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PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

	Date of mailing (*day/month/year*) 14 JUL 2008
Applicant's or agent's file reference 05007PCT	**FOR FURTHER ACTION** See paragraph 2 below

International application No.	International filing date (*day/month/year*)	Priority date (*day/month/year*)
PCT/US06/35889	14 September 2006 (14.09.2006)	30 January 2006 (30.01.2006)

International Patent Classification (IPC) or both national classification and IPC

IPC: **G06F 17/10**(2006.01)
USPC: 703/2

Applicant

NEC LABORATORIES AMERICA, INC.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I — Basis of the opinion
- ☐ Box No. II — Priority
- ☐ Box No. III — Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV — Lack of unity of invention
- ☒ Box No. V — Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI — Certain documents cited
- ☐ Box No. VII — Certain defects in the international application
- ☐ Box No. VIII — Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis(b)* that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/US	Date of completion of this opinion	Authorized officer
Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (571) 273-3201	25 June 2008 (25.06.2008)	Paul Rodriguez Telephone No. 571-272-3753

Form PCT/ISA/237 (cover sheet) (April 2007)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US06/35889

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

☒ the international application in the language in which it was filed

☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

2. ☐ This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of:

a. type of material

☐ a sequence listing

☐ table(s) related to the sequence listing

b. format of material

☐ on paper

☐ in electronic form

c. time of filing/furnishing

☐ contained in the international application as filed.

☐ filed together with the international application in electronic form.

☐ furnished subsequently to this Authority for the purposes of search.

4. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/US06/35889

Box No. V Reasoned statement under Rule 43 *bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims 8-11,13-20	YES
	Claims 1-7,12	NO
Inventive step (IS)	Claims 9-11,13-20	YES
	Claims 1-8,12	NO
Industrial applicability (IA)	Claims 1-20	YES
	Claims NONE	NO

2. Citations and explanations:

Please See Continuation Sheet

Supplemental Box
In case **the space in any of the preceding boxes is not sufficient.**

V. 2. Citations and Explanations:
Claims 1 – 20 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.

Claim 1 lacks novelty under PCT Article 33(2) as being anticipated by Chen (2005) Proceedings of the eleventh ACM Special Interest Group on Knowledge Discovery in Data, pages 750 – 755: Chen teaches receiving data corresponding to flow intensity measured at a plurality of monitoring points in the distributed transaction system during normal operation of the system (page 754, section 5.2); generating a model of flow dynamics in the distributed transaction system by automatically deriving a relationship that characterizes a normal flow intensity through a segment of the distributed transaction system (page 752, section 3.2 Online Detector); monitoring the distributed transaction system by detecting deviations from said model of flow dynamics (page 752, figure 1, calculate the difference between the old and updated model, and a large difference causes an anomaly alarm).

Claim 2 lacks novelty under PCT Article 33(2) as being anticipated by Chen (2005) Proceedings of the eleventh ACM Special Interest Group on Knowledge Discovery in Data, pages 750 – 755: Chen teaches said model of flow dynamics is validated by inputting new flow intensity data for said segment and performing sequential testing to said derived relationship to derive a fitness score (pages 752 – 753, section 3.2 Online Detector) and wherein said fitness score is used to evaluate the credibility of said derived relationship as a confidence score (pages 752 – 753, section 3.2 Online Detector).

Claim 3 lacks novelty under PCT Article 33(2) as being anticipated by Chen (2005) Proceedings of the eleventh ACM Special Interest Group on Knowledge Discovery in Data, pages 750 – 755: Chen teaches said deviations from said model of flow dynamics are detected by deriving a residual by tracking conformance between observed flow intensity measurements for said segment and an output of said model for that segment (pages 753 - 754, section 4 Failure Localization).

Claim 4 lacks novelty under PCT Article 33(2) as being anticipated by Chen (2005) Proceedings of the eleventh ACM Special Interest Group on Knowledge Discovery in Data, pages 750 – 755: Chen teaches organizing said received flow

Supplemental Box
In case **the space in any of the preceding boxes is not sufficient.**

intensity data to characterize said segment between two monitoring points wherein said segment comprises at least one component (pages 753 - 754, section 4 Failure Localization; and figure 4).

Claim 5 lacks novelty under PCT Article 33(2) as being anticipated by Chen (2005) Proceedings of the eleventh ACM Special Interest Group on Knowledge Discovery in Data, pages 750 – 755: Chen teaches determining if said residual is abnormal if it is above a threshold (page 754, left-side column, first paragraph, "By choosing a certain significance level, we obtain a threshold to separate faulty and normal components").

Claim 6 lacks novelty under PCT Article 33(2) as being anticipated by Chen (2005) Proceedings of the eleventh ACM Special Interest Group on Knowledge Discovery in Data, pages 750 – 755: Chen teaches correlating said confidence score with said residual to evaluate credibility of said residual when used to detect transaction system faults (pages 752 – 753, section 3.2 Online Detector; especially page 753).

Claim 7 lacks novelty under PCT Article 33(2) as being anticipated by Chen (2005) Proceedings of the eleventh ACM Special Interest Group on Knowledge Discovery in Data, pages 750 – 755: Chen teaches correlating said residual with its components to isolate transaction system faults (pages 753 - 754, section 4 Failure Localization).

Claim 12 lacks novelty under PCT Article 33(2) as being anticipated by Chen (2005) Proceedings of the eleventh ACM Special Interest Group on Knowledge Discovery in Data, pages 750 – 755: Chen teaches said model is a Gaussian distribution model (page 752, section 3.2 Online Detector, first paragraph).

Claim 8 lacks an inventive step under PCT Article 33(3) as being obvious over Chen (2005) Proceedings of the eleventh ACM Special Interest Group on Knowledge Discovery in Data, pages 750 – 755 in view of IDE (U.S. 2005/0193281). IDE teaches said model is a regression model (paragraph 106). The motivation to use the art of IDE with the art of Chen would have been the advantage that faults in a complex computer system such as a Web-based system can be automatically detected in a runtime environment in an early stage, including faults at the application layer which were difficult to detect with the prior-art techniques (paragraaph 26).

Claims 9 – 11 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest: for each said model parameter, deriving a fitness score over said first predetermined period of time.

Claims 13 – 15 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest: tracking the mass characteristics of historical flow intensity measurements.

Claims 16 – 18 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest: calculating a confidence score for each said model by counting the number of times each said model fitness score for a model is higher than said fitness threshold.

Claim 19 meets the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest: calculating a confidence score for each said model by counting the number of times each said model fitness score for a model is higher than said fitness threshold.

Claim 20 meets the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest: calculating a confidence score for each said model by counting the number of times each said model fitness score for a model is higher than said fitness threshold.