



(11)

EP 2 811 112 A3

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
25.03.2015 Bulletin 2015/13

(51) Int Cl.:
E21B 49/00 (2006.01)

(43) Date of publication A2:
10.12.2014 Bulletin 2014/50

(21) Application number: **14175672.6**

(22) Date of filing: **26.08.2011**

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**

(30) Priority: **07.09.2010 US 876727**
29.11.2010 US 955504

(62) Document number(s) of the earlier application(s) in
accordance with Art. 76 EPC:
11767321.0 / 2 614 460

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(54) **Machine, computer program product and method to generate unstructured grids and carry out parallel reservoir simulation**

(57) A machine, computer program product, and method to enable scalable parallel reservoir simulations for a variety of simulation model sizes are described herein. Some embodiments of the disclosed invention include a machine, methods, and implemented software for performing parallel processing of a grid defining a reservoir or oil/gas field using a plurality of sub-domains for the reservoir simulation, a parallel process of re-ordering a local cell index for each of the plurality of cells using characteristics of the cell and location within the at least one sub-domain and a parallel process of simulating at least one production characteristic of the reservoir.

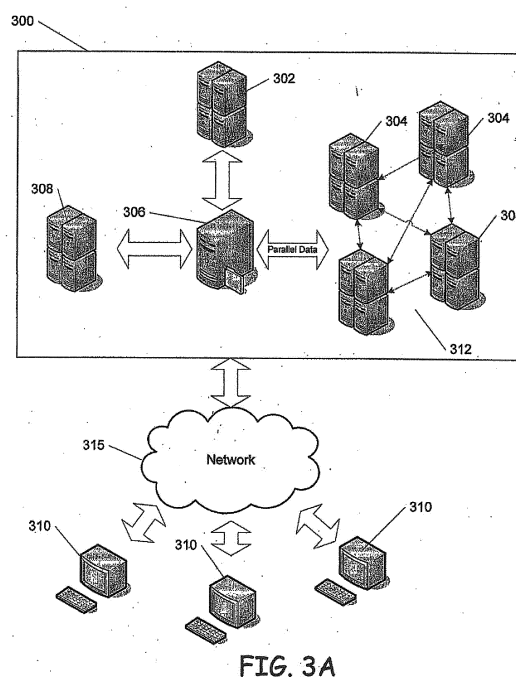


FIG. 3A

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EUROPEAN SEARCH REPORT

Application Number
EP 14 17 5672

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Place of search The Hague		Date of completion of the search 13 February 2015	Examiner van Berlo, André
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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