

(12) 按照专利合作条约所公布的国际申请

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国际局



(10) 国际公布号  
**WO 2025/153909 A3**

(43) 国际公布日  
2025 年 7 月 24 日 (24.07.2025)

(51) 国际专利分类号:  
**G06F 21/64** (2013.01)

(21) 国际申请号: PCT/IB2025/050133

(22) 国际申请日: 2025 年 1 月 7 日 (07.01.2025)

(25) 申请语言: 中文

(26) 公布语言: 中文

(30) 优先权:  
202410066179.4 2024 年 1 月 16 日 (16.01.2024) CN

(71) 申请人: 云智能资产控股(新加坡)私人股份有限公司(CLOUD INTELLIGENCE ASSETS HOLDING (SINGAPORE) PRIVATE LIMITED) [SG/SG]; 新加坡新加坡勿拉士峇沙路 51 号来赞达一号大厦#03-06 189554 (SG)。

(72) 发明人: 陈吉强(CHEN, Jiqiang); 中国浙江省杭州市西湖区三墩镇灯彩街1008号 310030 (CN)。汪晟(WANG, Sheng); 新加坡新加坡勿拉士峇沙

路51号来赞达一号大厦#03-06 189554 (SG)。李飞飞(LI, Feifei); 中国浙江省杭州市西湖区三墩镇灯彩街1008号 310030 (CN)。

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(54) Title: VERIFICATION STRUCTURE UPDATING METHOD, DATA VERIFICATION METHOD, DEVICE, MEDIUM AND PRODUCT

(54) 发明名称: 验证结构更新方法、数据校验方法、设备、介质及产品

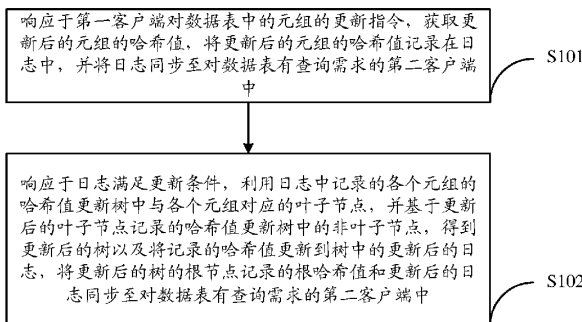


图 2

S101 In response to an updating instruction from a first client for a tuple in a data table, acquire a hash value of the updated tuple, record the hash value of the updated tuple in a log, and synchronize the log to a second client having a query requirement for the data table

S102 In response to the log meeting an updating condition, use the hash value of each tuple recorded in the log to update a leaf node corresponding to the tuple in a tree, update non-leaf nodes in the tree on the basis of hash values recorded by the updated leaf nodes to obtain an updated tree and an updated log logging the updating of the recorded hash values to the tree, and synchronize root hash values recorded by root nodes of the updated tree and the updated log to the second client having the query requirement on the data table

(57) Abstract: Provided in the present description are a verification structure updating method, a data verification method, an electronic device, a storage medium and a product. The method comprises: in response to an updating instruction from a first client for a tuple in a data table, acquiring a hash value of the updated tuple, recording the hash value of the updated tuple in a log, and synchronizing the log to a second client having a query requirement for the data table; and, in response to the log meeting an updating condition, using the hash value of each tuple recorded in the log to update a leaf node corresponding to the tuple in a tree, updating non-leaf nodes in the tree on the basis of hash values recorded by the updated leaf nodes, and synchronizing root hash values recorded by root nodes of the updated tree and an updated log to the second client having the query requirement on the data table.

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BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR,  
HU, IE, IS, IT, LT, LU, LV, MC, ME, MK, MT, NL, NO,  
PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF,  
CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN,  
TD, TG)。

根据细则4.17的声明:

- 关于申请人有权要求在先申请的优先权(细则4.17(iii))

本国际公布:

- 包括国际检索报告(条约第21条(3))。
- 黑白;提交的国际申请包含彩色或灰度,并且可通过PATENTSCOPE下载

**(88)** 国际检索报告公布日期:

2025 年 9 月 12 日 (12.09.2025)

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**(57)** 摘要: 本说明书提供一种验证结构更新方法、数据校验方法、电子设备、存储介质及产品。该方法包括: 响应于第一客户端对数据表中的元组的更新指令, 获取更新后的元组的哈希值, 将更新后的元组的哈希值记录在日志中, 并将日志同步至对数据表有查询需求的第二客户端中; 响应于日志满足更新条件, 利用日志中记录的各个元组的哈希值更新树中与各个元组对应的叶子节点, 并基于更新后的叶子节点记录的哈希值更新树中的非叶子节点, 将更新后的树的根节点记录的根哈希值和更新后的日志同步至对数据表有查询需求的第二客户端中。