

(12) 按照专利合作条约所公布的国际申请

(19) 世界知识产权组织
国际局



(10) 国际公布号
WO 2022/199473 A1

(43) 国际公布日
2022 年 9 月 29 日 (29.09.2022)

(51) 国际专利分类号:
G06F 21/62 (2013.01) *G06F 16/2458* (2019.01)

(21) 国际申请号: PCT/CN2022/081641

(22) 国际申请日: 2022 年 3 月 18 日 (18.03.2022)

(25) 申请语言: 中文

(26) 公布语言: 中文

(30) 优先权:
202110322506.4 2021 年 3 月 25 日 (25.03.2021) CN

(71) 申请人: 支付宝 (杭州) 信息技术有限公司 (ALIPAY (HANGZHOU) INFORMATION TECHNOLOGY CO., LTD.) [CN/CN]; 中国浙江省杭州市西湖区西溪路 556 号 8 层 B 段 801-11, Zhejiang 310000 (CN)。

(72) 发明人: 吴若凡 (WU, Ruofan); 中国浙江省杭州市西湖区西溪路 556 号 8 层 B 段 801-11, Zhejiang 310000 (CN)。

(74) 代理人: 北京博思佳知识产权代理有限公司 (BEIJING BESTIPR INTELLECTUAL PROPERTY LAW CORPORATION); 中国北京市海淀区上地三街 9 号嘉华大厦 B 座 409, Beijing 100085 (CN)。

(81) 指定国 (除另有指明, 要求每一种可提供的国家保护): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW。

(84) 指定国 (除另有指明, 要求每一种可提供的地区保护): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ,

(54) Title: SERVICE ANALYSIS METHOD AND APPARATUS BASED ON DIFFERENTIAL PRIVACY

(54) 发明名称: 基于差分隐私的业务分析方法及装置

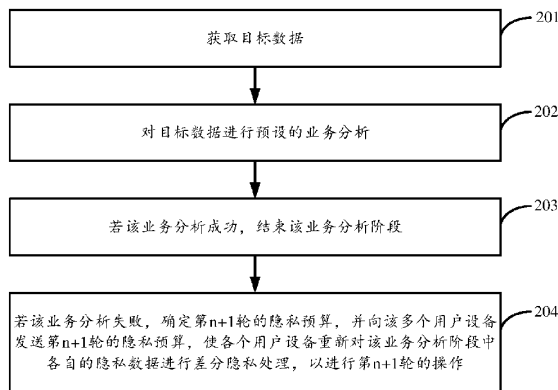


图 2

201 Acquire target data
202 Perform a preset service analysis on the target data
203 If the service analysis succeeds, end this service analysis stage
204 If the service analysis fails, determine a privacy budget of an (n+1)th round of operation, and send the privacy budget of the (n+1)th round of operation to a plurality of user equipments, such that each user equipment performs differential privacy processing on its own privacy data again in this service analysis stage, so as to perform the (n+1)th round of operation

(57) Abstract: The present description provides a service analysis method and apparatus based on differential privacy. According to the method, the method comprises at least one service analysis stage, and any service analysis stage comprises at least a round of operation. An nth round of operation of a service analysis stage comprises the following steps: acquiring target data, wherein the target data is obtained by means of performing anonymization processing on data to be processed; performing a preset service analysis on the target data; if the service analysis succeeds, ending this service analysis stage; and if the service analysis fails, determining a privacy budget of an (n+1)th round of operation, and sending the privacy budget of the (n+1)th round of operation to a plurality of user equipments. In this way, a privacy budget can be adaptively adjusted during the process of performing differential privacy processing on data, thereby enhancing the flexibility of a privacy protection process and improving the availability of privacy protection data.

[见续页]

WO 2022/199473 A1

NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), 欧亚 (AM, AZ, BY, KG, KZ, RU, TJ, TM), 欧洲 (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, 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)。

本国际公布：

— 包括国际检索报告(条约第21条(3))。

(57) 摘要： 本说明书提供一种基于差分隐私的业务分析方法及装置，根据该方法，所述方法包括至少一个业务分析阶段，任一个业务分析阶段包括至少一轮操作；该业务分析阶段的第 n 轮的操作包括以下步骤：获取目标数据；所述目标数据为对待处理数据进行匿名化处理得到的；对所述目标数据进行预设的业务分析；若所述业务分析成功，结束该业务分析阶段；若所述业务分析失败，确定第 $n+1$ 轮的隐私预算，并向所述多个用户设备发送所述第 $n+1$ 轮的隐私预算。从而能够在对数据进行差分隐私处理的过程中，自适应地调整隐私预算，增强了隐私保护过程的灵活性，提高了隐私保护数据的可用性。