

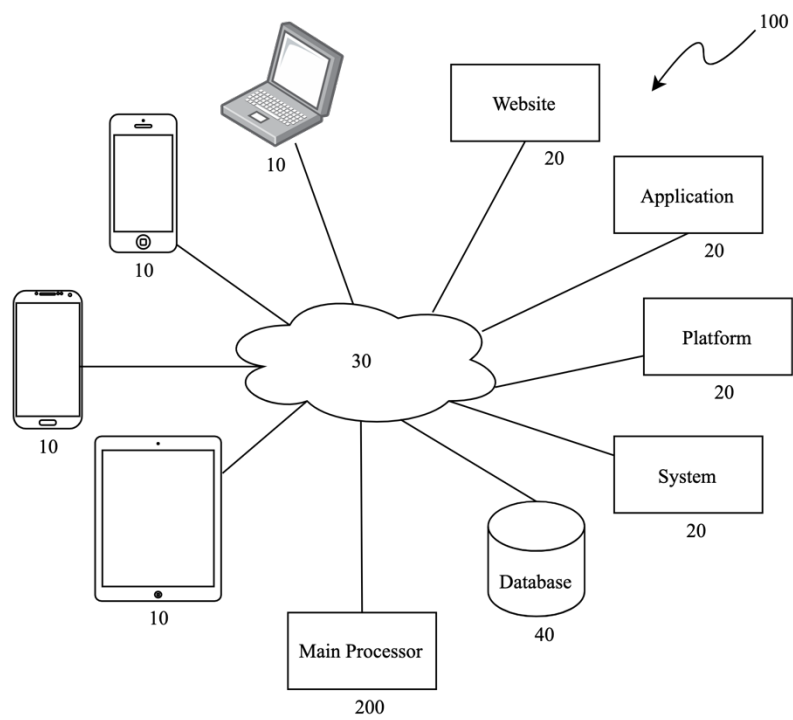


Figure 1

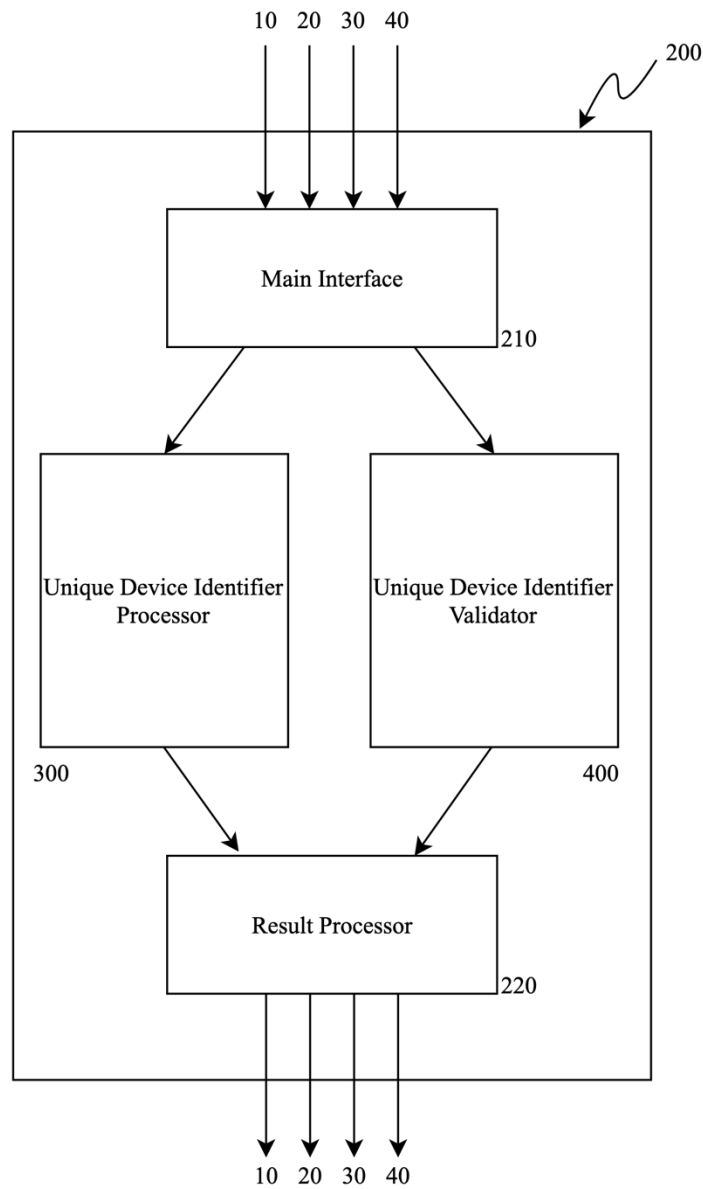


Figure 2

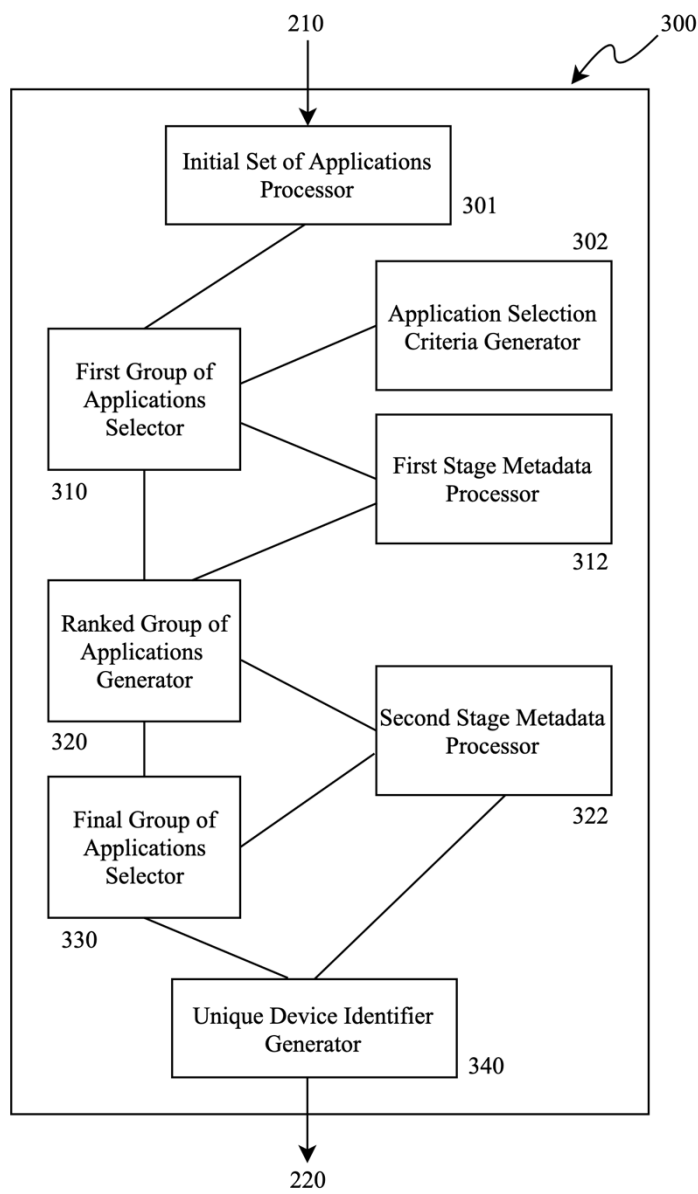


Figure 3

App		Date/time of install	Installed by user
com.miui.screenrecorder		2008-12-31 16:00:00.000	FALSE
com.skype.raider		2020-03-19 06:00:06.736	TRUE
com.android.cts.priv.ctsshim		2008-12-31 16:00:00.000	FALSE
com.qualcomm.qti.qms.service.telemetry		2008-12-31 16:00:00.000	FALSE
com.google.android.youtube		2008-12-31 16:00:00.000	FALSE
com.qualcomm.qti.perfdump		2008-12-31 16:00:00.000	FALSE
com.android.internal.display.cutout.emulation.corner		2008-12-31 16:00:00.000	FALSE
com.google.android.ext.services		2008-12-31 16:00:00.000	FALSE
com.android.internal.display.cutout.emulation.double		2008-12-31 16:00:00.000	FALSE
com.android.providers.telephony		2008-12-31 16:00:00.000	FALSE
com.miui.powerkeeper		2008-12-31 16:00:00.000	FALSE
com.goodix.fingerprint		2008-12-31 16:00:00.000	FALSE
com.xiaomi.mipay_client		2008-12-31 16:00:00.000	FALSE
com.google.android.googlequicksearchbox		2008-12-31 16:00:00.000	FALSE
com.fecredit.RoboLending		2020-04-08 09:10:11.289	TRUE
cn.wps.xiaomi.abroad.lite		1971-10-31 13:10:39.000	FALSE
com.android.providers.calendar		2008-12-31 16:00:00.000	FALSE
com.zing.zalo		2019-01-01 15:42:07.059	TRUE
com.android.providers.media		2008-12-31 16:00:00.000	FALSE
com.milink.service		2008-12-31 16:00:00.000	FALSE
com.google.android.onetimeinitializer		2008-12-31 16:00:00.000	FALSE
com.google.android.ext.shared		2008-12-31 16:00:00.000	FALSE
com.xiaomi.powerchecker		2008-12-31 16:00:00.000	FALSE
com.vttm.vietteldiscovery		2019-01-04 11:49:48.798	TRUE
com.xiaomi.account		2008-12-31 16:00:00.000	FALSE
com.android.wallpapercropper		2008-12-31 16:00:00.000	FALSE
com.bsp.catchlog		2008-12-31 16:00:00.000	FALSE
com.quicinc.cne.CNEService		2008-12-31 16:00:00.000	FALSE
com.xiaomi.mi_connect_service		2008-12-31 16:00:00.000	FALSE
...(more apps not shown)...			

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Figure 4A

App		Date/time of install	Installed by user
com.skype.raider		2020-03-19 06:00:06.736	TRUE
com.fecredit.RoboLending		2020-04-08 09:10:11.289	TRUE
com.zing.zalo		2019-01-01 15:42:07.059	TRUE
com.vttm.vietteldiscovery		2019-01-04 11:49:48.798	TRUE
com.pizzahut.app.vn		2020-02-23 06:06:30.430	TRUE
com.whatsapp		2020-03-19 05:55:18.243	TRUE
org.zwanoo.android.speedtest		2020-02-11 08:03:38.701	TRUE
vms.com.vn.mymobifone		2020-02-11 07:25:57.322	TRUE
com.barcodescanner.qrcodesub2		2020-03-27 03:55:30.813	TRUE
com.airvisual		2019-02-01 08:26:30.280	TRUE
com.acb.lifestyle		2020-03-11 07:50:39.811	TRUE
com.ovelin.guitartuna		2019-01-04 15:20:07.549	TRUE
com.microsoft.mobile.polymer		2019-11-14 23:03:09.099	TRUE
com.facebook.katana		2019-01-01 15:41:33.345	TRUE
io.silvrr.installment		2019-11-19 08:35:10.494	TRUE
com.facebook.orca		2020-01-01 14:44:54.920	TRUE
com.eumlalab.android.prometronome		2019-06-25 14:33:20.928	TRUE
com.garena.game.kgvn		2019-07-16 01:55:33.088	TRUE
com.linkedin.android		2019-11-30 00:33:37.950	TRUE
com.google.android.play.games		2019-01-18 17:10:44.141	TRUE
cn.wps.moffice_eng		2019-01-01 15:36:58.190	TRUE



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416

Figure 4B

App	Date/time of install	Installed by user
cn.wps.moffice_eng	2019-01-01 15:36:58.190	TRUE
com.facebook.katana	2019-01-01 15:41:33.345	TRUE
com.zing.zalo	2019-01-01 15:42:07.059	TRUE
com.vttm.vietteldiscovery	2019-01-04 11:49:48.798	TRUE
com.ovelin.guitartuna	2019-01-04 15:20:07.549	TRUE
com.google.android.play.games	2019-01-18 17:10:44.141	TRUE
com.airvisual	2019-02-01 08:26:30.280	TRUE
com.eumlab.android.prometronome	2019-06-25 14:33:20.928	TRUE
com.garena.game.kgvn	2019-07-16 01:55:33.088	TRUE
com.microsoft.mobile.polymer	2019-11-14 23:03:09.099	TRUE
io.silvrr.installment	2019-11-19 08:35:10.494	TRUE
com.linkedin.android	2019-11-30 00:33:37.950	TRUE
com.facebook.orca	2020-01-01 14:44:54.920	TRUE
vms.com.vn.mymobifone	2020-02-11 07:25:57.322	TRUE
org.zwanoo.android.speedtest	2020-02-11 08:03:38.701	TRUE
com.pizzahut.app.vn	2020-02-23 06:06:30.430	TRUE
com.acb.lifestyle	2020-03-11 07:50:39.811	TRUE
com.whatsapp	2020-03-19 05:55:18.243	TRUE
com.skype.raider	2020-03-19 06:00:06.736	TRUE
com.barcodescanner.qrcodesub2	2020-03-27 03:55:30.813	TRUE
com.fecredit.RoboLending	2020-04-08 09:10:11.289	TRUE

Figure 4C

App	Date/time of install	Installed by user
cn.wps.moffice_eng	2019-01-01 15:36:58.190	TRUE
com.facebook.katana	2019-01-01 15:41:33.345	TRUE
com.zing.zalo	2019-01-01 15:42:07.059	TRUE
com.vttm.viettelDiscovery	2019-01-04 11:49:48.798	TRUE
com.ovelin.guitartuna	2019-01-04 15:20:07.549	TRUE

432 434 436

Figure 4D

Brand	Xiaomi
Model	Mi MIX 2
Product	chiron
Output:	Xiaomi_Mi MIX2_chiron_cn.wps.moffice_eng_com.facebook.katana_com.zing.zalo_com.vttm.vietteldiscovery_com.ovelin.guitartuna_1546357018.19_1546357293.346_1546357327.059_1546602588.798_1546615207.549

442

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Figure 4E

Unique device identifier	3614b140a34031bdb35e67838e4265e0
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Figure 4F

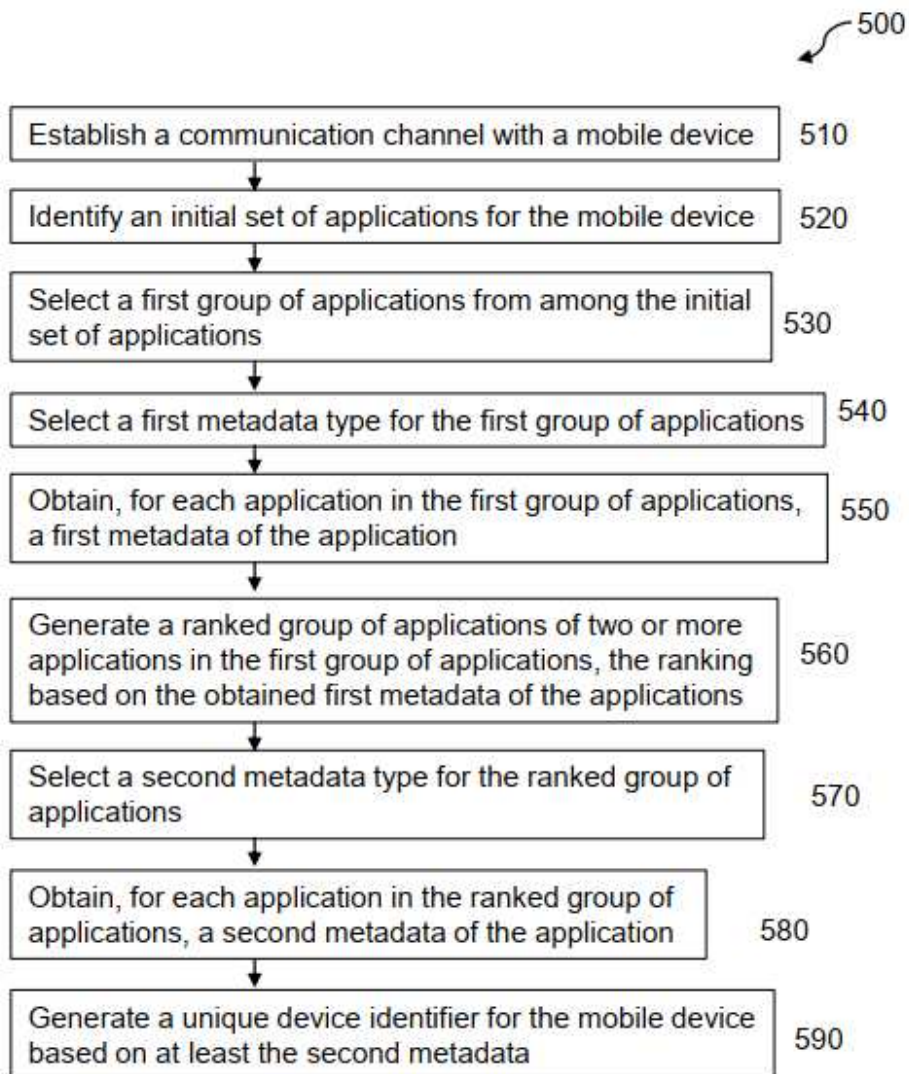


Figure 5

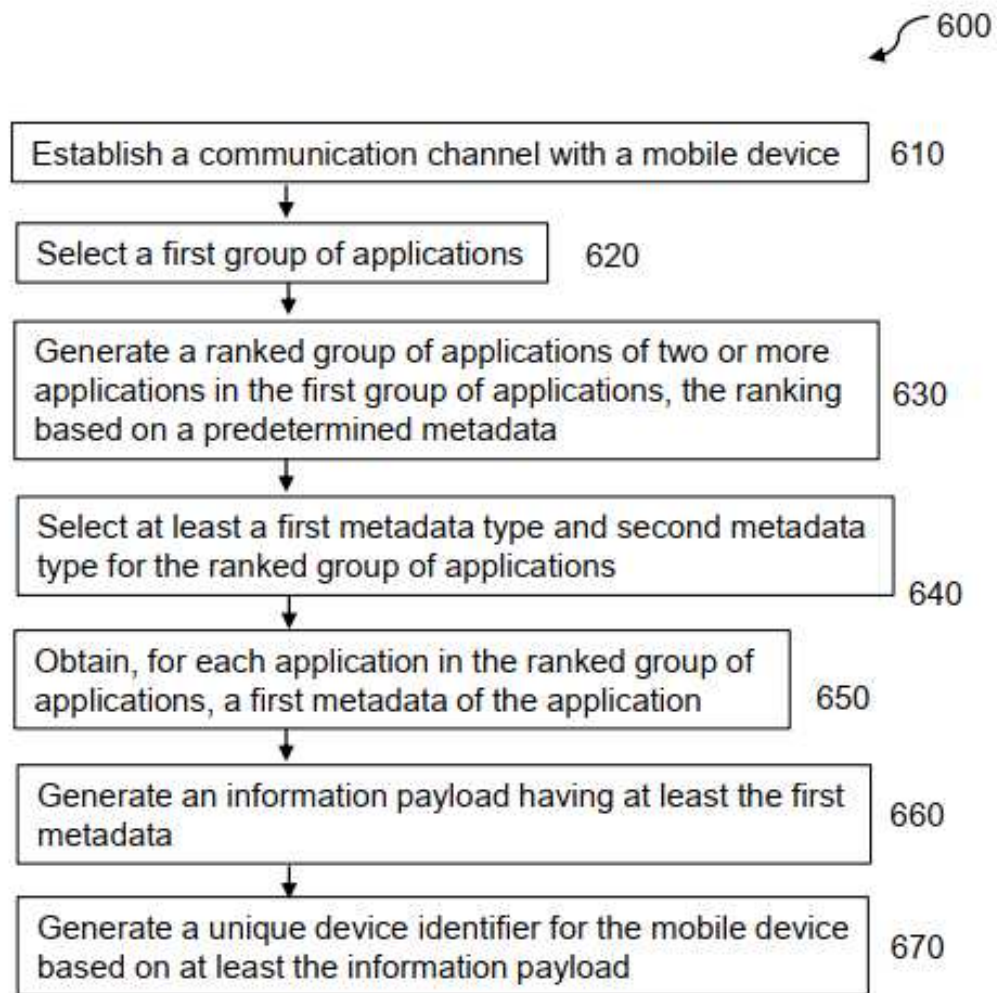


Figure 6

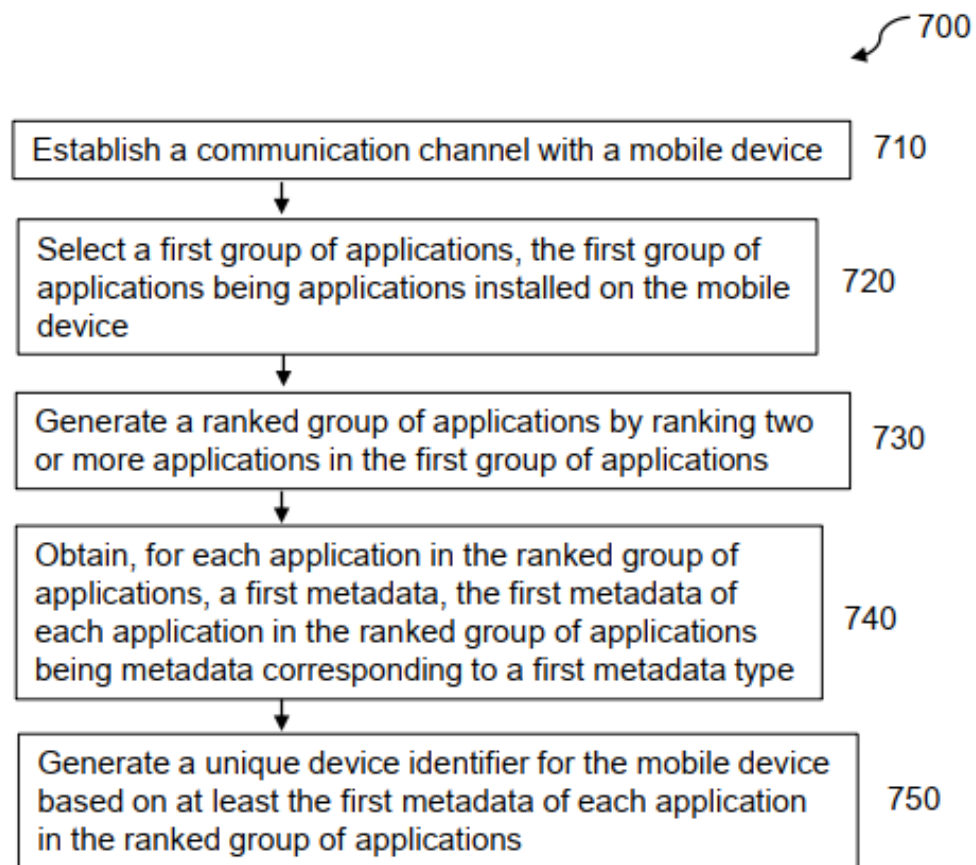


Figure 7