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(71) Applicant: **Intowow Innovation Limited B.V.I.**
Taipei, Taiwan (CN)

(72) Inventor: **Lee, YingTsung**
Taipei (CN)

(74) Representative: **Nordmeyer, Philipp Werner**
df-mp Dörries Frank-Molnia & Pohlman Patentanwälte Rechtsanwälte PartG mbB
Theatinerstraße 16
80333 München (DE)

(54) DECENTRALIZED ADVERTISEMENT SYSTEM AND METHOD

(57) A decentralized advertisement system and method, through the installation of an advertisement engine to a mobile device and the intercommunication between the advertisement engine and an advertisement server, obtains an advertisement list and an advertisement engine profile. Subsequently, an advertisement preload list is established, and a plurality of advertisement content is sequentially downloaded from an advertisement content delivery network. When a request to display advertisement on a mobile application, the mobile application sends an advertisement request to the engine, and the engine sends the downloaded content to the mobile application and returns an advertisement browsing history according to the request. The instant disclosure can deliver advertisement content by establishing an advertisement preload list in advance without real-time access via server of each advertisement request, thereby reducing loading time and improving user experiences by efficiently delivering mobile (video and audio) advertisement to mobile devices.

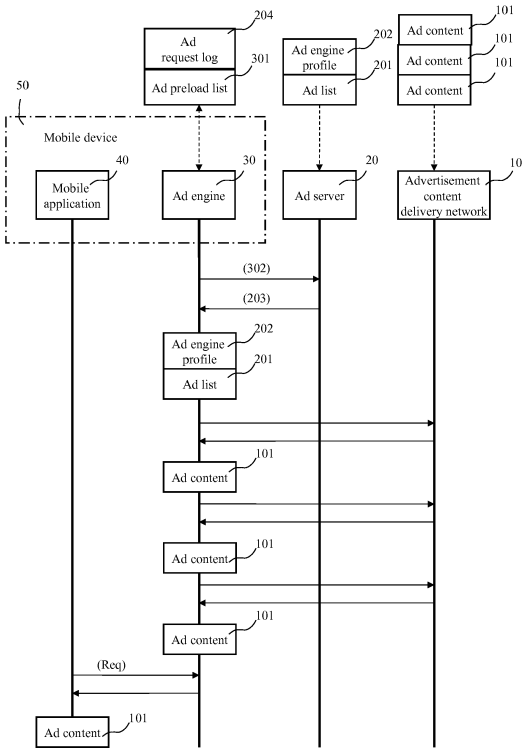

FIG. 1

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Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The instant disclosure relates to a decentralized advertisement system and method, in particular, to a delivery method applicable in the advertisement delivery environment of mobile device applications.

2. Description of Related Art

[0002] As smart phones become more commonplace and mobile network bandwidth technology becomes more advanced, the applicable range of mobile applications (mobile app) become increasingly wide. In recent years, mobile network traffic even surpasses the internet traffic from a traditional desktop. In other words, Internet users went from a desktop device (for example: Personal computer (PC) or a notebook (NB)) into the small-screen mobile devices (for example: a mobile phone or tablet).

[0003] As users' day to day life become more dependence on mobile devices, mobile advertisements are becoming the new target of the advertisement market, especially the attractive advertisements (ads) with more video and audio rather than those with text, thus more and more brand names are willing to put their advertisement budget that was original aimed for TV onto mobile ads.

[0004] However, displaying high-resolution advertisement content often require mobile devices with high computing capability and strong mobile networks, while the mobile network bandwidth, speed, and the computing power of the mobile devices are not comparable to that of a desktop device, and further mobile devices are vulnerable to the external environment, thus the ads often failed to load or delayed in loading, and in turn lost the advertising opportunity or attracted more dissatisfied users (viewers).

[0005] To overcome these issues, the current common mobile advertisement approach is to use preloaded content, by downloading in advance the ad content before there is a demand to display the advertisement content, and when there is demand to display ads, the mobile app can display the already downloaded ads for the enjoyment of the user (the viewer).

[0006] U.S. Patent Application No. 12/618,397 discloses a similar method as described above, where the advertisement targeted to be delivered from the ad list will download before the advertisement is displayed, but when advertisement platform (i.e. the ad server) changes the advertisement list (for example: the advertisement contract ended), the mobile applications must delete the downloaded ads and re-download new advertisement content. This approach squanders transmission costs and electricity while impacts the performance of mobile devices when a large quantity of preloading is required.

[0007] Furthermore, the current means for preloading advertisements are in accordance with preloaded advertisement platform setting rather than providing the more suitable ads to the user based on the execution state of the mobile app. In addition, with the limited amount of storage space in the mobile devices, the same ad contents are repeatedly displayed.

[0008] To address the above issues, the inventor strives via associated experience and research to present the instant disclosure, which can provide more efficient delivery of mobile (video and audio) advertisements to the mobile device terminal.

SUMMARY OF THE INVENTION

[0009] In order to solve the shortcomings of preloaded mobile ads, an approach of the instant disclosure is to provide a decentralized mobile advertisement delivery system and method by installing an ad engine into the mobile app of the mobile device, and preloading a plurality of advertisement content from the ad engine in order to respond to the ad requests from the mobile applications.

[0010] Another approach of the instant disclosure is to provide a decentralized mobile ad delivery system and method configured to determine the preloaded ad content to be downloaded according to user preferences, in other words, based on the number of ad requests on record.

[0011] Yet another approach of the instant disclosure is to provide a decentralized mobile ad delivery system and method configured to preload mobile ads without compromising the effectiveness of the mobile devices, in which the prioritized order of the ad content is set according to the number of ad requests on record and the ad list, and then the time at which each ad content begins to downloaded is determined according to the operational status of mobile devices.

[0012] One embodiment of the decentralized mobile advertisement content delivery network of the instant disclosure includes a content delivery network (Content Delivery Network, CDN), an ad server, an advertisement engine and a mobile application. The advertisement content delivery network has a plurality of advertisement content. The ad server

sets an advertisement (ad) list and an ad engine profile according to advertisement content and the broadcast demands within the ad content delivery network. The advertisement engines and mobile applications are installed in mobile devices, the ad engine and ad requests log of the mobile app establish a preload list according to the advertisement list and the ad engine profile, and download a plurality of ad contents from the ad content delivery network according to the ad preload list and the operating state of the mobile application. When there is a need to display ads, the mobile application will send an advertisement request to the ad engine, then the ad engine sends the already downloaded ad content to the mobile app according to the ad request, thereby eliminating the need to access the ad server in real-time.

[0013] According to an embodiment of the decentralized mobile advertisement delivery method of the instant disclosure, which includes obtaining an ad list and an ad engine profile from an ad server, establishing an ad preload list with the ad request log according to the ad profile and an ad the ad list, downloading a plurality of ad contents sequentially from an ad content delivery network according to the ad preload list and an operational state of a mobile device, receiving an ad request from a mobile application, and responding to the ad request of the mobile application according to the ad list.

[0014] Accordingly, the decentralized mobile advertisement delivery system and method of the instant disclosure can enhance the user experience via the ad engine and the establishment of the ad preload list, and can also effectively deliver mobile (video and audio) advertisements to mobile devices.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015]

FIG. 1 is a schematic diagram of a decentralized mobile advertisement delivery system in accordance with an embodiment of the instant disclosure.

FIG. 2 is another schematic diagram illustrating the structural concept of the decentralized mobile advertisement delivery system in accordance with an embodiment of the instant disclosure.

FIG. 3 is a flow diagram of a decentralized mobile advertisement delivery method in accordance with an embodiment of the instant disclosure.

FIG. 4 is a flow chart of step S110, establishing an advertisement preload list, of FIG. 3 in accordance with an embodiment of the instant disclosure.

FIG. 5 a flow chart of step S118 of FIG. 4 in accordance with an embodiment of the instant disclosure.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0016] As shown in FIG. 1, a schematic diagram of a decentralized mobile advertisement delivery system in accordance with an embodiment of the instant disclosure, and FIG. 2 is another schematic diagram illustrating the structural concept of the decentralized mobile advertisement delivery system in accordance with an embodiment of the instant disclosure. In the instant embodiment, the decentralized mobile advertisement system which includes an advertisement (ad) content delivery network 10, an advertisement (ad) server 20, an advertisement (ad) engine 30 and a mobile application 40. Advertisement content delivery network 10 has a plurality of advertisement content 101, each of the ad content 101 has a tag (Ad ID) 2011. The ad server 20 set an ad list 201 and an ad engine profile 202 according to the advertisement content 101 within the ad content delivery network 10. The ad engine 30 and the mobile application 40 are installed in the mobile device 50, the ad engine includes an advertisement (ad) log 204. In accordance to the mobile application, after the ad engine profile 202 and the ad request log 204 of the mobile applications established an advertisement (ad) preload list 301, set the download sequence of the ad content 101 according to the ad preload list 301 and the page being instantly display on the mobile application 40. When there are requests for the display of advertisement from the mobile application 40, the mobile application 40 sends an ad request R to the ad engine 30. The ad engine 30 sends the compliant request R and the downloaded advertisement content 101 to the mobile app 40 according to the ad list 201.

[0017] It is worth noting that the ad delivery network or system of the instant disclosure can deliver advertisement content by establishing an advertisement preload list in advance without real-time access via the ad server of each advertisement request. The ad engine 30 can directly download ad content 101 from the ad content delivery network 10 by installing an ad engine onto a mobile device end and establishing an ad preload list. This approach can achieve the benefits of distributed (decentralized) systems, but the ad servers in the ad system require higher computing capability compared to the traditional advertisement system, the ad server of the instant disclosure do not require equipment with high specification or computing capability.

[0018] The advertisement engine 30 records the number or quantity of requests R in the ad request log 204, establishes a browsing history 302 with a browsing state of the 40 mobile application (app), and returns the history 302 to the ad server 20.

[0019] The ad list 201 includes all the ad tags 2011, the ad slots 2012 (e.g. insert, boot-up or information advertisement), and a playing protocol 2013 corresponding to the advertisement content 101 stored on the advertisement content delivery

network 10. The ad engine profile 202 includes a preload protocol 2021 with a download protocol 2022.

[0020] The download protocol 2022 primarily regulates the timing of the ad engine 30 to download ad content 101 from the ad content delivery network. For example, when the power of the mobile device 50 is charged at a substantially high state or at is in a wireless LAN environment, the download protocol 2022 allows the ad engine 30 perform the download of the advertisement content 101 in background environment of the mobile app 40.

[0021] The broadcast protocol 2013, based on the advertisement contract information that controls the advertisement engine 30, responds to the advertisement content 101 of the ad request R. For example, some advertisers mainly request the advertisement content to be played in the air only once within 12 hours, thus, when the advertisement engine 30 receives the ad requests R sent from the mobile application 40, advertisements that are restricted are not send to mobile application 40 ends.

[0022] Preload protocol 2021 is a preset protocol, which includes an ad slot 2012, an ad priority, an ad demand and a threshold value. The following table is a preload protocol 2021:

Table I

Ad Slot	Ad Priority	Ad Demand	Threshold Value
Insert Ad	88	1	0
Insert Ad	77	1	1
Insert Ad	66	2	3
Info. Stream Ad A	65	1	0
Info. Stream Ad A	60	1	1
Info. Stream Ad A	45	2	5
Info. Stream Ad B	30	1	3
Info. Stream Ad B	20	2	10

[0023] As shown in Table I, advertisement (ad) priority setting are related to advertisement demands and threshold values in the same ad slot 2012, where the higher the value of the ad priority, higher the priority to perform preload. Threshold values represent the significance of the advertisements in the ad slots 2012, where there is a requirement at least to have a few ad requests R in order to qualify. The advertisement demand is the amount of preload ad content needed or requested. For example, when the amount of ad requests R of the insert advertisements have accumulated a total of five times within an interval, whereas the information (info.) stream advertisement A has no ad request R, then the applicable preload protocol 2021 of the ad engine 30 is as follows:

Ad Slot	Ad Priority	Ad Demand	Threshold Value
Insert Ad	66	2	3
Info. Stream Ad A	65	1	0

[0024] In another example, the priority of the insert advertisement is higher than that of the info. stream ad A, the preload protocol 2021 of the instant embodiment configured the ad engine 30 to first preload the ad content 101 of the two insert advertisements from the ad content delivery network 30, then subsequently preload ad content 101 of an information stream advertisement A.

[0025] As such, when the advertisement engine 30 is activated, the engine 30 will be in communication with the ad server 20 (such as a synchronization signal 302) to obtain an ad list 201 and an ad engine profile 202, and establish an ad preload list 301, then set the download sequence of the ad content 101 according to the ad preload list 301 and the page being displayed on the mobile application 40 at the instant.

[0026] For example, with the preload protocol 2021 as shown in the aforementioned Table I, when the page currently displaying on the mobile app 40 corresponds to the ad slot 2012 of the info. stream ad A, and if the insert ad has accumulated to 2 ad requests R while the info. stream ad A has accumulated to 8 times and the info. stream ad requests has accumulated to 4 times within an interval of time (for example: three days), the applicable preload protocol 2021 of the ad engine 30, according to the set threshold value, shall be as follow:

Table II

Ad Slot	Ad Priority	Ad Demand	Threshold Value
Insert Ad	77	1	1
Info. Stream Ad A	45	2	5
Info. Stream Ad B	30	1	3

[0027] As illustrated in Table II, when the insert advertisement requires one preload demand, information stream ad A requires two, and information stream ad B requires one, which totals a preload demand of four for ad content 101, the ad engine 30 examines for the preloaded ad slots 2012 and the number of preloaded ad slots. For example, if info. stream ad A is preloaded with an ad content 101, the advertisement engine 30 is prompted to download the ad content 101 of an insert ad, an info. stream ad A and an info. stream ad, but not the four ad content 101 demanded quantity as shown in the preload protocol 2021 of Table II.

[0028] Notably, by examining the downloaded ad content 101 after the ad engine 30 obtained the preload protocol, the effect of reusable advertisement content 101 can be achieved. Reusable ad content provides the advantage of reducing unnecessary network bandwidth usage and power consumption.

[0029] Furthermore, since the instant page that is being displayed on the mobile app. 40 is the ad slot 2012 of the info. stream ad A, the priority corresponding to the ad slots 2012 of the ad preload list 301 is considered the highest priority, which prioritized over the value of the ad priority from the original preload protocol 2021. Thus, ad preload list 301 obtains the ad tag 2011 from the ad list and sequentially downloads, firstly, the ad content belonging to the info. stream ad A from the ad content deliver network 10, then the ad content belonging to the insert ad, and lastly the ad content of the info. stream ad B, all based on the download demand of the ad contents 101 of an insert ad, an information stream ad A, and an information stream ad B.

[0030] When there is a need to display advertisement on the mobile application 40, the mobile application 40 sends an ad request R to the ad engine 30, and the ad engine 30 sends the downloaded ad content 101 to the mobile application 40 based on the ad request R.

[0031] As shown in FIG. 2, the ad engine 30 includes a preload module 31, a cache module, and a selection module 33. The preload module 31 is in communication with the ad server 20 to synchronize the ad list 201 with the ad engine profiles 202. The cache module 32 stores the downloaded ad content 101 from the ad content delivery network 10 and communicates with preload module 31 to remove the ad tag 2011 that is not present in the ad content 101 of the ad list 201. The selection module 33 indicates or controls the cache module 32 sends the corresponding ad content 101 to mobile applications 40 according to the broadcast protocol 2013 of the ad list 201.

[0032] After the ad requests R of the mobile applications 40 are separately transmitted to the preload module 31 and selection module 33, the corresponding ad contents 101 are sent from the cache module 32 to the mobile applications 40. Notably in FIG. 2, the mobile application 40 per se does not determine the desired ad content 101. After the preload module 31 received an ad request R, will adapt to adjust the order of the preloaded ads. The selection module mainly configures the desired ad content 101 so as to simplify the complexity of the configuration settings as an advantage. The ad content complying with the broadcast protocol 2013 is sent to the mobile application 40 for display, and the ad content not complying with the broadcast protocol 2013 is not transmitted to the mobile application 40 for display. Moreover, when special ad demands present, the broadcast protocol 2013 can be simply adjusted without the need to adjust or change the preload protocol 2021 or the download protocol 2022.

[0033] In summary, the decentralized mobile ad delivery system of the instant disclosure, via the ad engine and the establishment of the ad preload list, can enhance user experience and more efficiently delivery mobile (video and audio) advertisements to the mobile device end.

[0034] FIG. 3 is a flow diagram of a decentralized mobile advertisement delivery method in accordance with an embodiment of the instant disclosure. In the instant embodiment, the decentralized mobile ad delivery method is applicable to the aforementioned ad delivery system, which includes the steps of S100 - obtaining an ad list and an ad engine profile from an ad server, S110 - establishing an ad preload list according to the ad profile, an ad request log and the ad list, S120 - downloading a plurality of ad content sequentially from an ad content delivery network according to the ad preload list and an operational state of a mobile device, S130 - storing the content of the advertisements, S140 - receiving an ad request from a mobile application, and S150 - responding to the ad request of the mobile application according to the ad list.

[0035] The ad list includes an ad tag 2011, an ad slot 2012, and a broadcast protocol 2013. The ad engine profile includes a preload protocol 2021 and a download protocol 2022.

[0036] FIG. 4 is a flow chart of step S110, establishing an advertisement preload list, of FIG. 3 in accordance with an embodiment of the instant disclosure. In the instant embodiment, the step S110 of establishing an ad preload list includes

the step S111 of reading a threshold value determined in an ad slot 2012 of each ad content from a preload protocol 2021, the step S 112 of obtaining the frequency of an ad request at a time interval corresponding to each ad slot 2012, the step S 113 of obtaining an ad preload quantity and an ad slot 2012 necessarily corresponding to the threshold value, and the step S 114 of establishing an ad preload list according to the ad preload quantity and the ad slots 2012 using the ad list.

[0037] As shown in FIG. 4, the ad preload list step S110 also includes step S 115 of obtaining a priority value corresponding to the ad slot 2012 of each threshold value from the preloaded protocol 2021, and the step S116 of organizing the download sequence of the ad preload list in a sequential order according to the priority value. However, the steps S 115 and S116 are not necessarily essential steps, in which the download sequence of the ad content in the ad preload list can also have a set arrangement corresponding to the ad slots 2012.

[0038] In general, the higher the threshold value of the ad slot 2012 the higher the number of needed ad content, in other words, the threshold value is proportional to the ad content.

[0039] In addition, the ad preload list step S110 includes another step S 117 of setting the priority value with the highest value to the ad slot 2012 necessary for the page currently displayed on the mobile application. The step S117, similar to the steps S115 and S116, is not necessarily an essential step, but this approach can meet the ad request R of the mobile application 40 as the fastest speed possible as an advantage.

[0040] For mobile devices, the mode in which the information stream is displayed on a page can eliminates the trouble of constantly switch between pages, as long as a finger constantly slide, more information can be displayed, but for the mobile advertisement industry (especially for those in the advertisement industry who applies preloading), the more the user slides the higher the number of ad needed or demanded to be displayed, thus when the amount of preloaded advertisement content are insufficient, repeated display of the advertisements often occur as a shortcoming. With the establishment of the ad preload list of the instant disclosure and the step S 117, the aforementioned shortcoming is effectively improve upon, when the number of demands of the ad displayed on screen increases (i.e. the number of ad request send by the application increases), the higher the number of the ad requests indicates the higher the threshold value of ad demand can be met, and as described in step S117, when the ad slot 2012 corresponding to the page displayed at the moment has the highest priority, the other ad slots in 2012 are positioned rather far down the queue for download.

[0041] The Facebook application (RTM) for example, when the user constantly slides the phone, more and more information regarding the user's friends will be dynamically loaded onto the application, the advertisement display demand in the dynamic information will also increase. If the decentralized mobile advertisement delivery method of the instant disclosure is applied, the number and the priority of the ad slots 2012, complying to display on the dynamic information, will be sorted in the preload list, or as the ad slots 2012 with the highest priority, thus subsequently, reducing a significant amount of repeated advertisements being displayed.

[0042] Moreover, to prevent the performance of mobile devices being affected or affect the user experience when downloading advertisement content, in one embodiment, the decentralized mobile advertisement delivery method of the instant disclosure also includes another step S118 of downloading a plurality of ad contents from the ad content delivery network according to the ad preload list and an operating state of the mobile device.

[0043] Please with refer to FIG. 5 for a flow chart of step S118 as in FIG. 4. In the instant embodiment, the step S118 further includes the step S1180 of obtaining the ad tag 2011 corresponding to the plurality of ad content in the ad preload list, the step S1181 of determining whether the mobile device is operating in a state having connectivity to a wireless local area network, the step S1182 of determining whether the mobile devices is operating in a state of high battery power, and the step S1183 of sending the ad tag 2011, and downloading the ad content corresponding to the ad tag 2011 from the ad content delivery network if the mobile device is in an operating state of high battery power and under wireless LAN network.

[0044] The figures and descriptions *supra* set forth illustrated the preferred embodiments of the instant disclosure; however, the characteristics of the instant disclosure are by no means restricted thereto. All changes, alternations, combinations or modifications conveniently considered by those skilled in the art are deemed to be encompassed within the scope of the instant disclosure delineated by the following claims.

Claims

1. The decentralized advertisement system, comprising:

an advertisement content delivery network having a plurality of advertisement content;
an advertisement server including an advertisement list and an advertisement engine profile, wherein the advertisement list includes an advertisement request log;
an advertisement engine stored on a mobile device, the advertisement engine established an advertisement

preload list according to the advertisement list, the advertisement engine profile, and the advertisement request log, and download a plurality of advertisement content from the advertisement content delivery network according to the advertisement preload list and an operating state of the mobile device; and
a mobile application stored on the mobile device and sent an advertisement request to for the advertisement engine so as to obtain at least one advertisement content.

2. The system as in claim 1, wherein the advertisement engine records the quantity of requests and a browsing state of the mobile application, and the advertisement engine records establishes a browsing history and returns the browsing history to the advertisement server.

3. The system as in claim 2, wherein the advertisement server sets the advertisement list and the advertisement engine profile according to the browsing history and an advertisement contract information.

4. The system as in claim 1, wherein the advertisement list includes an advertisement tag, an advertisement slot, and a broadcast protocol; the advertisement engine profile includes a preload protocol and a download protocol.

5. The system as in claim 4, wherein the download protocol controls the timing of the advertisement engine to download advertisement content from the advertisement content delivery network.

6. The system as in claim 4, wherein the broadcast protocol controls the timing and limitations of the advertisement engine to respond to the advertisement request.

7. The system as in claim 4, wherein the preload protocol is a predetermined protocol configured to control the download a plurality of advertisement content by the advertisement engine, the preload protocol includes an advertisement slots, an advertisement priority, an advertisement request, and a threshold value.

8. The system as in claim 4, wherein the advertisement engine comprises:

a preload module, being in communication with the advertisement server, and configured to synchronize with the advertisement list and with the advertisement engine profile;
a cache module stored the advertisement content downloaded from the advertisement content delivery network, the cache module being in communicate with the preload module, and the cache module removed the advertisement content corresponding to the advertisement tag not present in the advertisement list; and
a selection module, configured the cache module to send the corresponding advertisement content to the mobile application according to the broadcast protocol in the advertisement list.

9. A decentralized advertisement method comprising the steps of:

obtaining an advertisement list and an advertisement engine profile from an advertisement server; wherein the advertisement list including an advertisement request log;
establishing an advertisement preload list according to the advertisement profile, the advertisement list and the advertisement request log;
downloading sequentially a plurality of advertisement content from an advertisement content delivery network according to the advertisement preload list and an operational state of a mobile device;
storing the plurality of advertisement content;
receiving an advertisement request from a mobile application; and
responding to the advertisement request of the mobile application according to the advertisement profile.

10. The method as in claim 9, wherein the advertisement engine profile includes a preload protocol and a download protocol, the advertisement list further includes an advertisement tag and an advertisement slot.

11. The method as in claim 10, the step of establishing an advertisement preload list according to the advertisement engine profile, the advertisement list, and the advertisement request log further comprising:

reading a threshold value determined in the advertisement slot of each advertisement content from the preload protocol;
obtaining the frequency of the advertisement request at a time interval corresponding to each advertisement slot;
obtaining an advertisement preload quantity and an advertisement slot necessarily corresponding to the thresh-

old value; and
establishing an advertisement preload list according to the advertisement preload quantity and the advertisement slots using the advertisement list.

12. The method as in claim 11, after the step of obtaining an advertisement preload quantity and an advertisement slot necessarily corresponding to the threshold value, further comprising:

obtaining a priority value corresponding to the advertisement slot of each threshold value from the preloaded protocol; and
listing sequentially the download sequence of the advertisement content in the advertisement preload list according to the priority value.

13. The method as in claim 11, after the step obtaining a priority value corresponding to the advertisement slot of each threshold value from the preloaded protocol, further comprising:

setting the priority value with the highest value to the advertisement slot necessary for the page currently displayed on the mobile application.

14. The method as in claim 9, further comprising:

downloading a plurality of advertisement content from the advertisement content delivery network according to the advertisement preload list and an operating state of the mobile device.

15. The method as in claim 14, the step of downloading a plurality of advertisement content from the advertisement content delivery network according to the advertisement preload list and an operating state of the mobile device, further comprising:

obtaining the advertisement tag corresponding to the plurality of advertisement content in the advertisement preload list;
determining whether the mobile device is operating in a state having connectivity to a wireless local area network;
determining whether the mobile devices is operating in a state of high battery power; and
sending the advertisement tag and downloading the advertisement content corresponding to the advertisement tag from the advertisement content delivery network when the mobile device is operating in a state having connectivity to a wireless local area network and of high battery power.

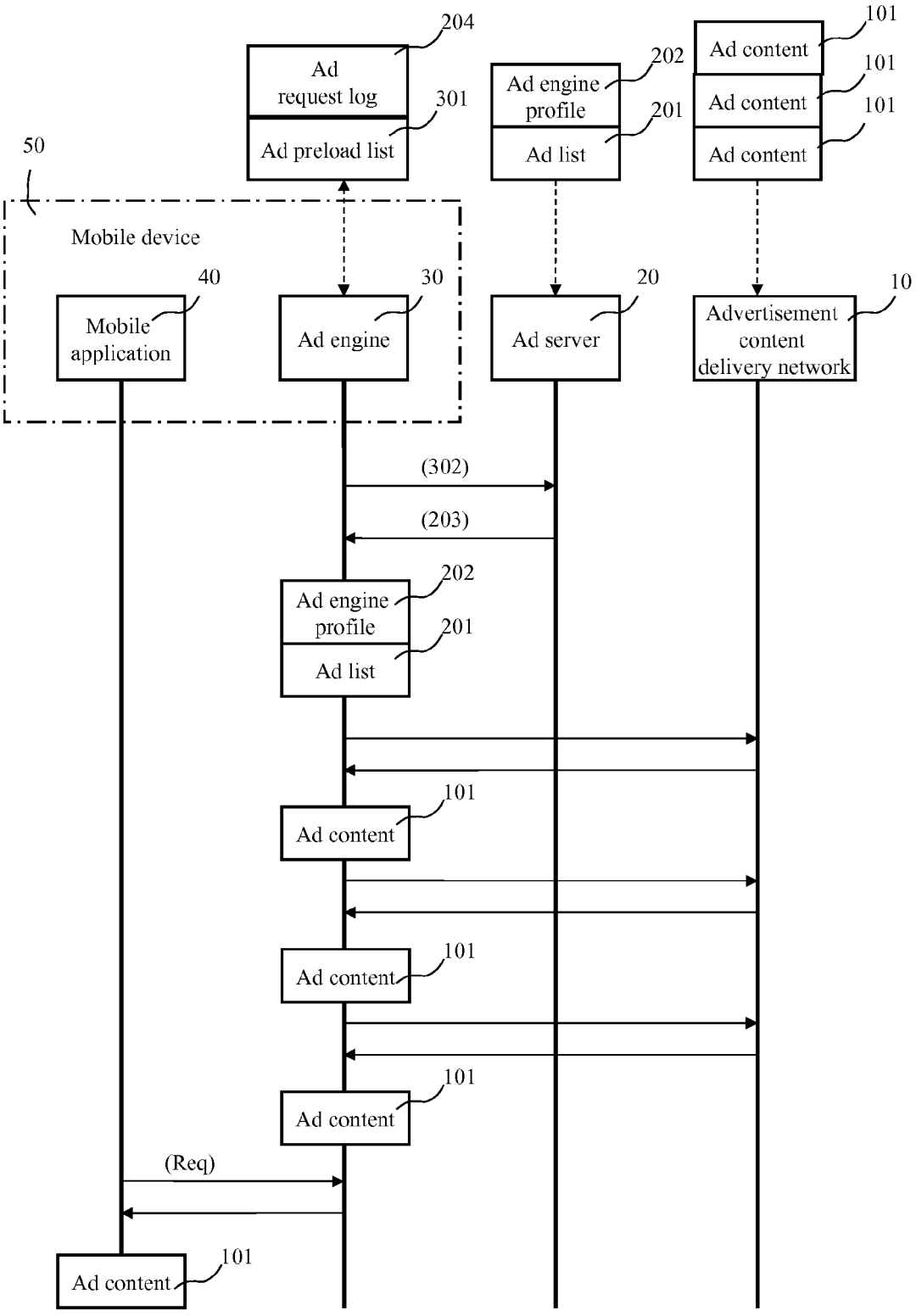
204
Ad request log
301
Ad preload list
202
Ad engine profile
201
Ad list
101
Ad content
101
Ad content
101
Ad content
50
Mobile device
40
Mobile application
30
Ad engine
20
Ad server
10
Advertisement content delivery network
(302)
(203)
202
Ad engine profile
201
Ad list
101
Ad content
101
Ad content
101
Ad content
(Req)
101
Ad content

FIG. 1

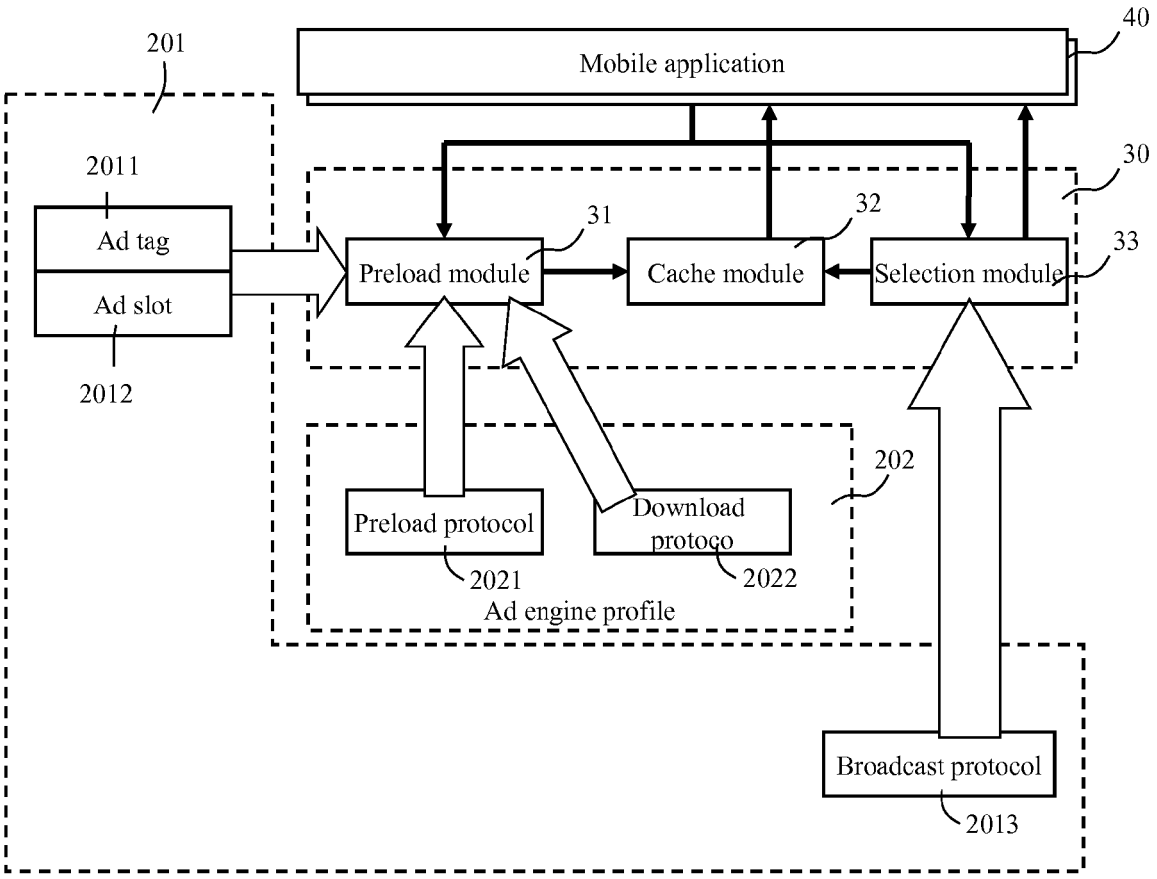
201
Mobile application
40
2011
Ad tag
Ad slot
2012
30
31
32
33
Preload module
Cache module
Selection module
202
Preload protocol
Download protoco
2021
2022
Ad engine profile
Broadcast protocol
2013

FIG. 2

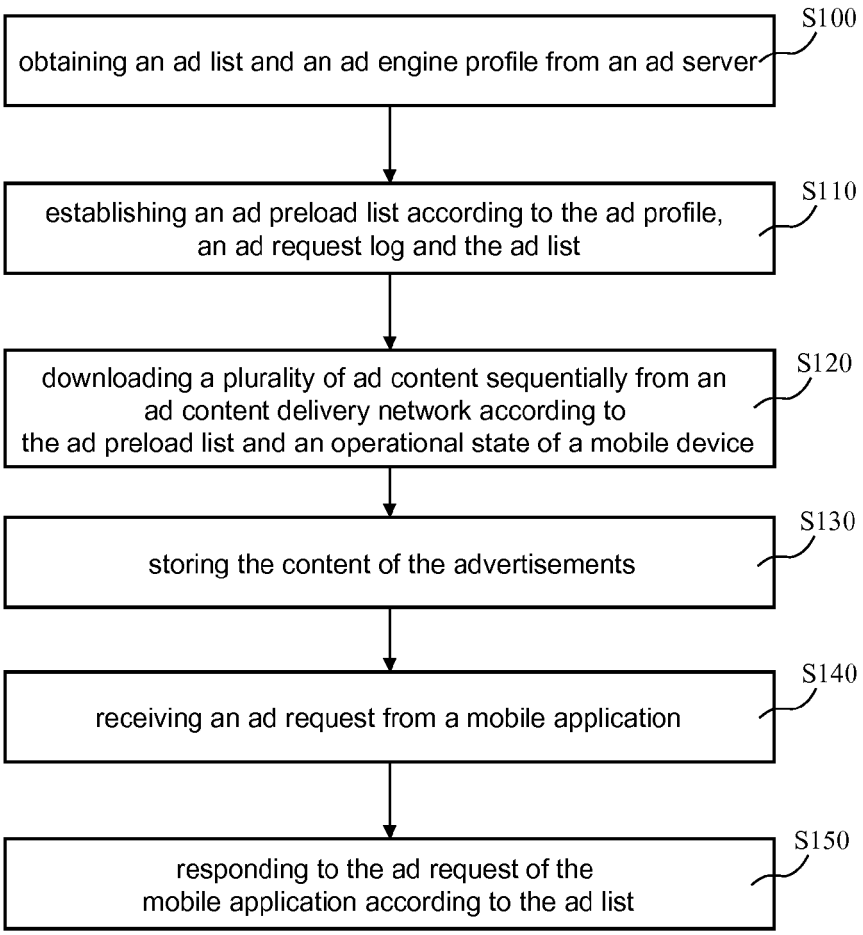
S100
obtaining an ad list and an ad engine profile from an ad server
S110
establishing an ad preload list according to the ad profile, an ad request log and the ad list
S120
downloading a plurality of ad content sequentially from an ad content delivery network according to the ad preload list and an operational state of a mobile device
S130
storing the content of the advertisements
S140
receiving an ad request from a mobile application
S150
responding to the ad request of the mobile application according to the ad list

FIG. 3

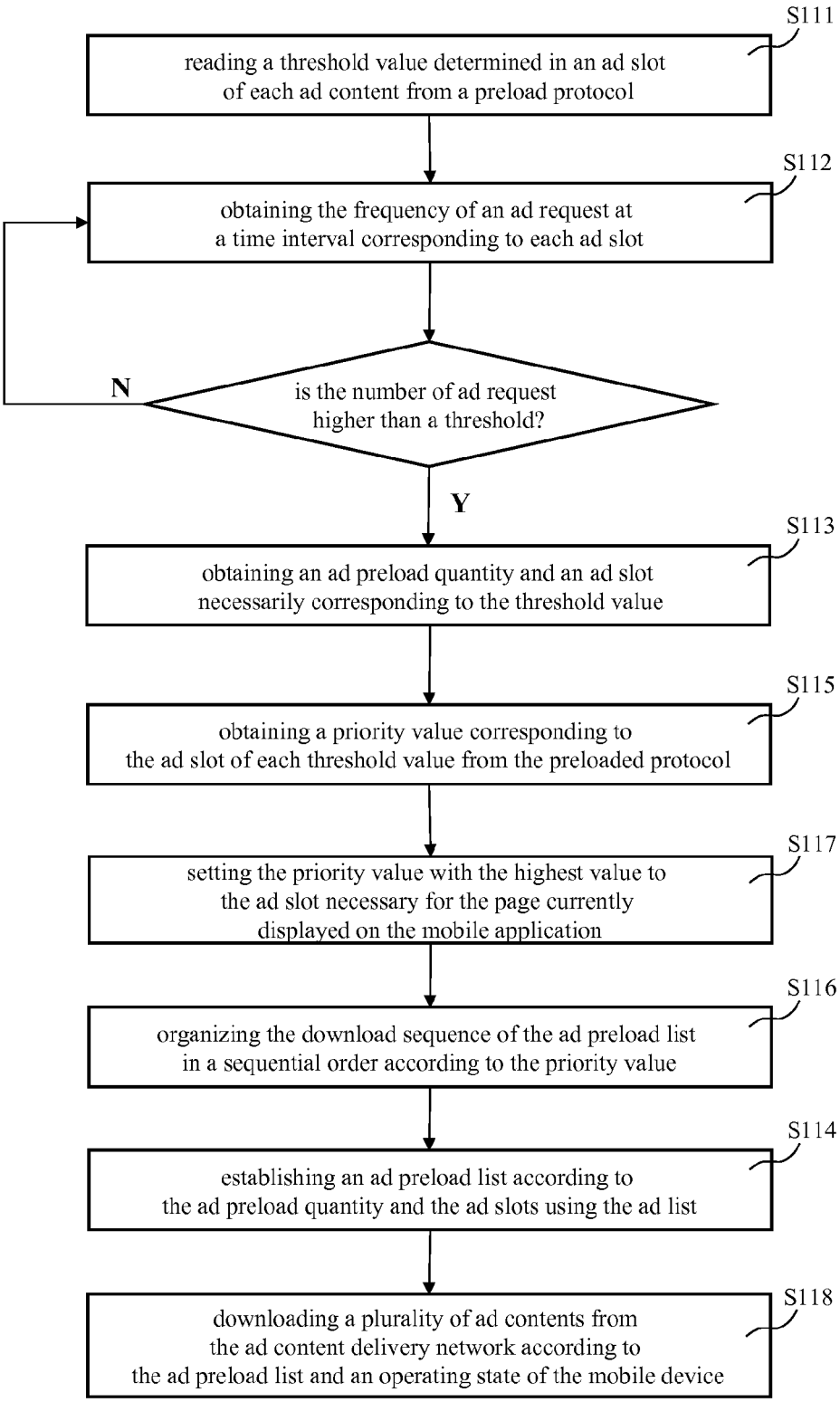
S111
reading a threshold value determined in an ad slot of each ad content from a preload protocol
S112
obtaining the frequency of an ad request at a time interval corresponding to each ad slot
is the number of ad request higher than a threshold?
N
Y
S113
obtaining an ad preload quantity and an ad slot necessarily corresponding to the threshold value
S115
obtaining a priority value corresponding to the ad slot of each threshold value from the preloaded protocol
S117
setting the priority value with the highest value to the ad slot necessary for the page currently displayed on the mobile application
S116
organizing the download sequence of the ad preload list in a sequential order according to the priority value
S114
establishing an ad preload list according to the ad preload quantity and the ad slots using the ad list
S118
downloading a plurality of ad contents from the ad content delivery network according to the ad preload list and an operating state of the mobile device

FIG. 4

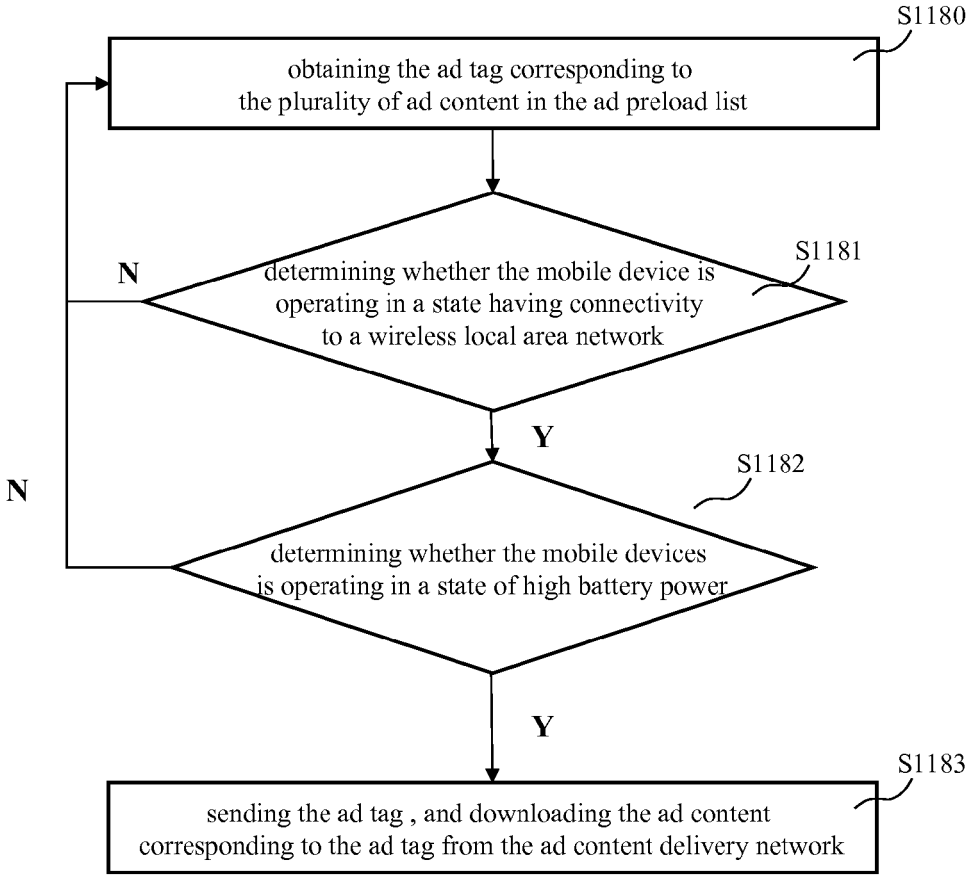
S1180
obtaining the ad tag corresponding to the plurality of ad content in the ad preload list
S1181
determining whether the mobile device is operating in a state having connectivity to a wireless local area network
N
Y
S1182
determining whether the mobile devices is operating in a state of high battery power
N
Y
S1183
sending the ad tag , and downloading the ad content corresponding to the ad tag from the ad content delivery network

FIG. 5

Europäisches Patentamt
European Patent Office
Office européen des brevets

EUROPEAN SEARCH REPORT

Application Number
EP 15 19 1291

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2005/215238 A1 (MACALUSO ANTHONY G [US]) 29 September 2005 (2005-09-29) * the whole document *	1-15	INV. G06Q30/00
X	US 2011/153426 A1 (REDDY RAYMOND [CA] ET AL) 23 June 2011 (2011-06-23) * the whole document *	1-15	
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TECHNICAL FIELDS SEARCHED (IPC)

G06Q

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	10 December 2015	Anastasov, Yuliyan

CATEGORY OF CITED DOCUMENTS

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REFERENCES CITED IN THE DESCRIPTION

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