October 27, 2016

Mechanism for Reducing the Cost Paid by End-users for the Data Consumed to View Ads

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BACKGROUND

Many services related to search applications, video-sharing sites, social networking sites, and some mobile games are free to download and install. The services can be offered for free because the companies offering the services can make money using advertisements (or "ads"). However, end users sometimes need to download and view the ads in order to receive the services. This can mean that the end user may have to pay for the data consumed for both the ads and for the service, including search results, posts on the social networking sites, or an online game that the user is playing with friends. There can be benefits to providing the ads for free to the end user, e.g., by charging the advertising companies instead. As a result, the ads can be consumed using significantly less bandwidth, and hence negligible data can be consumed by the end user.

SUMMARY

A technique is provided for separating ad streams from other services provided to a mobile device, e.g., using a separate socket for the ad stream. This can enable the ability to charge the end-user differently for the ad stream data consumed on the mobile device when the device is on a mobile wireless network that charges for the data consumed, and use lesser bandwidth to stream the ads than that used to provide the other services.

DESCRIPTION OF DRAWINGS

Figure 1 shows an example architecture in which unicast channels used in current systems.

Figure 2 shows an example architecture in which broadcast/multicast channels are used for ads in systems having separate streams for services and ads.

Figure 3 shows an example mobile device framework for using separate broadcast/multicast streams for ads and a separate stream for the actual service data.

Figure 4 shows an example scenario in which an application requests an ad, and framework has enough time to receive the ad.

Figure 5 shows an example scenario in which an eMBMS framework rejects an ad request as a time interval is far from expected.

Figure 6 shows an example scenario in which an application predicts the category of ad earlier and informs the framework.

DETAILED DESCRIPTION

Separating ad streams from the actual services can provide various advantages. First, the end user can be charged differently for the data consumed on the mobile device when the device is on a mobile wireless network that charges for the data consumed. Second, lesser bandwidth is needed to stream the ads. To achieve separation of ad streams from services, content can be divided into two categories or streams: 1) the actual service and/or data requested or used by the end user, and 2) ads.

The ads stream can be bound, for example, to a different socket than the broadcast stream for streaming services. For example, the socket can be a multicast Internet protocol (IP) address when an evolved Multimedia Broadcast Multicast Services (eMBMS), e.g., Long-Term Evolution (LTE) broadcast or any such broadcast technology, is available. In crowded areas, for example, many users may be viewing the same ads, and instead of streaming the ads to every user separately on a unicast channel, the ads can be streamed on the broadcast channel. Applications can check if an available broadcast channel exists where these ads are being streamed and pick them up from a known syncpoint. The bandwidth consumed by this stream can be shared by all the users that are viewing the ads. The ads can be independent of the application that is running on a mobile app itself that is being used by the end user. One user can be using a social networking site and another user can be using a video sharing/streaming service, but both users can view the same ad picked up from the broadcast stream. From a pricing model perspective, the effective bandwidth consumed by these ads can be paid for directly by the advertisers rather than being paid for by the end users, and the pricing need not be linked to the number of users viewing the ad. As a result, end users do not pay for the bandwidth associated with the ads.

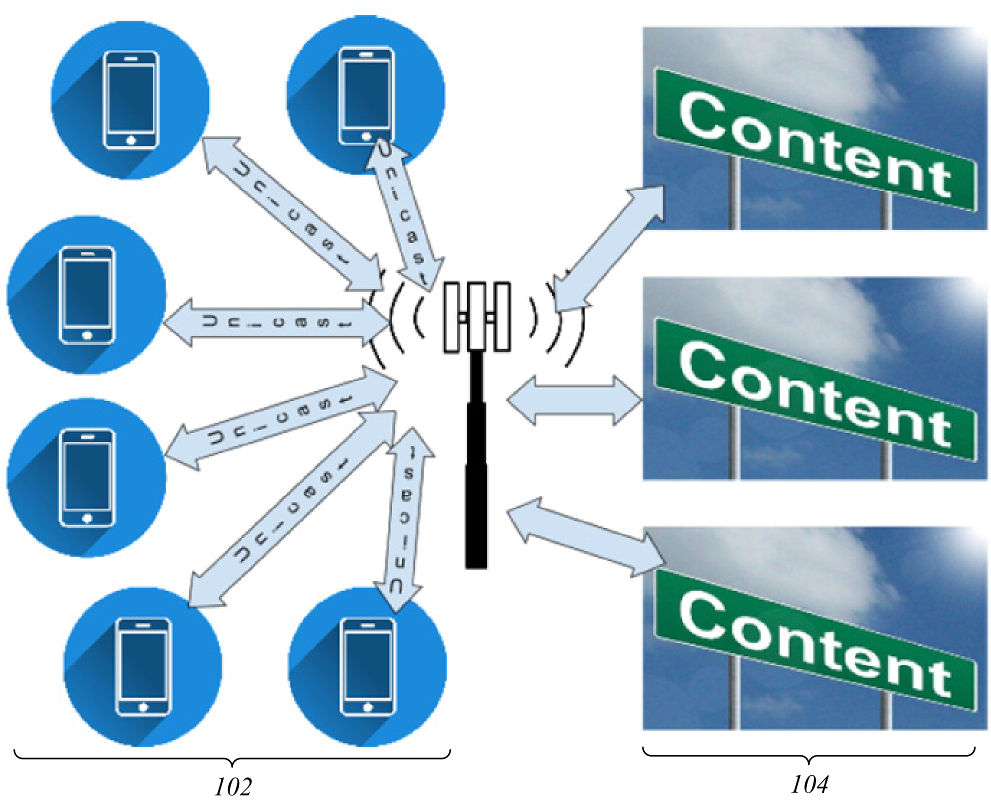

Figure 1

Figure 1 shows an example architecture in which unicast channels 102 used in current systems. In current systems not having separate broadcast streams for services and ads, for example, content 104 (specifically ads) is sent to the mobile devices over unicast channels. In this case, the end user has to have a dedicated network connection to the base station over which is streamed both the services (that the user intends to use) and the ads. Using this technique, end users are not separately charged for only the services (and not for the ads) because the carrier network computes the overall data consumed and charges the end user for all the data used by the end user, including ads and services.

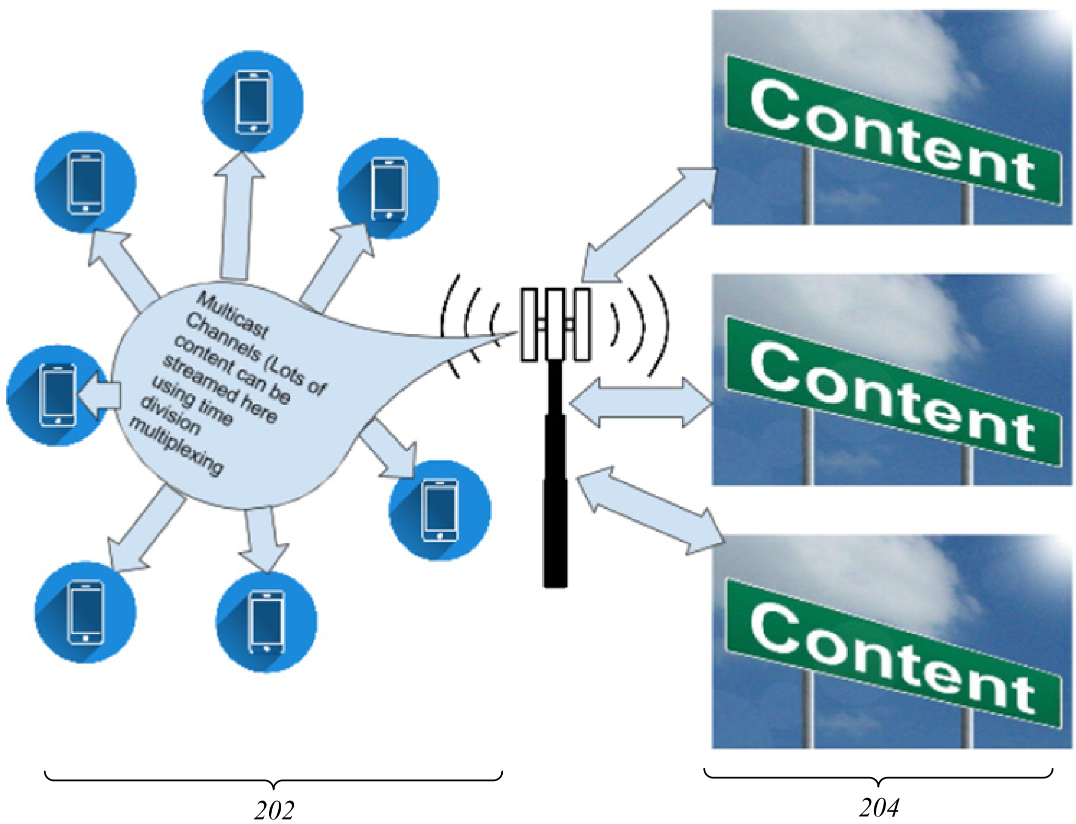

Figure 2

Figure 2 shows an example architecture in which broadcast/multicast channels 202 are used for ads in systems having separate streams for services and ads.. In this architecture, the ads are streamed over multicast channels by the carrier networks. Content 204 can be categorized into well-known channels, and each channel can have multiple categories of ads streamed over different time slots. A mobile device can have the ability to pick and choose which ads it wants to show to the end user based on the user preferences and the logic embedded in the device framework.

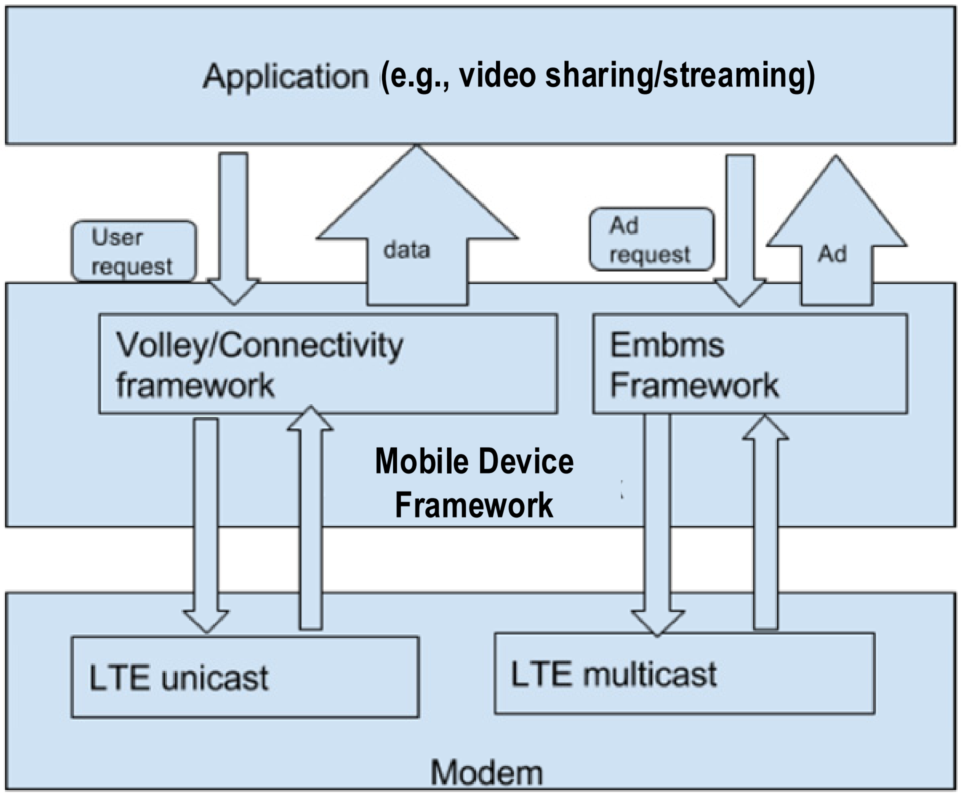

Figure 3

Figure 3 shows an example mobile device framework for using separate broadcast/multicast streams for ads and a separate stream for the actual service data. The framework makes use of the fact that multiple network providers already provide eMBMS in their core network and there are multiple vendors who already provide an eMBMS stack at the modem. Changes needed on the client side to support separate broadcast streams for services and ads are illustrated in this section of the document, e.g., using flow charts for various use cases. For example, the flowcharts below describe the operations on the device in more detail to illustrate some of the most common scenarios in which the use of separate broadcast streams for services and ads can be implemented.

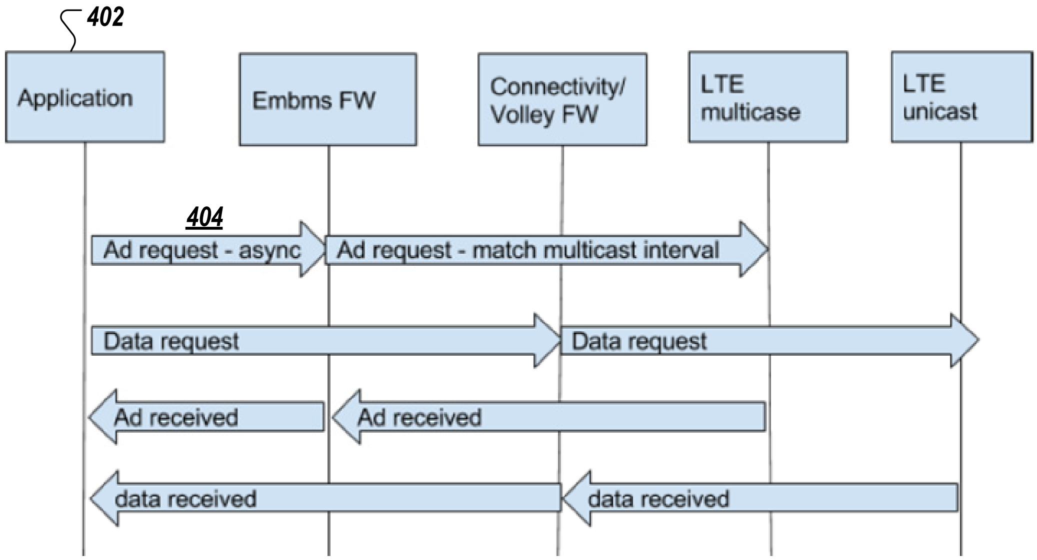

Figure 4

Figure 4 shows an example scenario in which an application 402 requests 404 an ad, and framework has enough time to receive the ad.

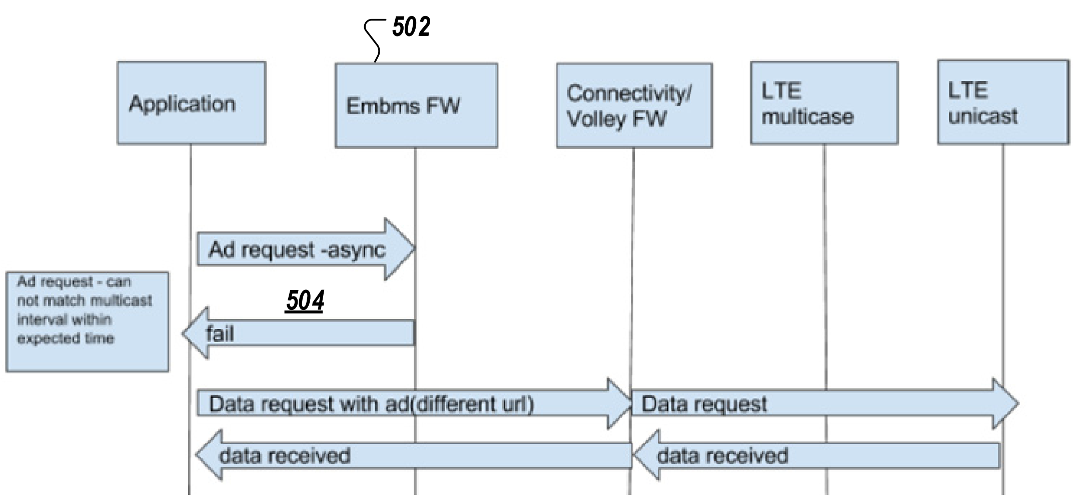

Figure 5

Figure 5 shows an example scenario in which an eMBMS framework 502 rejects 504 an ad request as a time interval is far from expected.

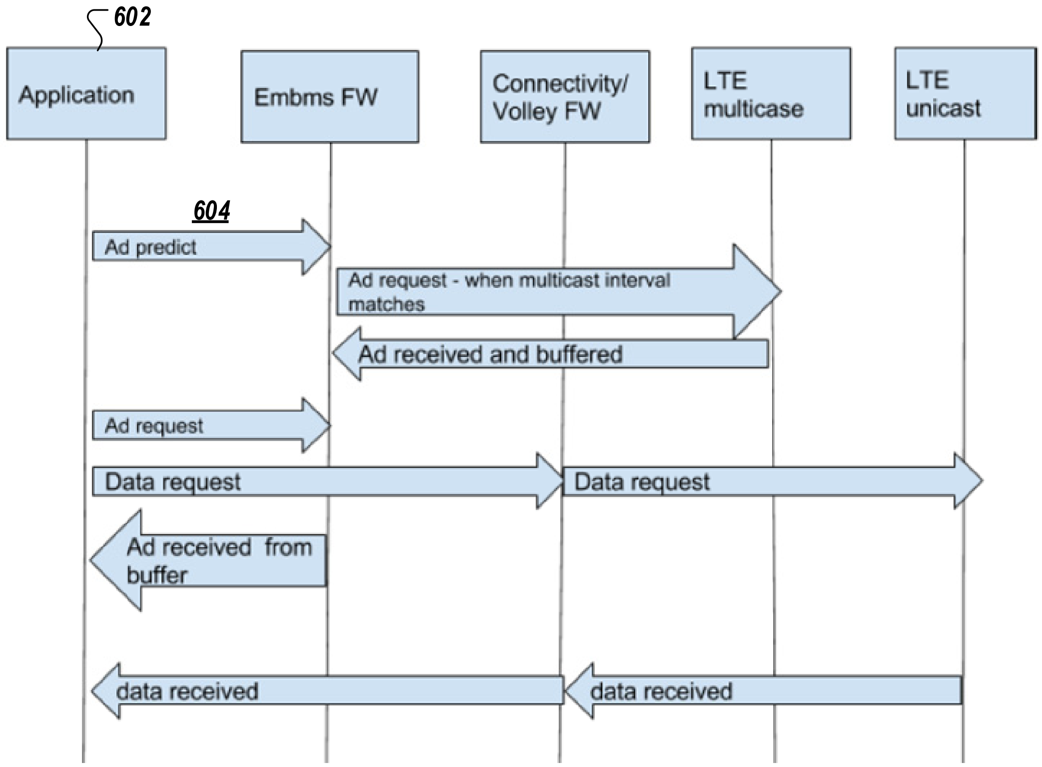

Figure 6

Figure 6 shows an example scenario in which an application 602 predicts 604 the category of ad earlier and informs the framework.

Some improvements can be made to the framework. For example, the framework mainly targets mobile devices in which the end user specifically pays for the data consumed. However, the framework can be extended to laptops and desktops that are tethered using a mobile device or when the devices are connected to the Internet using a Universal Serial Bus (USB) dongle that latches onto a mobile network. The main requirement in those cases would be that the application needs to know the availability of a broadcast channel on the mobile device and a provide mechanism to detect that the device is tethered using a mobile device.

ABSTRACT OF THE DISCLOSURE

A technique is provided for separating ad streams from other services provided to a mobile device, e.g., using a separate socket for the ad stream. This can enable the ability to charge the end-user differently for the ad stream data consumed on the mobile device when the device is on a mobile wireless network that charges for the data consumed, and use lesser bandwidth to stream the ads than that used to provide the other services.