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DYNAMIC NOTIFICATION SETTINGS FOR NEW OR UNUSED NOTIFICATION TYPES

A content item service may provide notifications associated with content items (e.g., videos, songs, images, audiobooks, etc.) to devices of users. For example, the notifications may identify a content item that is provided by the content item service. The providing of the notifications may increase the user's interaction with content items that are provided by the content item service by notifying the user of content items that the user may be interested in accessing or viewing. If the notifications are sent to a device of the user too frequently, then the user may ignore future notifications from the content item service. Notification settings may be provided to the user so that the user may disable particular types of notifications. For example, the user may disable notifications that the user has received or that are generally provided by the content item service so that the user may not receive such notifications. However, providing the notification settings for types of notifications that the user has already received or providing all notification settings for all types of notifications may result in the user overlooking some of the notification settings or not being provided an opportunity to disable or enable notification settings for types of notification that the user has not yet received.

We propose a mechanism that utilizes dynamic notification settings for notification types provided by a content item service to a user. For example, the notification settings that are provided to the user may be personalized to the user so that the user may be able to change settings for different notification types and for notifications that the user has not yet received. This mechanism can thus allow the user to specify whether to enable or disable the types of notifications for which the user has not yet received but may receive in the future. Since the user may be allowed greater control of the types of the notifications that are provided in the future

(e.g., the types of notifications for which the user has not yet received a notification), then the user may be more likely to view subsequent notifications that are provided to the user. The content item service providing the notifications of the content items may thus provide a better viewing experience for the user as the user is notified of content items or other such features of the content item service that are more likely to be of interest to the user.

In an implementation, a user may be provided notification settings for notifications that the user is likely to receive and has not yet provided a setting to enable or disable the type of notification. For example, the user may be provided a first type of notification that identifies content items at content channels where the user has not yet subscribed to the content channels. The first type of notification may identify a new content item that has been provided by a content channel for which the user has not yet subscribed. Furthermore, the user may be provided a second type of notification that identifies a feature of the content item service that provides content items. For example, the second type of notification may be a notification to review user comments to content items that the user has provided to the content item service. The likelihood of the user receiving notifications of the first type and notifications of the second type may be determined based on user activity on the content item service (e.g., based on other content items that the user has viewed or features of the content item service that the user has accessed). The notification settings may then be provided to the user based on the likelihood of the user receiving these types of notifications.

Figure 1 depicts a flow diagram of a method to provide a notification setting to a device of the user (e.g., a smart phone, a PDA, a laptop, a personal computer, etc.) based on the likelihood of the user receiving notifications. First, at step 101, a first group of notifications for content items at channels that are not subscribed to by a user may be identified. For example, the

user may be assigned affinity scores for different content items (e.g., videos). The affinity score

for a particular content item may identify or quantify how likely the user may be interested in

viewing the particular content item. Furthermore, the affinity score may be determined based on

other content items that the user has accessed or viewed. For example, the affinity score for a

particular content item may be based on similar content items that the user has viewed or

accessed, has indicated a positive response for (e.g., the user has highly rated a similar content

item), etc. Thus, the first group of notifications may be for content items that satisfy an affinity

score threshold for the user and that are provided by channels that have not been subscribed to by

the user.

Next, at step 102, a second group of notifications for features of a content item service

that is providing the content items at the channels may be identified. The second group of

notifications may be based on interactions of the user at the content item service. For example,

the features of the content item service may be uploading or providing content items to the

content item service for access by other users, commenting on uploaded content items, etc.

Subsequently, at step 103, a likelihood of the user receiving the notifications from the

first group of notifications and the second group of notifications may be determined. For

example, a notification from the first group of notifications corresponding to content items at

channels that have not been subscribed to by the user may be more likely to be sent to the user

when the notification is for a content item with a higher affinity score than when the notification

is for a content item with a lower affinity score. Furthermore, the notification from the second

group of notifications corresponding to features of the content item service may be more likely to

be sent to the user when the user has used the feature or used an associated feature. For example,

if the user has used a first feature before (e.g., uploaded a content item) but has not used a second

feature (e.g., deleted a content item from the user's channel), then the user may be more likely to be provided a notification associated with the first feature than another notification associated with the second feature. Furthermore, if the user has used another feature of the content item service (e.g., uploading the content item), then the user may be more likely to be provided a notification associated with a related feature (e.g., reviewing comments to uploaded content items from other users). Furthermore, at step 104, a determination may be made as to whether the user has previously specified a setting for the notifications from the first or second groups of notifications.

Furthermore, at step 105, notification settings may be provided to the user based on the likelihood of the user receiving the notifications and whether the user has previously specified settings for the notifications. For example, a list of notification settings may be personalized to the user based on the likelihood of the user receiving various notifications for which the user has not previously provided a notification setting. Thus, if the user has already specified a notification setting for a particular type of notification, then the notification setting may not be provided to the user. The notification settings may include options to enable or disable the sending of corresponding notifications.

In an implementation, the providing of the notification settings may further be ordered based on the likelihood of receiving a corresponding notification. For example, a notification setting for a notification that is more likely to be received by the user may be provided before a notification setting for a notification that is less likely to be received by the user. Thus, if a channel provides new content items more frequently, then the user may be more likely to receive notifications than if the content channel provides new content items less frequently. The ordering of the notification settings may further be based on a historical frequency of how often

notifications have been sent by the content item service to other users. Furthermore, the ordering of the notification settings may change over time as the user further interacts with content items on the content item service. For example, notification settings for notifications that are no longer relevant for the user may be removed.

In another implementation, the notifications that are provided to the user may further be based on a context of the user at the content item service. For example, if the user is viewing a page of the content item service that corresponds to a channel, then the notification settings that are provided to the user may further be based on the channel. The notification settings may correspond to notifications of content items that have been provided by the content channel or will be provided by the content channel. Furthermore, if the user views a particular portion of a user interface (e.g., a tab of an application), then the notification settings may correspond to notifications that are relevant to the portion of the user interface.

The mechanism described herein allows notification settings to be provided to a user based on the interaction of the user at a content item service. The notification settings may be for notifications that have not yet been provided to the user. Because the mechanism allows for the personalization of the notification settings that are provided to the user, the user may be more likely to specify settings to disable receiving notifications that the user is not interested in receiving and to enable receiving notifications that the user is interested in receiving. As a result, the user may be more likely to view or interact with a notification that is sent to the user as the user is less likely to receive a notification that is not of interest. Since the user is more likely to receive notifications of interest, the user may access more content items or use more features of the content item service.

ABSTRACT

A mechanism to provide notification settings to a user may be based on the interaction of the user at a content item service. For example, a likelihood of the user receiving particular notifications may be identified. The notifications may identify a particular content item at the content item service or a feature of the content item service. Settings for such notifications that have not been previously specified by the user may be identified. Subsequently, the notification settings may be provided to the user so that the user may enable or disable the receiving of future notifications that may be more likely provided to the user.

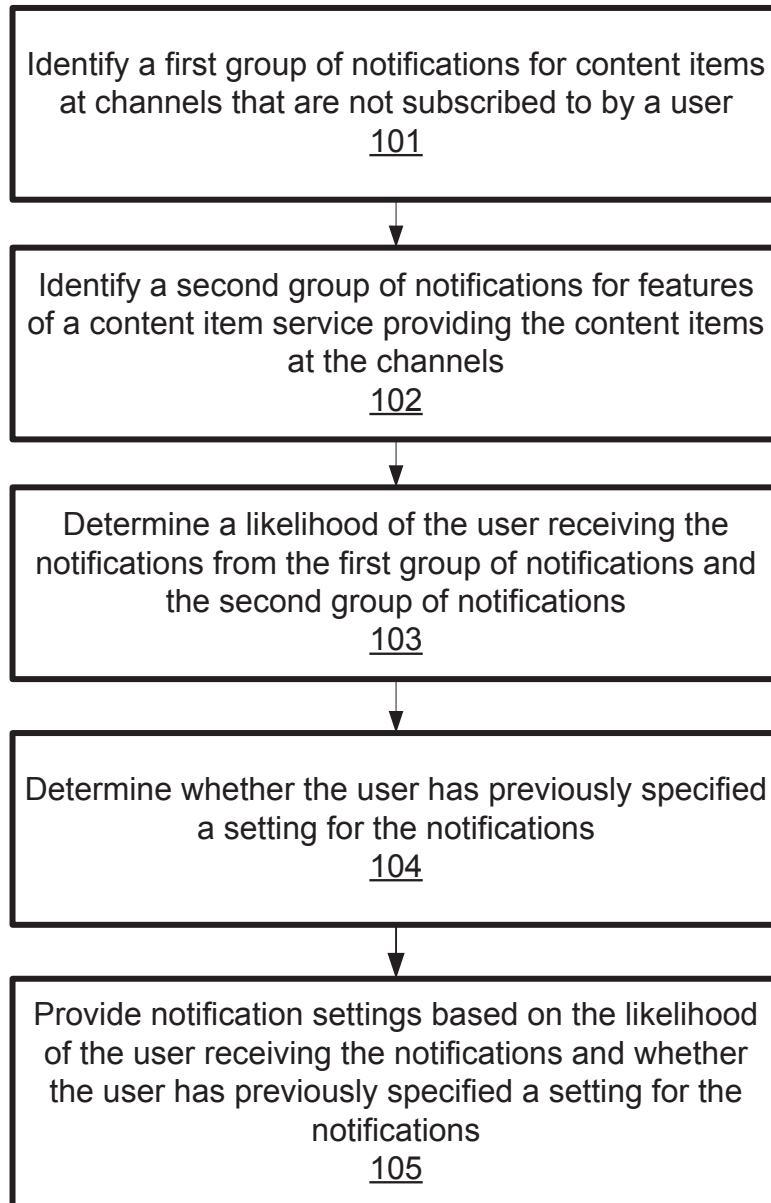**Keywords:** notifications, content, affinity, personalization, settings

Identify a first group of notifications for content items
at channels that are not subscribed to by a user
101

Identify a second group of notifications for features
of a content item service providing the content items
at the channels
102

Determine a likelihood of the user receiving the
notifications from the first group of notifications and
the second group of notifications
103

Determine whether the user has previously specified
a setting for the notifications
104

Provide notification settings based on the likelihood
of the user receiving the notifications and whether
the user has previously specified a setting for the
notifications
105

FIG. 1