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"DISTRIBUTED SYSTEM FOR UPLOADING CONTENT IN LOW CONNECTIVITY ENVIRONMENTS"

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DISTRIBUTED SYSTEM FOR UPLOADING CONTENT IN LOW CONNECTIVITY ENVIRONMENTS

ABSTRACT

A system and method for distributed uploading of content in low connectivity environments is disclosed. The system includes a mobile application configured to upload to the internet by copying the content across multiple mobile devices and using the first available connection across all devices for completing the upload. The propagation of the content between the devices could be algorithmically controlled to optimize for upload reliability and latency, at the expense of distributed storage. The system increases the chances of successful upload and freshness of the content originating in poorly connected devices.

BACKGROUND

In many areas of the world, data connectivity is intermittent or low bandwidth particularly for uploading, and in particular for mobile networks. Current applications for distributing content among multiple devices use always-connected peer to peer networks to maximize available bandwidth. The system described provides additional value by increasing the freshness of uploaded content and removing the dependency on reliable peer-to-peer connections, by using the first available connected peer in a network.

DESCRIPTION

A system and method for distributed uploading of content in low connectivity environments is disclosed. The system includes a mobile application configured to upload to the

internet by copying the content across multiple mobile devices and using the first available connection across all devices for completing the upload as illustrated in FIG. 1. For example, a video may be captured on a mobile device with the disclosed application installed, which is rarely or never connected to the internet. After capturing the video on the mobile device, when the user activates the mobile app to share the content via the internet, the app copies the content to multiple other mobile devices via a local transport mechanism such as, but not limited to, Bluetooth or Wi-Fi Direct. Once any of these target devices is identified as having an internet connection, the upload is completed and the uploaded content is attributed to the original device or user. The method disclosed enhances successful uploading to a service in weakly connected environments. If any of the target devices still holds a copy, the server responds by saying that a previous upload attempt has already been successful. By receiving this response the device attempting a subsequent upload would delete the video, thereby freeing up space on the device.

The original user who created the content may then receive a message to confirm the successful upload by sharing the URL to access the content, for example. This could happen using an out-of-band system such as SMS, which doesn't require an internet connection.

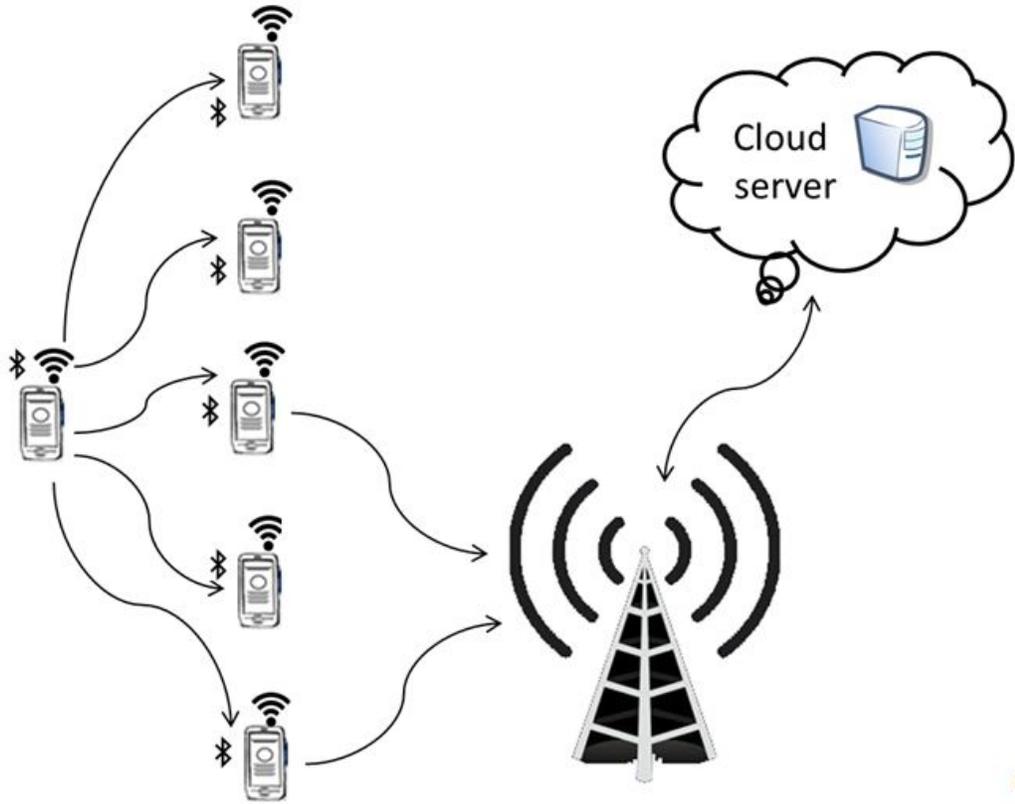


FIG. 1: System for uploading content using connected mobile devices in low connectivity environments

To avoid consuming storage indefinitely, the copies on all devices may be subject to an expiration period, after which the content is deleted. This may happen when an internet connection is not established for an extended period or when an upload is otherwise not attempted.

The system vastly increases the chances of successful upload and freshness of the content. The propagation of the content between the devices could be algorithmically controlled to optimize for upload reliability and latency, at the expense of distributed storage.

The application could be configured so that, on metered networks, costs are borne by all the users in the system so that a user's own uploads have their cost distributed among all the users. The costs would generally average the same, and be smoothed out by assuming that a user uploads close to the average amount. Frequent uploaders could, therefore, have their costs lowered compared to without the application, and less frequent uploaders could have their costs increased a bit when the application is used.

In one implementation, the application and method could offer a setting "Wi-Fi only" and/or "unmetered networks only", so that the application is not used on networks for which the user is charged.