

Technical Disclosure Commons

Defensive Publications Series

May 09, 2019

PRELOAD DOCUMENTS ON PRINTER FOR FASTER PRINTING RESPONSE

HP INC

Follow this and additional works at: https://www.tdcommons.org/dpubs_series

Recommended Citation

INC, HP, "PRELOAD DOCUMENTS ON PRINTER FOR FASTER PRINTING RESPONSE", Technical Disclosure Commons, (May 09, 2019)
https://www.tdcommons.org/dpubs_series/2193



This work is licensed under a [Creative Commons Attribution 4.0 License](https://creativecommons.org/licenses/by/4.0/).

This Article is brought to you for free and open access by Technical Disclosure Commons. It has been accepted for inclusion in Defensive Publications Series by an authorized administrator of Technical Disclosure Commons.

Preload Documents on printer for faster printing response

Abstract

Discloses a process that can preload the most probable document choice (or part of it) into a printer (or local server), so the printing process can initiate faster.

The proposed design can improve user printing experiences on platforms that have limited feedback. For example, on voice assistant platforms the voice application is not allowed to start interactions with the user, nor stay with the communication open for much time, thus when using a web printing service, it can't wait for the printer to start the job to give feedback for the user.

Description

The proposed solution described here starts by storing all interaction choices the users perform against an application to choose the printing options. Based on the usual choices users have the system can build statistical data of its usage, like the most printed choices overall, or the most printed choices given a specific interaction state. For example, many printing requests are the user's shopping list. If the user instead navigates in the 'Games' menu, the most probable choice is to print 'Crosswords'. Based on the current state of the interaction and information of previous choices from other users, the voice application can use the most chosen option to initiate the document build and transfer to the user's printer, and start printing it right after the user ends up choosing that document.

The proposed preload process is described below and exemplified on Figure 1:

- (1) User is interacting with the voice application in some way
- (2) Application backend receives commands from the user and responds to them based on application flow
- (3) Backend informs the content service the state of the interaction the user is in
- (4) Based on the state of the interaction the content service builds or gets the most probable document a user may choose to print at that state, and sends to the printing service asking to preload it
 - (a) The system chooses the most probable document by the number of times the document was printed by users, given one or multiple periods of time. For example, the number of times a document was printed last year. It can also compare the last year's quantity against a recent period, e.g. last week, to overcome seasonality or new options.
 - (b) Multiple documents may be preloaded into a printer, so the request can also send a weight factor to prioritize some documents over others when there is limited memory. This accounts for the fact that some documents could have a higher probability than others of being used later. An example for this weight factor consideration by the printer is described in the next section, but basically can indicate a proportion of the memory that is allocated by a document given the available memory and other files present.

- (5) Printing service receives the document and the command to preload it on the printer
- (6) Printing service starts a connection with the printer and send the document, or a part of it, and request printer to keep it on hold
- (7) Printer temporarily stores the document in memory or a local storage. When the printer receives the print job request it will check if the requested document is already on it's cache (Using a hash function or other identification to check if is the same document) and print the local document instead of downloading it again.

The preload process happens before a user has made the choice of what he wants to print. It can happen just as the user has launched the application or is navigating on it (menu or other options). It selects the most probable document(s) choice at a given interaction state and sends to the printer, and the printer has to keep it in on a local storage or in memory, when there is a new print job request it will check if the document is locally available.

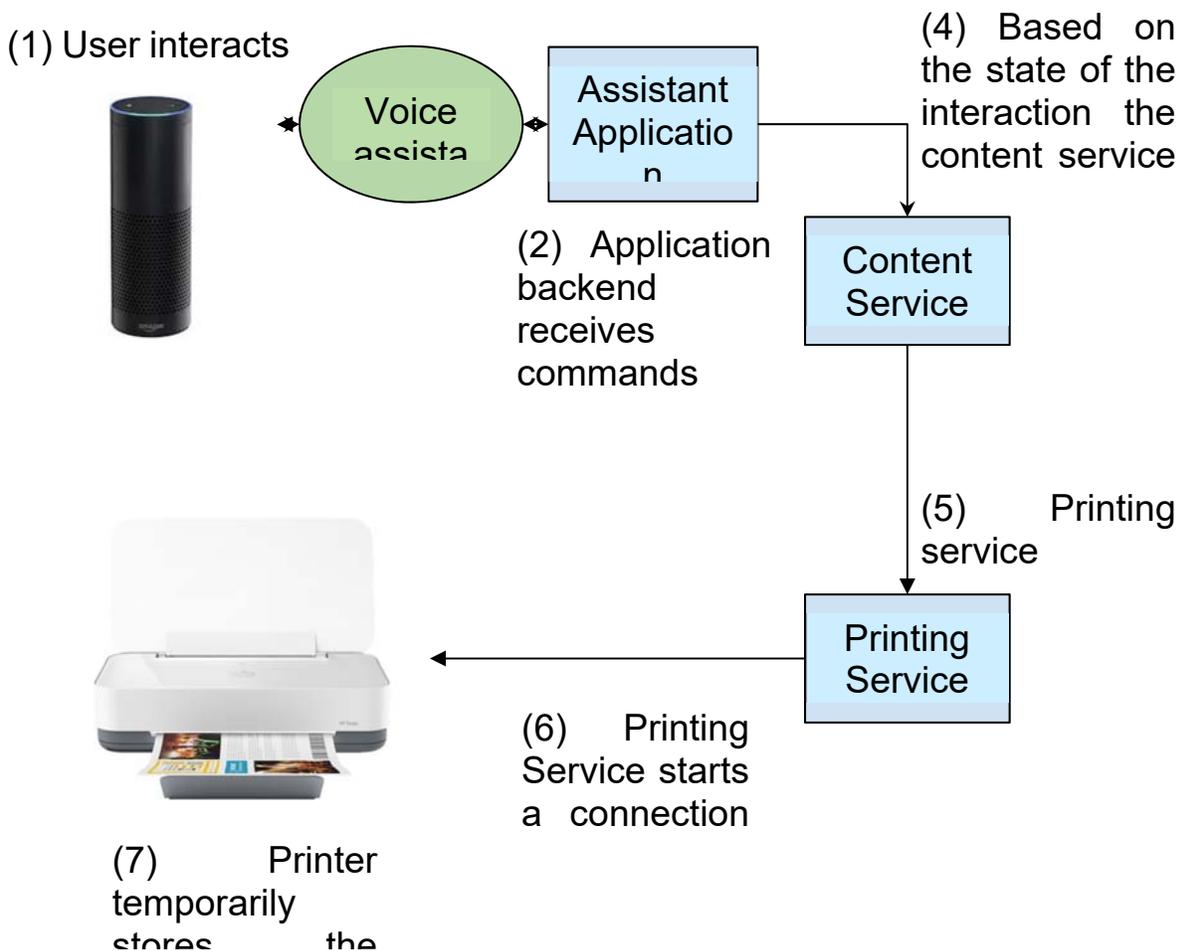


Figure 1. Overview of the Preload Process Communication

Printer Capabilities

To implement the proposed solution the printer has to have new capabilities to receive commands for preload a document and make some decisions. We describe below a process that the printer could implement to support our solution on a general manner:

- (1) The printer would receive a command from a requestor asking to hold a temporary document
- (2) It analyses the available memory to see where and how much of it can be stored.
- (3) It stores the document on the local storage or printer memory depending on the printer capabilities. It can store only a part of a document and multiple documents at the same time.
 - (a) It can take into consideration a weight factor received in the request to allocate more priority for a document over others into its total reserved memory. For example, if a first file has a weight factor of 0.5, and a second file has a weight factor of 1, it can split by three the available memory for this preload storage and allocate two times more of the second file over the first. This considers that maybe both files may only be stored partially.
- (4) Once it receives a new print job, it checks if the document is already available locally. If the document is already locally accessible it will print it. If the document is not yet available, it will download the document as the normal process.
 - (a) The document can be released from memory if requested, or if the printer needs the memory for another job or process.
 - (b) If the document has been partially stored, when the requestor asks to print it, the remaining is downloaded or send. The printer in this case should start printing with the part it has and continue printing as the rest of the file comes along.

Disclosed by Lucio Cossio, Diogo Schneider and Carlos Leão. HP Inc.