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SHARING STORED JOBS BETWEEN PRINTERS

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Sharing Stored Jobs between Printers

Abstract:

Printers nowadays are going beyond printing only on paper and changing rapidly day by day. Printers are well integrated in households, enterprise spaces and other areas of businesses. Printer is a useful product where different branches of engineering comes together and produces a superior technical product. But like any other technical product, printers too have few limitations or issues to deal with. When all the components work well, printing is quite a satisfying experience, however reverse is also true, when some things do not work out as expected and then it can be an equally frustrating experience.

This paper discusses about a solution to a problem where printer can experience issues, while a stored print job is in progress. The idea is to the make the printing experience seamless.

Problems:

Job storage is the capability of a printer to store a print job on its hard drive or memory and print at the user's convenience. Such print Jobs can be created using a printer driver.

Once the stored job is sent for printing, user can go to the printer and retrieve it to get the printing outputs. However, while printing is in progress there are several issues that can affect the outcome of the process and probably needs immediate user intervention, such as paper jams, paper out, low ink etc. User is left with almost no choice to deal with the problem. Either user himself has to fix the issues mentioned or to request the administrator to rectify the problems in the printer to proceed with the job that it had started.

Also, there are cases when user realizes that the printing is slow in the printer while retrieving the stored job, sometime after seeing a page or two outputs, user realizes that the quality of printing outputs doesn't meet its standards or needs. In such cases user has to cancel the stored job in that printer and again go back and send the stored job in another printer from scratch.

Knowing how difficult it is for user to deal with printer problems, it's frustrating for users who uses secured printing options such as stored jobs and encounters with these kinds of problems midway.

Solutions:

The solution to the above-mentioned problem is to transfer the unfinished stored job with user's authority to other suitable printer to finish the job completely. This will help avoid user to go through the whole process of creating and sending the stored job again from scratch.

As and when a user encounters a problem discussed above, printer will perform a discovery of other printers in the same domain and will provide user options to transfer the unfinished job. As soon as user selects the alternative printer to continue its stored job, the current printer will transfer the job to the printer.

Discovery service in the printer exposes if the printer supports certain services/features. The discovery service can be extended to provide the media status; such as toner, paper, tray status etc.

To explain the solution better, let's consider the toner low scenario, while retrieval of stored job is in progress.

As soon as the user encounters low toner scenario, in middle of the stored job processing, user is given a prompt at control panel, to complete the remaining job in other printer, which does not have the similar issue (e.g.: toner low).

If selection is made to transfer the current job, current printer can use discovery services (e.g.: Bonjour/Illmnr/ws-discovery etc.) to request the toner status from other printers and will provide the list of printers, which does not have the similar issue.

Once preferred printer is selected by user to transfer the job, current printer will use any supported print protocols (e.g. port 9100, hpnpp, ipp etc.) for transferring the job.

User can be given option to transfer the remaining partial job or the original job. If user selects to transfer the original job, original entire job will be transferred as it is.

If user selects the partial job, then current printer will add 2 new job attributes as below:

```
@PJM SET TRANSFERPARTIALJOB ="ON/OFF "
```

```
@PJM SET STARTINGPAGE= <starting page num>
```

```
ESC%-12345X@PJM JOB NAME="12th Certificate.pdf"
@PJM SET STRINGCODESET=UTF8
@PJM COMMENT "HP LaserJet Flow MFP M632 (15.34.90.162) (0.3.1584.18326); Windows 10 Enterprise
@PJM COMMENT "Username: bhardwag; App Filename: 12th Certificate.pdf; 5-7-2018"
@PJM COMMENT "NUP = NUP_1"
@PJM SET JOBATTR="JobAcct1=bhardwag"
@PJM SET JOBATTR="JobAcct2=BHARDWAG2"
@PJM SET JOBATTR="JobAcct3=AUTH"
@PJM SET JOBATTR="JobAcct4=20180507173712"
@PJM SET JOBATTR="JobAcct5=a3585955-98bf-43b3-b4f0-98251930b75d"
@PJM SET JOBATTR="JobAcct6=Print driver host for applicati"
@PJM SET JOBATTR="JobAcct7=splwow64.exe"
@PJM SET JOBATTR="JobAcct8=bhardwag"
@PJM SET JOBATTR="JobAcct9="
@PJM SET RET=OFF
@PJM DMINFO ASCIIHEX="0400040101020D101001153230313830353037313230373132"
@PJM SET HOLD=OFF
@PJM SET USERNAME="bhardwag"
@PJM SET TRANSFERPARTIALJOB ="ON"
@PJM SET STARTINGPAGE=10
@PJM SET JOBNAME="12th Certificate.pdf"
@PJM SET SEPARATORPAGE=OFF
```

Once the user retrieves the transferred stored job in other printer, job will be printed, based on the starting page attribute value, mentioned above.

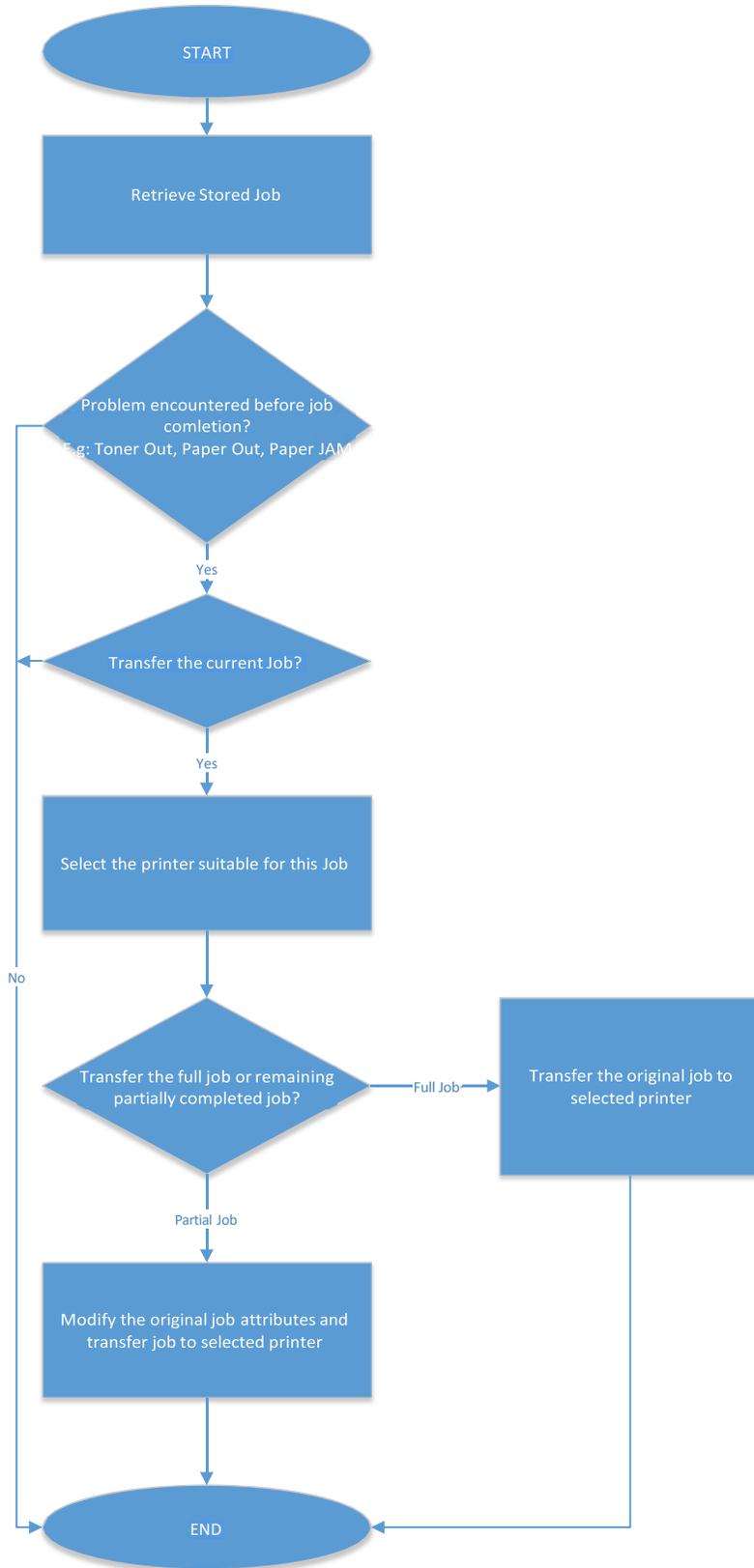


Figure 1

Advantages:

Users need not to create the stored job from scratch even there are issues in retrieval process with the current printer.

Disclosed by Gopesh Bhardwaj, Pradhan Puranjaya, Sahu Rajakishore, Sannagonappla Pampanna Mahendra and Asghar Md, HP Inc.