

### ABSTRACT

In recent years, cloud printing is becoming a popular topic in the field of communication and the organizations (public or private) are shifting their physical infrastructure to cloud storage. Mobile phones are the dominant access device for consumer and have been an essential part of life. Mobile phones with smart features are the recent driver behind the cloud printing. Now mobile phones can be attached wirelessly to the printers from any location and anytime in the world via cloud technology that enables to send a personalized print job from a mobile phone to the printer. In this process, print processing is carried on cloud server rather than hardware. Prior to this technology, printers are attached with mobile phones over Wi-Fi or Bluetooth and USB technology that has some merits and demerits along with physical accessories. Therefore, Cloud printing is an innovative printing technology that improves the existing technologies and eliminates the physical attachment and geographical barriers. The newer mobile phones work anything like computer or laptops these days. The aim of the paper is to present cloud printing via mobile phone and its working concisely.

**KEYWORDS:** Cloud Printing, Mobile phone, personalized print, Cloud Technology, Wi-Fi or Bluetooth Technology and Cloud enabled Printer.

### I. INTRODUCTION

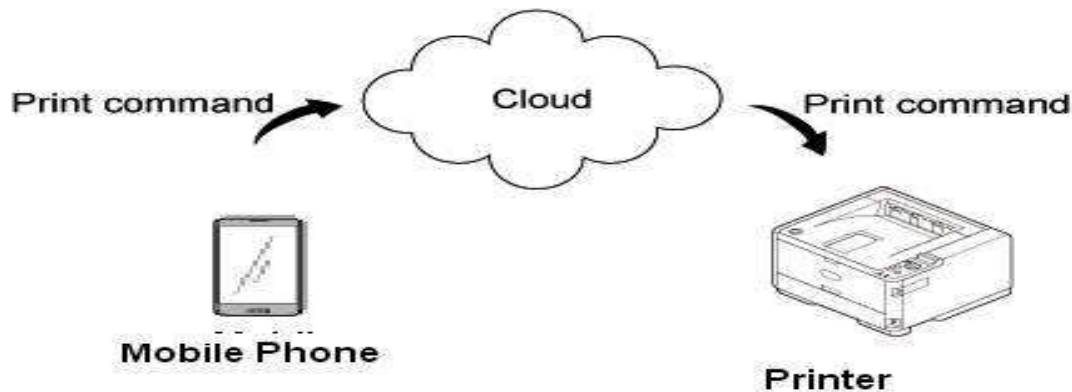
Printing from mobile phone is an innovative technology using cloud computing or technology. It has replaced the laptop and tablet. Cloud printing is a method of printing wirelessly from a mobile phone to a printer. The data (words, picture PDF etc.) to be printed is processed on cloud server in compatible form and sent to the targeted printer. This latest technology has improved the existing printing methods.

Cloud technology is a shared approach to computer resources in which data, software and storage are delivered to mobile phones. It is one-to-many communication printing process. A print job to be printed is sent to cloud-enabled printer or non-cloud enabled printer over a suitable cloud print technology. Nowadays mobile users have been started to leave their laptop or computer at their home or office during out of stations and they can send their important document to the concerned place.

Some years ago, printing was a localized since printers may be attached to mobile phones over Wi-Fi or Bluetooth technology. But innovative cloud technology has eliminated all these physical attachment and geographical barriers. Now we can print our personalized documents from anyplace and anytime by sending a print request from smartphone using cloud technology.

The mobile phone may be wirelessly connected by selecting various options are as:

- Nearby Wi-Fi
- Nearby Blue tooth
- Direct USB connected
- Cloud Print-innovative printing technology



*Figure: Print command from Mobile phone to printer (Source: Google mage)*

## II. MATERIAL AND METHOD

Cloud printing using mobile phone is an innovative technique of wirelessly printing. There are various devices like laptop, computer and tabs for carrying the printing wirelessly. But the objective of this paper is to present the summary of printing wirelessly using mobile that offer the freedom to users to perform the printing from anywhere. There are various cloud servers that offer to process the data between mobile users and targeted printer that may be at home or office, anywhere in any location etc. A printer can be attached with mobile phone by various cloud services. Various types of cloud services are explicated as:

### Public Cloud Service

The public cloud services are utilized by general public or big organization and offered by various providers like Google and Microsoft etc. The providers offer their resources like storages and applications to public overpublic internet. The data of users are saved on the cloud servers. This service enables to connect the mobile users to cloud-ready or non-cloud ready printers from anywhere.

### Private Cloud Service

The private cloud is created and managed by the network of private organization or company it serves in its own campus or out of campus. The data, applications and storages are installed on their private cloud servers and all users in their organization can process their data using mobile phones. This type of cloud services is securable and controllable.

### Hybrid Cloud Services

It refers to the combination of both public cloud service and private cloud service. It is more beneficial than the others because public cloud is used in non-confidential job work and private cloud in confidential job works simultaneously in same organization using smartphones. It offers the mobile phones to wirelessly connect with printer available within organization or outside the organization.

### Functioning of Printers

#### *Printing via non cloud ready printer (Using Google chrome app)*

Most of printers are non-cloud ready printers but these can make cloud ready by attaching to mobile phones manually with the help of Google chrome app. The procedure is as follow in brief:

- **Log in with Google account:** First log in Google chrome account and goes to setting for finding classic printers.
- **Add printer to Google cloud print:** Now select the classic printers and add the printer to Google cloud print
- **Enable cloud print on mobile phone:** At this stage, the printer acts as cloud ready printer and mobile phone may send a print request to target printer by tapping printing then cloud print.
- **Print from mobile phone:** Now select the document/file for printing.

**Printing via cloud ready printer**

In this case, there is no need of physical attachment of mobile phone with printer. The mobile users having an appropriate app can access cloud ready printers over cloud technology by sending a print request from their mobile phones to the printer. All processing related to job print are carried out on cloud servers. There are various cloud service providers like Google etc.

**Advantages**

- ✓ Any types of documents from mobile phone can be sent from mobile phone to targeted printer.
- ✓ Current position of print job can be checked at any time.
- ✓ All data can be saved on cloud server managed itself.
- ✓ Whole data rendering is taken place in server without downloading the compatible printer driver.
- ✓ Convenient for users
- ✓ No needs of downloading printer driver in device
- ✓ More compatible and easy handling
- ✓ A few minute time is required

**III. CONCLUSION**

This paper present how android mobile phones may be attached to printers wirelessly using new innovative cloud technology from the any geographical location, anytime and any anything without carrying laptop and attaching with computer. All data are stored in cloud server not in physical server and all print processing is carried on the cloud servers. The above services may be accessed by various devices like laptop, computer and android tablets. These days the same service may be used by mobile phones (based on android or operating system). In nutshell, this technique is more convenient than existing technique of printing wirelessly

**IV. REFERENCES**

- [1] Dish Saraswat, Cloud printer: A survey, IRPH, vol-4, pp.21-26, no.1, 2014
- [2] <https://www.fujixeroxprinters.co.nz/en/products/mobileprintsolutions.aspx>
- [3] <http://www.interoute.com/what-cloud-computing>
- [4] <http://searchcloudcomputing.techtarget.com/definition/public-cloud>
- [5] <http://hypas.co.uk/appshowcase/kyocera-cloud-print/>
- [6] <http://pelikan-printing.com/home/blog/printing-from-your-mobile-device/>
- [7] <http://whattheythink.com/articles/77397-going-green-cloud-computing-reduce-carbon-emissi>
- [8] <http://www.techsupportalert.com/content/how-print-your-android-tablet-or-smartphone.htm>
- [9] <https://computing.which.co.uk/hc/en-gb/articles/208489885-Print-to-a-non-Cloud-Print-Ready-printer>
- [10] <https://www.youtube.com/watch?v=2ulWWn88N9Q>.

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