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Print Production: Proposing a New Cloud based Print Workflow Model for Print Providers

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***Abstract*— Innovations in technology has always ignited change for the people. Such changes have not only forced business processes to adopt new technology but also to change the business processes as well. The same has been seen in the print industry. Due to new concepts in technology and increasing use of internet, the industry is facing major challenges and one such challenge is survival. It is evident that run lengths for print is decreasing. But at the same time new opportunities are arising that includes embracing web-to-print, workflow systems and MIS for business survival and growth. This paper discusses such aspects of print industry. Also a new cloud based model is proposed that can leverage benefits to the print providers.**

Keywords*— *Print production workflow, web-to-print, cloud based print workflow, small scale print providers

I. INTRODUCTION

There has been drastic change in the specified printed products market. It is expected that by 2020 there will be more such changes. Print industry cannot withstand with the idea 'the way it is always going to be'. There is a need for the Printers to think about and rethink about their business processes, products and services they deliver. This includes adoption of new innovative business ideas and also to rethink about the company culture they are practicing. [1]

There have been great differences created for the print industry due to technological advancements, internet advantage to people, and the changing trends and demands of customers. Though one cannot deny the fact that there has been decline in demand for print, but at the same time print players in the market those who have adopted and embraced technological changes and have studied customers mind-set are doing well.

II. PRINT PRODUCTION WORKFLOW SYSTEMS

Web-to-print, also known as Web2Print, is a commercial prepress process that brings together digital online content and commercial print production. This process allows a print house, a client, and possibly a graphic designer to create, edit, and approve online document templates during the prepress phase. Additionally, the process is cost-effective and time-consuming for both clients and printers as new documents/materials can be created and edited online through a secure and collaborative Web portal. Now-a-days this is used by printers with offset and digital production facilities both.

Print houses offer public or private online storefronts for users. The idea of web-to-print is targeted for commercial users and also to common public. By these storefronts customers are given facility to choose pre-designed templates where they can make the desired changes easily or they can approve a template and the design provided by other person. The clients or users can customize pre-designed templates and are also given provision to upload their own contents for automated print production. Mostly the template is converted to PDF file that will work as 'master plate' for the digital press for printing.

Materials such as brochures, signs, stationary, business card, and more, can be produced by Web-to-print process. Such materials can be printed in multi-color as well as in black and white color on different kind of paper and on various presses. Web-to-print systems are advancing towards marketing materials such as promotional mailers, membership card programs, etc that are capable to handle personalization and distribution. Such development is growing keeping in mind those clients that are seeking a single tool that can manage marketing as well as print. [2]

Adoption of Web-to-print by Print Providers and Clients

Web-to-print solutions have been adopted by many print providers because of the acute demand for fast production turnaround time for various print jobs, and to reach out to customers in an easy way. [3]

Infotrends is a leading worldwide market research firm. They have conducted a research to know about information about the penetration rate of web-to-print. The findings in their report highlights that 46% of print providers have adopted and invested in some form of such web-to-print solutions. The report also highlights annual investment growth rate of 12.7% during the years 2011 to 2016. [4] [5]

Another research conducted by the Global Industry Analysts (publishers of worldwide market research), reveals in their report "Web to Print: A global strategic Business Report", that the global web-to-print market will reach $869 million by 2017. [4][5]

Claud Monro, Senior Vice President of Business Development, SK+G says - 'We believe we have the only automated marketing platform that creates a print-ready file in addition to digital communications using the same business rules for both'. [6]

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It is quite clear from the above studies that print providers are adopting web-to-print solutions for their business. Also the global world market is moving towards a new dimension by the advantages and opportunities provided by these solutions.

Challenges of Small Scale Print Providers

The market for printing industry is changing due to changing requirements, advancement in technologies and the demand from customers. It has been observed that with the internet penetration the market has changed. Further the print needs of people have changed. To set up complete unit of printing huge investments are needed for machinery and further to purchase automated software solution.

Printing process comprise of three important management aspects, as shown in Fig. 1. They are -

a) Pre-press management

b) Print management

c) Post-press management

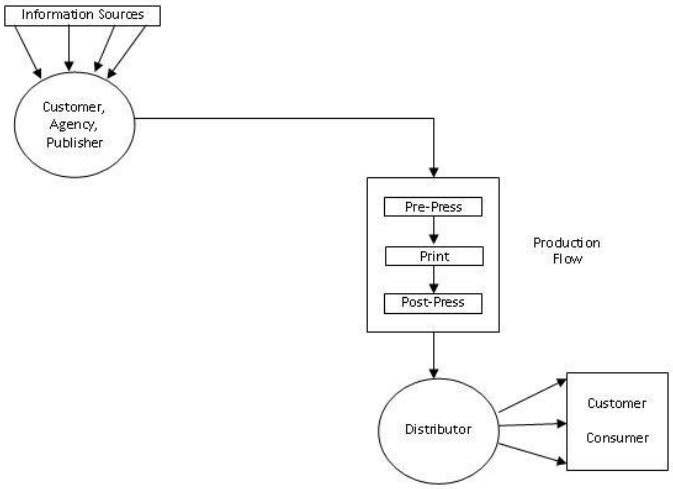

Fig. 1: Print Production Process

The large scale print providers can manage all the above aspects in their well established print production unit. But the small scale print providers cannot manage all the three aspects due to limited resources and investments.

The small scale print providers take the printing jobs from the clients and only perform the pre-press (shown in Fig. 2) part of the job. This is because pre-press task can be performed on computers by using tools and some software like Adobe Photoshop, InDesign or Corel Draw. Once the print job is ready and approved, the same is handed over to third party print provider for printing.

Fig. 2: Simple Pre-Press Workflow

Small scale print providers cannot afford costly printing machines (e.g. Heidelberg) and they are dependent of large scale print providers to complete their job. The pre-press is completed on time, but the print does not always meet the deadlines as the small scale print provider is dependent on third party. Moreover, the print cost may also vary depending upon the type of machinery set-up by the third party print provider.

III. PROPOSED NEW CLOUD BASED PRINT WORKFLOW MODEL FOR PRINTERS

For the survival of maturing print industry, efficiency and productivity are the key players. The industry is facing a slow-down already. It is important and crucial for the industry to implement productivity enhancers like web-to-print, workflow and MIS.

It is observed that companies follow traditional models of buying software and because of this reason they do not take required actions towards ensuring better and efficient operation. Many printers have not taken full advantage of new technologies that are available because of huge licensing cost, investment to set up and maintain in-house system. In some cases some of the printers also implemented those expensive systems that were not fully fit for their businesses. They have added financial burden on them.

Printing firms face the challenge of handling more jobs of lesser value as print run lengths continue to decline and cycle times shorten. Due to this much stress has been on traditional operating models. They become even more critical to streamline the operations.

In the digital age software delivery models are also changing and the implementation of critical software solutions can be done faster and at cheaper rates. Software delivered as a service is a good example where the setup fees is much lower also further a monthly pay-as-you-go subscription or transaction-based fee makes it easy for the print providers to implement workflow automation, web-to-print and more.

Software-as-a-service (SaaS) model and cloud computing makes it a good choice for printing firms to reduce investment burden; take benefits of scalable, integrated solutions; and this also minimises the need for on-site computing resources and staff. It is the need of the recent times to understand Software-as-a-service (SaaS) model and cloud computing in the context of printing firms as these technologies can be applied to boost the business and achieve cost efficiencies, effectiveness and desired productivity. [7]

The cloud based print workflow solutions have been in use in the market but they are used by individual print providers at a time to execute their business entity. They take job from their clients via cloud based workflow solution using a specialized web portal and get the things done.

But to cater the needs of small scale print providers a new workflow print production model has been proposed. This model will deal with the aspect of print jobs of small scale print providers to be completed.

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This concept of the new cloud based print workflow model is based on the idea that small scale print providers only complete the pre-press from their end and for print they use the services of large scale print providers.

The new cloud based print workflow model will work as stated below -

a) The service will be deployed on the cloud infrastructure using SaaS concept (Software as a Service).
b) This service will be owned by a third party.
c) A specialized web portal will be provided to use this service.
d) Print providers need to register on this portal to use the service.
e) Once registered the portal will be used by Small scale print providers to submit their print job along with the preferences for print, once the pre-press is complete.
f) The submitted job will be automatically tagged with any of the registered large scale print provider on the portal. This will be on the basis of identifying shortest run time job queue statistic of the registered large scale print provider.
g) These job queue statistics will not be shared in public by the portal.

The new cloud based workflow model for print has been shown in Fig. 3.

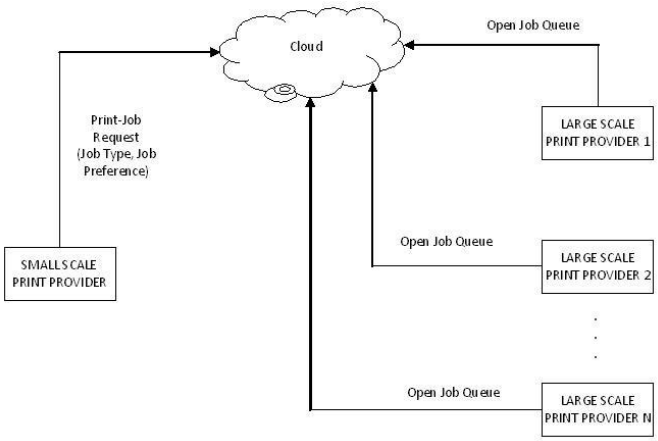

Fig. 3: General Block Diagram for Cloud based Print Job request submission

IV. ADVANTAGES OF THE NEW CLOUD BASED PRINT WORKFLOW MODEL

The new cloud based workflow model for print production will ease out business aspects for small scale print providers and for large scale print providers as well.

For small scale print providers the benefits will be -

a) Ease to submit print ready job on to the specialized cloud based web portal.
b) Based on the statistic of run time job queue, the job will be tagged to appropriate large scale print provider.
c) Timely completion of job will be promoted.
d) Cost effectiveness will prevail due to promotion of healthy competition in the market.
e) Customer satisfaction will be more as the small scale print provider will deliver quality print products on time.
f) They will expect rise in business profits.

For large scale print providers the benefits will be -

a) They will easily get jobs from small scale print providers using the cloud based platform.
b) Taking up small jobs is a necessity for the large scale print providers as run lengths have already reduced due to changing market trend and technological innovations in print industry.
c) They will be able to connect to more number of small scale print providers because of cloud connectivity.
d) They will be able to utilize their resources to the maximum.
e) Business profits will increase.

V. CONCLUSION AND FUTURE WORK

The print industry is governed now-a-days by technological advancements, changing business patterns and the changed customer requirements. At the same time survival of print providers is one of the important aspect due to many reasons discussed in this paper. The print providers those who have embraced the technological advancements and adopted new way of doing business are surviving and doing well.

Web-to-print solutions have resulted in multi fold advantages to the print providers and the clients. Faster job completion, customer satisfaction, quick delivery are some of them. In the changing print industry environment still the dependency of small scale print providers for their print jobs on large scale print providers has some limitations. The small scale print providers face late delivery of their print jobs that results in late delivery of product to their customers. Moreover, due to limited resources and investment it becomes necessity for small scale print providers to be dependent on third party for their print jobs to be completed.

The proposed new cloud based print workflow model will ease out the problem for small scale print providers and at the same time will open good business advantage to large scale print providers as well.

The effective implementation of proposed model needs to be discussed more and how more aspects to advantage the declining print industry need to be explored and researched further.

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