

Associates Graphic Services

*Jürgen Schönhut Memorial
CIP4 International Print Production Innovation Award*

**2008 First Place Winner
for
Biggest improvement in quality production & customer responsiveness as
a result of process automation**

Section I. Background —

Associates Graphic Services (AGS) provides personalized, on-demand printing to large and small companies alike. Founded in 1973, AGS has become a leader in digital, on-demand technology solutions and conventional printing. Leveraging its 60+ highly experienced staff, AGS provides an array of services including electronic prepress, digital printing, commercial printing, variable data marketing programs, mailing, and bindery services. Currently AGS' digital shop has two Xerox DocuColor iGen3 Digital Production Presses and a Xerox 6060 with CREO Color Server RIP systems plus two 6100's with booklet makers.

At the beginning of 2007 AGS began talks with a large US pharmaceutical company in an effort to become the provider of its print sales collateral materials. If won, AGS would need to be able to support a 7,000-user North American customer base, customizing a wide range of documents including sales literature, pads, booklets and customized literature as well as labels and appointment cards. The addition of this new business was estimated to add 200 – 300 new line item orders per day. Under the current production workflow, each order would have been directed to a Customer Service representative then to a prepress team and placed on a file-share. Jobs would then move through the prepress process as paper job tickets in a physical job jacket. Once printed and finished the job would proceed to the shipping and fulfillment area where the staff would read instructions from the paper ticket and re-key the delivery instructions into the shipper's on-line system to generate shipments and labels. Production of such a large increase in orders was beyond the capabilities of the existing workflow and staff although the equipment – 2 Xerox DocuColor iGen3 Digital Production Presses and a Xerox 6060 with CREO Color Server RIP systems plus two Xerox 6100's with booklet makers – was adequate for the projected volume.

The options were either to hire 8 to 10 additional staff over a 1 to 3 month period or adopt virtually total automation. It became apparent that the best way to meet the challenge was to automate production and order management from the point of the customer order through fulfillment and shipping.

Section II. Objectives —

1. To automate production and order management from the point of the customer order through fulfillment and shipping.
2. To automate the prepress process for Pageflex Storefront orders to remove any employee intervention prior to the press. As these jobs were coming from managed content in Pageflex Storefront it was not necessary to pre-flight the content files. It was desired that no one at AGS would need to do anything for an order to move from the point where the customer checked out of their web cart to the point where an imposed PDF was at the press, ripped and ready to print.
3. To automate shipping – interaction with the shipping carriers; production of labels and transmission of tracking data to Pageflex Storefront. The shipping process was causing a particular bottle-neck. Manual repetitive tasks, especially manually keying the address for each package was a problem. Orders were becoming more complex. For example an order might include 1000 each (total) of three printed items and 5 off-the-shelf non-printed items going to 5 different addresses in quantities of 300 of each to two addresses, 150 of

each to two others and 100 of each to the last. This results in 3 different shipment sizes and weights, making the processing of such an order non-trivial. Such orders were becoming increasingly more common.

Section III. Methodology —

With the new customer already on the horizon for AGS, the volume increase was imminent and the need for an automation solution was immediate. Dave Zamorski, Chief Operating Officer of AGS, was charged with the task of finding a solution that would integrate seamlessly into the existing operation as well as provide the functionality, versatility and reliability they sought. Early on, Zamorski began talks with Pageflex in an effort to explore their storefront offering to provide the front end customer interface. Additionally, as AGS is a Xerox shop, Zamorski initially considered the Xerox Freeflow system for automating the back end processes. However, while attending the 2007 PODi conference Zamorski was introduced to Objective Advantage’s Symbio solution and he turned to them for help.

Objective Advantage’s Symbio software solution is designed to enable optimum efficiency and scalability in printing operations. Leveraging JDF, Symbio automates production by communicating with digital press, plate-setters and JDF-enabled finishing systems from various vendors. Designed for companies currently utilizing or moving toward a web-to-print business model and seeking additional capability without additional employees Symbio seamlessly connects order intake, production and shipping, removing opportunities for error and ensuring greater efficiency and profitability.

Working with Objective Advantage, the AGS team determined that the Symbio Advanced system with integrated shipping management was required.

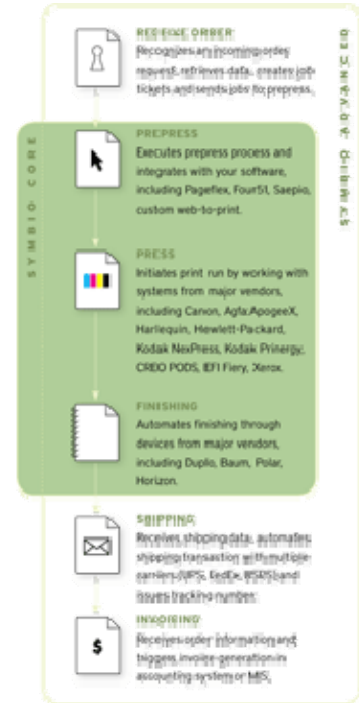


Figure 1: Diagram illustrating the two levels of Symbio.

Section IV. Implementation Story —

Integration work started in August 2007. Despite only 20 days lead time provided to AGS by the client, the Symbio solution was installed and operational ahead of deadline. Modifications were made by Pageflex to the Pageflex Storefront to add the ability to pass the web cart information to Symbio when the customer completed checkout. Meanwhile, Objective Advantage started developing customizations to the stock Symbio solution based on specific needs presented by AGS’ new customer.

Tom Cabanski and Mike Wagner from Objective Advantage flew to AGS’ facility in Wilmington, DE to install the solution. Deployment was scheduled to cover a two day time frame with Cabanski and Wagner remaining onsite the second day in case of problems; however, the deployment was completed without issue by the end of the first day.

Section V. Resulting Workflow/Processes —

Orders are placed by the customer on the Pageflex Storefront. The customer chooses stock artwork, such as brochures, business cards, prescription pads, etc. and can make certain controlled modifications, such as changing contact details or an event date for example. The resulting PDF

is proofed and approved online by the customer. The customer then provides delivery instructions which can be simple bulk shipping of the entire order or as complex as the example given earlier in the Objectives section. When the customer completes checkout the Pageflex system makes a web service call to an open API on the Symbio solution notifying Symbio that there is an order waiting. Symbio then retrieves from Pageflex the appropriate data necessary to produce and ship the order.

Symbio uses workflow definitions – a combination of layout template, stock selection, press and finishing system choice – to automatically impose the PDF and submit the job, with JDF instruction, to the press or in this case to the CREO Server attached to the iGen3. The CREO Server sits on the front of the Xerox iGen3 and receives the JDF information transmitted from Symbio. It RIP's the pdf Symbio sends and funnels the information into the press for production.

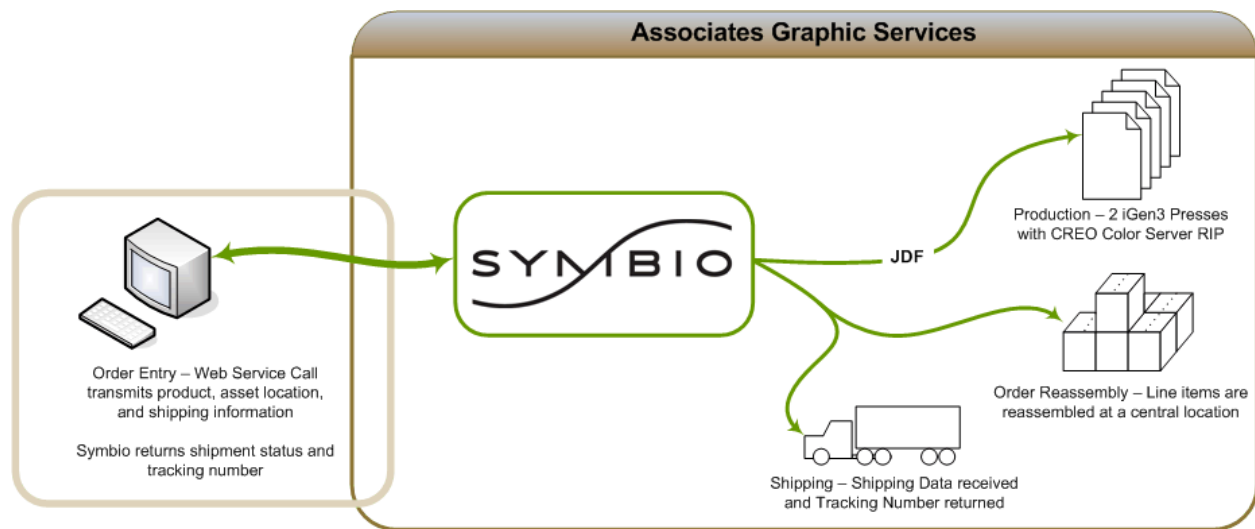


Figure 2: Symbio Workflow at AGS

Some customizations specific to the needs of the new AGS client needed to be made to the Symbio solution. These customizations included:

1. Integrated Job Ticket – When multiple jobs sharing the same format are required, Symbio automatically produces an Integrated Job Ticket on the press at the beginning of each separate job. This job ticket is printed either with a magenta full bleed border, and/or on different colored stock, so that each job can be easily identified. In addition, by printing the Integrated Job Ticket in the same format as the finished document, individual jobs can still be quickly identified and separated even after finishing.
2. Enhanced Fulfillment Capabilities – When orders comprising multiple line items are produced, the job ticket is printed containing details of each line item required to make up the complete customer order. The ticket contains instructions to place each item into a designated bin until all items in the order have been completed. Once all items are complete, they are easily bundled as one batch and prepared for shipping. This simplifies shipping and dispatch requirements by allowing all items in the customer order to be batched, packed, labeled and shipped in one go, saving shipping costs for the customer.

3. Automated multi-stock production: Batching – Orders needing multiple paper stock such as physician's prescription pads where there are a number of prescription sheets followed by a cardboard backer can now be produced in a single run. The job ticket for the order is printed on one stock followed by the prescription sheets and backer. The run continues to alternate between the specified number of prescription sheets and backer until the order is completed. This saves a tremendous amount of time in collating the multiple stocks as well as in machine setup.

With these customizations, the integrated job ticket becomes the first sheet out of the press. This job ticket is generated on the fly to match precisely the job spec of the finished piece. The job ticket will then go through production along with the stack of sheets so that the production operator does not waste time matching job tickets with jobs. The integrated job ticket contains some basic job identification information, a bar code representing the order number for the job and a bin number. As each piece is completed, it is taken to the assigned bin where all the pieces of the order will be collected. The bar code on the integrated job ticket is scanned and the operator is informed of whether there are more pieces needing to be added to the bin before it is ready for shipping or if everything is present. When all print items within the order have been assembled in the bin a picklist is automatically printed identifying other jobs and non-print fulfillment items that are part of the order. Once these have been added and scanned into the station packing sheets are automatically printed.

The operator packs each box according to the packing sheet and weighs it. The weight is the only data item entered by the shipping operator. The shipments are automatically generated and transmitted to the appropriate carrier and shipping labels are printed. The operator puts the label on the box and stacks it. Instead of figuring out the complex shipment amounts and manually generating the shipments the operator follows simple instructions, one box at a time, and the system takes care of the details. The tracking numbers are automatically sent from Symbio to Pageflex Storefront and the user gets an e-mail that their shipment(s) are on the way.

Section VI. Optional Detail —

Since installing Symbio, AGS has increased its productivity and turnaround times with a streamlined automated print production and order management workflow. With the addition of the new large customer and additional new sites the volume of work going through the digital shop increased by at least 200 line item jobs per day. Symbio has enabled AGS to process these 200 new jobs daily without needing any new staff. The average turnaround time on these jobs is 24-36 hours.

The total AGS investment was paid for in eight months and Symbio accounts for more than a \$250,000 increase in annual profits.