ISIS Papyrus Focus Report

Enterprise Output Management
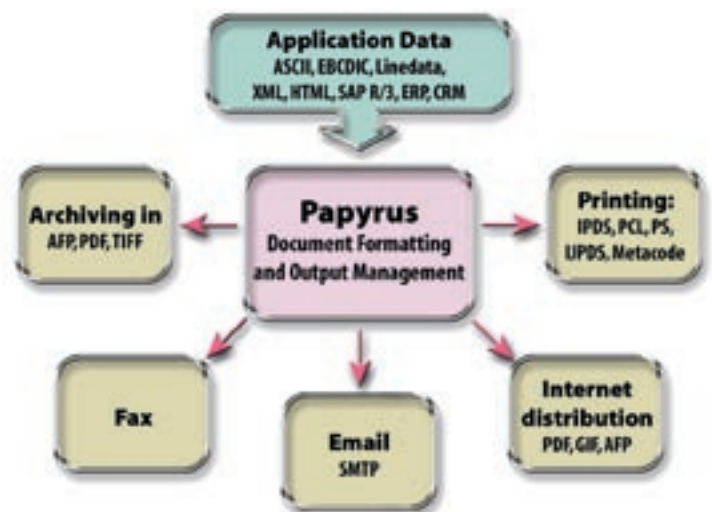
How can you resolve Output Management Challenges?

8 Tips for Achieving a Seamless Multi-Channel Experience

1 Applying an **output strategy** and **middleware concept** that protects an organization's investment in business applications from changes in hardware and software platforms.

2 Choose a document software solution that provides complete **freedom from platform** and hardware dependency.

3 Make sure the document system can use **any type of business data** file natively without cumbersome and expensive data tagging and preparation effort.

4 **Develop and format** your documents **only once** and deliver them wherever your customers want to receive them.

5 Use a **single, powerful** business document **development toolkit** that allows you to create any type of business document from simple reports to complex dynamic one-to-one statements in a timely and simple manner for a seamless multi channel output.

6 Make sure that **integrated intelligent resource management** is available which makes documents look perfectly the same and accurate for print and electronic delivery.

7 Decide for a solution that provides integrated **automated process management** for printing and all other output channels such as e-mail, fax, SMS, archive and the Web which makes tracking the entire output process across multiple locations possible.

8 **Increase personnel effectiveness** by using automation software that requires little or no human intervention, thus allowing lower staff costs. Integrated process management will raise operator productivity, reduce supervisory staff and improve utilization of all printer systems.

Application Data
ASCII, EBCDIC, Linedata, XML, HTML, SAP R/3, ERP, CRM

Papyrus
Document Formatting and Output Management

Archiving in AFP, PDF, TIFF

Printing: IPDS, PCL, PS, LIPDS, Metacode

Fax

Email SMTP

Internet distribution PDF, GIF, AFP
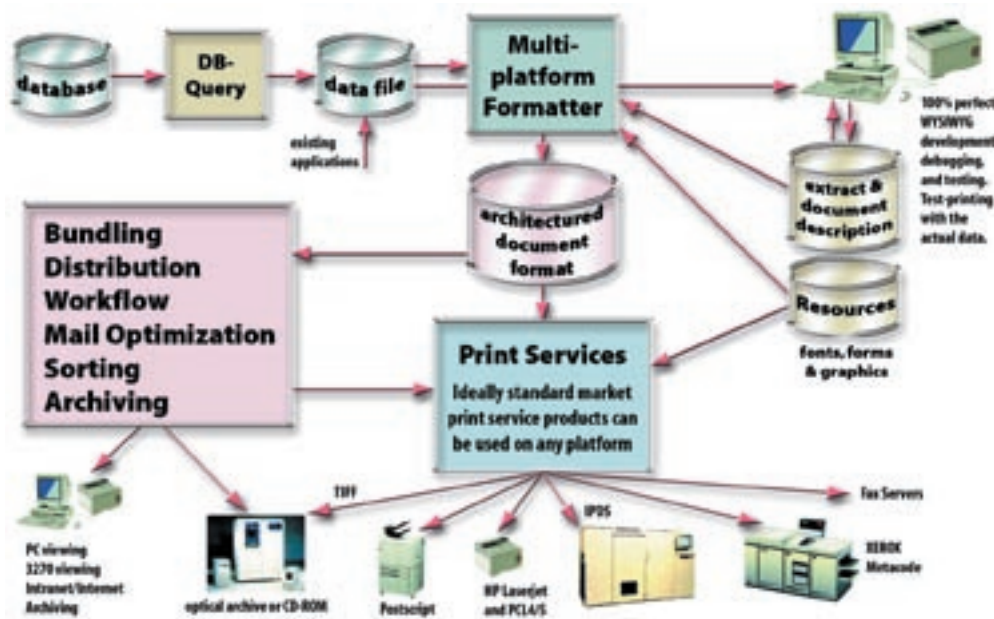
Multi-Channel Output

The Papyrus Document System offers a proven and mature solution for today's and tomorrow's challenges:

■ The Document LifeCycle Concept:
The *Papyrus LifeCycle Concept* provides an integrated corporate document solution for the development, production and management of strategic business documents.

■ The Middleware Concept:
Papyrus uses a Middleware Concept that creates a layer between applications and protects the tremendous applications development investment from the changing hardware and software platforms.

Business Document System Architecture

■ The Architectured Blueprint:
Papyrus uses an open architectured concept based on the fully documented IBM AFP standard which is a key to multi-channel output. Development of documents and production formatting is only required once for seamless printing and electronic delivery. The Web is just another output channel!

■ Freedom of Platform and Output Channel Choice:
Documents are generated in the platform and output channel independent electronic final-format. Papyrus converts documents transparently without user intervention to the required format at time of delivery to the channel.

■ Open to any Business Data Format:
Papyrus works with any business data format as is, no costly data tagging or data preparation steps are required.

■ Integration and Connectivity:
Papyrus provides Adapters to integrate: XML Adapter, HTTP Adapter, POP3 Adapter, MQ Series Adapter, CICS Adapter, IMS Adapter. Host connectivity for server based output management is provided by Papyrus linking to JES 2/3, CICS and MQ Series.

■ Process tracking and monitoring:
Papyrus WebControl is a powerful system for centralized control and management of multiple devices delivering real time status printing system control, security resource tracking, detailed event logging, remote access, production accounting and detailed reports of equipment performance and utilization, raising operator productivity.

■ Applied Document Framework:
Document resources such as fonts and forms are developed only once to be used across multiple document applications and for all output channels. Full version control of document resources with validation information is included. Authorization and Security is controlled by the user role and its defined privileges. *Papyrus Repository* and *WebControl* execute version and variant control and user authorization across all platforms and all output targets.

■ Centralized Output Management:
Using a centralized document pool for bundling batch and ad-hoc business documents, such as statements, policies, bills and correspondence, is an integral part of the Papyrus solution which offers many opportunities for cost savings and better quality customer output.
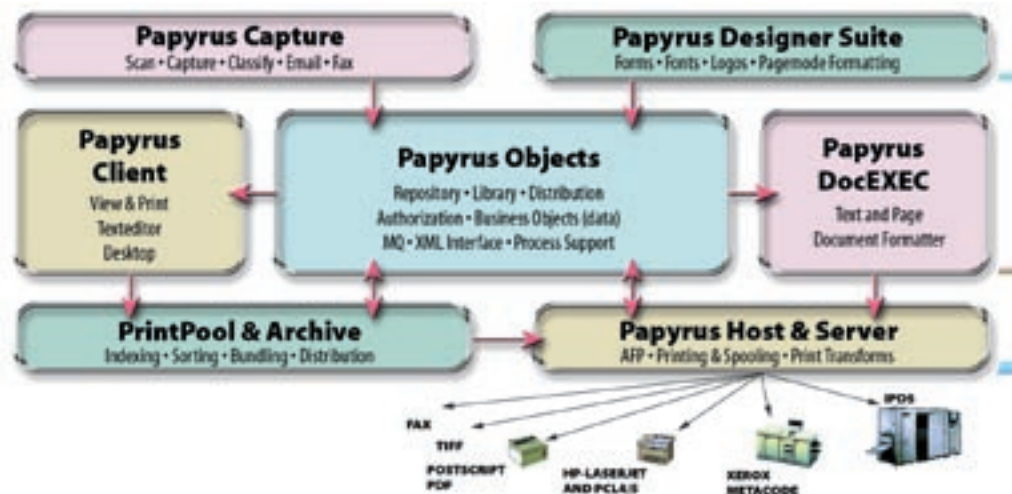
Papyrus System Blueprint

Highly individualized 1:1 customer communications for print and electronic delivery

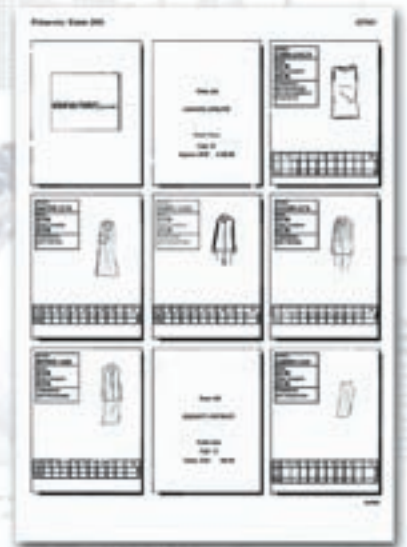## Papyrus allows you to create documents which are customized down to the last sentence of each individual report.
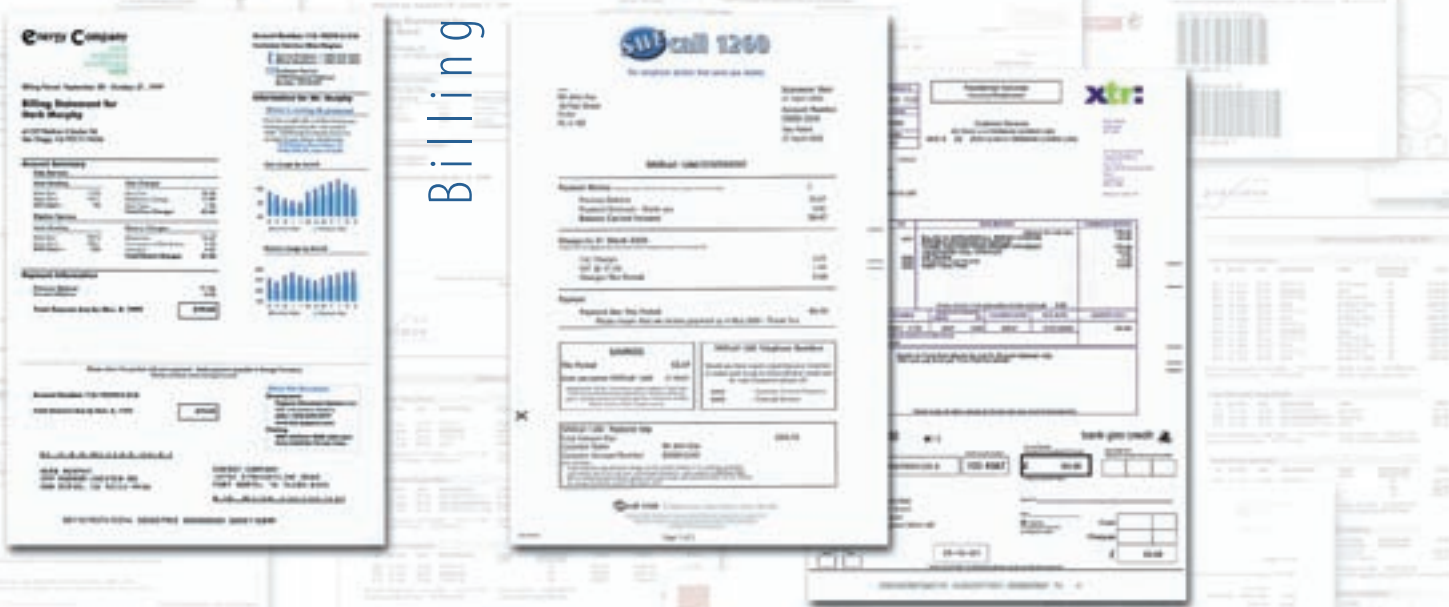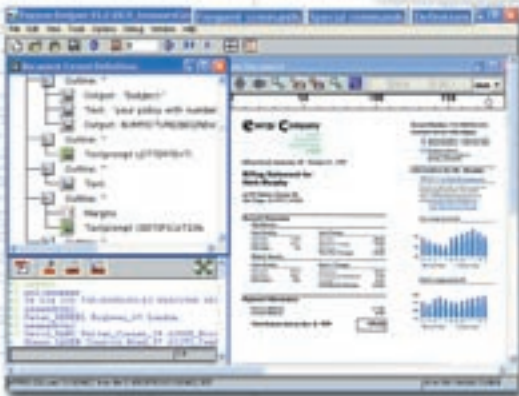
Billing

Letters/Correspondence

Mail Order

> *'Printing' and electronic output delivery changes from being an expense to being a marketing investment generating new business!*

From the idea to the output

Rapid and User Friendly Document Development

Papyrus Designer displays for the design process the DATA interface, the LOGIC, the LAYOUT and the PRINTER RESOURCES such as fonts, forms and logos, each on its fully formatted page. The development is greatly simplified by the integrated graphical user interface that supports cross referencing between data, logic and layout.
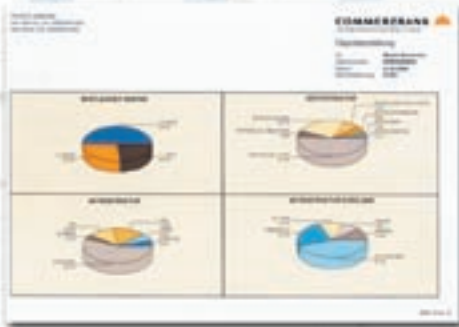
Papyrus Designer

STRATEGIC CUSTOMER DOCUMENTS

Wherever your customers want to receive their documents, Papyrus delivers them.

Application Segments

Credit Card

Banking

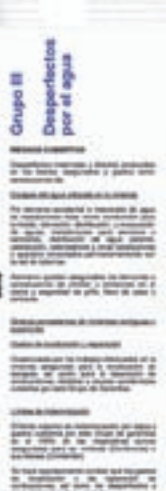*Do not try to reduce your printing cost but increase the marketing value of your documents.*
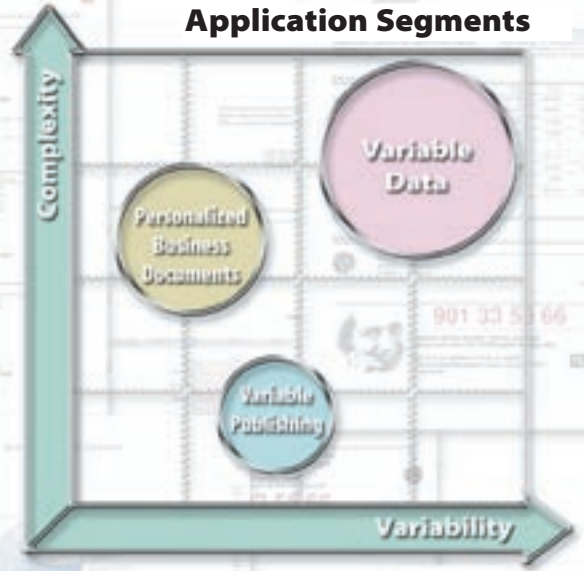
Personalized Marketing

Insurance

Papyrus Delivers Effective Customer Communication

One system does it all! From simple business reports, forms and letters to dynamic full color bank statements, check printing, mortgage, auto loan, credit card, consolidated bills, tax payment forms, new products catalog, insurance claims and policies, ad-hoc correspondence, campaign management and personalized marketing campaign materials.

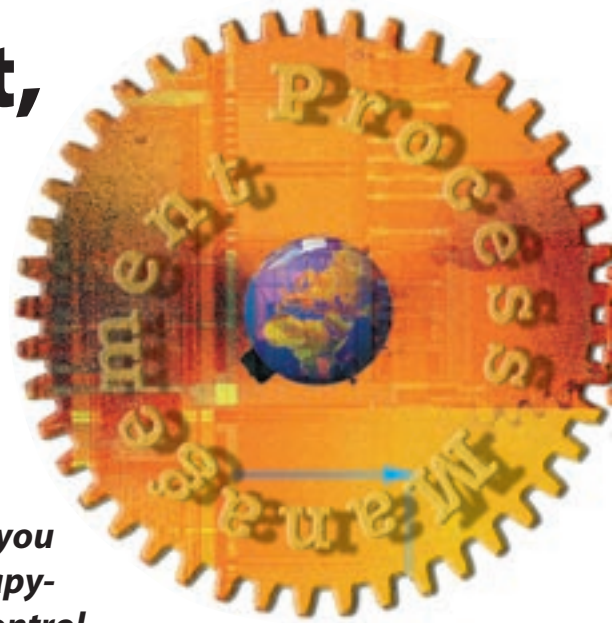*Each business document your customer receives is a moment of truth for your CRM.*

Process Management, Tracking and Monitoring

## Papyrus WebControl - a graphical equivalent for S/390 JES/JCL on UNIX and PC

Job Control Languages
- Introduce a job to an operating system.
- Provide tracking and accounting information.
- Direct the operating system on what is to be executed.
- Request hardware devices or resources.
- Execute the job.
- Formalize steps required to process a job.
- Specify requirements of step.

What can you do with Papyrus WebControl Process Support?
- Manage print queues using JES2 style job attributes.
- Invoke formatting.
- Manage cutsheet and endless forms printers in the network.
- Track individual mail pieces.
- Reprint on page and document level.
- Handle errors automatically.
- Store jobs in document pool.
- View jobs on workstation.
- Archive jobs.
- Receive status feedback on every job.
- Maximize reuse of existing steps: submit, format, print, archive, cleanup, delete...
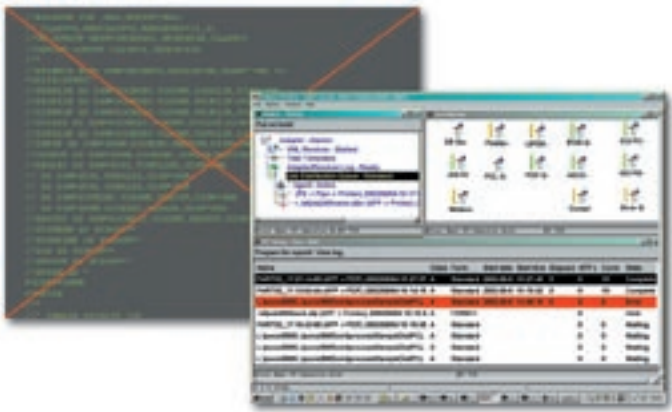
PROCESS MANAGEMENT EXAMPLES

There are many more opportunities than the ones given but the four examples show typical applications.

1 Simple processing

Option 1
Customer delivers an AFP input file.
Task PRINT - copy of file to the print directory

Option 2
Customer delivers ASCII input file.
Task PRINT runs a print command within a script or line command including page and form definition and the kind of paper to use.

Both commands are very much the same. Within the print command the kind of paper used can be included. In case of receiving an AFPDS file PAGEDEF is not needed.

2 2 steps processing

The input data file runs through a formatting step with DocEXEC. The formatting step includes parameters, variables and attributes.
Task PRINT - copy file to the print directory
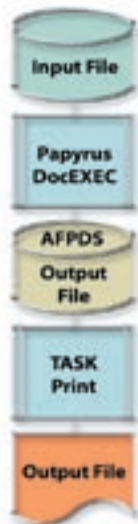
3 More than one output file

The difference to sample 2 is that the DocEXEC formatter generates two or more output files from one input file. The first output file has to be printed. The second output file has to generate PDF.

The two output files output 1 and output 2 can be processed in parallel. The generation of PDF does not wait until the PRINT step is ready.

PROCESSING

- Status of tasks are reported to user by either a NETSEND message, an email or SMS.
- Each job can be defined with a certain priority. It can be changed by the operator.
- An input file can have several processing steps i.e. print, convert to PDF, archive. This is handled by the built-in rule and state engine. The given status information of each task allows for joined serial and parallel processing steps. This is to prevent that processing steps are waiting for the next step, even when those can be run independently.
- Within the process external applications or scripts can be started.
- Data can be tracked and reported by time & date, individual printer/paper, or a selected group of printers. Workload can be tracked and billed to customers or departments.
- Attributes can be assigned to a process, i.e. paper type, priority, printer group, ...
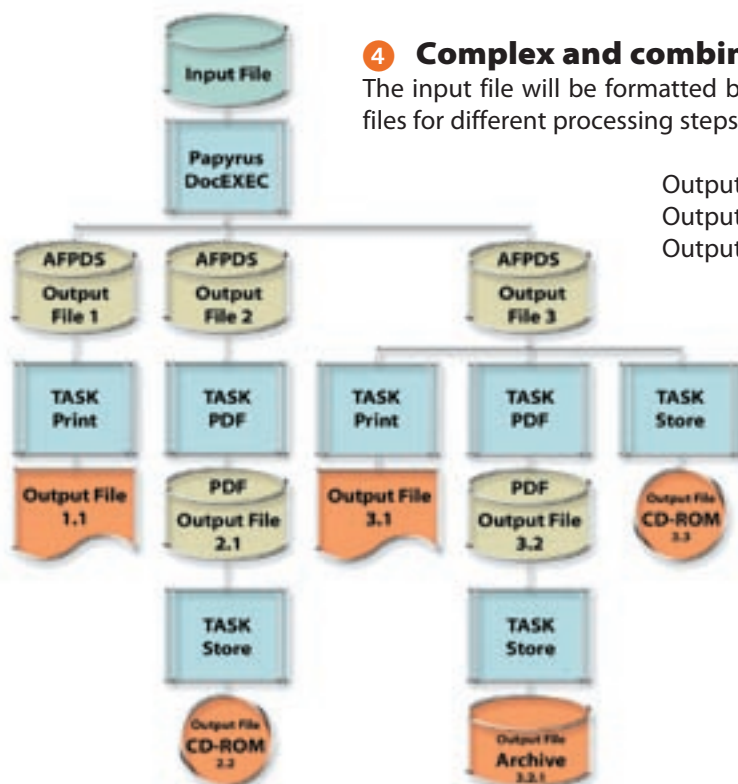
INPUT

- Input files can be identified (XML event) by a naming convention i.e. test or production file, customer name, identification of the file, type of file, file number and date, ...
- Input files with wrong naming conventions produce an error message.
- The delivered file can be processed at a specific agreed time.
- Archiving and printing tasks can be handled simultaneously or managed by business rules: i.e. only when print returncode = 0 then archive.
- The processing steps a file has made are reported.

- Process time and status is monitored by the operator view.
- Stop and/or restart possibilities are available for every step within a process.
- Accounting information and performance information are offered by the report facility.

OUTPUT

- Print files can be classified by destination, print name parameter, forms parameter or a class selection match.
- You can have printer groups with equal features to make use of all of the printers in the group.
- Enveloping machines can be assigned to a job.
- The output files can be saved or stored by default for a certain time period and then be automatically deleted.
- The output file can be put on a CD-ROM.
- A wide range of reports can be produced. Interfacing with SNMP is planned.

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4 Complex and combined processing

The input file will be formatted by DocEXEC. DocEXEC will generate 3 output files for different processing steps.

Output file 1 has to be printed (example 1)
Output file 2 has to generate PDF with index.
Output file 2 is stored to CD-ROM.

1. The output file has to be printed.
2. The output file 2 is an archive file. It consists of 0 to n PDF files with matching index files. The file is written to a particular directory.
3. The file is generated with index for distribution on CD-ROM.

For this example, the processing steps TASK Print and TASK PDF run in parallel.
After the TASK Print of Output file 3 is ready the TASK PDF and TASK Store must process in parallel.
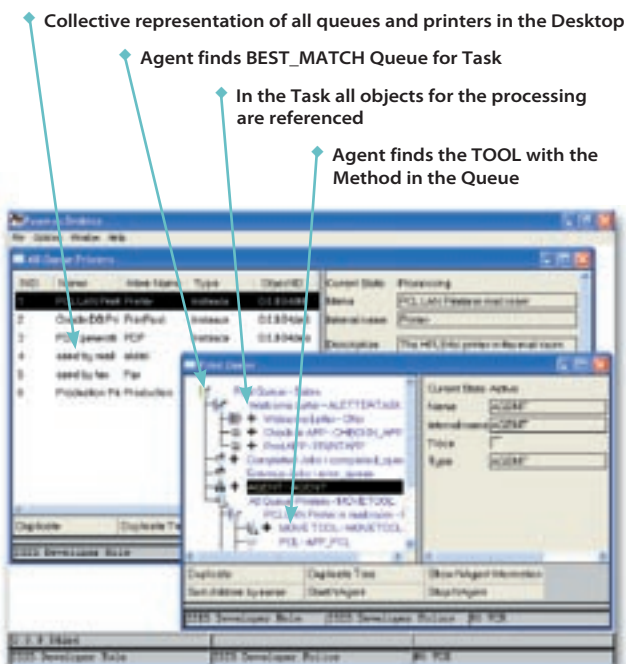
This proven system is designed for transparent and seamless multi-channel output. At time of print the platform and printer can be chosen freely without any changes to the user application. Even printer limitations such as resolution, front/back paper control or cut sheet fanfold/roll printing can be controlled independently from the layout.

■ Process Management

Papyrus WebControl offers the Print/Job/Spool/Queue Management for Papyrus Servers across the TCP/IP network using the *Papyrus Objects Desktop*. From the desktop, authorized users have centralized supervision and administration for their printing by monitoring all the print processes running on a wide range of printers. The graphical user interface simplifies the work of the operator, is easy-to-learn and means that far less time is spent entering commands and operators commit fewer errors. Agent technology is used to perform highly flexible process automation based on the document status.

Highlights:

■ Printer and queue definition and administration through the network.
■ User, administrator and operator authorization.
■ Job and queue operator control via network access.
■ Multiple queues per server and multiple printers per queue.
■ Visual representation of server, queue and printer status.
■ Print request management: change of priority, destination, printer, parameters, forms, ...
■ Automation of Standard Jobs.
■ Automatic queue and printer selection based on forms, color, job size, forms or bin setup, ...
■ Print Stream conversion.
■ Seamless conversion of fonts, forms and images to printer formats.
■ Automatic resource distribution with version control for the printer.
■ Cost control and accounting information.

◆ Collective representation of all queues and printers in the Desktop

◆ Agent finds BEST_MATCH Queue for Task

◆ In the Task all objects for the processing are referenced

◆ Agent finds the TOOL with the Method in the Queue

■ Mainframe Printing:

Papyrus Host offers the printing of AFP applications to directly attached Xerox Metacode and PCL printers and the conversion from AFP to PDF.

Papyrus Host is a functional Subsystem for JES2/3 which spools the data and manages the availability of the correct version of all print resources between the OS/390 host and PC or UNIX server.

Papyrus Host function sets

1. Receiving print jobs from JES Queues and distribute them to the network.
2. Receiving print requests from applications and submit these to JES.
3. Print requests can be received from MQ Series, a CICS Transient Data Queue, a WebControl Printer Queue and from a WebControl connected Adapter i.e. HTTP, XML, POP3, SAP XOM.

Planned features:

Using the published IBM JESAPI, Papyrus Host will allow WebControl users to monitor JES Queues and perform actions based on the host defined authority.
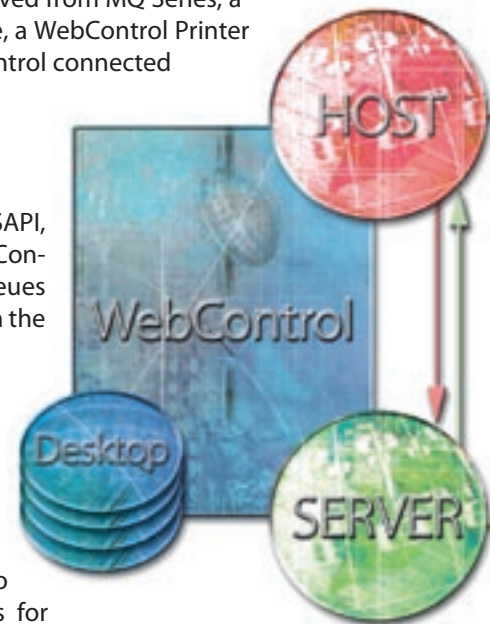
■ Server Printing

Papyrus Server, available on AIX, Sun Solaris, HP/UX, NT/2000/XP converts the electronic document format AFPDS with highest fidelity to the required output formats for the different print technologies, Web distribution and archiving. The AFP file is transparently and seamlessly converted at time of print to the chosen target printer format. Highest flexibility and efficiency is guaranteed as any output channel can be chosen at any point in time without having to redo the document definition or rerun the formatting step.

Printer Tray Support

Printing from several printer trays is supported through AFP FORMDEF used by Papyrus to control input bin and simplex/duplex switching for different paper types.

Reprinting

Documents can be easily reprinted on a page and document level using the AFP index information generated by Papyrus.
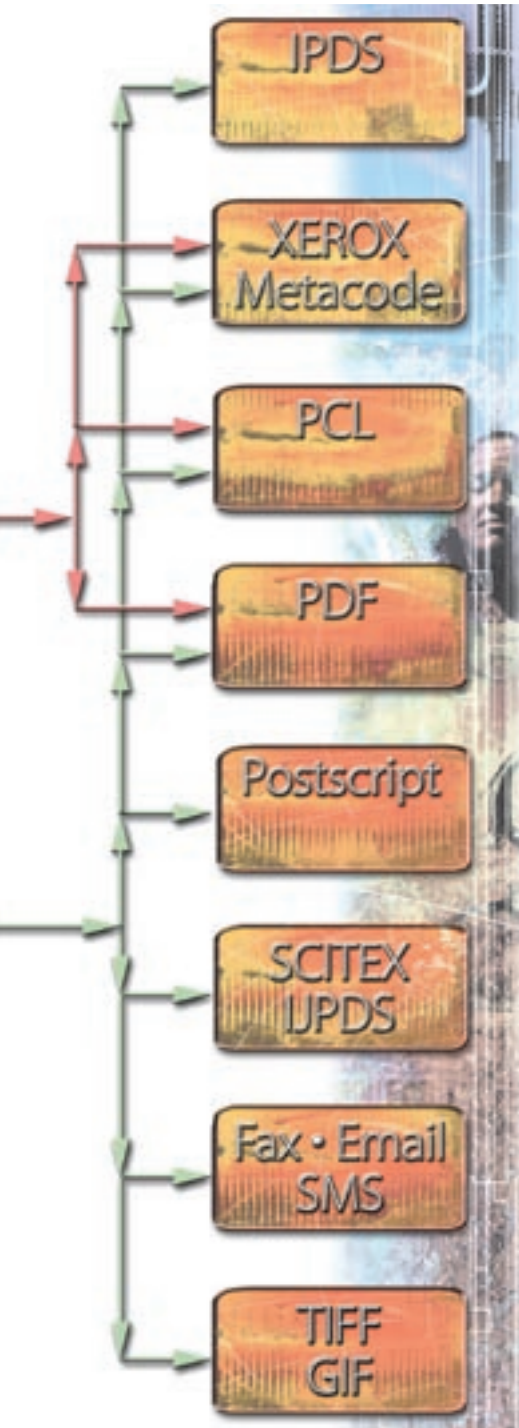
An easy to operate solution which fits neatly into every existing environment.

Papyrus Enterprise Printing
A Seamless Multi-Channel Output Solution

■ Driving IPDS Printers
Papyrus Server/IPDS offers printing of line data and formatted AFPDS files to all types of TCP/IP attached IPDS printers. Papyrus supports raster and outline fonts, spot color and full color FS45 printing.

■ Driving Metacode Printers
Papyrus Host/Metacode and *Papyrus Server/Metacode* offer printing to channel attached OS/390 and TCP/IP attached Xerox 40XX printers or output to tapes.

■ Driving PCL Printers
Papyrus Host/PCL and *Papyrus Server/PCL* drive all types of PCL printers either mainframe attached or with IP address. Full color printing is supported.

■ PDF Driver
Papyrus Server/PDF generates native PDF format in full color for document viewing in the Internet.

■ Driving Postscript Printers
Papyrus Server/PS generates a Postscript file to be printed on various PS printers. Full color printing is supported.

■ Driving Scitex Printers
Papyrus Server/IJPDS supports Scitex highlight and full color printers.

■ FAX Driver
The *Papyrus Server/Fax* generates an image Fax file in TIFF format from the AFPDS document to be faxed. The FAX details are extracted from the AFP document. Incoming faxes can be captured and classified and routed to the department or user.

■ Email
Papyrus Server/Email allows sending of different document formats via SMTP to any server as attachment.

■ TIFF Driver
Papyrus Server/TIFF generates a TIFF G3 or G4 file per page with index name or separate index file.

> *Automation Software requires little or no human intervention, thus allowing lower staff costs.*

Interfacing to Business Systems

Papyrus SAP XOM Adapter

The Papyrus SAP Adapter is designed to interface with different types of business critical documents, specifically to the customer requirements, e.g. invoices, order acknowledgements and purchase orders. Each document will be represented by a template, which is used to match the spool data from SAP to the required document process used by the SAP Adapter. For example, spool data for Purchase Order will automatically map to the Purchase Order template used by the SAP Adapter.

The business process workflow within Papyrus WebControl offers certainty and alternative routing based on event types. Whilst waiting for a document to finish, online SAP users can also monitor the current status of their jobs and the device they have just printed to, for example queue disable, job currently being processed. Canceling a print job after printing has commenced is also possible. The SAP user can check the status of the device to allow them to choose another device should the first choice be unavailable.

Benefits at a glance:
- Consistent interfaces using SAP's standard interface SXMI and XOM
- Integration with business critical applications using SAP's RDI
- Centralized management and control. When issues occur, the administrator only has to work with one single focal point - Papyrus WebControl.
- It is the perfect tool for planning distributed output strategy. The SAP Adapter can easily be incorporated into Papyrus Objects workflow.

Established over 90 years ago, NFU Mutual is the UK's leading rural insurer, offering a wide range of insurance services. Today, NFU Mutual has a network of 350 tied agents and 14 branches throughout the UK, together with a direct business center. It has recently been awarded the British Insurance Award for the Best Customer Services in the UK insurance industry.

NFU Mutual has been an ISIS customer since 1994, adding **output management functionality** in the last 18 months.

NFU Mutual

Case Study

The Beginning

In 1994 NFU Mutual set out to select a solution for their distributed application printing. A number of their applications had been written for use in an OS/2 environment with printing to HP-PCL4/5.

As standardization and hardware independence were key issues, a decision for AFP was made. A large existing library of AFP resources, which had also been used to provide corporate identity, should be usable if possible, to avoid duplicating the development effort for the PC. This left NFU Mutual with two options: first was to use PSF/2 and code the AFPDS, which would have been equivalent to coding the PCL4/5 in terms of programming effort. The second option was to use PAGEDEF data formatting with the ISIS AFP Designer and print with the **Papyrus Server** to the Lexmark 4039s.

The ISIS solution was implemented across the NFU Mutual agent network, with the use of **Papyrus Client/Server** providing distributed document composition and printing.

The Requirements for an Output Management Solution

In early 2000, NFU Mutual looked to add output management functionality to its document composition solution, as there was a key requirement for the ability to bundle all agent renewal documents together in a sorted sequence and deliver directly to each agent. This was to replace a manual sorting system, which took place at each branch.

Decision Criteria

Papyrus was chosen as the NFU Mutual output management solution in April 2000, however, due to operational reasons, the solution was not implemented until May 2001.

Papyrus was chosen because of the following reasons:

- Fully integrated with Papyrus DocEXEC which was already being used by NFU Mutual
- Conformed with NFU Mutual hardware and software strategy
- Cross platform scalability
- Good relationship with ISIS UK
- Value for money
- Document bundling options

The Solution

On each of 7 consecutive days, processing is performed for a particular class of NFU Mutual business, for example: private car, tractor, motorcycle, agents accounts etc. For each class of business there can be multiple print files.

The data for each nights processing is sent via FTP from the mainframe to an NT server, where it is formatted by Papyrus DocEXEC into AFPDS with indices for subsequent sorting. The AFPDS is stored initially in a directory file structure, where the business use Papyrus Client to check a sample of documents to ensure the runs were successful. When each AFPDS has been signed off, or rerun and signed off, then the AFPDS is checked into the Papyrus PrintPool, which at NFU Mutual is a MS SQL Server DB.

On the eighth day (after all business classes have been processed and signed off), the AFPDS in the Printpool is sorted for the branches, using the Agent index first, then Policy Number and finally Order Number. Papyrus DocEXEC then produces the final AFPDS files per branch to be printed. These are sent via FTP back to the mainframe where PSF formats them into IPDS for printing on Infoprint 2000's and sent to the agents.

NFU Mutual currently produces 1.5 to 2 million pages per month via Papyrus, and this is set to increase.

The Future

NFU Mutual plans to considerably add to the daily jobs checked into the Papyrus PrintPool. IT also plans to add a customer ID index to enhance the sorting process enabling the delivery of agent documents to be further improved.

A major step currently underway is the integration of the output management solution into **Papyrus Objects**. Papyrus Objects will be used to integrate the Printpool into the NFU Mutual environment without the need of any third party or internal scripting (Papyrus PostProcessing is currently automated by REXX scripting). The distribution of resources (including full version control) across the 350 agents will also be handled by Papyrus Objects from the central repository.

NFU Mutual is also considering implementing a customer correspondence system for ad-hoc documents generated by the agents utilizing Papyrus Objects. This will require significant analysis by NFU Mutual prior to any firm decision to start a project.

The Benefits

The implementation of Papyrus PostProcessing at NFU Mutual has significantly reduced the number of man-hours a month between the 14 branches on the time taken to sort all classes of documents for each agent, and in turn has provided NFU Mutual with substantial cost savings.

The output management solution also eliminates manual errors, and reduces paper waste, again providing financial savings to NFU Mutual.

"Even though we are not utilizing the full potential of Papyrus Output Management at this current time, we have made significant cost savings and process improvements. Since implementing Papyrus Output Management at NFU Mutual, we have received very positive feedback from our 350 agents and they are now looking forward to even more improvements," **says Neil Gregg, Senior Output Management Analyst.**
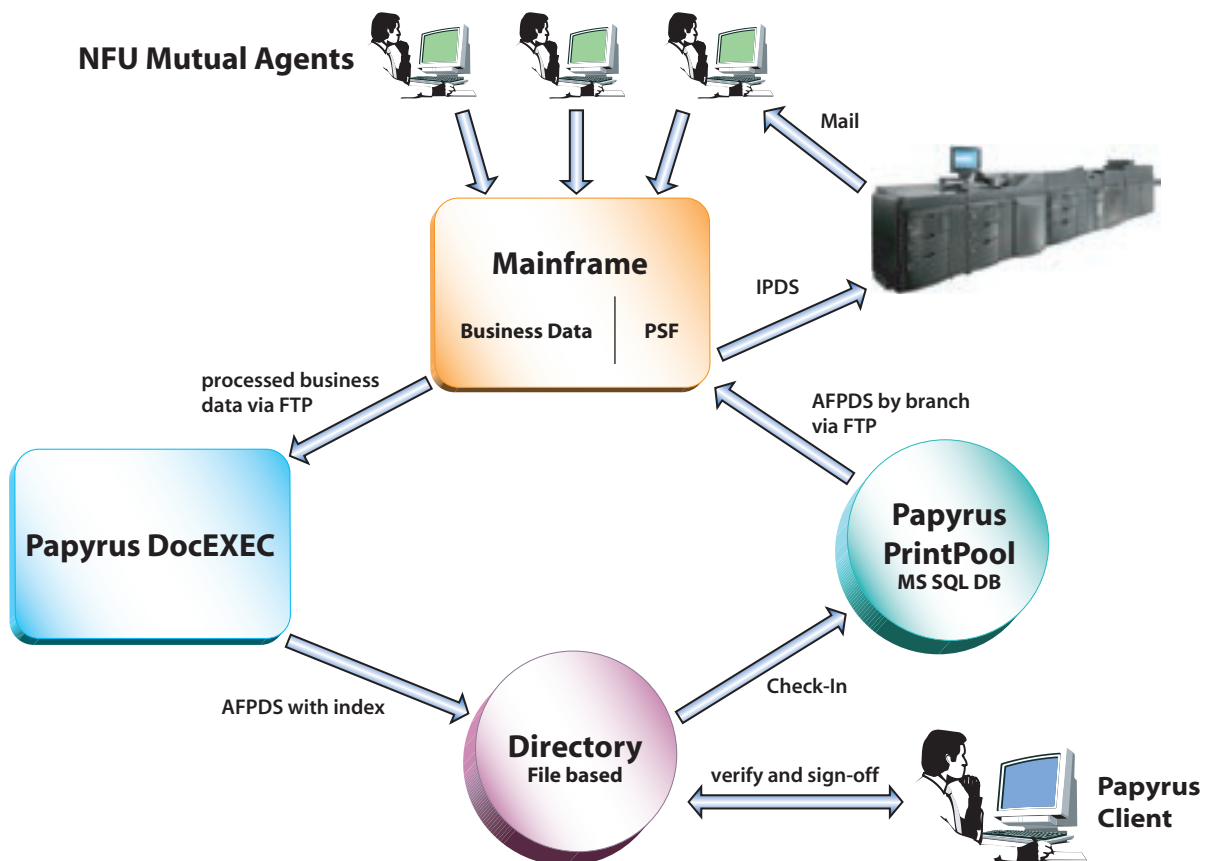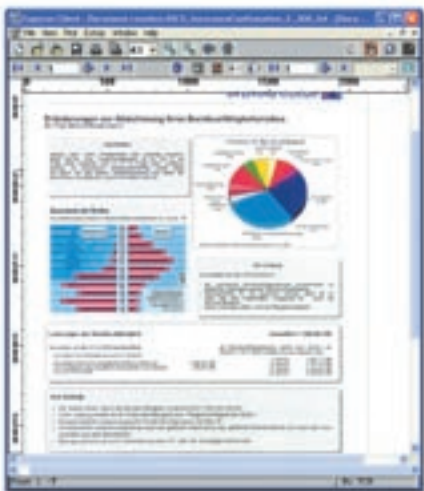
Color Printing

Papyrus supports spot color in IPDS, Scitex IJPDS and Xerox Metacode as well as full color Postscript, PCL5 and IPDS printing, by supporting AFP–FS45 which is only 8% of the size of a full color uncompressed TIFF.

View before Print

With **Papyrus WebControl**, authorized users can access the print server from their desktops to view and manage print queues. Users can view documents by index using the **Papyrus AFP Viewer** and print selected pages.