Office Solution with Multifunction Printer

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Modern multifunction printers (MFPs) are used as input/output devices for paper-based workflows in the workplace and have a part of the responsibility for improving efficiency, reducing cost and increasing security of the workflows through enforced integration with on-premise or cloud-based software like business applications and print management tools.

System integrators (SIer) and independent software vendors (ISV) offer various document solution software (hereinafter referred to as solution software) for digitizing (scanning), printing, managing and workflow automation of office documents. MFP vendors create their own open platform into their MFP devices and make it possible for the solution software to control MFP functions directly and tightly build MFPs into the business systems.

Additionally, SIer and ISV are further strengthening the connectivity to mobile devices like smartphones and tablets, the cloud deployment of their business applications, and the protection against information leakage from MFP devices in an effort to provide solutions that address the needs of SMB as well as large business.

MB492
(A4 Monochrome)

MC780
(A4 Color)

MC883
(A3 Color)

Photo 1. sXP Equipped Open Platform MFPs

First in the A4 color/monochrome MC780/MB780 MFPs for workgroups launched in August 2013, OKI's own sXP (smart eXtendable Platform) open platform has since been embedded in the A3 color MC883/863 MFPs launched in July 2015 and in small desktop A4 MFPs expanding the list of solution software integrated with OKI's MFPs.

This article gives an overview of the sXP open platform, followed by a case example of an integration with ISV/SIer solution software, and lastly introduces two of OKI's MFP solution software.

Overview of sXP Open Platform

In addition to basic network functions such as print data receiving and device status monitoring MIB/SNMP, sXP provides three types of functions (services) for solution software integration as shown in **Figure 1**.

- Embedded Web Browser
- Scan Web Service
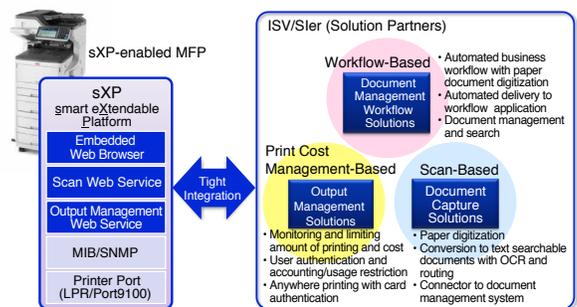- Output Management Web Service

Figure 1. sXP Open Platform

The Embedded Web Browser displays the Web screen of the solution software on the MFP control panel (touch panel), thereby allowing login and input operations on the software to be performed directly from the MFP. For example, scan conditions can be input when scanning business cards arranged on the platen glass of the scanner into the business card management software or print data sent from PC and stored in the print management server can be selected and printed easily with the use of the MFP operation panel.
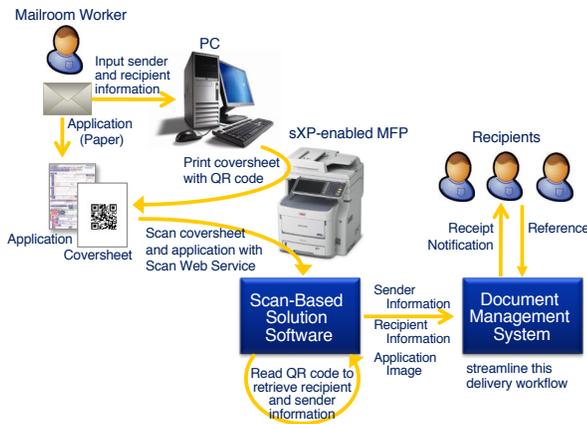
Scan Web Service is used to specify detailed scanning conditions such as resolution, color density, one-side/both side scanning and image file format, instruct the MFP to scan, and receive the scanned image file.

Output Management Web Service allows copy/print cost management software to authenticate users, limit MFP functions, and retrieve information on date/time and number of sheets printed/scanned by each user.

Currently, there are over thirty ISV/SIer solution software integrated with sXP-enabled MFPs. The software can be classified as print cost management-based, scan-based or workflow-based **(Figure 1)**. Furthermore, a sales company in each country is working in cooperation with local ISV/SIer to support new solution software for creating business opportunities and developing new markets.

Case Example of an ISV Solution

This section explains a case example of solution software used in a mailroom to improve workflow through electronic mail delivery **(Figure 2)**.

Figure 2. Case Example of Electronic Mail Delivery

At a certain insurance company, large amount of mail including insurance applications from customers was previously hand-delivered several times a day to the recipients (employees), which was costly and time consuming. To improve delivery, scan-based ISV solution software was adopted and mail arriving at the mailroom is now electronically delivered to recipients using the following procedure.

1) The mail's sender (customer) and recipient (employee) information is entered into the PC. Then, a QR coded ®*1) coversheet is printed from the MFP.
2) Controlling the scan-based software from the MFP control panel, the coversheet and mail (applications, etc.) are scanned together.
3) The scan-based software reads the QR code on the coversheet and sends the mail's document file to the document management system along with the recipient and sender information.

4) The employee receives a receipt notification, references the mail's sender and document file, then processes the application.

OKI also offers SMB office users a scan-based software SENDYS Explorer*2) bundled with a sXP-enabled MFP to enhance MFP connectivity with mobile device and public cloud service. An overview of SENDYS Explorer is given below.

Overview of SENDYS Explorer

SENDYS Explorer is scan-based software for work groups. It consists of a main Web server-based application that runs on Windows®*3) and an application for mobile devices (iOS*4) and Android®*5)). Moreover, the main application is tightly integrated with the sXP-enabled MFP and SENDYS Explorer can be controlled directly from the MFP control panel.

Figure 3. Overview of SENDYS Explorer

As shown in **Figure 3**, the main functions of SENDYS Explorer are document conversion, document hub, FAX delivery, document management and anywhere printing.

User can read in images of paper documents with the MFP scanner or mobile camera then send the images to SENDYS Explorer where an OCR will easily convert them into a variety of text-searchable document files (document conversion function).

At that time, the converted document file can be saved to SENDYS Explorer's internal folder as well as to the on-premise file server (network folder) or the cloud storage. The file can also be delivered to a specific recipient using the email or FAX server (document hub function). Additionally, FAX images received by the MFP can be saved to user folders or delivered via email

designated according to the sender's number (FAX delivery function).

For each user, SENDYS Explorer centrally manages document files stored in multiple storage locations and documents are searchable from the PC (document management function). Furthermore, printing of stored documents can be initiated from the MFP control panel, PC or mobile device and printed out on any MFP or printer registered with SENDYS Explorer (anywhere printing function). SENDYS Explorer also includes a print function for Microsoft Office that allows Microsoft Office files stored in mobile devices to be printed through SENDYS Explorer.

SENDYS Explorer's control screen is Web-based, which allows all the above functions to be controlled from the MFP control panel, mobile device application or PC (Web browser) with the same operation.

In addition to the typical office usage previously described, OKI is working on enabling the identification of specific character string or a bar code/QR code in a business document to enhance the routing/delivery function and developing a SDK for quickly dealing with specific business opportunities (customization) that involves input of paper documents.

As an example of specific business solution software involving the identification of graphics in a paper document, a solution developed by OKI for real estate agencies is described in the following section.

Overview of an Auto Re-Banding Solution for Japan's Domestic Real Estate

Real estate agencies in Japan post or distribute to visiting customers property listings like the one shown in **Figure 4**. The source of these property listings are usually PDF files downloaded from REINS (Real Estate Information Network System). A real estate agency is normally requested to act as a broker when selling or buying real estate. In order for the real estate agency to act as a broker for the seller, the agency needs to enter into either an "Exclusive Right-to-Sell Listing Agreement," "Exclusive Agency Listing Agreement" or "Open Listing Agreement" with the seller. Furthermore, if the agreement is "Exclusive Right-to-Sell Listing Agreement" or "Exclusive Agency Listing Agreement," the seller may only have broker contact with the agreed agency. Therefore, the agency is required to register property that is under Exclusive Right-to-Sell Listing Agreement or Exclusive Agency Listing Agreement with the designated information network REINS to attract as many buyers as possible (**Figure 6**).

| Figure 4. Property Listing | Figure 5. Property Listing after Re-Banding |

Figure 6. Negotiation Flow of Japan's Real Estate

When a real estate agency receives a referral request from a buyer, an agent enters the buyer's requirements into afore mentioned REINS to obtain matching property listings downloadable as PDF files. The listings are commonly in landscape format like the one shown in **Figure 4**, and there is a banded section in lower portion that includes contact information. Since the information in the band is that of the seller's agency, if a listing is passed over to the buyer as is, it is conceivable the buyer will contact the seller's agency directly. Therefore, it is customary for the buyer's agency to re-band the listings with its information. The agency can replace the band with its own using a PDF editing application such as Acrobat®[*6]. However, IT literacy is generally low at real estate agencies and re-banding is often done manually. Specifically, copier or MFP is used to make copies after the band portion is bent and attached with the agency's information or after placing the listing in a clear file folder pre-pasted with the agency's information to cover the original band. Although a simple task, some agencies have a full-time staff to handle the job when several tens of listings need to be re-banded in a day (**Figure 5** is the listing in **Figure 4** after re-banding).

Business efficiency should significantly improve if re-banding can be automated. Hence, OKI has developed application software called "Obi Gae" (re-bander) that runs on Windows PC (**Figure 7**). As shown in **Figure 8**, re-banding can be accomplished by specifying the JPEG file of the agency's band, folder 1 that contains the original file to be re-banded, and folder 2 where the re-banded file will be saved. When the PDF file of the property listing that requires re-banding is copied to folder 1, Obi Gae

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*6) Acrobat is a trademark of Adobe Systems Inc.

automatically replaces the band and saves the re-banded PDF file to folder 2. If several PDF files need to be re-banded, they can be processed at once by copying all the files to folder 1 at the same time. Obi Gae also includes a printing function enabling printing to OKI's MC883/863 series and MC780 series printers. Another application scenario involves the use of MFP's "Scan to Shared Folder" function as shown in **Figure 9** and re-banding can be performed as though one was making a paper copy. More specifically, the "Scan to Shared Folder" target of OKI's MFP is set as folder 1 of Obi Gae and the MFP is set as the print destination. Using the MFP's "Scan to Shared Folder" function, an agent scans the "paper property listing" he/she wants to re-band. The scanned image in PDF format is saved to folder 1 where Obi Gae will re-band the PDF file and send it back to the MFP for printing. As a result, re-banding function is similar to making a copy.
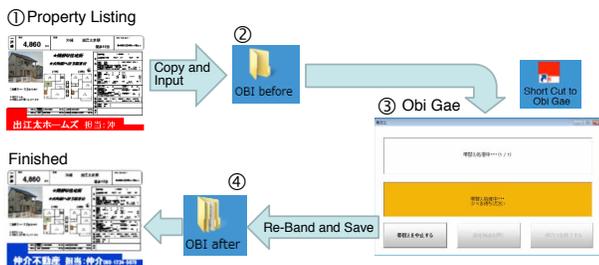

Figure 7. View of Obi Gae (Re-Bander)

Figure 8. Obi Gae Process

① Set the printed property listing onto the MFP,
② Push [Obi Gae] on the touch panel to start,
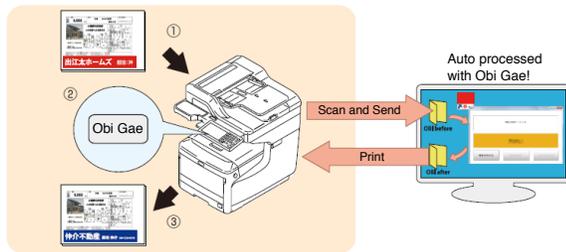③ Listing re-banded with agency's own info is printed.

Figure 9. Copy-Like Re-Banding

The following is a brief description of Obi Gae's mechanism. Obi Gae first converts the input PDF file to a JPEG file. Next, it searches for an enclosed band or borderline on the lower portion of the JPEG file and recognizes the detected section as banded information. Then, the replacement band (JPEG) is superimposed over the detected band and the resulting file is converted to a PDF file.

Obi Gae was developed for re-banding real estate property listings. However, demand is considered large for such an application to make changes to catalogs and other diagrams. Lateral deployment of the application is planned for meeting those demands.

Conclusion

This article introduced OKI's MFP office solution. User needs are changing in recent years due to technical advances in mobile, the cloud and the like. OKI's goal is to accurately capture the changing market needs brought on by technical innovation and provide solutions the users are seeking. ◆◆

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【Glossary】

ISV:Independent Software Vendor

SMB:Small Medium Business

OCR:Optical Character Recognition

SDK:Software Development Kit

REINS:Real Estate Information Network System
A computer network system operated by Real Estate Information Network, which received designation from the Minister of Land, Infrastructure, Transport and Tourism in Japan.

PDF:Portable Document Format
An electronic file format.

JPG:Joint Photographic Experts Group
Compressed digital data format for still images.