KYOCERA'S HYPAS TECHNOLOGY

A WHITEPAPER

Version 1.1 2013-09

KYOCERA
Document Solutions

Contents

Copyright © 2013 KYOCERA Document Solutions Europe B.V. All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording or by any information storage and retrieval system, without written permission from KYOCERA.

HyPAS is a trademark of KYOCERA Document Solutions Inc.

Oracle and Java are registered trademarks of Oracle and/or its affiliates.

All other names and logos may be trademarks of their respective owners.

Introduction

Not so long ago, the MFP was a device for printing, copying, scanning and occasionally faxing. But technology has evolved, and the enhanced capability of the devices has brought about many additional requirements and fundamentally changed the way MFPs are used today. The transition to colour printing for instance relates to the increasing need for document accounting in order to control and manage output costs. Security became a topic with high relevance not only for PCs and networks, but also for MFPs: how to secure the data travelling between PC and output tray, and how to avoid that unauthorized users pick up confidential information from output trays. Other important issues for companies are to increase productivity and to reduce costs. Considering that costs related to document output can be as high as 3% of a company's revenue, reducing these costs can have significant impact on a company's bottom line. Process automation for example is an excellent productivity booster: instead of repeating complex steps each time, the automated process can be started with one click directly from the panel and saves users much time while at the same time reducing risks of errors.

All these topics – cost control and cost reduction, security, productivity – are fundamental for the survival of any company, with direct impact on their profit situation. Therefore companies are looking for solutions that address their requirements and individual situation in the best way.

To be able to answer the diverse needs of customers, MFP Solution Platforms were developed and integrated into the devices, as a basis for applications to be executed on the MFP. These platforms enable connectivity between the device and external business applications, which opens up endless options of advanced functionality. For instance, there can be a direct connection between the device and a company's Document Management System so that documents can be immediately and correctly archived with little effort directly from the MFP panel.

Furthermore, Solution Platforms are the basis to offer individual solutions for a customer. If there are very specific, non-standard processes within a company, or even if the customer has original ideas to advance his business, an out-of-the-box solution is often not enough. In these cases, the Solution Platforms enable to develop custom applications for specific requirements.

As a result, the MFP can be seamlessly integrated into all document processes, and the Solution Platform is the enabler.

This Whitepaper gives Kyocera partners an introduction to the capabilities and benefits of Kyocera's HyPAS Solution Platform.

What is HyPAS?

HyPAS stands for **Hy**brid **P**latform for **A**dvanced **S**olutions.

- **Hybrid** signifies that two key technologies can be used for development. These technologies are Java and Web Services.
- **Platform** stands for Software Development Platform. The platform enables developers to create software that runs on the hardware device (in this case, the MFP).
- **Advanced Solutions**[1] represent the extended options to offer solutions to the customers. The solutions can for instance be customization services, embedded applications that offer enhanced functionality, and integration with or connection to business applications or web based services.

HyPAS is the underlying technology that enables the development of applications for MFPs. It has been released in 2008, and is today supported by most Kyocera MFPs.

Standalone Applications and Clients

HyPAS applications range from embedded solutions to reduce costs, simplify the device operation and streamline workflows up to complex connectors that seamlessly integrate with core business applications like e.g. Document Management Systems.

Typically, HyPAS applications are either of the following types, or a combination of both:

- **Standalone** or **embedded applications** that run inside the device, to provide enhanced functionality or easier operation of the device.
- **Clients** (or Connectors) that create a connection to an external business application (e.g. a Document Management System or other server based application). Client means that the HyPAS application provides the interface to the external business application on the panel of the device. Via the HyPAS application and the MFP panel, a direct connection to the external application is established.

Benefits of HyPAS

With HyPAS, the functionality and operations of the MFP can be customized to each company's individual requirements. This brings along many benefits for the end customer, and at the same time it makes HyPAS essential for advanced Solution business.

End user benefits

HyPAS applications typically simplify the device operation, speed up processes, or give access to advanced functionality. Therefore the immediate benefits for end users lie in simplified and faster operations, resulting in improved productivity and efficiency. The panel personalization that is possible with HyPAS furthermore encourages and facilitates usage of the device.

[1] Solutions means any combination of hardware, software and services.

The CTO / IT Department can take additional advantage of the seamless integration of Kyocera MFPs with business applications that exist within the company, and of the increased security for the users' documents.

The CFO profits from the reduced costs of an optimized document output infrastructure, if for instance print rules are in effect and if document workflows are automated. Automated workflows also reduce the overall risk for a company by preventing user errors which can have a very negative business impact.

Benefits for vendors

In today's competitive market, customer relations and differentiation are key to success.

HyPAS enables to deliver custom solutions for individual requirements. Therefore it encourages to look closely at the customer's situation, and to find out his pains and problems. Discussing the customer's document related processes and finding out his related pains, with the focus on improving the processes, will establish a level of mutual trust and understanding, and it will help to grow the relationship.

Developing the customer relationship, and providing solutions for the customer's pains are today's true differentiators, as the technologies offer little differences. If the customer is convinced about the benefits of a proposed solution, the price will be less important than the quality and result, and this is our target situation.

Therefore, we can consider HyPAS one of the basics to be a true Solutions provider.

HyPAS Technology Basics

There are two basic approaches to platform architectures: Web Services and Embedded Java. Both are standard technologies, allowing software developers who are not familiar with MFP development to customize the device operation and integrate MFPs with external business applications.

Java

Java is well known as a programming language for mobile phone applications. It enables to create serverless applications. The Java based HyPAS application runs embedded on the device without the need for any external server.

Pros

- Embedded Java applications run without a server or external application.
- Even if there is a connection to a server inside the application and the server goes down, the application will still run.
- The range of internal MFP functions supported by the Java SDK is very extensive.
- Java is a standard technology. For skilled developers who have experience in Java development, no extensive training is necessary. This facilitates the creation of applications.

Cons

- In case of an update or upgrade, the application has to be updated on each device, as a central update via server is not possible. However, this can be resolved by a device management utility.
- Less classes and libraries available, less functionality provided from the SDK.
- Memory extensive applications (like OCR) can affect the performance of the device.

Web Services

The connection to an application or service that resides on a server can be realized with SOAP / XML based Web Services. While the MFP can utilize the functionality of the server application, similarly the application can also access services of the MFP.

Web Services always need the connection to a central server.

Pros

- As the main functionality lies on a server, the impact on the MFP's internal resources (like hard disc) is typically low.
- Utilizing a separate server application, the range of functionality can be extensive.
- Web Services offer many classes / libraries with preprogrammed functionality.
- The updating / upgrading process can be easy, as only the main application on the server

may need to be updated.

- In case of an application with multi-vendor support, the support for platforms by different providers can be easier to implement with Web Services.

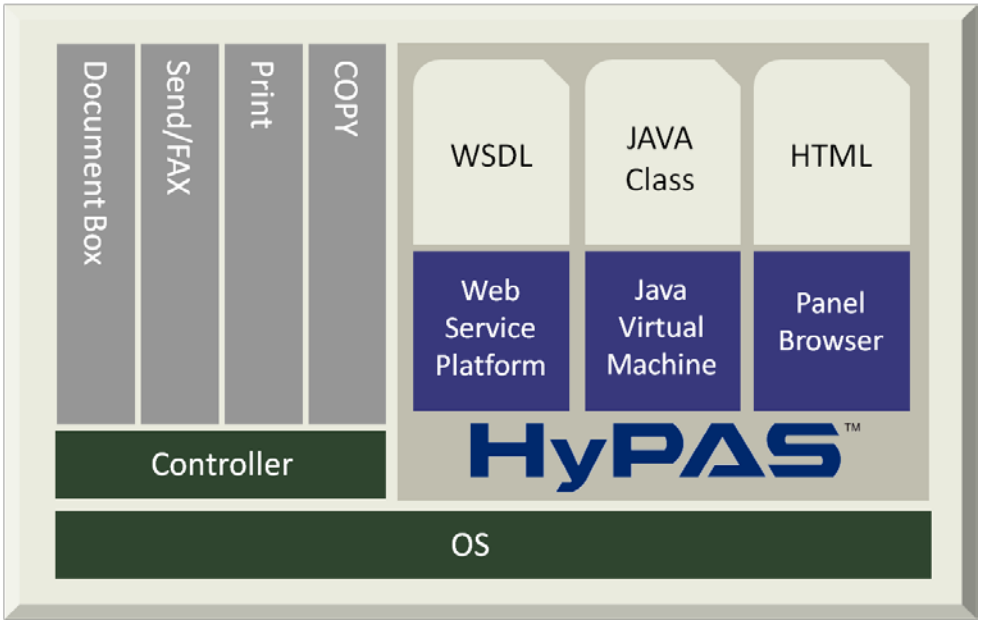
Cons

- If the server goes down, the application goes down with it.
- Utilizing Web Services can increase web traffic, adding strain on networks.

The Hybrid Approach: Best of both Worlds

HyPAS is the result of supporting both key technologies, Java and Web Services. This hybrid approach enables the best possible integration of MFPs into customers' document workflows within the shortest time.

Besides Java and Web Services, major standard technologies such as HTML, CSS, XML or HTTP are employed in HyPAS. It therefore allows the developer to select the most suitable development approach depending on the individual customer requirement.



HyPAS Architecture

The HyPAS SDKs

To enable the development of HyPAS applications, Kyocera provides Software Development Kits (SDKs). Access to the latest SDKs is given only to developers who have joined Kyocera's HyPAS Developer Partner Programme. Purpose of the SDKs is to provide the programming environment for the development of applications that run on Kyocera devices.

There are two main SDKs:

- **HyPAS SDK for Embedded**: To develop applications in Java. Typically, these applications can run standalone inside the device, therefore the SDK is called “for Embedded”.

  For HyPAS, the Java Eclipse SDK is used with a HyPAS plugin.

- **HyPAS SDK for Web**: To create applications using Web Services. Web applications create a connection to an application or service that runs outside the MFP, e.g. on a server.

  For HyPAS WebServices, Visual Studio is used with the relevant extensions.

	HyPAS SDK for Embedded	HyPAS SDK for Web

Developer Obligations	• Membership in HyPAS Developer Partner Programme
	• NDA contract
	• Development key required
	• Development device required (registered machine serial number)
	• For distribution, official HyPAS application code is required
	  o Need to apply again when the software source codes were changed.
	• Self-testing has to be executed on devices
		• Membership in HyPAS Developer Partner Programme
		• NDA contract
		• Development key required
		• Development device required (registered machine serial number).
		• For distribution, official HyPAS application code is required
		  o Need to apply again when icons, application name or developer name was changed
		• No need to execute self-testing on devices

Platform Environment	• Embedded Java platform
	• MFP Browser
		• Web platform
		  o .NET Framework 3.5 SP1 (C#)
		  o IIS 5 or later
		• MFP browser

Development Environment	• IDE • JRE • Browser • OS	• IDE

SDK Features	• Simple MFP simulator
	• HyPAS application project templates
	• Packaging of installation package
	• Application remote deployment
	• Deliverables
	  o Development manuals
	  o Embedded Java™ API Specifications
	  o Documentation of differences among
		• Simple MFP simulator
		• HyPAS application project templates
		• Basic panel parts
		  o Japanese, German, French, Italian, Spanish, Russian, Portuguese, Danish
		• Deliverables
		  o Development manuals
		  o Sample codes
		  o SDK installer(Visual Studio Plug-in)

	models o SDK installer • Expiration SDK o Available for 1 year. Regular updates required, provided via Developer Portal.	
Supported MFP Features	• Job o Direct print o Send (Email, SMB, FTP) o Box (Send, Print, App) o Scan2APP o Copy • Authentication o Extensible authentication o Coin vendor support o Key card o ID card • Job Accounting • Device information (read only) o Device information o Device status o Job status o Job log o Address book • Machine Control o Panel Reset Timer Control • Network o Socket API • Storage o HDD o USB memory o CF • Panel o Login screen o Standard app screen o Extended Module o Cloud Integration – Cloud Connect SDK	• Job o Direct print o Scan • Box o Box operation o Acquisition of box information • Panel o Standard app screen via standard connector

In addition, a set of HyPAS Client Libraries (HCL) are available inside the Developer Portal. With HCL developers are able to generate applications that control remotely the MFP / Printer, for instance for usage with mobile devices like smartphones and tablets.

	HyPAS Client Libraries
Developer Obligations	• Membership in HyPAS Developer Partner Programme • NDA contract • Development key required • Development device

	required (registered machine serial number) • For distribution, official HyPAS application code is required o Need to apply again when the software source codes were changed. • No need to execute self-testing on devices
Platform Environment	• Windows (32 bit only) • iOS • Android
Supported MFP Features [2]	• Job o Direct print o Scan o Box (Send, Print) • Box o Box operation o Acquisition of box information • Authentication o Network and local authentication • Device information o MFP / Printer discovery o Device information o Device status

Note that the HCL are currently under limited support from the HyPAS Developer team.

[2] Some additional functions are available to Kyocera Corporation for internal purposes

HyPAS Application Scenarios

HyPAS applications expand the capability and usability of the MFP as embedded applications, as Clients that connect to an external server based business application, or in a combination of both approaches.

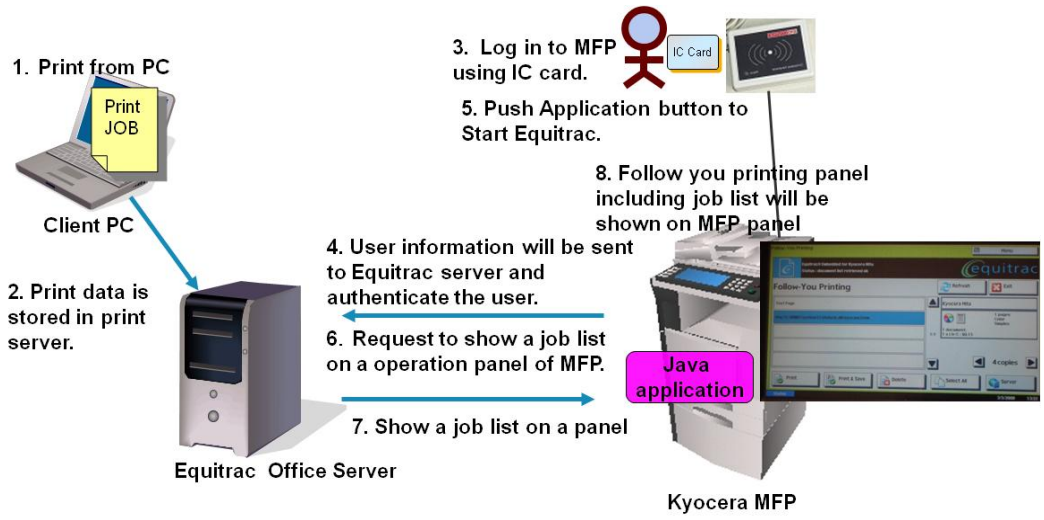
This chapter demonstrates some application examples.

The Equitrac Client

Equitrac is a powerful print management suite that provides enhanced document security, cost accounting and print rule enforcement. Equitrac is market leader in this segment and used by medium and large enterprises throughout the world.

To enable the direct integration with Equitrac, a dedicated HyPAS Client for Equitrac has been developed. Users can log on to the device with their ID card and select their print jobs directly on the panel of the MFP.

Thus, companies can profit from Equitrac's powerful functionality and high level of document security, paired with the ease of use of the HyPAS client.



HyPAS integration with Equitrac

The implementation

The Equitrac Client is a good example how the strengths of both technologies can be combined for best results:

- The login and its GUI are controlled by Java;
- Web Services connect the MFP to the Equitrac print server to show the print job list.

If the Client would use only Web Services technology, the device would be completely blocked if the Equitrac server is down. In this case, as the login is controlled by Java, the operation of the device is not affected in case of an Equitrac server failure. This is one example for the advantage of hybrid technology.

PanelPlus

PanelPlus is an application that enables to customize the operation panel for network scanning. Frequently used scanning workflows can be provided as one-touch buttons on the panel interface.

PanelPlus consist of two components:

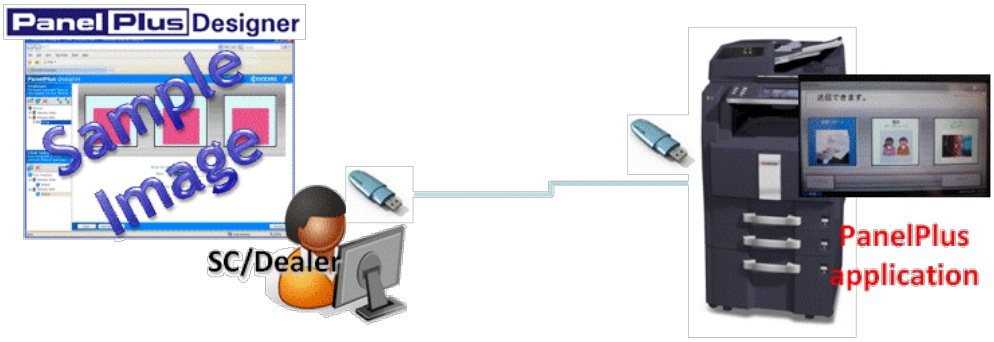
- The PanelPlus Designer which is a Windows utility that allows to create the workflows.
- The PanelPlus HyPAS application that needs to be installed on the MFP.

In addition, the workflow that has been created with the PanelPlus Designer on the PC needs to be added to the HyPAS application on the device (xpp file type).

PanelPlus is only available for Kyocera channel partners, allowing them to provide basic customization services to their customers. End customers cannot get access to the PanelPlus application.

How to customize a panel with PanelPlus

Before you can create a panel design with PanelPlus, you need to install the PanelPlus Designer on the PC, and the PanelPlus HyPAS application on the relevant MFP(s).



Customization of Operation Panel for Scanning

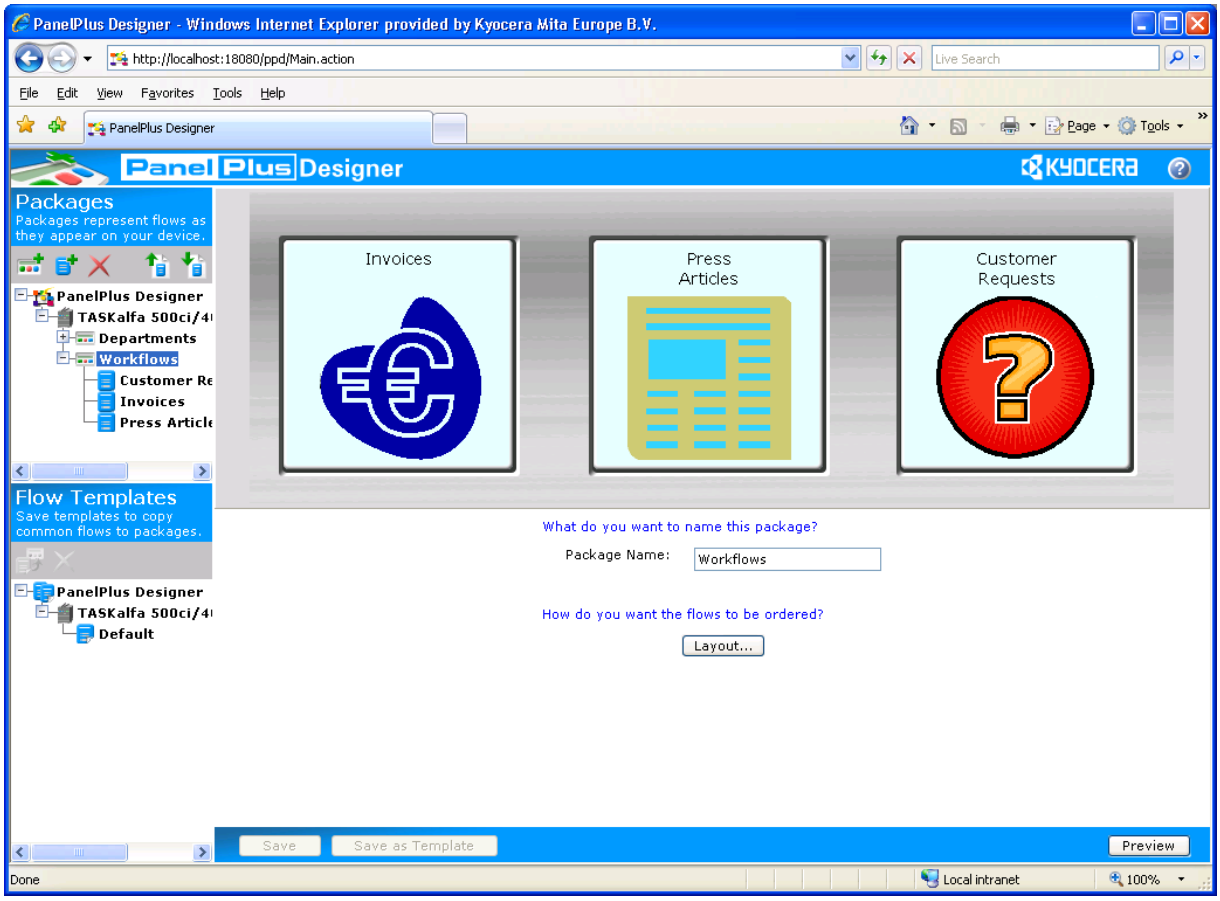
- Create the panel design with the panelplus designer on the pc.
  For each button, the design as well as the settings and destinations of the scan operation need to be defined.
- Save the panel design as a “panelplus package” (xpp) to a usb memory stick.
- Import the panelplus package to the device. The panelplus hypas application needs to be activated on the device.
- Users can access the custom panel from the application button, or display it as default application.

PanelPlus Business Case

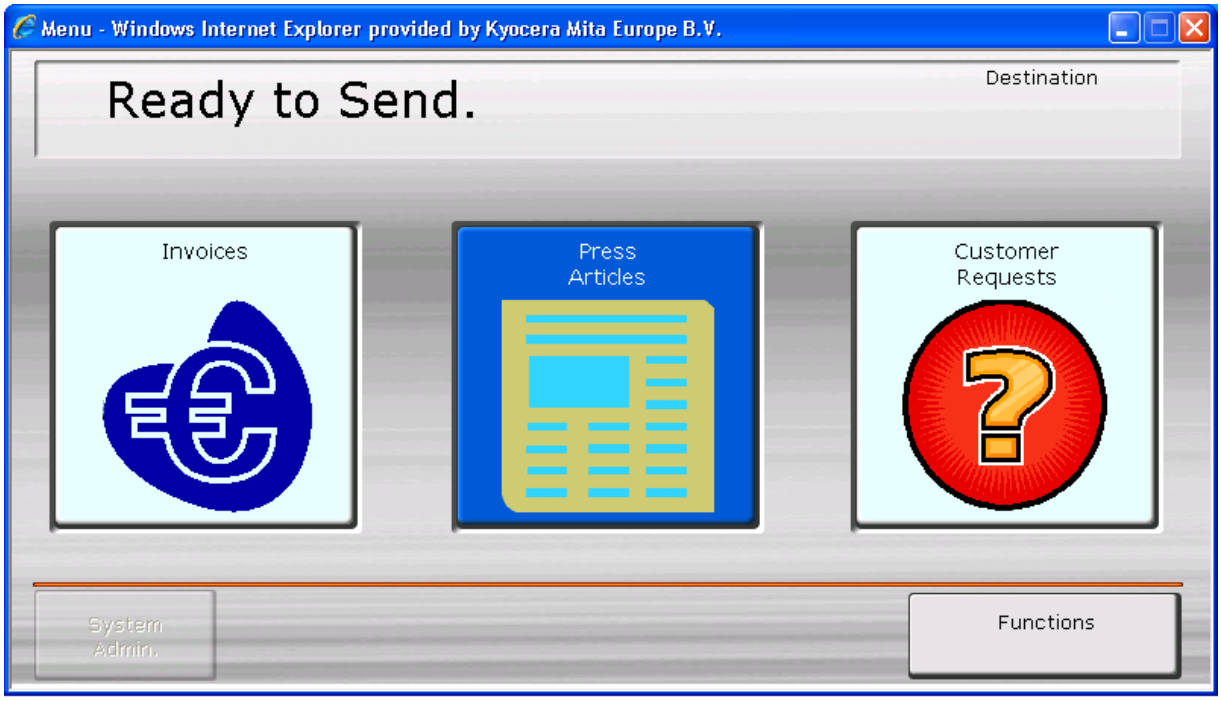
In a medium sized manufacturer, a large part of incoming mail consists of invoices and customer mails that need to be scanned and distributed to the relevant departments who process them further. In

addition, the receptionist checks newspapers and magazines for relevant articles and forwards the scans to different colleagues.

To streamline these scanning processes, three workflows were set up with PanelPlus: one each for invoices, customer requests, and press articles.



The receptionist now sorts all mail and relevant press articles, and scans them with one click to the right destination. This speeds up the scanning because all settings and destinations are predefined, and at the same time ensures that the scans are sent to the right destinations. If the receptionist is not in the office, even a temporary assistant or colleague from another department can take over her job without any problems.



Benefits of PanelPlus

The end user profits from fast and reliable operations. Frequently used scan operations can be automated and reduced to one click. This standardized process prevents errors and reduces the time spent for scanning. Most important: The workflow that is depicted on the panel is tailored exactly to the customer's ideas.

The channel partner can create custom workflows for his customers even without having any programming skills and within shortest time. With a very simple and small customization he can increase his customer's satisfaction. Also, PanelPlus can encourage upselling to more advanced solutions if customers realize the benefits of solutions for their company.

KYOCERA Cloud Connect

Cloud Connect is an embedded HyPAS application that provides a direct integration with public cloud services such as Evernote and Google Drive. Users can scan documents directly from the MFP panel into their cloud account without using their PC. Also, they can access their cloud account from the MFP panel and print documents stored in their account.

Cloud Connect Architecture

In Cloud Connect, Java technology is used to create scan images and for printing. The individual API that is provided from each cloud service is used for signing in, saving documents, and retrieving print files. This means that Cloud Connect is a combination of using Java and a 3rd party API to create the integration with the cloud services.

In order to develop custom integrations with local or private cloud services, the Cloud Connect SDK is available.[3]

[3] The Cloud Connect SDK is available only to developers of Kyocera's regional headquarters.

System Requirements

HyPAS technology is available on most Kyocera MFPs.

Supported Models[4]

The following chart lists the models that support HyPAS technology.

Models were divided into two generations according to their release date. Depending on the generation, there are differences in JAVA API. For more information, please refer to the chapter Feature differences by models.

HyPAS Generation 1

Colour MFPs
- TASKalfa 250ci
- TASKalfa 300ci
- TASKalfa 400ci
- TASKalfa 500ci
- TASKalfa 552ci

B&W MFPs
- TASKalfa 300i
- TASKalfa 420i
- TASKalfa 520i

All Generation 1 devices are HyPAS enabled devices, which means that they can run HyPAS applications without further hardware.

HyPAS Generation 2

HyPAS enabled Colour MFPs
- TASKalfa 2550ci
- TASKalfa 2551ci
- TASKalfa 3050ci
- TASKalfa 3051ci
- TASKalfa 3550ci
- TASKalfa 3551ci
- TASKalfa 4550ci
- TASKalfa 4551ci
- TASKalfa 5550ci
- TASKalfa 5551ci
- TASKalfa 6550ci
- TASKalfa 6551ci
- TASKalfa 7550ci
- TASKalfa 7551ci

HyPAS enabled B&W MFPs
- TASKalfa 3010i
- TASKalfa 3500i

[4] As of 2013-08

- TASKalfa 3501i
- TASKalfa 3510i
- TASKalfa 4500i
- TASKalfa 4501i
- TASKalfa 5500i
- TASKalfa 5501i
- TASKalfa 6500i
- TASKalfa 6501i
- TASKalfa 8000i
- TASKalfa 8001i

HyPAS capable Colour MFPs

- FS-C2526MFP
- FS-C2626MFP
- FS-C8520MFP
- FS-C8525MFP
- TASKalfa 265ci

HyPAS capable B&W MFPs

- FS-3540MFP
- FS-3640MFP
- FS-6525MFP
- FS-6530MFP

TASKalfa devices supporting HyPAS can be identified by the **i** in their product name (*intelligent*). This means that all TASKalfa i models are equipped with HyPAS technology.

Differences by Models

External Memory Card Requirement (CF Card)

HyPAS applications require a certain storage capacity on the device. If this is not available as integrated hard disc, the storage capacity of the device needs to be enhanced with a CF card.

The following devices need to be enhanced with CF card in order to run HyPAS applications:

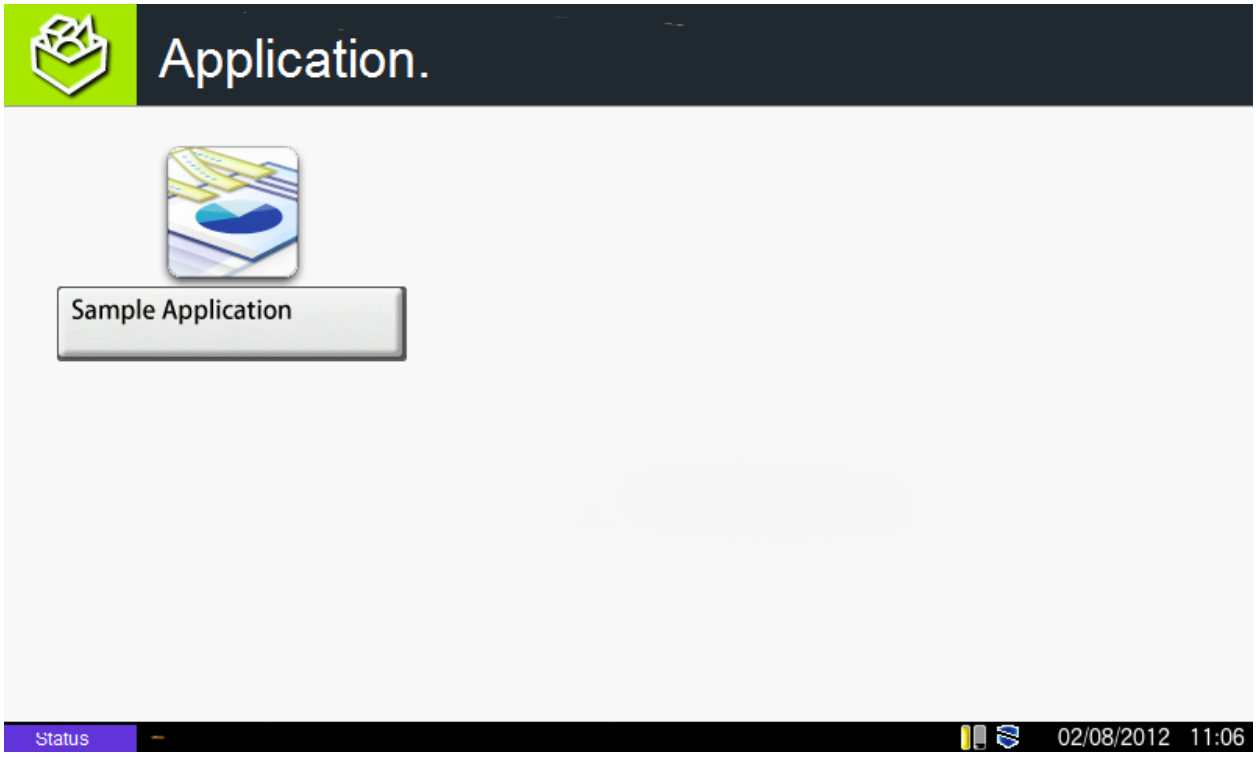
- FS-C2526MFP
- FS-C2626MFP
- FS-3540MFP
- FS-3640MFP
- FS-6525MFP
- FS-6530MFP
- FS-C8525MFP
- FS-C8520MFP
- TASKalfa 265ci

Touch Panel

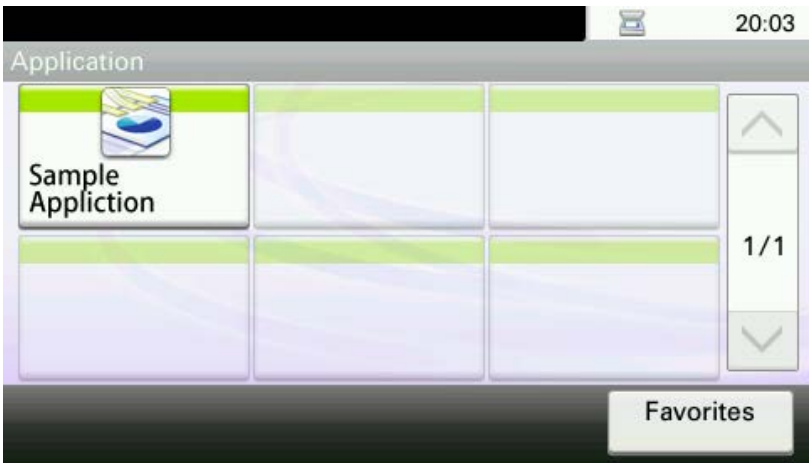
All HyPAS enabled / capable devices have a touch panel which is required to operate the HyPAS applications.

Kyocera devices currently have two standard touch panel sizes:

- 8.5 inch panel: 480 x 800 pixels (large panel)
- 4.3 inch panel: 272 x 480 pixels (small panel)



- 8.5 inch panel : 480 x 800 pixels (large panel)



- 4.3 inch panel ：272 x 480 pixels (small panel)

- New 8.5 inch panel : 480 x 800 pixels (large panel)

Latest A3 devices have a new type of touch panel. Instead of an Application Screen, the HyPAS applications can be displayed on the Home screen, together with other function icons.

Feature differences by models

HyPAS SDK for Embedded API

The following chart shows the feature differences of the HyPAS SDK for Embedded API by device generation.

To find out which model belongs to each generation, please refer to the Supported Models table.

Feature	Generation 1	Generation 2
Job Accounting	Supported	Supported
Inquire if application runs in Trial or official mode	Supported	Supported
Address Book	Not supported	Supported
Document Box	Not supported	Supported*
Access to device information	Supported	Supported
Change device settings e.g. setting FTP function on or off	Not supported	Supported

Get Counter information	Not supported	Supported
IC Card Reader control / IC Card information	Supported	Supported
Getting events like Authentication-, Device-, Panel, Coverevents	Supported	Supported
Panel Control (LED Control)	Supported	Supported
Panel Control (application program event notification)	Supported	Supported
Job Control	Supported	Supported
Job Events	Supported	Supported
Refer job log	Supported	Supported
Copy	Not supported	Supported**
Scan and send	Supported	Supported
Retrieve documents from box	Not supported	Supported*
Save documents to box	Not supported	Supported*
Print documents from Box	Not supported	Supported*
Print documents from application	Not supported	Supported
Log output for debugging	Supported	Supported
Message event notification control to the device browser	Supported	Supported

Access to Storage (HDD, USB, ..)	Supported	Supported
User Authentication	Supported	Supported
SOAP communication	Supported	Supported
Getting unit price information depending on charge type	Not supported	Supported
Copy with printing advertisement on the back side	Not supported	Supported*
Coin Vendor	Not supported	Supported*

*Features are not available in the following models:
FS-C2526MFP, FS-C2626MFP, FS-3540MFP, FS-3640MFP, FS-6525MFP, FS-6530MFP, FS-8525MFP, FS-8520MFP, TASKalfa 265ci

**Features are only supported by the following models:
TASKalfa 3051ci, TASKalfa 3551ci, TASKalfa 4551ci, TASKalfa 5551ci, TASKalfa 6551ci, TASKalfa 7551ci, TASKalfa 3501i, TASKalfa 4501i, TASKalfa 5501i, TASKalfa 6501i, TASKalfa 8001i

Developing HyPAS Applications

Kyocera provides a range of standard applications addressing frequent customer requirements. Standard applications can be purchased via Kyocera dealers and used without modification. All settings to customize to the customer environment can be made within the application without any programming.

In addition, there are various options for customers to receive custom applications tailored to their individual requirements.

The HyPAS Developer Partner Programme

For developers who want to create their own HyPAS applications, Kyocera has established the HyPAS Developer Partner Programme. It is intended both for Kyocera dealers as well as Software Vendors. Kyocera dealers are able to create applications that exactly match their customers' requirements, which will give them an excellent position in the long term relationship with the customer. Software Vendors with their own business application can create connectors or clients and thereby increase the device support of their application.

The HyPAS Developer Partner Programme provides developers comprehensive tools and support for the development of HyPAS applications.

The Programme consists of the following modules:

- Access to the complete set of HyPAS Software Development Kits (SDKs)
- Initial workshop / training (2 days)
- Technical support by competent HyPAS experts
- Different business models for the distribution of HyPAS applications

Membership in the HyPAS Developer Partner Programme is mandatory for access to the SDKs – the SDKs are not available outside the programme. Similarly, there are some regulations that must be followed. For instance, all developments need to undergo approval by the Kyocera headquarters in Europe and Japan.

Custom HyPAS Developments

Kyocera employs dedicated HyPAS developers who are able to develop custom applications on request, and who deliver trainings to developers and support in all HyPAS technology related questions.

If a Kyocera partner is not member of the HyPAS Developer Partner Programme and has no developers who could join the programme, he can order custom developments from Kyocera.

Typically, the partner will identify very special requirements during discussions with the customer which cannot be resolved with any standard application. In this case, the partner can contact their Kyocera sales organization and enquire about customization options.

If the customization is an option and can help resolve the customer's pains, the specifications for the development have to be defined between Customer, Partner and Kyocera in detail. Kyocera will deliver a quotation for the development which needs to be paid according to the expected programming effort.

This situation can be very beneficial both for the customer and the partner: The customer will get an individual solution that improves his document workflows and that will increase his productivity. The

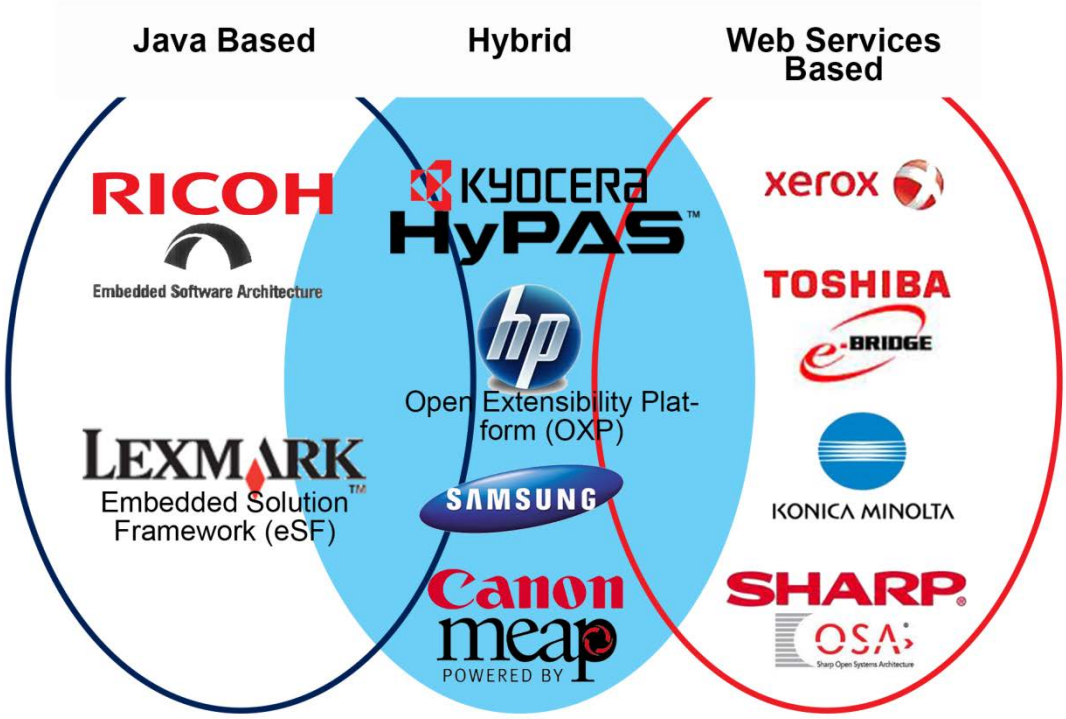
business partner will have gained deep insight into the customer’s workflows which is an excellent basis for a long term relationship with further business options.

MFP Software Development Platforms

When HyPAS was launched in 2008, while it was among the last platforms on the market, it was also among the first to utilize both technologies, Java and Web Services.

Other manufacturers implemented the hybrid approach in later versions of their platforms, so that there are in the meantime a range of Software Development Platforms utilizing both Java and Web Services technology.

This section outlines the approaches for Solutions Platforms of the various hardware manufacturers.



CANON

Canon have both introduced their Solutions Development platform MEAP (*Multifunctional Embedded Application Platform*) and launched MEAP enabled MFPs in 2003. Base technology of MEAP is Java. MEAP is also available for printers as MEAP-Lite.

In 2010, Canon introduced MEAP Web, an MFP based application developed on Web Application Server. This benefits developers to create apps in a quicker way, and also provides end users the same operation as the PC.

Canon offer various support programmes for developers within their territories.

Ricoh

Ricoh's Java based Solution Platform ESA (Embedded Software Architecture) has been released in 2004. It is a SDK/J architecture supporting Java 2 Micro edition. The architecture supports both MFPs and printers. Main features include print, scan, and user interface.

Ricoh have established their developer programme under the name RiDP. They support developers by providing the SDK.

In 2009, Ricoh additionally released the Web Services Solution Platform App2Me. It enables users to download App2Me widgets for MFPs onto their personal PC or tablet. Support for App2Me will be discontinued from October 2013, and App2Me will be discontinued from October 2015.

Xerox/Fuji Xerox

Xerox's Solution platform is called EIP, Extensible Integration Platform. It is a client/server based architecture using Web Services. EIP applications communicate with the EIP platform via traditional web standards and protocols (e.g. XML, Java Script, WSDL, HTTPS, SSL).

Xerox offers all interested developers open access to the SDK.

In 2013, Xerox released new firmware called Connectkey to enable integration with mobile and cloud services. It also allows to install embedded Connectkey Apps.

Sharp

Sharp introduced their MFP Solution platform OSA (Open Software Architecture) in 2006.
Sharp have promoted OSA strongly and offer extensive application integration with major software vendors. Base technology of OSA is Web Services.

OSA 4.0 was introduced in 2011, extending the architecture of Web Services to the cloud. With the new version, copy, document filing and fax are included as new features. In addition, there are other highlighted features, such as single sign-on, preview and editing functionality on the control panel.

Sharp's Partner Programme is open for external developers.

Toshiba

Toshiba officially introduced their eBridge Open Platform in 2008. It is a client/server-based platform available inside e-STUDIO MFPs. Within one architecture, eBridge includes three levels of integration, namely Web Services, MetaScan, and middleware platforms. Currently the platform has not been opened to outside developers.

Konica Minolta

Konica Minolta first introduced Bizhub OpenAPI, a server-based platform which can control functions on the MFP such as scan to app, authentication, pull print, web browser, and job log management.

In March 2008, they have released Bizhub OP based package solution called iOPTION.

Konica Minolta offers Konica Minolta bEST Membership Program for outside developers.

Around 2011, they have revealed their new feature, the Internal Web Server (IWS). This is a server that resides inside the MFP.

In 2012, they have released a new service called Bizhub Marketplace. This provides users a way to download applications from the touch panel on MFPs.

In spring 2013, the new bEST API called IWS (Internal Web Services) was released. IWS enables to develop applications that access the MFPs internal web server. This facilitates the interface customization and integration with cloud services.

HP

HP have released Chai, an early Java based open platform, as early as 1999, but without actively promoting it. In 2008 they announced OXP (Open Extensibility Platform） which adds Web Services architecture on top of Chai.

HP started actively promoting OXP with the release of the SmartFuture firmware that is compatible with all of their laser printers. The combination of OXP and SmartFuture provides customers device-independent solutions.

HP's Developer Programme is called HP Solutions Business Partner Programme for Imaging and Printing. SmartFuture devices's firmware can easily be updated with HP Web Jetadmin, which makes it easy to update also the solution platform.

Lexmark

Lexmark's Solution Platform eSF (Embedded Solution Framework) is based on Java technology. Applications developed with eSF can be downloaded from Lexmark's Virtual Solution Center which is available to their partners.

In addition, applications for inkjet machines can be downloaded directly from the touch panel. eSF works well with eTask, Lexmark's user-friendly touch screen. Lexmark also offers a Solution Developer Programme for external developers.

Samsung

Samsung have released their Solution Platform XOA (eXtensible Open Architecture) in 2011. XOA is a hybrid platform based on Java and Web Services technologies.

While XOA was late in the market, Samsung already realized several integrations with 3rd party vendors and launched some own developments.

EMC Product Marketing

KYOCERA Document Solutions Europe B.V.
Branch Office Germany
EUROPEAN MARKETING CENTER (EMC)
Otto-Hahn-Strasse 12 * D-40670 Meerbusch * Germany

Contact:
Sabine Nobel, Product Manager Software
e-mail: sabine.nobel@deu.kyocera.com
Phone: +49(0) 2159 928-530