



FollowMe™

White Paper

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Contents

Contents	2
Introduction.....	3
The issues with conventional printing methods	4
FollowMe™ Printing - How does it work?	5
FollowMe™ Embedded	7
FollowMe™ Web Printing - How does it work?.....	8
FollowMe™ Web Printing - How does it work? (Cont).....	9
FollowMe™ Printing - Encryption	10
FollowMe™ Hardware.....	12
Accounting and Auditing	13
Shared Printer Port (SPP)	15
Local Printer Port (LPP).....	16
Line Printer Remote (LPR)	17
Print Queues and Spoolers	18
Rules/Routing	19
Kiosks – Payment Kiosk	20
Kiosks - Online Payment Kiosk.....	21
FollowMe™ - Cluster Environment.....	22
Global Network.....	23
Clustering Explained	24
Target Markets and Return on Investment (ROI)	25
Conclusion	26

Introduction

FollowMe™ is a collaboration of many different tools to form an ALL-IN-ONE™ solution that provides copying, e-mail, fax, printing and scanning control with the added benefit of centralised accounting/auditing for these services.

FollowMe™ based solutions offer organisations an easy to integrate product that can reduce costs and improve workflow by up to 30%.

Within the FollowMe™ product portfolio are the following products:

- FollowMe™ Copy Patrol
- FollowMe™ Embedded
- FollowMe™ Printing
- FollowMe™ Web Printing

FollowMe™ Copy Patrol enables the control of copiers/MFP's that are not able to utilise the FollowMe™ Embedded solutions.

FollowMe™ Embedded solutions utilise printer/MFP front panels for user identification and improve workflow. FollowMe™ Embedded solutions allow organisations to account and control copying, fax, e-mail, printing and scanning on a per user/machine (printer/MFP) basis.

FollowMe™ Printing is a roaming, secure printing and an accounting solution offering many benefits to large or small organisations needing to ability to roam and ensure security in printing as well as accounting for all printer and copier usage. This information can be accounted/audited for per user, cost centre and printer.

Secure printing has been a requirement in many companies for a number of years. FollowMe™ Printing has been developed as the solution to this problem. It is designed to be easy to install, maintain, upgrade and works well with existing print services and processes.

FollowMe™ Printing based solutions can support over 99% of printers/MFP in the field today. FollowMe™ Printing offers hardware devices that are also available for many printers that have internal interface slots such as Hewlett-Packard (HP), Kyocera and Mutoh.

FollowMe™ Web Printing offers organisations with large mobile workforces a way to reduce IT costs for remote printer and driver management via a single point of printing.

FollowMe™ Web Printing is a server side based printing system without the need for any client side drivers to be installed on workstations.

The issues with conventional printing methods

- Roaming - Allowing print jobs to be collected from anywhere in the world.
- Secure transmission of print jobs between the client workstation to the server and from the server to the printer.
- Sorting through other people's unwanted print jobs to find yours somewhere in the middle.
- User confidentiality in content sensitive organisations.
- Paper and consumable waste.
- Tracking user and departmental printer usage.
- Printer failures, where do you now get your print job? Do you have to print another document to another installed printer?
- Routing of large print jobs to more efficient printers or print rooms.

Standard Printing (Workstation to Printer):



Printing through a Print Server:



FollowMe™ Printing - How does it work?



FollowMe™ Printing offers a roaming and secure printing solution to organisations and their users. FollowMe™ Printing allows the printing or uploading of print jobs to any FollowMe™ Q-Server around the world.

The system also allows these print jobs to be collected from any printer around the world as long as it is FollowMe™ enabled.

All data transmitted via FollowMe™ Printing from the client to server or server to hardware can be encrypted. Also in high security environments data can also be stored encrypted on the hard disk.

FollowMe™ Printing consists of three core components, the first being the client, which is the users workstation. Secondly is the Q-Server, which is the print server, which stores all print jobs uploaded from the client, and manages all communications. And thirdly the hardware is located on the printer and allows the variety of different recognition techniques to be sent to the server for authentication.

Three core components:



The client can consist of the FollowMe™ Client, FollowMe™ Shared Printer Port or even direct LPR printing.

Printing to the Q-Server:



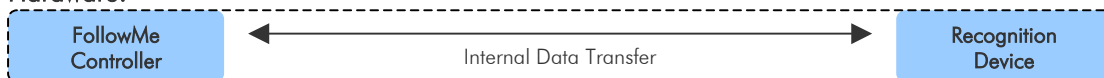
The user would use his normal 'print' button and the print job is uploaded to the Q-Server.

Print to any FollowMe™ enabled printer:



The user must first authenticate at the Hardware using any of the supported recognition techniques. Once authenticated the Q-Server will release any print jobs pending. If the device (copier/printer/MFP) is copy patrol enabled the FollowMe™ Q-Server will signal the hardware to enable the copy patrol functionality.

Hardware:



Hardware consists of two main devices one being the controller and the other is the recognition device (e.g. finger print reader, proximity/swipe card reader or a combination reader).

Interactive Printing (utilising hardware release)

FollowMe™ Printing's Interactive printing is the use of a hardware release device at the copier/printer or MFP. When printing via FollowMe™ Printing's interactive mode it requires the user to identify himself or herself at the printer to release their print job(s).

Interactive printing provides security and accountability for all print jobs that flow through the system. However interactive printing can be used in conjunction with Non-Interactive printing to provide a more flexible solution.

Non-Interactive Printing (accounting only)

The Non-Interactive mode within FollowMe™ Printing enables it to work as an accounting only system that can be used to account for all printing that flows through the system on a per user basis.

Non-Interactive printing can be used in conjunction with the Interactive mode if required. Non-Interactive printing can be enabled on a per printer basis.

FollowMe™ Embedded

FollowMe™ Embedded technology (printer manufacturer dependant) is a unique solution that offers support for not only conventional Copy and Print control although also extended functionality such as E-Mail and Fax.

This provides unique solution for organisations to ensure they can control and audit information on all levels available apposed to only copying and printing that were conventionally available.

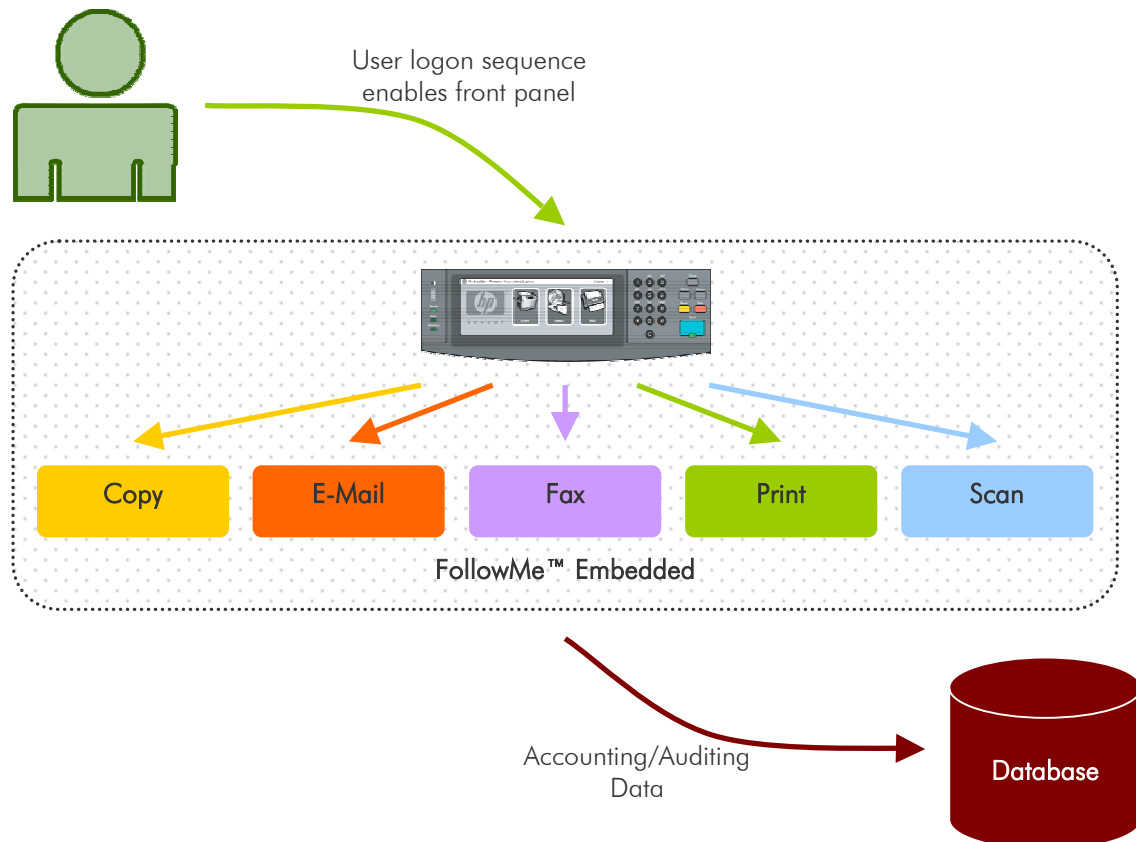
What functionality can it control?

- Copying
- E-Mail
- Fax
- Printing
- Scan

How does it work?

FollowMe™ Embedded secures the front panel of MFP based devices enabling the control of services other than conventional copying and printing.

The user authenticates and then is presented with his allowed services, he will only be able to use the services that he has been rights for. Once the user completes the session the users accounting data is sent back to the FollowMe™ Q-Server for accounting/auditing.



FollowMe™ Web Printing - How does it work?



The FollowMe™ Web Printing feature consists of three core components, the first being the client, which is the users web browser. Secondly is the Q-Server, which is the print server, which stores all print jobs uploaded from the client, and manages all communications. And thirdly the hardware is located on the printer and allows the variety of different recognition techniques to be sent to the server for authentication.

The FollowMe™ Web Printing feature ensures users do not require any additional software to be installed on the client workstation except their standard web browser.

Three core components:



Printing through the Client Web Browser to the FollowMe™ Web Printing web page:



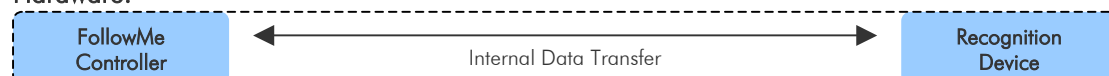
The user would now login to the FollowMe™ Web Printing web page and then select either Microsoft Office or Adobe Acrobat files and click an upload button. These files will then be sent from the client machine to server through the web browser and will be stored on the Q-Server.

Print to any FollowMe™ enabled printer:



The user must first authenticate himself at the Hardware using any of the supported recognition techniques. Once authenticated the Q-Server will check to see if the user has any print jobs and at that point send them back to the Hardware or printer.

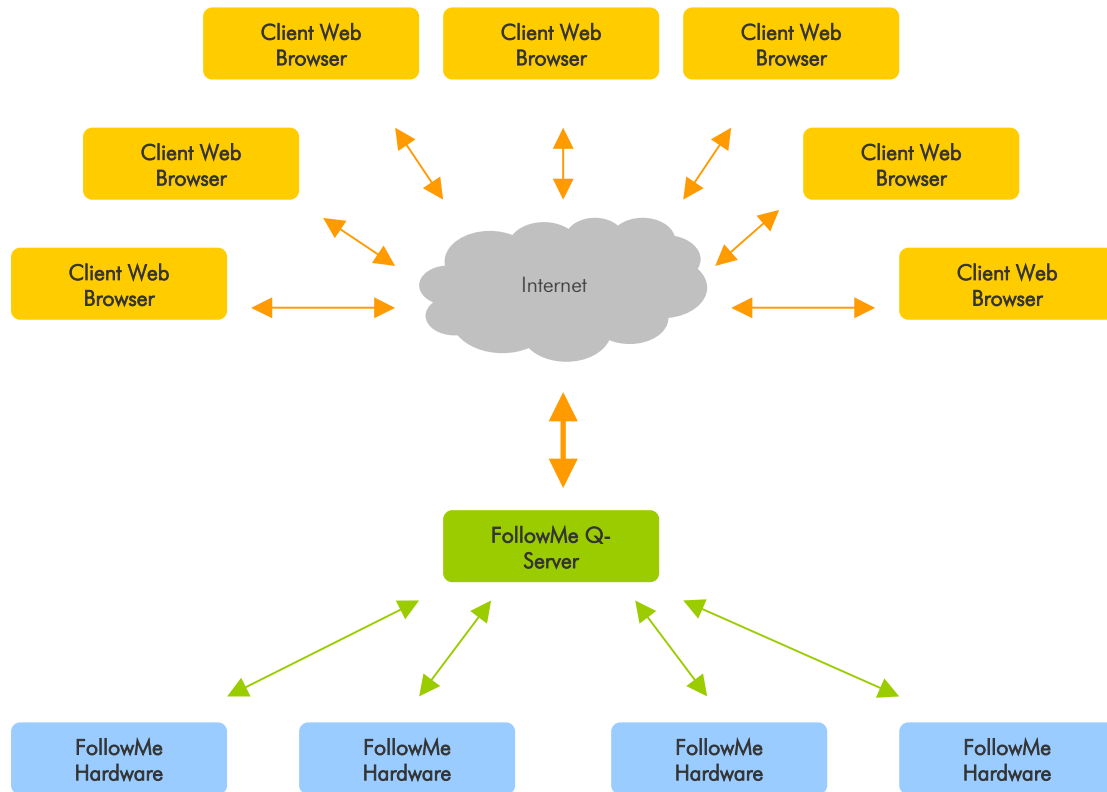
Hardware:



Hardware consists of two main devices one being the controller and the other is the recognition device (e.g. finger print reader, proximity/swipe card reader or a combination reader).

FollowMe™ Web Printing - How does it work? (Cont)

Example configuration:



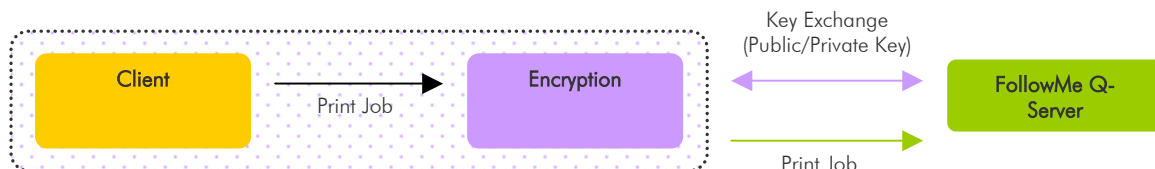
The FollowMe™ Q-Server has the Web Printing Feature installed and is running Microsoft Internet Information Services (IIS 4+).

FollowMe™ Printing - Encryption

FollowMe™ Printing has inbuilt encryption which is used in all aspects of the system. To ensure print data is encrypted from start to finish.

By utilising the FollowMe™ Printing based encryption technology organisations can ensure network traffic is secured from prying eyes.

Client to Server Encryption:

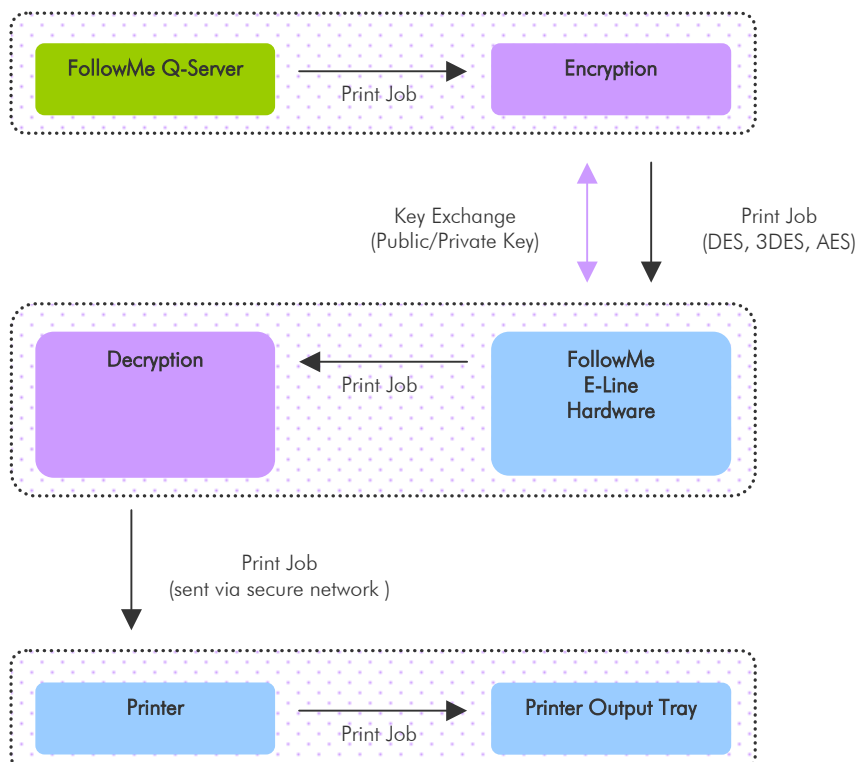


Supported Encryption Formats (Client to Server):

- AES (128, 192 and 256 bit)
- Blowfish (128 bit)

Encryption is also available between the server and the printer allowing all aspects to the system to be secure.

Server to Printer Encryption:



Supported Encryption Formats (Server to Printer):

- AES (128, 192 and 256 bit)
- DES

- 3DES

NOTE: The FollowMe™ Security SDK has been discontinued. Please contact Ringdale technical support for more information.

FollowMe™ Hardware

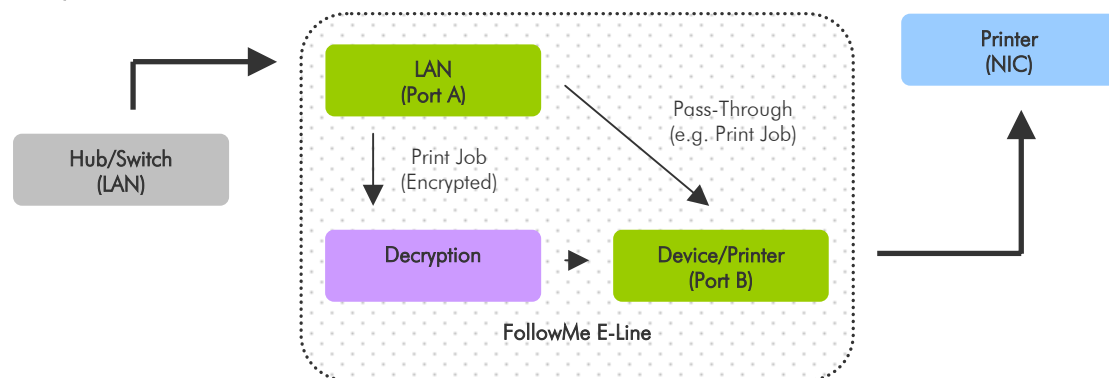
E-Line

The FollowMe™ E-Line hardware is a network to network based hardware device that features plug and play connectivity with any network based printer.

The E-Line automatically detects the printers IP Address when connected via ARP. It utilises the printers existing IP Address and network port simply sitting in-between the printers network card and the hub/switch or wall socket. This can help reduce the initial outlay costs but also reduce the ongoing administration and maintenance of the product.

The hardware also features government grade encryption for the more secure application. Another security feature that exists is printer cloaking also known as pass-through. This feature allows for the E-Line hardware to disable traffic from passing to the printer is not encrypted. This feature helps ensure printer vulnerabilities are not exploited.

The process:



Parallel

Within the portfolio of FollowMe™ hardware there is also a print server that features a parallel connection to the printer (this connection is optional and this hardware can also be used as a standalone release device as apposed to utilising the built-in print server).

Accounting and Auditing

FollowMe™ offers a very effective and precise accounting feature that is able to obtain print job information directly out of the print job once it has been uploaded from the client to the server.

What information can be obtained from the print jobs?

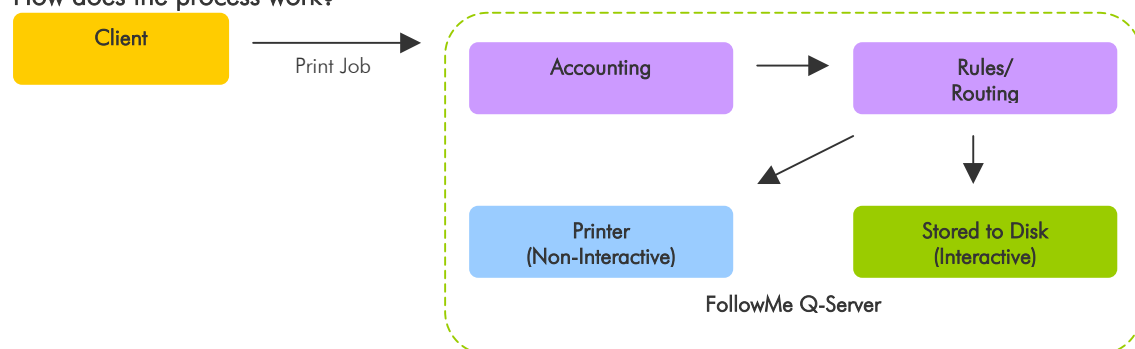
- Simplex or duplex
- Paper size
- Colour or black and white
- Document name
- Printer name
- Printer driver name
- Date and time

Individual costs for printers, cost centres and cost codes:

- Know exactly how much the printer cost your organisation
- Charge different cost centres (departments) different costs for printing
- Bill client on a cost code (reference number) basis

This information is stored within the FollowMe™ Q-Server database for report generation at a later date. Reports are customisable to date ranges, users, cost centres and printers this information is displayed on screen and can also be exported or printed.

How does the process work?



The print job is uploaded and then once the server receives the file it is then analysed for auditing.

Print Job formats that can be analysed:

- PCL (All versions)
- PostScript (All versions)
- HPGL (All versions)
- ESC/P and ESC/Page (All versions)
- RPDS
-

Many other print job languages are and can be supported, if the one you require is not listed please contact Ringdale and we will be able to inform you if it already is or if it will be in the future.

Within organisations accuracy can be the key to good accounting and therefore FollowMe™ uses only the most sophisticated technology to provide a highly efficient accounting engine that organisations can ensure they account for the amount of black/white and colour pages that are

printed within a print job (on average FollowMe™ Printing based accounting engines provide a 90% accuracy).

How?

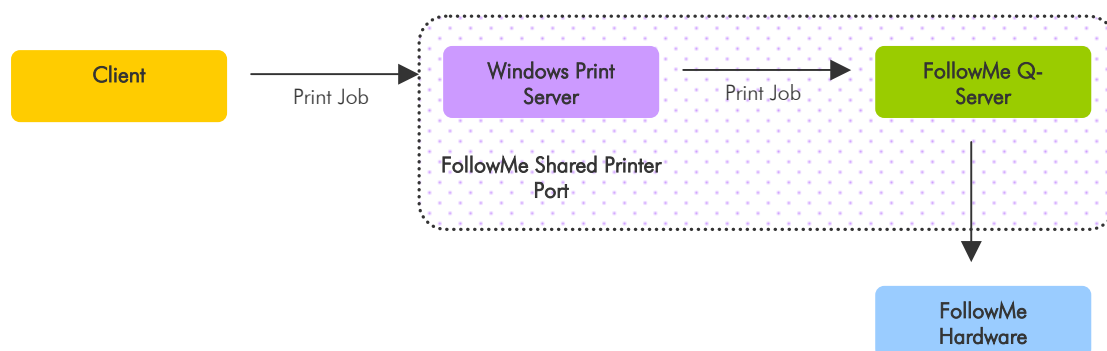
- FollowMe™ Printing is able to parse any supported format of print job and analyse it for the content of black and white and colour. This data then can be customised to how it is used for billing or statistical purposes.

Shared Printer Port (SPP)

This is a port that is installed on any Windows print server and replaces the current TCP/IP port. The port removes the need to install the FollowMe™ client onto all client workstations.

Through the use of FollowMe™ technology the port re-directs the print jobs using the print job originators username to the FollowMe™ server that should be located on a separate server.

Even though a separate server is recommended it is not required. The time required to install client software onto client workstations is sometimes considerable and therefore it is beneficial when working in large installations to use the Shared Printer Port.



The Shared Printer Port enables a seamless integration into current systems and practices, also reducing overheads.

The system can be used for two totally separate functions or all combined:

- Roaming, Secure Printing Solution
- Print Accounting Solution
- Both combined as a All-In-One system

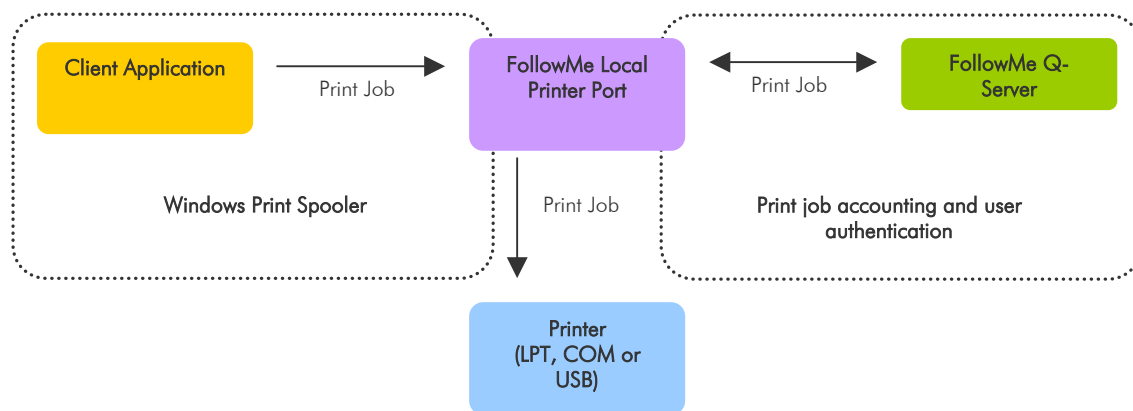
Local Printer Port (LPP)

Through the use of the Local Printer Port organisations are able to allow personal printing still to occur, however through the use of this unique port we are able to account the information which is printed to the local machine printer and bill that to the specific user which is printing it.

FollowMe™ is even able to restrict printing on the Local Printer Port based on the time restrictions placed on the user that also applies to his or her network printing.

This helps to allow print audits to occur, with knowing exactly what has been printed throughout the organisation even if jobs have not been printed on network printers.

The process:



The Local Printer Port allows organisations that require workstation attached personal printers to also be accounted for helping to provide a smooth migration to network printers or simply providing full accounting for organisation wide printing. It also adds a new layer of security to ensure out of hours use can be controlled.

Line Printer Remote (LPR)

As there are many different print standards that exist and FollowMe™ has been developed to be able to cater for the most common ones and one of these is LPR. LPR allows printing from most if not all common operating systems inexistence such as the following:

Apple Macintosh
 AS/400
 LINUX
 Solaris
 UNIX
 Windows
 ...and many others supporting LPR.

For LPR to function one would execute the LPR function providing the FollowMe™ Q-Server IP Address or machine name. Once the FollowMe™ Q-Server receives a print job from the LPR system that print job will then be added to the users print queue and then set to a pending state.

Also LPR printing can be used in conjunction with FollowMe™ Printing's Non-Interactive printing that allows print jobs to print directly to a printer without user interaction.

Example LPR configuration:



The LPR approach simplifies the integration of FollowMe™ Printing into the current printing processes and procedures that may already exist.

For applications such as SAP it is vital that administrators ensure that SAP provides the SAP username in an LPR option. This will then allow FollowMe™ Printing to account the print job to the specific SAP user.

LPR Options for use as username:

Option Name	Description
Q	Queue (Print queue name)
C	Class for banner page
H	Host name
I	Indent printing
J	Job name for banner page (Job name)
L	Print banner page (Name of user for burst pages)
M	Mail when printed (User name)
N	Name of source file (File name)
P	User identification
T	Title for print job

Print Queues and Spoolers

FollowMe™ Printing - Print Spooler (FMPS)

FollowMe™ features a state of the art Print Spooler that provides direct TCP/IP printing to any device connected on the network.

The FollowMe™ Q-Server's built in Print Spooler provides secure printing to the FollowMe™ E-Line encryption hardware.

FollowMe™ Printing - Print Spooler - Removing the limitations

By utilising FollowMe™ Q-Server Print Spooler technology one is able to offers a true limit-less printer environment. By utilising intelligent print job routing and printer management FollowMe™ ensures print queues are monitored at all times (to ensure data is delivered to its desired recipient).

If a print job does not print or fails for whatever reason in the middle of the process (e.g. only 3 pages are printed instead of 20) FollowMe™ automatically detect this fault and will inform and administrator immediately while recording the fault and applying rules based on the fault criteria.

Microsoft Windows Print Spooler

FollowMe™ Printing also fully supports the Microsoft Windows Printer Spooler. The Microsoft Windows Print Spooler is a feature rich Print Spooler which enables the integration of FollowMe™ Printing technology to provide an easy to use and scalable printing system.

One can use both the FollowMe™ Q-Server Print Spooler or the Microsoft Windows Print Spooler or both in conjunction with one another.

Intelligent Print Queue Monitoring (PQM)

Through the use of the intelligent monitoring, FollowMe™ Printing is able to monitor Print Queues to help improve server stability and printing uptime.

FollowMe™ Printing Print Queue Monitoring (PQM) works in a multitude of ways, either monitoring print queues or monitoring printer's directory. FollowMe™ Printing is able to notify an administrator's when problems arise with the print queues or printers.

Rules/Routing

FollowMe™ Printing - Rules

FollowMe™ Printing incorporates a state of the art rules engine that allows for print jobs to perform actions based on rules and their definitions defined within the FollowMe™ Q-Server system.

Some rules that can be applied as for black and white and colour print jobs as well as paper size and out of hours printing.

FollowMe™ Printing - Routing

By utilising FollowMe™ Printing's intelligent print job analysis engines FollowMe™ Printing is able to obtain accurate page count information from most print jobs today. Through this technology it is able to route print jobs based on minimum and maximum page counts. Routing can allow for print jobs to be sent directly to a print room or printer for printing of large sized print jobs, or it can ensure high volume printers are not used for one or two page print jobs as well as ensuring low volume printers are not used for large print jobs.

User Credit/Quota

Utilising print job accounting to ensure accuracy FollowMe™ based solutions are able to deduct credit from a user to ensure they do not copy, fax, e-mail, print or scan above their assigned quota.

Credits/Quotas can be defined on a per page, colour, user and copier/printer/MFP basis. Ensuring different pricing models for different copier/printer/MFP models or for variations in billing on a per user or cost centre basis.

Custom Rules

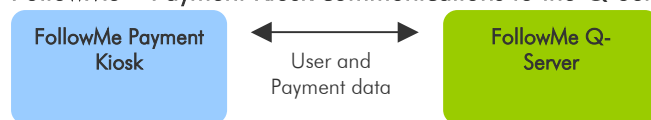
FollowMe™ Printing also supports an extended rules engine allowing for custom rules to be applied to incoming and outgoing print jobs as well as internal processes.

Kiosks – Payment Kiosk

FollowMe™ offers many benefits to the educational sector and providers offering copying/printing on a pay per copy/print basis (e.g. libraries) including automated payment systems. By utilising the automated systems FollowMe™ offers out of hours utilisation of the system for credit additions and management of user accounts and most importantly the use of the copying and printing functionality.

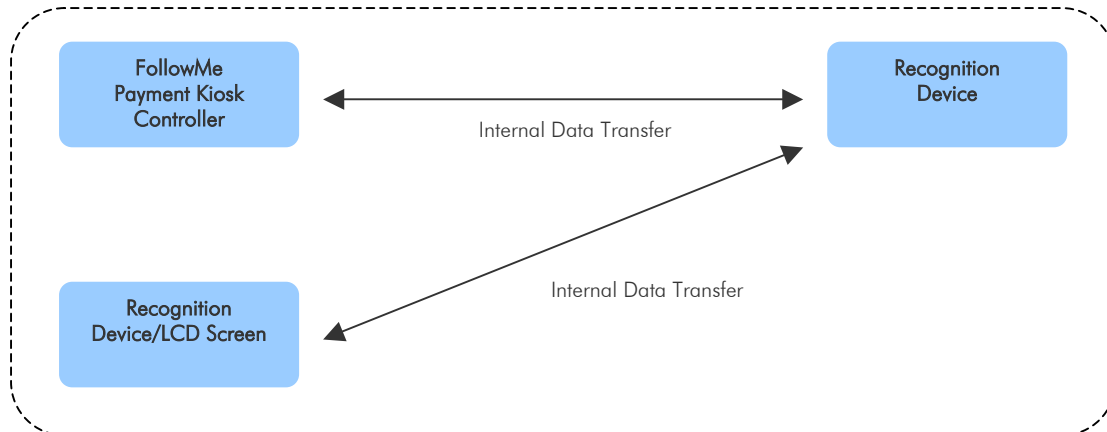
The FollowMe™ Payment Kiosk and FollowMe™ Online Payment Kiosk bring new functionality in an ever-changing world, by offering payment systems that can work online and in a rugged standalone case it brings new offerings to this market, reducing the administrative overheads and offering advantages for automated payments during working hours and out of hours.

FollowMe™ Payment Kiosk communications to the Q-Server:



The user must first authenticate at the Hardware using any of the supported recognition techniques. Once authenticated the Q-Server will check to see if the user exists and if he or she has rights to use the Payment Kiosk and then enable or disable the device.

FollowMe™ Payment Kiosk Hardware:



FollowMe™ Payment Kiosks provide many features such as:

- Multi-Currency support
- Multi-Language support
- Fully Customisable Screens

Kiosks - Online Payment Kiosk

FollowMe™ offers online payments as another way to generate revenue for pay-per copy/print environments. By offering online payments this expands the offering

FollowMe™ Online Payment Kiosk consists of two core features:

Client Web
Browser

Online Payment Kiosk

Payments through the Client Web Browser using the Online Payment Kiosk:

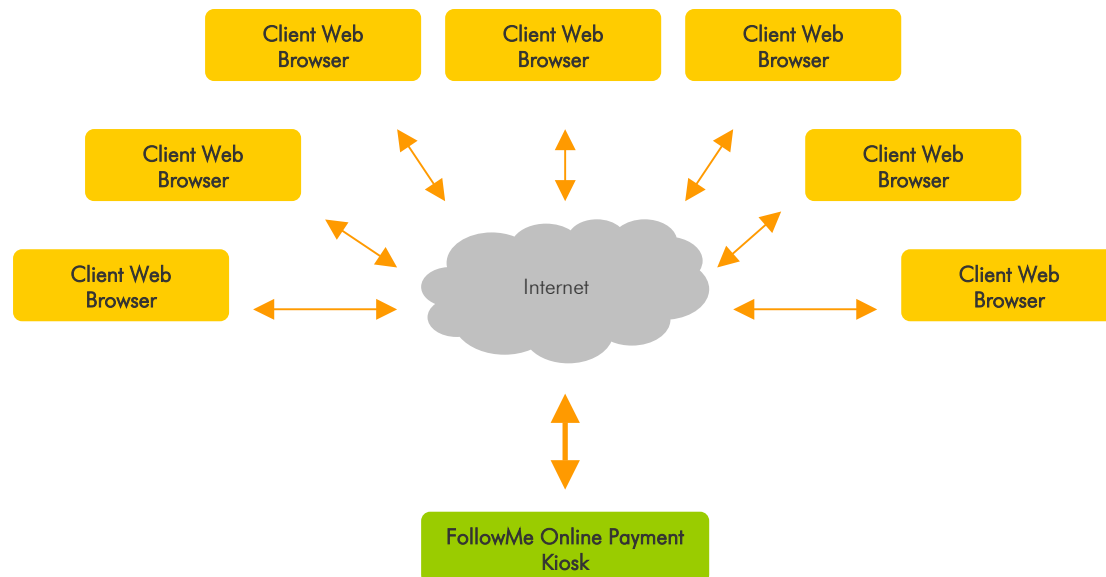
Client Web
Browser

→
Payment data

Online Payment Kiosk

The user is required to login to the Online Payment Kiosk web page and then select their Payment Method (e.g. Visa, MasterCard, America Express, Discover, etc), enter their card number and select a monetary amount to add to their account after this they simply click an authorise button. This data is then authorised on the fly against a financial institution and the user is prompted that their account has been updated and money has been taken from their card.

Example Online Payment Kiosk setup:

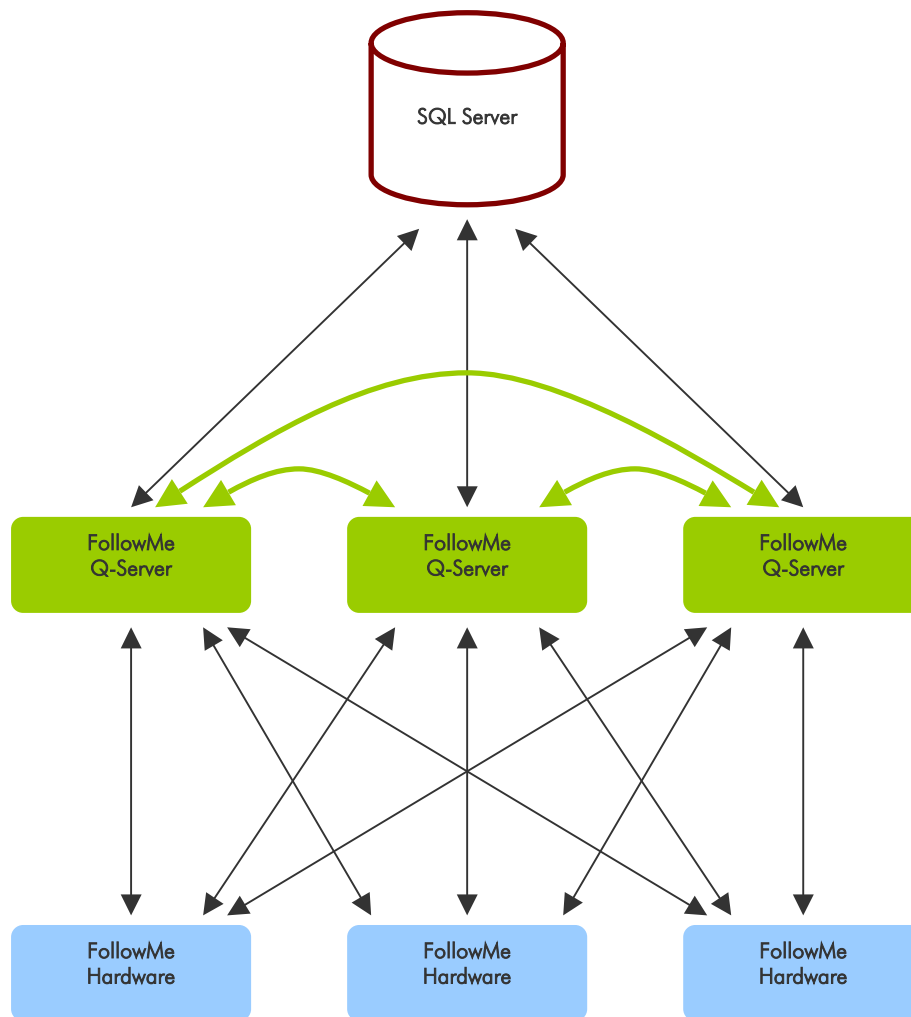


NOTE: The FollowMe™ Online Payment Kiosk requires Microsoft Internet Information Services to run.

Payment Providers:

- The FollowMe™ Online Payment Kiosk may require integration with certain banks to process online transactions.
- Ringdale does offer many payment providers already, although some may require additional integration.

FollowMe™ - Cluster Environment



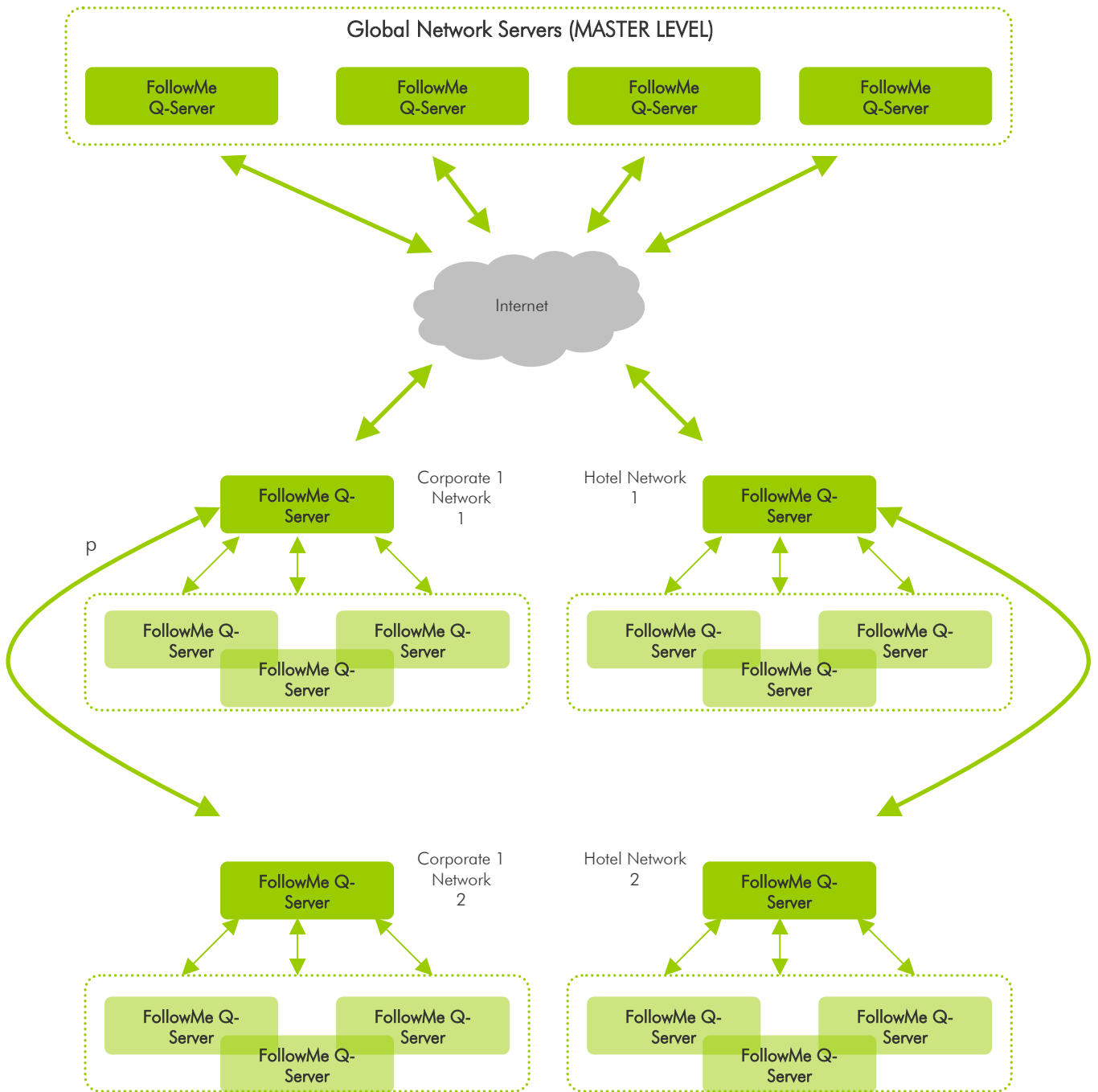
	SQL Server
	Server to Server Communications
	FollowMe™ Q-Server
	FollowMe™ Hardware
	All other Data Communications

FollowMe™ clustering is an intelligent process of combining one or multiple FollowMe™ Q-Servers to co-exist in one or multiple environments.

The clustering principle works on the emphasis that if one server was to fail then it will automatically try the next available one.

The process allows maximum spread of risk through the use of multiple Q-Servers and ensures efficient printing and resilient operation.

Global Network



This cluster setup is expandable to any number of Q-Servers and the Network is designed in a way so that scalability is easy and it is also adaptable to any market.

Clustering Explained

FollowMe™ can work in conjunction with Windows Clusters via a FollowMe™ Cluster resource. The FollowMe™ Cluster resource allows FollowMe™ to work in Active/Active or Active/Passive configurations.

FollowMe™ also has its own server clustering built in, this clustering is modelled around basic load balancing. This enables the functionality to connect multiple Windows Clusters or single servers running FollowMe™ Q-Server software together giving greater redundancy and spreading the overall risk.

The built in clustering in FollowMe™ provides basic load balancing across servers, however if a server were to fail then the print jobs associated and stored on that server would be lost until the system recovered. Therefore for full fail-over and redundancy we would recommend the use of Windows Clusters.

How does it work?

FollowMe™ Clustering works by not propagating data to all systems although storing it on the individual systems until it is required. Through the use of encryption and compression data is sent between servers efficiently and cleanly without increasing network loads therefore helping avoid server or network bottlenecks.

FollowMe™ monitors its local cluster servers to ensure that if one was to fail and administrator would be notified via e-mail. Also this helps reduce downtime and ensure uptime is not affected.

Target Markets and Return on Investment (ROI)

FollowMe™ based technology can be employed/deployed in at least 3 major sectors where return of investment will be achieved in the fastest possible time frame.

Large sized organisations:

- Government Agencies
- Postal Services
- Education (Universities, colleges, schools)
- Car Manufacturers
- Banks
- Print Shops
- Airports
- ...and any content sensitive organisations

Medium sized organisations:

- Insurance Companies
- Lawyers
- Hotels
- Hospitals
- Print Shops
- Internet Service Providers
- ...and any content sensitive organisations

Small sized organisations:

- Hotels (Web Printing Feature)
- ...and any content sensitive organisations

Return on Investment (ROI)

The FollowMe™ system offers many incentives and one of these being the ROI. FollowMe™ based systems have the highest ROI of any products within there market within the first year.

Conclusion

FollowMe™ based solutions can help any organisation small or large to control copying and printing security and costs for each individual user and copier/printer. Users can roam freely between sites without compromising security or reliability and providing administrators with a history of all copying and printing regardless of location.

The core of the FollowMe™ system is designed in such a way to allow any user to print from any location in the world without restriction (e.g. via Web Browser or other input method such as LPR). It therefore provides a unique way printing without restrictions of operating system or locality, as print jobs will literally follow the user from location to location with out the need to re-print or setup printers and drivers for each different location or printer model.