

Uncovering the enterprise output management opportunity

Reaping the benefits of an enterprise output management strategy

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More and more enterprises are recognising the value of optimising their printing infrastructure through device consolidation, proactive monitoring and ongoing management. While many organisations focus on the office environment, there are opportunities to be uncovered by taking a wider view of printing - to include enterprise output - as a way to gain further cost benefits and drive business efficiencies.

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Reaping the benefits of managing enterprise output

EXECUTIVE SUMMARY

The printing environment represents a huge cost drain for many enterprises, and many are now turning to managed print services (MPS) to reduce complexity, to lower costs - both financial and environmental - and to mitigate the security risks of an unmanaged print environment. While consolidation of office printing can lead to significant cost savings and productivity improvements, many organisations overlook the potential for further savings and efficiencies from their wider enterprise output - such as ERP, mainframe and legacy printing.

- **Many enterprises operate a complex and heterogeneous output environment to distribute, manage and deliver information**

Today's global business environment relies on fast, reliable and secure delivery of information across a variety of destinations, including printers, fax servers, email, the web and mobile devices. This information is generated by diverse applications on multiple platforms making it difficult for businesses to route, manage and assure delivery of printed and electronic output to the required destinations. This lack of control can lead to high operating costs, poor customer service and poor visibility of enterprise output costs.

- **The office print environment can be a huge cost drain, which many organisations are now tackling through managed print services (MPS)**

Many organisations have little or no visibility of print costs due to fragmented ownership, device sprawl and a lack of centralised print management tools. MPS enables organisations to gain better visibility of office print costs and, through centralised management, proactive support and continuous improvement, businesses can reduce costs and improve productivity and business continuity. However, office MPS often addresses only desktop, Windows-generated output.

- **While MPS is an effective way of managing office printing costs, it does not address the management of mission-critical enterprise output**

Many enterprises depend on business-critical output from legacy and enterprise applications (such as ERP and CRM), yet all too often the delivery of documents such as insurance policies, statements, invoices, shipping manifests or barcode labels is managed in silos without any centralised control. This leads to poor device utilisation and bottlenecks which can result in fragmented data collection and accounting.

- **A holistic approach to enterprise output management (EOM) brings greater visibility and control to both office and enterprise output**

With centralised EOM, organisations can benefit from a single point of control for all output, efficient resource management and a single source of accounting. EOM ensures confirmed delivery of business-critical information and that documents are provided in the required format to various destination types, such as print, fax, email, FTP, or the web. Through a software solution independent of platform, application, hardware and device, EOM enables controlled, multi-site distribution and routing for workload balancing and error recovery of documents throughout the enterprise.

- **Evaluating enterprise output management is the next critical step for organisations that are using MPS**

Cost savings and business efficiencies do not stop with office MPS. By extending MPS beyond the office to the wider enterprise, organisations can reduce IT costs, improve document security and cut paper and energy usage. Reduced energy and paper consumption is achieved through better utilisation of existing devices and by identifying hard copy print that could be substituted or eliminated. IT costs are lowered through simplified administration and management while centralised EOM security features assure appropriate access and seamless control of enterprise-wide output.

Conclusion

While tackling office printing is the first step to bringing print costs under control, this overlooks the vital part enterprise application output contributes to an organisation's overall costs and efficiencies. Those organisations that rely on business-critical output should look to EOM to uncover hidden opportunities for reducing print expenses by utilising more effective alternative electronic output channels. A holistic EOM strategy provides a single vendor management solution for a multivendor environment, enabling an organisation to centrally control and manage all enterprise output, irrespective of its format or destination, leading to both cost savings and improved business process efficiencies.

1. Introduction: the shifting output management landscape

In today's global economy, businesses are under pressure to reduce costs and improve efficiencies while complying with regulatory demands. These businesses have become increasingly dependent on the effective, reliable and secure delivery of business-critical information across and beyond the organisation using a myriad of channels. The expansion of delivery formats such as print, email, web and mobile devices is pushing the need for effective management of such critical information to a strategic level within an enterprise.

Many enterprises operate an increasingly complex IT environment, characterised by a patchwork of disparate solutions based on a mix of different hardware and software platforms. The desktop and enterprise application/legacy environments have largely evolved independently of each other using different operating systems, applications and printing devices. Many businesses rely on a variety of applications to support business-critical processes such as finance and accounting, enterprise resource planning (ERP), supply chain management (SCM) or customer relationship management (CRM). Such applications often run on a mixture of Windows, UNIX or Linux-based systems, often along with mainframes. These environments dynamically generate output that is composed of records extracted from a database, often mixed with fixed blocks of text and/or graphics. The desktop environment, by contrast, is typically Windows-based and documents are authored and produced by individual users, even if the user is working against similar data sources as the automated, server-based systems are.

The disparate nature of these platforms creates an enterprise output environment that is complex and difficult to manage. Many enterprise applications, such as SAP, have native output management capabilities to format, track, manage and redirect output, but these are often relatively unsophisticated or of limited functionality. This means it is almost impossible for organisations to assure the delivery of their business-critical output - whether this is to a printer, email, fax or other output destination. This has serious implications for business continuity should device failure occur, along with additional costs associated with administrative IT burdens as a result of increased support calls.

Many organisations are already beginning to tackle inefficiencies in their desktop office print environment by adopting a managed print service (MPS). Through device consolidation, optimisation and ongoing management, organisations can reduce the complexity of managing a mixed fleet environment, lower costs and improve productivity. However, MPS often overlooks the wider picture of mission-critical enterprise output generated by ERP, SCM or CRM, which, for some businesses, may also represent a much higher proportion of overall output.

Consequently, forward-thinking organisations are adopting an enterprise output management (EOM) strategy to provide a holistic approach to managing both the office and enterprise output environments. EOM provides the framework for bridging multiple proprietary platforms and devices, and simplifying and streamlining output across multiple formats and destinations. By maximising throughput and centrally tracking and managing jobs, devices and resources, EOM improves business continuity and user productivity while reducing support costs through better visibility and control of all enterprise output.

What is a managed print service (MPS)?

Quocirca defines MPS as the provision of services by an external provider to assess, optimise and manage the print environment. MPS is characterised by the following stages:

Stage 1 - Assess: An evaluation of the current output environment, which can include assessments of total cost of ownership (TCO), security and risk, environmental impact and document workflow processes. This leads to a blueprint for a rationalised output infrastructure based on device consolidation, software and services.

Stage 2 - Optimise: The deployment of the optimised environment together with appropriate software solutions and services for proactive service and support.

Stage 3 - Transform: This includes the optimisation of document workflows to support business process transformation.

The above stages should be supported by an ongoing monitoring and management programme for continuous improvement which reviews progress against defined service level agreements and KPIs.

This paper explores the business issues that are driving the need for enterprise output management, and discusses why organisations should consider this as a natural extension of an MPS strategy to further reduce costs, ensure document security and streamline business processes. It also describes how two businesses have successfully implemented EOM solutions to transform their operations and recommends how organisations can get started with EOM.

2. The pitfalls of unmanaged enterprise output

Enterprise data and information resides across a mix of platforms, which may include Windows, UNIX, Linux and mainframe hardware. This heterogeneity creates challenges in distributing information across multiple output destinations. These challenges are intensified as certain applications are moved to open system environments while other applications remain on the mainframe. Organisations also face a number of challenges as a result of relying on multi-vendor, multi-platform and multi-site output environments.

Platform incompatibilities and redundant workflows

Systems for functions such as accounts payable, customer relationship management, enterprise resource planning, supply chain management and logistics produce mission-critical output and run on a variety of Windows and non-Windows platforms. Organisations with multiple platforms are forced to maintain redundant print systems as they often have no way to centralise their output. This leads to poor monitoring of devices and poor application performance due to too many processor cycles and too much disk space having to be allocated for printing.

Multiple print streams and page description languages (PDLs):

In most production environments, documents generated by drivers and applications come in a variety of Page Description Languages (PDLs), such as AFP, PCL, PostScript, PDF and LCDS. In many cases, legacy or enterprise applications generate a device-specific print file. Typically, such print files are often specific to unique devices, such as Xerox printers (LCDS/metacode data streams) or AFP printers (IPDS data streams). Once a device-specific file is created, the information within the file may be extremely difficult or impossible to distribute and, in many cases, the destination of a document is not compatible with its original PDL - such as attempting to print an AFP document to a PCL network printer.

Lack of intelligent multichannel support

While dedicated Windows or Linux print servers may be optimised to handle large amounts of print and output traffic, they generally lack advanced capabilities for intelligently formatting, managing or securing the delivery of business critical output. Reliance on printed output comes at a high cost - both financial and environmental - and today an organisation must be able to deliver information across all channels - both print and digital.

Lack of visibility and control

Multiple point solutions require multiple interfaces and multiple points of control along with dedicated staff and resources. In a typical Windows print server environment, when print requests originate from multiple sources such as application print requests, proprietary print requests or desktop print jobs, Windows provides no way of obtaining a global view of the output process, controlling jobs, scheduling printers or redirecting output from one device to another. This leads to poor coordination of workloads, lack of end-to-end job tracking and reporting, difficulty managing priorities and lower productivity and throughput. A lack of centralised management also means that there is no capability for central accounting or chargeback for jobs.

SAP printing inefficiencies

According to a study published by SAP's R/3 Simplification Group, the generation of reports and printed output is the number one enterprise resource hog, accounting for 22% of the resource utilisation in ERP systems.

A lack of end-to-end visibility for print jobs results in business disruptions or downtime, including backlogs caused by printer jams and paper outage.

Thousands of help desk calls are generated annually because of lost printed documents - which can lead to invoices not being delivered, shipping manifests not being printed or purchase orders being delayed. All this missing paper has a significant impact on critical business processes.

Poor adherence to regulatory and compliance standards

Organisations are under increased pressure to meet government and regulatory compliance requirements such as Sarbanes-Oxley, the Data Protection Act and MiFID, especially in the healthcare, insurance, telecommunications and financial services industries. As a result, the content of many documents, particularly transactional ones, is subject to regulations that require accurate production and secure, timely delivery. Without enterprise output management solutions, organisations are hard-pressed to ensure document integrity and provide accurate audit trails and cost accounting.

International printing challenges

Many global companies are challenged with printing in multiple languages, often needing to combine European languages with Asian or Arabic languages in one document. However, international printing is complicated by the fact that different regions in the world use different languages that are encoded in different codepages - tables that have all the characters available for the selected language. The Unicode standard was created to help solve such multiple language printing problems. It provides a universal character set and encoding standard that encompasses all characters from all languages and has been adopted by companies such as Oracle and SAP as the basic internal encoding standard for all of their products. However, not all devices support Unicode, meaning organisations often need to upgrade printers for Unicode compliance, license new fonts to be embedded in documents, or purchase additional memory to accommodate them. Such printing systems can become complex and expensive to manage due to such font licensing and the administrative burden of installation and printer configuration.

As we will see in the next section, organisational and financial challenges such as these can be effectively addressed through the implementation of a robust EOM solution.

3. Enterprise output management: a proven approach

The need to address the challenges of managing enterprise output has created a new landscape with enterprise output management (EOM), which provides global control and management of all printing in the enterprise. Both Windows and non-Windows print costs are brought into play, giving direct visibility of all printing costs within an organisation. EOM reduces reliance on printed output by distributing business-critical documents generated by enterprise systems to electronic destinations including web, fax, email or mobile devices. Organisations that have adopted an EOM strategy are already reaping the benefits. Through centralised control, EOM helps to automate time-consuming manual processes, thus enabling an organisation to optimise asset utilisation, improve throughput, reduce costs and ensure compliance with regulatory requirements.

A framework for EOM

EOM integrates the diversity of print data emerging from a variety of mainframe and client-server systems in the enterprise. It routes jobs, controls workflows and manages destinations across the enterprise. Output can be consolidated from data centres, departments and desktops to a single point and distributed to production, workgroup, desktop, barcode and label printers as well as other destinations such as email, PDF files or archival. EOM enables a single point of control for all output, overcoming the complexities of today's mixed hardware and application environments. Figure 1 shows a framework for enterprise output management and how it can complement the MPS approach.

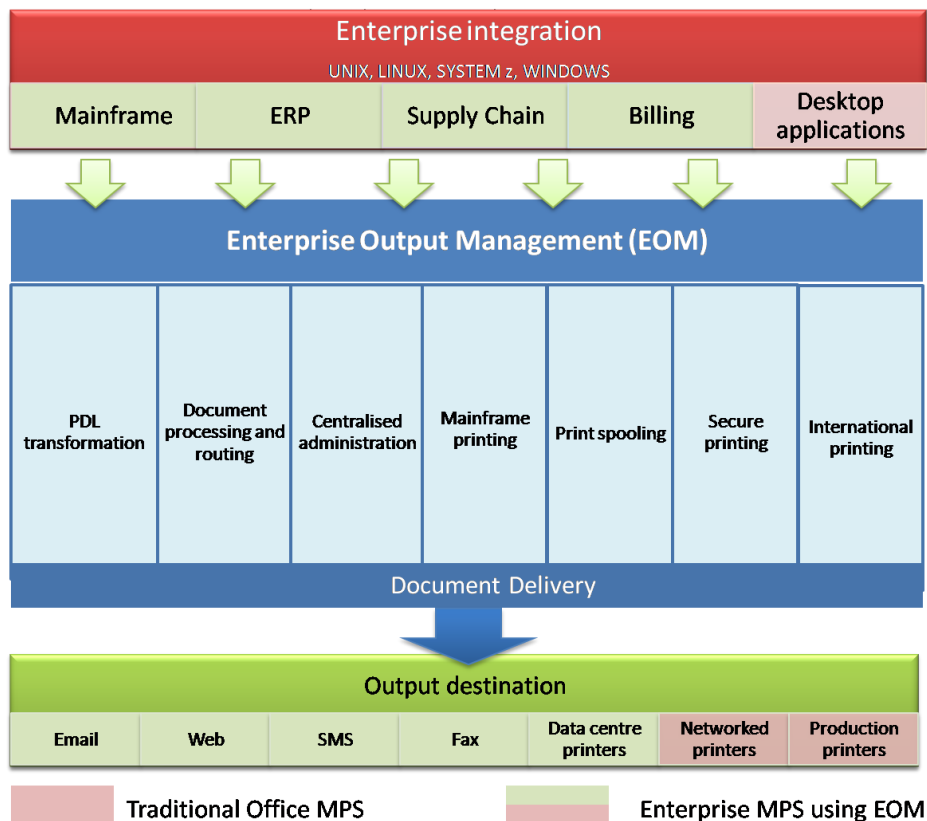


Figure 1. Enterprise Output Management

The key capabilities that an enterprise output management solution should provide are:

- **Real-time transformation of data streams:** A centralised EOM solution supports all common page description languages (PDLs) and print streams, reducing reliance on proprietary architectures and providing an “any-to-any” document output capability. For instance, legacy mainframe data from proprietary Xerox or IBM data streams can be converted to PostScript for printing on modern production multi-function printers (MFPs) with advanced finishing capabilities, eliminating dependency on older and generally more costly legacy printers.

- **Intelligent document processing and routing:** Automating the delivery process of documents can save costs and resources. EOM document routing solutions offer broad support for source platforms creating output files which can be routed to multiple destinations including local or remote devices, such as production, midrange, and desktop printers; network folders; storage devices; as well as email and third party applications. Intelligent job routing is based on the attributes of each job (user, application, priority, page count, simplex/duplex, plain/staple/bin, etc.) and the capabilities of the destination devices. Report bursting and bundling capabilities enable output to be split into multiple files across multiple destinations according to user-defined business logic rules.
- **Centralised administration:** EOM provides a single-system view of all document-related jobs across the enterprise, coupled with centralised control and management. It tracks and controls documents as they move from source to destination, providing a wealth of information. Statistics reveal who is printing what, when it happens, and how much output is involved. Administrators have a single point through which to manage all output delivery and destinations across the network. This provides IT staff with a clear picture of the health of the output queues and destinations, alerting them to problems as they occur. Jobs can be scheduled by priority and by future print time. Activity logs provide information on successfully printed documents, or give information as to why the document didn't print.
- **Mainframe printing:** For many organisations, mainframe applications continue to generate high volumes of mission-critical print files which traditionally have been sent directly to channel-attached printers. Today, this output needs to be delivered across a multitude of destinations, including distributed printers, multifunction printers, production printers, email and the web. Through load balancing, high volume print demands can be spread across multiple, smaller devices.
- **Print spooling:** Print spooling capabilities externalise the responsibility of creating print files from the application server, thus enabling application performance to be increased. By taking an EOM approach, it is possible to gain a comprehensive view of all enterprise printers and documents, rather than viewing individual queues for each device. If printers fail, it is possible to redirect documents to another device or route copies of a single document to several different printers if so desired.
- **Secure document delivery:** Native print spoolers often store and transmit output files as clear text, leaving the content vulnerable to unauthorised access. EOM solutions encrypt data both on servers and during transmission between servers. Access to output can be controlled through user authentication, which is commonly used with office MFP devices. Best-of-breed EOM solutions take this one step further by enabling this capability across non-Windows generated output ensuring all enterprise output is controlled by a secure delivery environment. Next-generation EOM tools provide single sign on (SSO) capabilities across multiple applications, thereby overcoming the inconvenience of requiring differing user IDs for different devices and applications.
- **International printing:** EOM solutions provide a fully transparent way of printing output in multiple languages and supporting Unicode without needing to use specialist Unicode printers. This removes the need for hardware upgrades and reduces dependency on more expensive Unicode specialist hardware.

Benefits of an effective enterprise output management system

A robust, scalable and centralised EOM approach can:

- Simplify management across multiple platforms, devices, applications and locations
- Balance workloads across devices and multiple sites
- Deliver documents in multiple formats to multiple destinations
- Reduce print-related expenses by transitioning some communications to electronic channels
- Improve accuracy and speed of document delivery
- Enhance security of all enterprise documents
- Reduce IT support calls through centralised management capabilities enabling end-user control of print and electronic output.
- Reduce print server costs: EOM servers can support thousands of printers, compared to the need for multiple print servers with point solutions.
- Enhance management and accounting through a single, global view capturing non-Windows print costs to be tracked in addition to the office printing costs

Securing printed output across the enterprise

Despite the critical role that networked printers and copiers play in supporting document workflow and business processes, organisations often ignore the potential security vulnerabilities associated with an unsecured printing environment. This can leave an organisation exposed to a range of security threats, which endanger document confidentiality and can compromise compliance with government and industry regulations such as Sarbanes-Oxley, MiFID and the Data Protection Act. One solution is to adopt a secure delivery solution, which provides user authentication at the print device together with user accounting for audit trail purposes.

What is secure delivery?

Many MFP products integrate with secure or “pull-printing” style products from vendors such as Equitrac, Ringdale, Pharos, NTware, Safecom, Capella and Jet Mobile. These products restrict access to devices via identification by a PIN, proximity, smart card or biometrics. Access control may be extended to email, fax and scan functionality as well as application usage. Some solutions also encrypt print jobs between the PC and the printer. Using secure printing solutions not only minimises the risks of unclaimed confidential output, but also minimises the paper and consumables wastage that occurs as a result of unnecessary printing.

While most of these solutions offer an effective way of securing output in the office environment, they may not support non-Windows platforms. Also, such solutions may have a limitation on the number of printers that can be supported per Windows server. For instance, a limit of 100 printers per Windows server in an environment of 1000 printers would require 10 Windows print servers. For large organisations, this means far higher support and operating system licensing costs, along with a need for more space in the data centre, higher energy bills and so on.

The EOM approach

Rather than just offering secure printing functionality on office devices, an EOM solution offers a best of breed approach that operates across a heterogeneous print environment. Benefits include:

- **Ability to handle output from multiple platforms / multiple applications:** This enables non-Windows generated output to be handled by the secure delivery environment, which means that an organisation can manage all enterprise output through a secure delivery environment.
- **Single sign-on capability for secure delivery environments:** An EOM approach minimises the need for multiple user ids, which is common in mixed application environments. An EOM solution provides a central capture point for all output across the multiple applications and platforms and normalises the user's different user ids into a single 'common' user id that is then used to interact with an existing secure authentication solution.
- **Reduced complexity of environment:** By being able to handle the output capture, spooling and printing delivery functions within an EOM server, the number of Windows print servers can be reduced. Secure authentication solutions may have a limit of the number of printers they will support on a single Windows print server. An EOM solution can run thousands of printers on a single server, leading to significant cost savings and management efficiencies.

4. Moving beyond office MPS: EOM in practice

4.1. Customer case study: Extending office MPS to enterprise output

As part of a move to a new centralised office facility, a large metropolitan transport network embarked on a complete restructuring of their IT infrastructure. One important element of the project was the outsourcing and consolidation of the customer's printing estate from 1500 network printers down to just less than 100 powerful multifunction devices.

The challenge

The MPS vendor's proposal concentrated on the office printing environment and providing a central point of printing control to support print auditing, a secure 'pull-printing' environment and departmental chargeback. However, the initial scope did not consider the customer's core SAP applications and documents that were printed from these applications, which were an essential part of their users' daily workflow and job function.

The solution

After fully investigating the client's needs, the MPS vendor recognised that it needed to extend functionality beyond its core product. It identified that LRS could bring the centralised, vendor-agnostic Enterprise Output Management capabilities needed to manage and account for all output being produced and the printing of the SAP documents as well as the end-user generated office documents. With its Personal Print Queue™ technology, the LRS Enterprise Output Server was seamlessly integrated into the MPS vendor's 'pull-printing' authentication solution of choice, which enabled the users to securely print all their documents upon successful authentication by swiping their door entry card at the target MFD. The LRS solution also enabled dynamic watermarking of test documents being produced from the SAP systems to prevent test invoices from being inadvertently sent to customers.

Business benefits

With full support for SAP and other types of applications, the LRS solution established a single point of management and control for all document delivery through a centralised LRS Enterprise Output Server. This simplified infrastructure has helped the customer reduce cost through eliminating the need for multiple Windows print servers, thereby limiting the need for dedicated support staff and reducing wasteful printing. Document security is now also assured through the use of authentication across all devices for all printing, leading to overall efficiencies and improved business processes. Adding a watermark to test documents being produced on the SAP systems has eliminated incorrect invoices being sent to customers, leading to a shorter 'invoice to cash' timescale and improved customer service.

4.2. Customer case study: EOM bridges the purchasing and IT gap

The purchasing department of a large Scandinavian bank was in the process of investing in a managed print service (MPS) contract that included more than 3,000 multifunction devices and a pull printing / secure delivery system.

The challenge

Unfortunately, the purchasing department that was managing the project did not fully appreciate the potential effects of this project on the overall organisation as they were not engaged with IT or the business users. Working with the bank and the MPS vendor, LRS helped to clarify the issues and look at the overall output environment. As a result, it was determined that the MPS solution being proposed by the MPS vendor was only going to handle the office printing within the bank, which represented just 30% of the bank's document output. The other 70% was produced via the mainframe, which the Windows-centric MPS solution was not able to handle.

Solution chosen

Upon learning this, the bank's IT and purchasing teams worked with LRS and the MPS vendor to implement a solution that would leverage the cost savings from a negotiated MPS deal and also handle all output across the bank in a pull printing / secure delivery environment. The flexible capabilities of the new multi-platform Enterprise Output Management solution provide a central point of management and control for the MPS and enable the integration into other third party products, e.g. a document composition tool that was being considered as part of a separate effort focused on improving customer communications.

Business benefits

By bringing together stakeholders from the bank's IT and purchasing groups, LRS helped the customer obtain maximum value from their MPS solution and avoid potential operational and technical problems in the future.

The solution enables the bank to print all documents through its managed print service and secure delivery system, not just the 30% that would have been the case without the introduction of the LRS EOM solution. This, in turn, also maximises the use of the MFD assets, increases the cost savings delivered by the managed print service contract and reduces the support and administration cost burden through having a single point of control for all output being produced across the bank.

5. Recommendations: planning for success

Although EOM can be implemented as an independent strategy, it is best considered as a complimentary strategy to an MPS initiative.

Quocirca recommends the following when considering an EOM strategy:

- **Executive sponsorship:** Create a competency group made up of multiple stakeholders in order to consider overall business needs. This will ensure that the impact of all printing is considered - from desktop and networked workgroup MFPs to production printing and high volume transactional printing.
- **Ensure EOM is considered at the early stages of the MPS strategy:** Initiating a successful enterprise output management strategy requires understanding what output is produced from which application, the level of print volumes across an organisation, who is printing what and what business processes are involved. Many organisations use an external provider, such as an MPS supplier, to assess office printing costs. However, there are also independent providers who can offer these capabilities as well as assess total enterprise-wide printing costs. The assessment of the output environment is the foundation of an enterprise MPS engagement, and determines the potential for cost savings and workflow improvements through the course of the implementation. Considering EOM up-front is vital to ensuring that the benefits of MPS extend beyond the office environment.
- **Think big, start small:** Due to the complexity of the output environment that needs to be managed, EOM need not take a “big-bang” approach. Instead, a phased approach, which focuses on a single functional business area or geography first, can enable an organisation to reduce scope and, once initial success has been achieved, can be expanded to other functions or areas in the business.
- **Consider how EOM can link to the MPS strategy:** Organisations that are already engaging in MPS should approach their existing MPS provider to determine its capabilities for managing enterprise output. Some may offer their own output management services, while others may partner with independent, vendor-neutral solutions providers. Careful planning and evaluation of the different vendors in the market will help to further define an organisation’s needs and the solution that can meet those needs.

6. What to look for in an EOM solution

EOM solutions are often provided as a suite of products that offer a range of capabilities dependent on specific business needs. Typically, modules can be added as an organisation expands its EOM strategy. The following is a short list of factors to consider when looking at an EOM solution:

Vendor considerations

- **Track record:** Consider an EOM solution provider with experience and credibility in deploying an EOM platform. The provider should have a strong commitment to output technology while also recognising that convergence requires the ability to support electronic document output delivery. Look for a track record implementing solutions within similar enterprises or vertical markets.
- **Partnerships:** Look for alliances with leading MPS vendors and integration with printer and MFP brands to enable centralised management of office printing with broader enterprise output capabilities, e.g. integration with document composition solutions or integration with job scheduling / business process monitoring products.
- **Open technology roadmap:** Seek a provider that can deliver open technologies that interoperate with enterprise systems. Look to SOA and web services architecture to tie in to multiple back ends and a broader set of devices and operating systems.

Technical considerations

- **Open, vendor-independent support:** The technology should have the ability to accept multiple file formats and print streams (AFP, PostScript, PCL, etc.) and be able to print to any printer throughout an enterprise - including data centres, print rooms or the office environment. It should also be able to output to other devices such as fax, email, web and mobile devices based on business requirements.
- **Centralised control:** The technology should provide a single point of control to track and manage all jobs across the enterprise using a single interface for job submission, job routing, workload balancing and error recovery.
- **Accounting and data collection:** The technology should provide charge-back options for print output.
- **Centralised security:** Look for a solution with a storage and retrieval procedure that will address archival / audit / access concerns. Consider capabilities to provide centralised authentication for document output, such as “pull-printing” across all enterprise output devices.
- **Enterprise integration:** Be sure that the candidate solutions provide interfaces to your key applications such as ERP or CRM and that those interfaces use the standards supported by the application vendor. Look for formal relationships between the EOM solution provider and those vendors, including Oracle, SAP and providers of other relevant products like document composition, job scheduling / business process monitoring or archiving products.

7. Conclusion

As the competitive environment intensifies, it is critical for businesses to be highly responsive and deliver information to the right place, at the right time, in the right format, and to do this cost effectively and securely. Today’s output environment is no longer confined to printing, and organisations must be able to transform document workflow processes to deliver output across a multitude of channels, be it the web, email, portals or mobile devices.

An effectively implemented enterprise output management system that complements office environment driven MPS can deliver a host of business benefits. By establishing a single point of control for all output, intelligent resource management and a single source of accounting, organisations can reduce costs of output operations, utilise devices more efficiently and ensure stronger regulatory compliance for output across the enterprise.

The enterprise output landscape of the future will be one that integrates printer hardware, software and enterprise applications, and optimises the investments in this technology. While MPS is the first step to tackling the escalating costs surrounding office print, only an integrated EOM strategy will ensure that businesses can reliably, securely and cost-effectively manage multi-channel output across their entire enterprise.

About LRS

LRS is an industry-leading software company that specialises in enterprise output management solutions. Since 1981 LRS has provided global organisations with the ability to manage critical output, ensuring document delivery to a variety of output destinations, reducing costs and improving business efficiency. Gartner® and other analyst groups recognize LRS as a global IT leader. Software Magazine consistently ranks LRS as one of the top software companies in the world.

The LRS solution primarily focuses on the ability to capture, control, store and deliver document output in a variety of formats. This provides an 'end-to-end' service between any application on any platform generating the output and the destination channel (e.g., printer, email, fax, archive, portal, file server etc.), assuring the delivery and providing real-time, accurate status feedback in the process.

In addition to facilitating secure delivery / pull printing style environments with its 'personal print queue' configuration options, the LRS solution also provides intelligent document processing capabilities to enable features like rules-based printing, enforcement of policies & document bundling / splitting etc.

Based on open standards technology, the LRS solution is able to interoperate with third party solutions, e.g., secure delivery / authentication solutions, document composition products, job scheduling / business process automation tools & auditing packages to help provide the customer a complete solution.

LRS has partnerships with hardware & software vendors as well as IT service providers who utilise LRS software products within the service they deliver to their customers to provide value added innovation in the process.

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About Quocirca

REPORT NOTE:

This report has been written independently by Quocirca Ltd to provide an overview of the issues facing organisations seeking to maximise the effectiveness of today's dynamic workforce.

The report draws on Quocirca's extensive knowledge of the technology and business arenas, and provides advice on the approach that organisations should take to create a more effective and efficient environment for future growth.

Quocirca would like to thank Levi, Ray & Shoup, Inc. for its sponsorship of this report.

Quocirca is a primary research and analysis company specialising in the business impact of information technology and communications (ITC). With world-wide, native language reach, Quocirca provides in-depth insights into the views of buyers and influencers in large, mid-sized and small organisations. Its analyst team is made up of real-world practitioners with firsthand experience of ITC delivery who continuously research and track the industry and its real usage in the markets.

Through researching perceptions, Quocirca uncovers the real hurdles to technology adoption - the personal and political aspects of an organisation's environment and the pressures of the need for demonstrable business value in any implementation. This capability to uncover and report back on the end-user perceptions in the market enables Quocirca to advise on the realities of technology adoption, not the promises.

Quocirca research is always pragmatic, business orientated and conducted in the context of the bigger picture. ITC has the ability to transform businesses and the processes that drive them, but often fails to do so. Quocirca's mission is to help organisations improve their success rate in process enablement through better levels of understanding and the adoption of the correct technologies at the correct time.

Quocirca has a pro-active primary research programme, regularly surveying users, purchasers and resellers of ITC products and services on emerging, evolving and maturing technologies. Over time, Quocirca has built a picture of long term investment trends, providing invaluable information for the whole of the ITC community.

Quocirca works with global and local providers of ITC products and services to help them deliver on the promise that ITC holds for business. Quocirca's clients include Oracle, Microsoft, IBM, O2, T-Mobile, HP, Xerox, EMC, Symantec and Cisco, along with other large and medium sized vendors, service providers and more specialist firms.

Details of Quocirca's work and the services it offers can be found at <http://www.quocirca.com>

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The logo for Quocirca, featuring the word "quocirca" in a lowercase, sans-serif font. The letters "qu" are in blue, "o" is in red, "c" is in black, "i" is in red, "r" is in black, "c" is in black, and "a" is in black.