Cloud Print Services Landscape, 2024

How cloud adoption is driving print infrastructure modernisation

The Cloud Print Services Market Landscape, 2024
Excerpt report: Celiveo
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QUOCIRCA

Executive summary

As the era of hybrid work becomes embedded, organisations are increasingly focused on digital transformation and the need to build a resilient IT infrastructure capable of adapting to the future. For many, the cloud has underpinned this journey, with its high availability, flexibility, and scalability helping businesses become more agile, while simultaneously helping them build resilience through advanced data compliance and security. The cloud can also help organisations manage both financial and environmental costs more closely than is possible when operating a traditional on-premise environment.

Cloud-based print management can reduce the burden on IT teams and lower both financial and environmental costs associated with procuring and managing print servers. Conventional print management typically relies on on-premise print servers and incurs a high IT administrative burden to manage driver installation, device configuration and compliance, device monitoring, reporting and management, server and queue management, firmware updates, and app deployment and maintenance. However, a cloud-based model removes the need for many of these tasks. As in-house teams work towards full digitisation, they will be grateful for any efficiencies to lessen the responsibilities placed upon them.

Although many organisations believe the cloud to be more secure than an on-premise environment, some consider security concerns to be the main barrier to cloud print adoption, along with unclear cost benefits and doubts about functionality and performance. Many are increasing their print server fleet simultaneously with their move to cloud services, which suggests hybrid models will become dominant in the immediate future.

Most print manufacturers and ISVs offer cloud-based solutions and services to cater for the different public, private, and hybrid cloud approaches customers are pursuing. Cloud print services and solutions encompass serverless printing, cloud-based print management and remote monitoring, and hybrid cloud print management platforms, which may be managed internally or by third-party managed print services (MPS) providers. Cloud print services may also include other adjacent services and solutions around digitisation, workflow, security, and collaboration.

This report highlights key market trends for cloud print services, covering offerings from both manufacturers and independent software vendors (ISVs). It draws on primary research conducted by Quocirca in 2024.

Key findings include:

- **The cloud print market is characterised by a diverse range of offerings from print OEMs and ISVs.** In Quocirca's assessment of the cloud print services market, which includes the major MPS providers, Xerox is considered to have the broadest cloud print services portfolio, covering secure print and capture along with comprehensive reporting for both enterprises and SMBs. Other vendors in the leadership category include Canon, HP, Konica Minolta, Lexmark, and Ricoh. Major players include Brother, Kyocera, Sharp, and Toshiba.
- **Cloud print management solutions have been widely adopted and will continue to grow.** According to Quocirca's latest research, 69% are already using a cloud print management solution, rising from 55% in 2023. The majority continue to operate a hybrid cloud environment, with 74% saying they manage their print environment using a mix of on-premise and cloud. Although just 4% say they manage their print environment fully in the cloud now, this rises to 18% believing that their print environment will be fully in the cloud by 2026.
- **IT admin tasks associated with traditional print driver deployment is a major challenge.** Overall, 49% indicate that the IT administration burden is the top challenge, followed by the complexity of print driver deployment (42%). Security risks are also a key challenge, with 38% indicating that potential security risks due to outdated drivers not being updated are a concern, rising to 43% among organisations with over 1,000 employees. For providers, taking on as much of this burden as possible and removing it from the organisation's IT team will be seen as positive across the board.
- **Despite the transition to the cloud, many are deploying more print servers.** Despite the tangible benefits of reducing or eliminating print servers, only 14% of organisations are doing so. Overall, 58% of organisations plan to increase the number of print servers in the coming year, rising to

71% in the US and 68% among those working in finance organisations. Companies that consider print critical or very important are more likely to be increasing the number of print servers than those less reliant. The need to support a more distributed workforce may be leading this increase in print server deployment as more workgroup printers are introduced, although this will create challenges for IT teams, especially around administration, managing complexity, and security. It is apparent that providers are not positioning cloud-based solutions strongly enough – and this may have long-term consequences as more of an organisation's overall IT platform moves to the cloud.

- **Organisations operating a multivendor fleet are more likely to have increased the number of print servers**. In this study, 73% of respondents indicate they operate a multivendor fleet. Over two-thirds of these (68%) have increased their print server volume, compared to just 34% of those using a standardised fleet. Although this reflects the traditional on-premise model of managing a multivendor fleet, 53% of those operating a multivendor fleet say their top print management challenge is IT administrative burden, compared to 43% operating a standardised fleet. This should be seen as a major opportunity for providers: lowering the IT administrative burden is a way of freeing up IT staff's time to work on areas that add to an organisation's overall value.
- **Security is the top barrier to cloud print management adoption.** Overall, 32% of respondents say protecting corporate data is a top concern, rising to 37% in the US and 41% in the industrials sector. This is slightly lower than seen in 2023, in which 36% cited security as a barrier. Functionality is the second most prevalent concern, with one-quarter (25%, rising to 30% in France and 28% for larger organisations) citing this as a barrier, and lack of demonstrable cost savings and impact on performance come in joint third place overall (24%, respectively). Providers do not seem to be getting messages across as to how much better the cloud can be in managing security through managing zero-day threats more effectively, or how data sovereignty can be more easily managed through cloud policies.

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Celiveo offers enterprise print management solutions that are fully scalable, delivering high availability and strong security to support zero-trust environments. The company is ISO 27001:2022 and ISO 9001:2015 certified by Intertek, a Microsoft Gold and Chrome Enterprise Recommended Partner, and provides Celiveo 365, a pure cloud software-as-a-service (SaaS) offering, as well as Celiveo 8, which is included with the on-premises installation or private cloud offering.

Celiveo particularly stands out for offering a true cloud platform with extensive security features and a flexible pricing model. Rather than taking the approach of moving an on-premises print server to the cloud, Celiveo is a cloud-native platform that mitigates the risk of issues inherent with cloud-based solutions, such as internet connection outage, cloud sovereignty, slow communications, and potential security breaches. Celiveo 365 is built on a zero-trust access architecture based on ECC-P=256 certificate chains that secure all network connections and exchanges, and is deeply integrated with Entra ID SSO.

Celiveo 365 requires no driver or agent deployment on the client PC, and Celiveo 8 (for Intranet) enables print drivers across a distributed, multivendor fleet to be deployed and updated. Security features such as encrypted pull printing, rules-based printing, and print usage tracking mean the Celiveo cloud print platform has many of the functionalities typically only available in on-premises print management platforms.

Notably, Celiveo is integrated with Microsoft Universal Print architecture, which runs on Microsoft Azure. This means no additional software needs to be installed on premise or in a virtual machine (VM). Organisations can manage a multivendor printer fleet from the cloud, distribute and update drivers and settings, authenticate users on printers and MFPs, securely control usage with pull printing, and leverage Power BI for advanced reporting. Celiveo 365 requires an activated Universal Print licence with credits to benefit from full driverless cloud printing.

Celiveo is a good choice for large organisations that require an enterprise-class, high-security cloud print management platform with high availability that supports a multivendor set-up in a serverless and driverless environment. Celiveo plans to expand its scan workflow integration later this year with the introduction of Scan to SharePoint and OneDrive capabilities, direct from the MFP to the client tenant. This will appeal to enterprises wanting to better track, secure, and integrate both print and scan workflow environments with uncompromised security and sovereignty.

Product overview

Celiveo 365

Celiveo 365 is a Microsoft Azure-native cloud SaaS offering that provides high-security cloud printing for Microsoft 365 clients and adds advanced functionality such as pull printing, access control, mobile printing, and tracking to extend Microsoft Cloud printing capability. Celiveo 365 is not software in a VM – it runs as an elastic resource deep inside Azure and benefits from the high availability, elasticity, and high security of the Microsoft Cloud. The solution does not require a VPN, as it relies on advanced zero-trust access technology and certificates to secure all access. Celiveo 365 intelligence runs at the printer level and features high-availability technology using local cache, so it works even if the internet is down, without any on-premises hardware or software. Celiveo 365 is available in four regions for cloud sovereignty concerns, as well as a dedicated instance deployed on a global client's Azure tenant.

Celiveo 8 Enterprise Edition

Celiveo 8 Enterprise Edition is a high-security offering that provides print management for Intranet and Private cloud, without requiring any application server, even for thousands of printers. It offers the ability to distribute and update drivers and settings, authenticate users on printers and MFPs, enable secure pull printing, and apply rules-based printing to control cost and usage, track usage, and bill back to departments and OUs.

Pull printing can be ZeroServer (serverless on the user's PC) or server based – both features can co-exist, i.e., to release print jobs with the PC off. BYOD and corporate mobile pull printing are also available for iOS, Android, MacOS, and Windows.

Celiveo 8 Business Edition
Celiveo 8 Business Edition provides full print fleet management and right-sizing, smart direct IP printing on any network printer, and server-based pull printing on a selected list of MFPs and printers. Print jobs are retained on the print server and released when the owner authenticates by card or pin at the device.

Celiveo 8 Print-Direct
Celiveo 8 Print-Direct works with any network printer and within mixed fleets, with floor maps, automatic drivers and settings distribution, and print rules with pop-up messages. Printing goes directly from the client PC to the printer and does not depend on any server.

Vertical industry connectors
Celiveo vertical industry connectors include FSI (Financial Service and Insurance), oil and gas, public sector, and the premium connector, which offers all features such as PKI smartcards and large format printer support.

Security
Celiveo 365 is built on a zero-trust access architecture featuring segmentation and TLS mutual authentication using elliptic curve cryptography (ECC) TLS certificate chains. Documents are also compressed and double encrypted, with AES256-GCM tied to tenants and the target user until they reach the printer, where they are decrypted on the fly. It is audited daily for compliance against 14 norms ranging from SOC2 to HIPAA and NIST.

Celiveo leverages its proprietary ZeroServer Edge Computing technology to eliminate print servers, which it claims enables customers to save up to 10 times the cost of printing, as well as make printing easier, secure, and more robust.

Key differentiators

- **Serverless architecture.** ZeroServer Technology enables high availability for an on-premise solution without the need for a server.
- **Lower cost.** Celiveo 365 is a true SaaS solution based on a serverless architecture, with no server or VM to maintain.
- **Zero-trust access security.** Celiveo's proprietary ZeroServer technology uses edge computing to eliminate print servers, which it claims enables customers to save up to 10 times the cost of printing, as well as making printing more secure and efficient.
- **High availability.** Edge computing technology is used, and the intelligence rests at the printer level and communicates directly with Universal Print and Microsoft Azure, so nothing needs to be installed on premise or in a VM.

Buyer recommendations

The market has been going through a complex period, with a mix of proprietary print management systems mainly using on-premise platforms now beginning to move over to a more standardised cloud-based platform. However, this does not mean a full cloud-only platform will be right for everyone. The key is to find a platform that meets your organisation's needs now, but that also has the flexibility to change to meet future needs – and adapt to changes in future technologies.

Although many organisations will still have dependence on print management software installed on physical on-premise servers, many should now be finding ways to migrate away from such systems toward something that is more flexible. Serverless platforms, whether via public cloud or on-premise virtualisation, make particular sense to SMBs, as well as to larger organisations looking to minimise the number of print servers they are operating.

The cloud print services market continues to evolve. There is a move away from cloud-based systems, with only a low amount of per-device functionality via early-generation universal print drivers, to ones where the default functionality is almost equivalent to that obtained via complex and hard-to-maintain dedicated drivers. This is then leading to better support for mixed printer fleets and freeing up IT administrators to concentrate on adding value to an organisation's business. However, buyers must ensure that the solution chosen is suitable for the organisation's needs.

- **Evaluate functionality carefully.** There may be significant disparities between on-premise and cloud print management solutions. Ensure that prospective solutions can deliver the features you need, such as pull printing, analytics, and reporting.
- **Explore the differences between on-premise, hybrid, and fully cloud.** On-premise solutions are expensive in both direct costs and ongoing management. However, although a full cloud-based platform may offer fixed pricing and lower needs for administration, it may not meet the organisation's needs around security and data sovereignty. For many organisations, this will result in the use of hybrid solutions, with some parts of the print environment managed on-premise and others in the cloud.
- **Compare universal and dedicated print drivers.** Historically, universal print drivers have only provided basic functionality across a printer fleet – even where it is a standardised fleet. Organisations often had to implement dedicated drivers to support the advanced functions of the more complex MFPs. Now, however, universal drivers are improving and beginning to compare favourably against dedicated drivers. Buyers must evaluate what they require and ensure they get what they need.
- **Factor document security demands into decision-making.** Buyers should look for data encryption throughout the whole print management process. Alongside this, they should also evaluate information protection support such as data leak prevention (DLP) and digital rights management (DRM). These are unlikely to be included in the basic product, and therefore buyers need to ensure that third-party solutions can be easily integrated into the print management system.
- **Implement output security tools.** Buyers need to ensure that any chosen solution also allows for user authentication at any device using smart card release or other forms of near-field communication (NFC)/Bluetooth, biometrics, or PIN printing. This not only provides increased information security, but also cuts down on paper and toner/ink wastage.
- **Adopt identity access management and multi-factor authentication.** Identity management is becoming a much stronger focus for many providers, with integration into existing identity access management (IAM) systems on offer. Buyers need to ensure that a chosen solution allows such systems to be directly integrated.
- **Ensure zero-trust support is available.** The print environment must now be seen within the broader area of IT and information management. As the attack surface offered by intelligent devices both in the home and at the office increases, printers are increasingly being targeted as a means of accessing an organisation's network. Buyers must ensure that any chosen system fits within their organisation's security posture and existing security tools – not just for now, but also for the future. Zero-trust architectures are

designed to create a cohesive security approach – buyers should ensure that any solution fits in with such an approach.

- **Analyse reporting and analytics capabilities and integration.** Print management solutions offer extensive reporting on printer utilisation, device performance, consumables usage (toner and paper), and service information. With print devices now being sophisticated internet of things (IoT) devices, there is a growing need to ensure that data can be aggregated via other systems. Buyers should evaluate solutions as to their integration with traditional business intelligence tools, along with advanced reporting around environmental analytics and user behaviour.
- **Seek clarity over pricing models.** Pricing models for cloud print management software platforms should be considered, as these can vary. Some providers offer per-device, per-user, and per-queue models. This can have an impact depending on how many users or devices are deployed, particularly where hybrid working needs to be taken into account. Buyers need to ensure that flexibility as to increasing or decreasing numbers of devices or users, as well as fluctuations in throughput, are allowed for.

Supplier recommendations

The cloud has continued to become more mainstream – although some users have found that their approach was ill-considered, and 'cloud repatriation' (a move back to on-premise) has occurred in a few cases. To cover all bases, a mixed capability of equally functional cloud and on-premise solutions will allow customers to move along the cloud journey at their own pace – even retreating from the cloud if they feel that they made the wrong decision. Suppliers of cloud-based print services and solutions should consider the following:

- **Offer education and consultancy to address buyer uncertainty.** Print buyers have not historically been general IT buyers. As such, the print environment has been slower than other areas of IT infrastructure in its move to the cloud. Increasingly, print is being seen as part of IT, and this is accelerating the migration of print to the cloud. This must be a wakeup call to the channel to ensure that MPS solutions are fit for the cloud – or are cloud-native. Customers do still need educating on why a move to cloud-based MPS makes sense – arguments around availability, more manageable costs, and better updating of available functionality should be used as preliminary discussion points with any customer (or prospect) still wary of such a move.
- **Adapt solutions to customer cloud preferences and maturity.** Few organisations are operating on a single-cloud platform. Due to the nature of providers setting up on different underlying cloud architectures, most organisations will be using multiple different platforms. Although the ultimate goal around cloud usage may be a hybrid or single-cloud model for organisations, those selling cloud-based print management solutions must recognise that each variant of the cloud offers its own advantages and obstacles to adoption. Standardisation on how MPS services operate will make interoperability across such disparate clouds easier.
- **Ensure security is adequately addressed.** Cloud security is still not fully trusted by end users – even though the majority of cloud platforms have demonstrably better levels of security than most on-premise platforms. Providers must be able to address such perceptions and demonstrate (via use of security standards such as ISO:27001) that the solution is highly secure and meets all their needs.
- **Look to integrate with existing security platforms.** Building all security into an MPS solution is both ill-advised and expensive. Identity access management (IAM) and security information and event management (SIEM) systems are already widespread in the market, offering mature security solutions. The channel should look to integrate into systems that are already strong in the enterprise environment, such as Okta and Ping Identity for single sign-on (SSO)/IAM and Cisco Splunk, LogRhythm, and Fortinet for SIEM systems. At a minimum, multi-factor authentication (MFA) systems should be implemented, preferably using biometrics or mobile device-based apps.
- **Accelerate the move from a traditional to a consultative mind-set.** The future of the channel is no longer a transactional model that depends on the customer acquiring new devices or automatically renewing

maintenance annually, but one that works with the customer to uncover extra areas where more value-add can be built in over time. Successfully working with customers in this manner will lead to extra revenue accruing for the provider.

- **Look outside print-specific offerings to adjacent services.** Alongside cloud-based print management services, providers should look at other workplace services, particularly in the areas of collaboration, videoconferencing, managed desktops, and workflow. These can be low-hanging fruit where good margins can be made. Working with other suppliers in areas such as managed security and other managed IT services is also possible.

About Quocirca

Quocirca is a global market insight and research firm specialising in the convergence of print and digital technologies in the future workplace.

Since 2006, Quocirca has played an influential role in advising clients on major shifts in the market. Our consulting and research are at the forefront of the rapidly evolving print services and solutions market, trusted by clients seeking new strategies to address disruptive technologies.

Quocirca has pioneered research in many emerging market areas. More than 10 years ago we were the first to analyse the competitive global market landscape for managed print services (MPS), followed by the first global competitive review of the print security market. More recently Quocirca reinforced its leading and unique approach in the market, publishing the first study looking at the smart, connected future of print in the digital workplace. The Global Print 2025 study provides unparalleled insight into the impact of digital disruption, from both an industry executive and end-user perspective.

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