



PrintOps 101 Guide

How cloud-native PrintOps
platforms are revolutionizing
the modern print landscape

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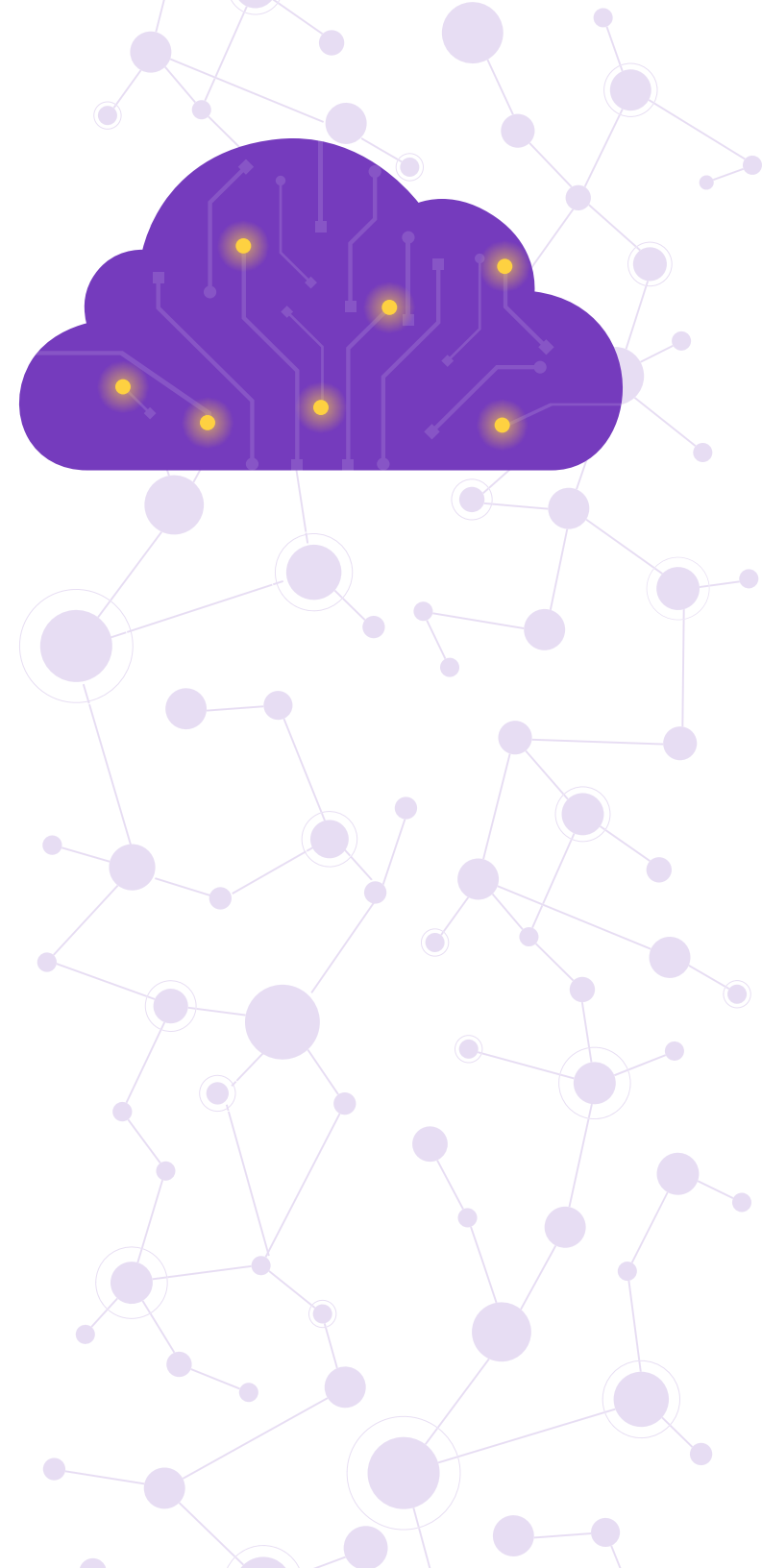




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Why Print Management Is No Longer Enough

The IT landscape has undergone significant change in recent years, leading to a proliferation of technology and capabilities that were previously unimaginable. Work itself has changed, as the pandemic drove a large-scale shift to remote work, forcing companies to rethink their entire approach to IT service delivery.

According to the Gallup Hybrid Work Indicator (October 2024), where work-from-home jobs once belonged to the lucky few, 27% of positions are now exclusively remote, and 54% of remote-capable employees are working or expecting to work in a hybrid environment. To adapt to this shift, over half of corporate data has been migrated to the cloud. Companies have also established dedicated Digital Employee Experience (DEX) teams to improve how employees interact with technology.

Yet, despite these sweeping changes in how we work and the tools we use, one critical aspect of IT service delivery remains surprisingly outdated: **print management**.

From managing on-premise print servers and print drivers to helping users add and troubleshoot printers, IT still struggles with the same problems it did a decade ago. Many of these problems arise because traditional print management is:

Printer-focused

Historically, print management has been driven by printer OEMs, prioritizing devices over users. IT teams are forced to manage a variety of drivers and siloed print management platforms from different printer manufacturers, while users are left struggling with roadblocks in the printing process.

Complex

Managing printers, users, print queues, and drivers is complex and time-consuming for IT, with little visibility into the root cause of issues that may arise. Similarly, users often struggle with adding nearby printers and managing different print experiences across a multi-vendor fleet, creating frustration and slowdowns that get in the way of productivity.

Static

Traditional print management relies on making minimal changes to the printing process. While in the past, employees typically used the same nearby printer in the same office every day, today's remote, hybrid, or traveling workers need a more dynamic solution.

Isolated

Print management systems are often isolated from other related processes and IT systems. This contrasts with today's focus on digital transformation efforts centered on open, integrated systems that communicate and share data. Today's highly-mobile and remote workforce requires a print solution that isn't isolated to a single facility — it must work wherever people work.

Given the rapid technological changes underway in every other area of IT, it's evident that print management has long been due for an overhaul.

Unsecured

Printers are an often-overlooked attack vector, and print is usually a neglected part of an organizations' overall security strategy. Add in the fact that print is challenging to monitor, and it's clear how nearly 1 in 3 enterprises have had a print-related security breach in the past year, according to the IDC US Print and Cloud Security Survey 2023.

Inefficient

Managing onsite print servers is costly and inefficient, using up valuable IT time. When you add in the hours spent managing devices, drivers, print queues, users, help desk tickets, and security updates, it becomes clear print consumes a disproportionate amount of resources. Though print's role has changed in recent decades, it's still rated as important to 63% of enterprises, including those moving away from paper-intensive processes to digital technology.

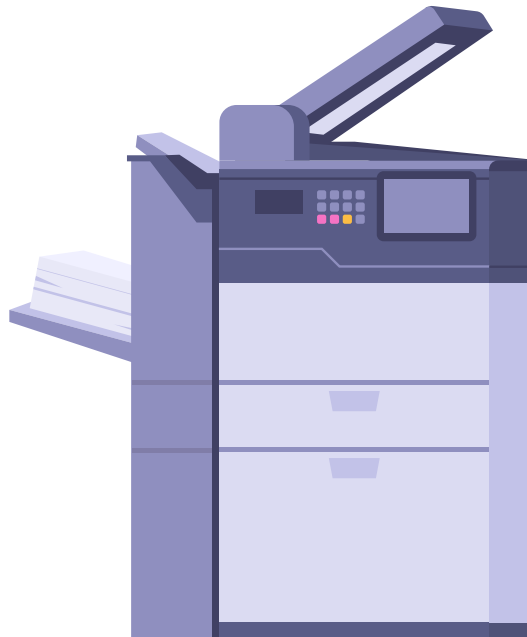


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Introducing PrintOps, the Future of Print

PrintOps is the modern and user-centric approach to managing office printing in the cloud. IT productivity and end-user experience are at the core of PrintOps, integrating people, processes, and technology for printing that “just works” for everyone, everywhere by leveraging:

- Highly reliable cloud infrastructure that is scalable and adapts to evolving business needs, technology, and locations
- Data analytics and AI capabilities to minimize printer downtime and optimize the print environment

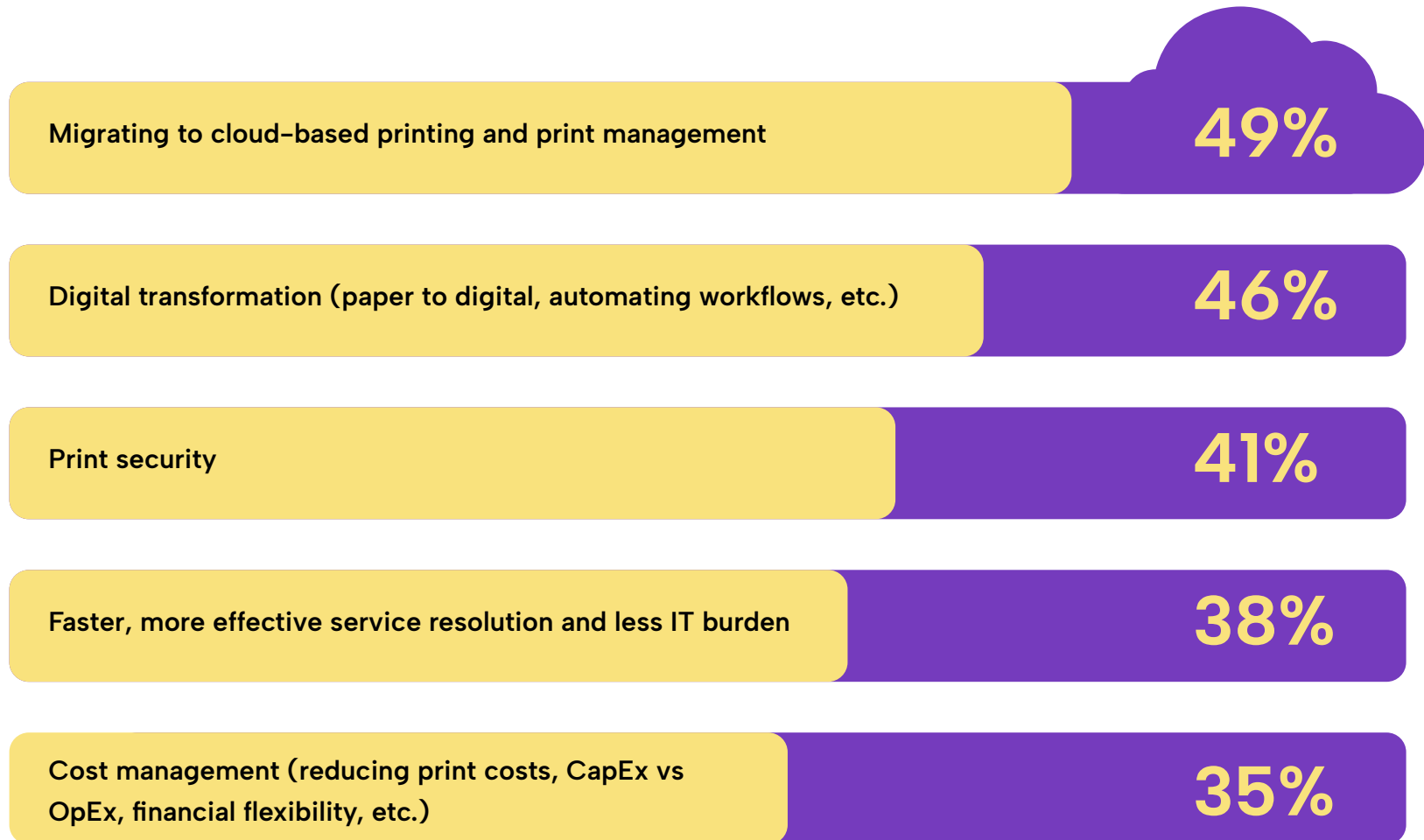


- API integrations and workflow automation to streamline IT operations and facilitate collaboration
- The latest security frameworks and standards to enhance security and compliance

PrintOps does for printing what DevOps did for software development, enabling rapid innovation to push the boundaries of what's possible in print. In other words, digital transformation has finally reached print.

Trends Driving the Rise of PrintOps

PrintOps is the natural extension of multiple forces converging in today's IT and business world. Chief among these are digital transformation, a heightened focus on DEX, and widespread adoption of zero-trust security principles. Based on IDC's 2023 U.S. Print and Cloud Security End-User Survey, the top enterprise business priorities are:



1. Cloud migration and IT outsourcing

Print is catching up to the wave of cloud migration and IT outsourcing trends. According to IDC, transitioning to a cloud-based print infrastructure is currently the top priority for businesses in terms of print.

2. Digital transformation

Digital transformation of print is another top priority for enterprises today. One key element they are looking for is the ability to integrate print with other IT platforms and automate workflows to drive greater IT efficiency. The rise of mega platforms like SAP and ServiceNow is accelerating the need for integration, workflow, and automation.

3. Increasing focus on DEX

DEX has become a central focus in IT, especially in addressing hybrid work requirements. Key goals include faster issue resolution, enhanced user experience, and increased productivity.

4. Print security trends

According to the IDC US Print and Cloud Security Survey 2023, print-related security breaches, which are becoming increasingly common, cost an average of \$658,000 per event. As a result, organizations are looking for a print solution that supports widely-accepted security frameworks, such as zero trust, rather than exist as an exception to their own security policies.

5. Efficiency and cost reductions

Companies are looking for ways to reduce IT costs and increase IT productivity. Essential priorities here include minimizing or eliminating onsite print servers and reducing the IT print burden so they can focus on more strategic initiatives. Expanding visibility into print issues is also a core driver, with enterprises looking to reduce the human labor and user frustration surrounding printer-related issues.

6. The rise of the IT mega platform

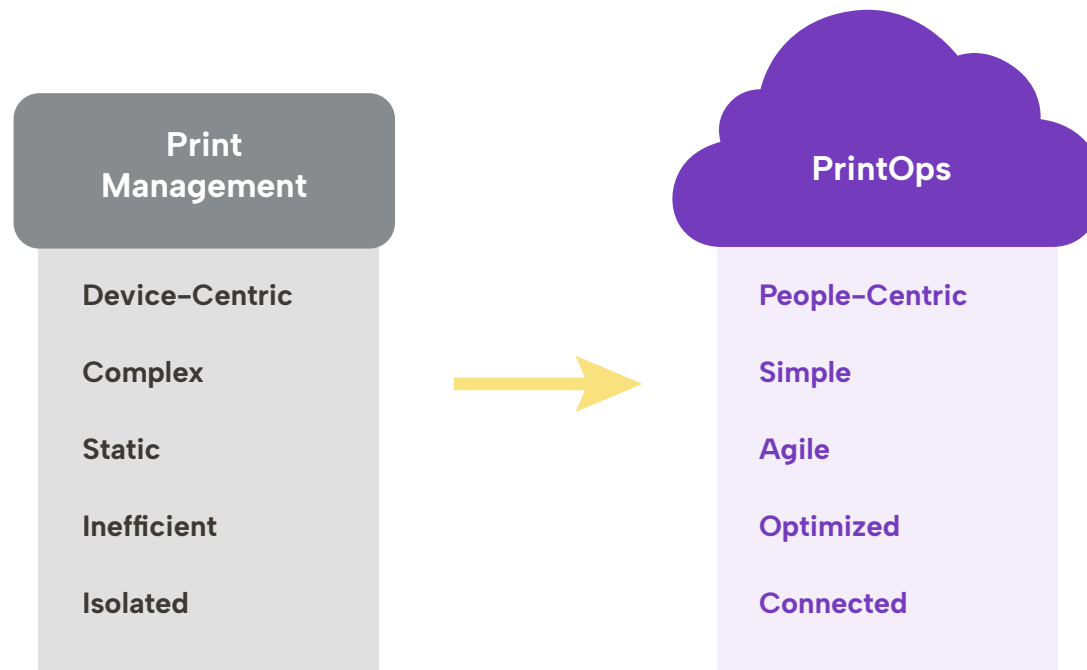
More than 8 in 10 Fortune 500 companies use ServiceNow, highlighting the strategic role of IT mega platforms in businesses today. Integrating print with mega platforms is becoming a growing part of these strategies centered on workflow automation to drive business efficiency.

7. Generative AI

AI tools are poised to revolutionize what is possible in many business areas, with significant implications for print.

Fundamental Characteristics of PrintOps

PrintOps represents a significant departure from the siloed, inefficient print management platforms of the past. The key differences are how PrintOps platforms transform the experience from a static, closed-off system focused on print devices to a seamless, streamlined experience for anyone in the organization who interacts with print.



1. PrintOps is User-Centric

At its foundation, PrintOps is about shifting the focus from printers and devices to the needs of users. This is especially important considering the heightened focus on DEX to ensure mobile and remote workers have the technology they need to remain productive.

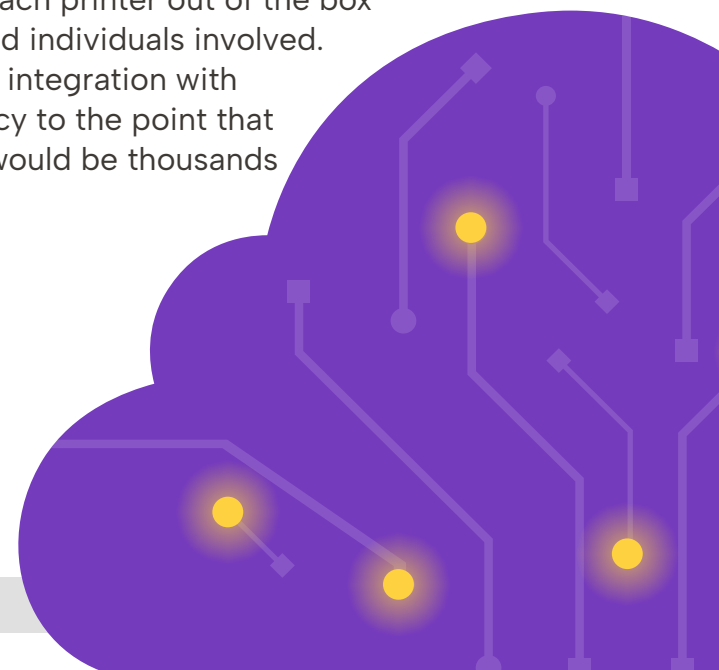
A robust PrintOps platform is also location-aware, so employees can easily find and print to nearby devices without needing to map individual printers. PrintOps makes it easier for users to print from wherever they work—in the office, on the road, or from their mobile device.

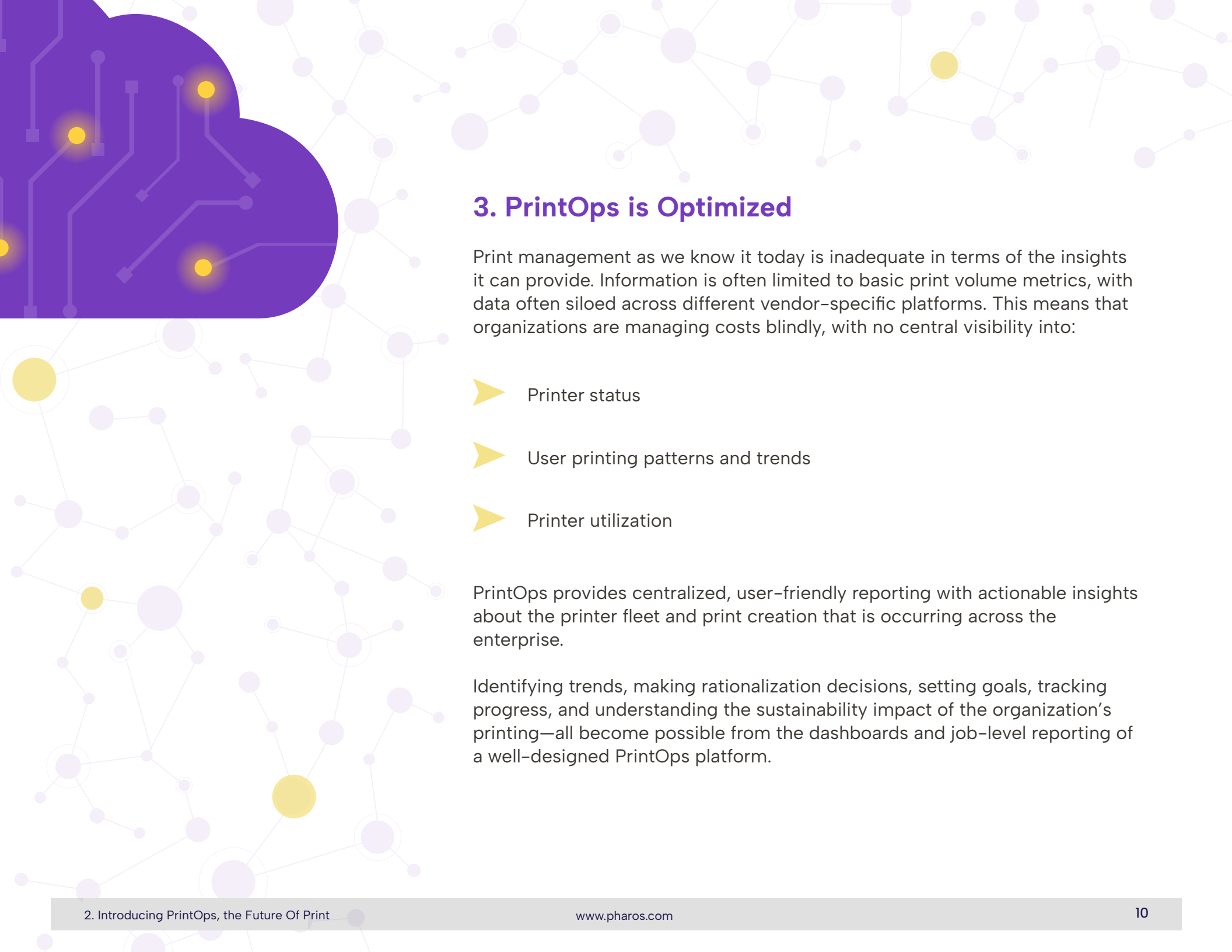
2. PrintOps Is Agile and Dynamic

Cloud-based PrintOps platforms are, by definition, more agile and dynamic than traditional print management systems, enabling enterprises to:

- Support digital transformation and cloud strategy by minimizing onsite print infrastructure
- Make it easy for employees to print to nearby printers by automatically adding and removing print queues on their workstations based on their location and permissions
- Minimize confusion with an intelligent universal print driver that checks the attributes of each printer and only displays the capabilities that are available on the selected printer
- Leverage the latest innovations and efficiency improvements as PrintOps platforms continue to add new capabilities
- Adapt to fluctuating print demands and high levels of growth with a scalable and highly-reliable cloud architecture

Imagine, for example, a large enterprise refreshing a fleet of 5,000 printers. Getting each printer out of the box and onto the network might typically take three hours per device with all the steps and individuals involved. In the future, with PrintOps, companies will be able automate most of the process via integration with enterprise IT asset management processes. This would dramatically increase efficiency to the point that the entire process might be able to be completed in a matter of minutes. The result would be thousands of hours saved, adding hundreds of thousands of dollars back into the IT budget.





3. PrintOps is Optimized

Print management as we know it today is inadequate in terms of the insights it can provide. Information is often limited to basic print volume metrics, with data often siloed across different vendor-specific platforms. This means that organizations are managing costs blindly, with no central visibility into:

- Printer status
- User printing patterns and trends
- Printer utilization

PrintOps provides centralized, user-friendly reporting with actionable insights about the printer fleet and print creation that is occurring across the enterprise.

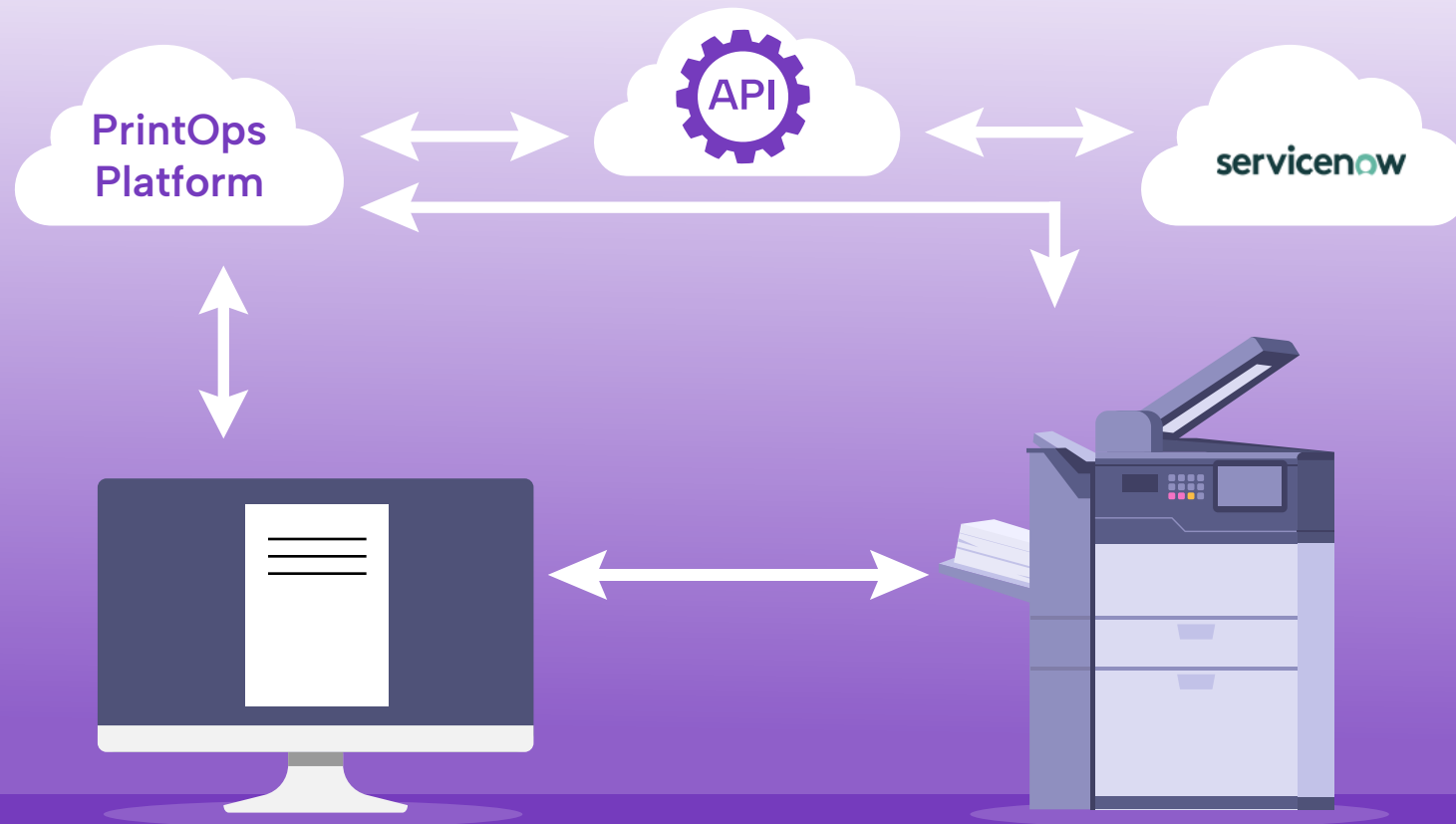
Identifying trends, making rationalization decisions, setting goals, tracking progress, and understanding the sustainability impact of the organization's printing—all become possible from the dashboards and job-level reporting of a well-designed PrintOps platform.

4. PrintOps Is Connected

Print management platforms have historically been closed off from other systems, but today PrintOps is changing the equation. With a PrintOps platform, organizations can integrate print with other systems and data, leveraging them to improve the print experience and IT efficiency.

Examples here include any enterprise systems that touch print, such as financial and procurement systems, enterprise reporting, and electronic health record (EHR) systems.

Another example is the integration of print with IT mega platforms like ServiceNow and Salesforce. With these types of integrations, companies will be able to automate workflows so that multiple systems will be able to talk to one another. Not only will this drive greater consistency and process efficiency, but it will also eliminate many of the headaches of managing traditional print.



Using application programming interfaces (APIs), PrintOps will soon be able to connect print to a wide variety of enterprise systems such as:

- ERP
- Internal accounting systems for costing and chargeback
- Label-printing applications
- Healthcare IT platforms
- IT service mega platforms like ServiceNow
- Data loss prevention (DLP) and file retention systems

Ultimately, PrintOps is connected rather than isolated, opening it up to other systems in a way people expect today in a modernized IT environment.

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5 Core Benefits of PrintOps

Enterprise organizations stand to make significant gains in efficiency and productivity by transitioning to a PrintOps platform. Below, we discuss five key benefits of deploying a PrintOps platform in your company and how they relate to other business goals.

1. Modernizing Print Infrastructure

As the entire IT infrastructure shifts to the cloud, print will naturally follow. According to the IDC US Print and Cloud Security Survey 2023, more than 4 in 10 enterprise organizations have already adopted some version of cloud-based printing or infrastructure as they look to:

- Align print with the organization's larger cloud strategy
- Minimize onsite print infrastructure, including eliminating on-premise print servers
- Achieve as close to 100% reliability and uptime in print as possible
- Improve operational efficiency and reduce costs

2. Driving IT Productivity and Reducing Help Desk Calls

The rise of cloud-based print platforms underscores the realization that managing print issues is an inefficient use of IT resources. Whether it's setting up printers, managing print servers and print drivers, or dealing with print-related help desk calls, these tasks all distract from IT's strategic goals.

PrintOps follows IT outsourcing trends by providing a way to delegate print infrastructure to experts who deliver a system that is reliable, simple, visible and secure. The result is:

- Fewer print-related help desk tickets
- Less hours spent on managing print servers, software, and drivers
- Complete visibility into print activity across the enterprise



In the future, companies will also be able to integrate print with IT mega platforms like ServiceNow, delivering more ROI from platforms they've already invested in and that teams are already familiar with. Where in the past, it might have taken hours to get a new printer up and running on the network, companies tomorrow may be able to add a fleet of thousands of printers in minutes.

3. Strengthening Print Security and Compliance

Improving print security is a top priority in 41% of organizations today. As businesses continue to adopt zero-trust security principles, they recognize that print can no longer exist as an exception to security policies.

Part of the problem is that printers tend to be one of the older technologies in the office, and while they allow for bi-directional communication, they weren't designed with modern security in mind.

Leveraging a well-designed **cloud-based** PrintOps platform allows companies to stay on top of the evolving threat landscape and enhance print security today by:

- Eliminating print servers as an attack vector
- Using end-to-end encryption for print jobs and not relying on the Windows Print Spooler, which uses the unsecured Port 9100, for print job delivery
- Verifying both user and printer identity on a per-session basis
- Protecting sensitive documents by requiring users to authenticate at a device before releasing the print job

41%

of companies say print security is a top priority

32%

of companies have had a print-related security breach in the past year

\$658,000

average cost of a print-related data breach

Source: IDC US Print and Cloud Security Survey 2023



4. Enhancing User Experience and Productivity for DEX

Research shows a direct correlation between digital employee experience (DEX) and business performance, where medium and high-growth companies have 60% higher DEX scores compared with their counterparts. While print has largely been left out of the DEX conversation, PrintOps is helping reimagine how users interact with print on a fundamental level.

These platforms streamline the user experience while equipping employees with the tools they need to stay productive, including:

- Location and permissions-based printing, which automatically adds and removes print queues on workstations based on location and permissions—making it faster to print to nearby printers
- Print workflows that enable mobile printing and support bring-your-own-device (BYOD) policies
- A truly universal driver that provides a consistent print experience to a multi-vendor fleet

Ultimately, PrintOps provides a simple and intuitive print experience that makes it easier for users to print, turning it into a productivity enabler.

5. Optimizing Print on an Ongoing Basis

With PrintOps, print optimization is no longer just a one-off exercise that's undertaken when you refresh your print fleet every three to five years. Instead, companies have access to a continuous stream of actionable insights so they can optimize the print environment on an ongoing basis, with comprehensive reporting that allows them to:

- Instantly visualize key organization-wide print metrics through modern and intuitive dashboards
- Drill down into granular data on jobs, users, printers, and more to identify outliers and potential cost savings
- Set targets for print metrics and track progress against them
- Gain actionable insights to support print-related optimization activities such as right-sizing and right-featuring the print fleet



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Future Trends in PrintOps

PrintOps is still in its early stages, and the emerging category is poised for rapid innovation in coming years. Looking to the future, PrintOps will leverage tools like AI, data lakes, and API integrations to redefine what's possible in office printing.

1. Generative AI

In the future, emerging AI tools will open the door to a range of new capabilities to drive IT efficiency and enhance the printing experience for users. PrintOps vendors are exploring opportunities to:

- Provide intelligent user self-service support that understands what the employee is trying to do
- Capture predictive data on devices to prevent issues before printers go down
- Identify patterns and prescriptive actions for reducing print and balancing device usage
- Develop smarter print policies to reduce waste and inefficiency

2. API Integration and Workflow Automation

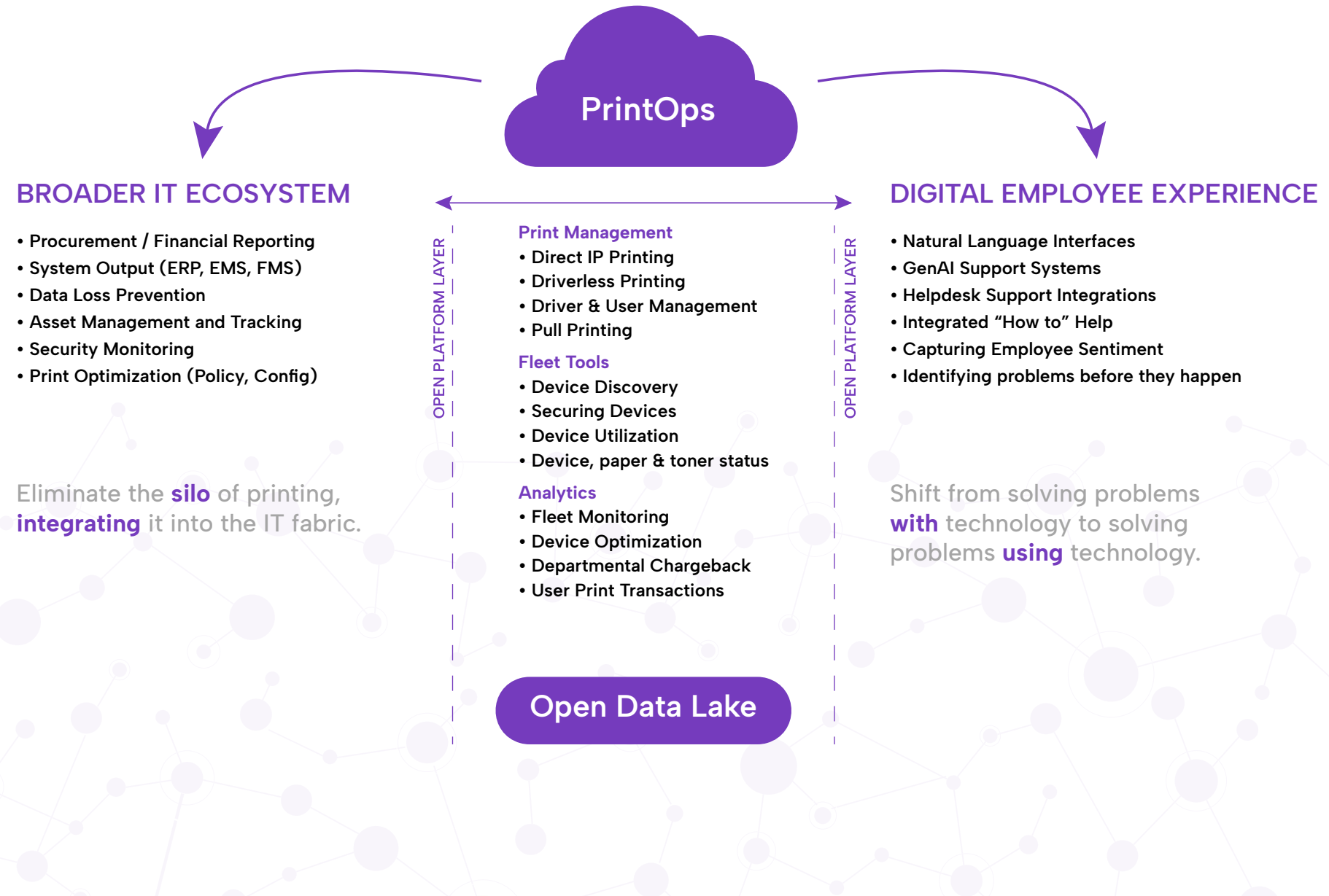
The continued use of API integrations is set to dramatically increase the connectedness between print and other systems. A primary objective of PrintOps is to open up print to the broader ecosystem, such as financial reporting systems, IT management platforms like ServiceNow, and security systems.

Today, IT usually finds out that a printer is down when a user tells them by submitting a help desk ticket. In the future, integrated PrintOps platforms will likely be able to self-detect that a printer is unavailable and automatically submit help desk tickets with the needed details. In addition, they will be able to alert users that a selected printer is not available before the print job is submitted.

3. Data Lakes

PrintOps platforms will collect robust data using data lakes, which can then be fed into AI models to optimize printing from both an IT and user perspective. IT leaders can also use the data to help organizations understand industry benchmarks by comparing print metrics against their peers and helping them set realistic improvement targets.

4. Evolution to PrintOps





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Key Considerations for Selecting a PrintOps Platform

In this section, we look at 10 critical questions to ask when evaluating which PrintOps platform is right for your business.

1 Is the Platform Cloud-Native?

Look for a cloud-native PrintOps platform rather than an on-premise solution force-fitted into the cloud—what the industry calls “lift and shift.” A retrofitted Windows server that’s run like a cloud application won’t deliver the same results in terms of scalability or a regular cadence of touchless, zero downtime updates introducing new innovations and capabilities as a PrintOps platform built natively for the cloud.

2 Can the Platform Deliver High Uptime?

One primary advantage of PrintOps is the ability to entrust the entire print experience to a partner who can provide highly-reliable printing globally, minimizing downtime so employees stay productive. A key element to look for here is a vendor with proven performance in delivering high uptime for global enterprises. Not every organization or print use case requires 99% uptime, but if you do, make sure the PrintOps vendor offers high-uptime service level agreements.

3 Will the PrintOps Platform Provide Proven Scalability and Support?

Especially for organizations with large, complex print environments, scalability and support are critical. A vendor with a demonstrated history of serving enterprise-scale customers will have the experience necessary to ensure the solution can truly support growth.

4 Is the PrintOps Platform Secure?

Does the PrintOps vendor take security seriously? How do they ensure the security of the platform? Have they achieved ISO 27001 certification to demonstrate that they follow best practices for information security management? Does the platform support zero trust security principles and support end-to-end data encryption even with manufacturers' Windows drivers? All of these are vital questions to ask when considering an integrated PrintOps platform.

5 How Does the PrintOps Platform Support Global Data Privacy Requirements?

Any PrintOps platform you choose should adhere to local data privacy requirements around the globe by controlling what metadata is collected, not collected, or hidden— and where secure release print jobs are stored in the cloud after job submission. You should be able to set data collection policies by region, store secure release print jobs in the user's region, and support region switching for mobile employees.

6 Does the PrintOps Platform Truly Support a Multi-Vendor Fleet?

The vast majority of large enterprises have print devices from multiple vendors. Your PrintOps platform should be vendor-agnostic, providing comprehensive visibility into the organization-wide fleet. The ability to deploy a truly universal print driver is also crucial to driving IT efficiency by reducing the number of drivers that need to be managed.

7 How Does the PrintOps Platform Support a Mobile and Hybrid Workforce?

The way employees work has changed, and it's evident that the mobile and hybrid workforce is here to stay. It's important for your employees to stay productive regardless of their location. Therefore, you need to ask whether the PrintOps platform you choose will help facilitate productivity in hybrid and remote work setups. PrintOps platforms should allow users to print from wherever they work.

8

How Does the PrintOps Platform Advance Your Sustainability Initiatives?

Transitioning from print management to PrintOps should open up new opportunities to improve sustainability performance. Essential capabilities to evaluate in this area include:

- Print policy enforcement to ensure compliance with print policies and change wasteful print habits by educating users on smarter printing practices.
- Secure release print workflows that eliminate abandoned documents by requiring users to authenticate print jobs at the device

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Does the PrintOps Platform Provide Advanced and Intuitive Analytics to Optimize the Print Environment?

Your PrintOps platform should offer comprehensive insights to optimize print across your organization on an ongoing basis. More than just how many pages your organization printed, the platform should provide a modern dashboard that provides an overall picture, and granular, drill-down details that reveal where, when, and how print was created and their associated costs to the organization.

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Does the Vendor Have a Proven Legacy of Continuous Innovation?

PrintOps is still in early stages as a market category that will likely see many new entrants in coming years. Look for a partner with a proven track record of innovation and the market knowledge and experience to lead the way.

6

Closing Thoughts

Siloed print management systems stand in the way of IT modernization. As companies continue the transition towards cloud-based IT operations, PrintOps platforms will become a key catalyst in driving digital transformation to improve IT efficiency, user experience, and security in print.

For those ready to make the switch, it's vital to find a vendor with a demonstrated track record of success in driving innovation and supporting large enterprises. With the right partner, organizations can confidently shift the focus in print from solving print technology problems to solving problems using PrintOps technology.

About Pharos

Pharos Cloud is the market-leading PrintOps platform designed for large enterprises. For more than 30 years, Pharos has been at the forefront of groundbreaking innovations in print, helping the world's biggest companies save millions while delivering proven reliability on a global scale.

Ready to experience the power of PrintOps? Schedule a demo today and discover how Pharos Cloud can transform your print environment.

Visit pharos.com/get-started to learn more.

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