VASION®

From Output Management to Output Automation

Transform Your Healthcare Organization

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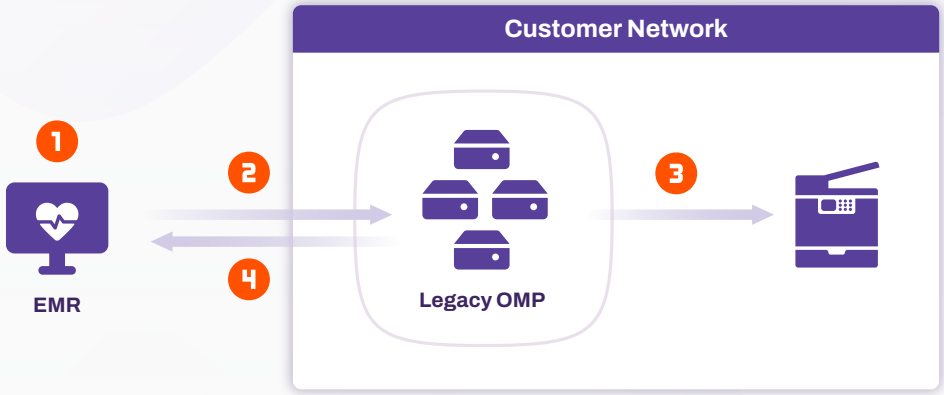
Introduction

Healthcare organizations invest thousands of hours building processes, training staff, and maintaining **Electronic Medical Record (EMR)** systems to ensure secure, accessible, and accurate patient health data. However, what often gets overlooked is how this data flows out of EMR systems into mission-critical printing like delivering prescriptions, authorizing medical services, managing patient charts and records, and accurately labeling vials and IV bags. The systems handling these processes are often outdated, siloed, and lack features required by modern organizations.

EMR systems, such as Oracle Health (known as Cerner) or Epic, can trigger direct IP print jobs, which are sent to legacy **Output Management (OM)** printing solutions. The role of OM is to route the jobs to specific pre-configured printers and verify the success of each job.

HOW LEGACY OUTPUT MANAGEMENT PRINTING WORKS



01 Print job created by EMR

02 Print job received by OM service running on a server

03 Print job routed to printer

04 Verification of success sent back

Healthcare organizations typically use OM software that is either a custom, in-house solution or an on-premise, third-party system. These systems generally require dedicated, redundant, on-premise servers, separate from those used for everyday end user printing and are managed by a specialized team. This setup can result in overcrowded server storage, multiple teams managing disconnected systems, expensive maintenance costs, and limited functionality that does not align with modern SaaS cloud-based innovation. Transform your healthcare organization and address these challenges with a solution that unites end user print and output management into a single platform, enables end-to-end automation, unifies reporting and management into a single interface, and simplifies infrastructure to save time, money, and resources: Vasion Output Automation.

Transform Output Management into Output Automation with Vasion

Vasion Print, built on the best-in-class SaaS **Vasion Automate (VA)** platform, has long been recognized as the world leader in serverless, centrally managed direct IP printing. Vasion Output Automation, also built on VA, leverages its no-code, dynamic rules and routing workflow engine, click-in integration fabric, and highly available architecture to deliver the only fully integrated out-of-the-box Output Automation solution on the market.

Vasion Output Automation eliminates the requirement for dedicated, on-premise servers or likelihood of resource-intensive custom-built development projects. It unifies both end user and EMR printing into a single platform, offering a holistic view and management through a single interface.

A unified platform extends your output management strategy beyond physical printing to include digital document delivery and process automation, ensuring that your mission-critical workflows are more streamlined, reliable, secure, and cost efficient than ever before. Some of the benefits and possibilities of Vasion Output Automation for healthcare organizations include:

Artificial Intelligence (AI) Integration: Utilize the power of AI for document interrogation, classification, HIPAA compliant data redaction, and much more.

Automate Paperless Document Processes: Automate document conversion and delivery to storage, workflows, and fax.

Document Archiving and Search: Automatically archive documents to digital storage (local or third-party providers) and search for them across all storage locations.

Zero Trust and Remote Printing: Using Zero Trust, send print jobs to and from remote facilities within your company network without expensive VPNs.

Unified Print Management and Reporting: Manage, configure, and analyze end user printing and EMR printing from a single user interface.

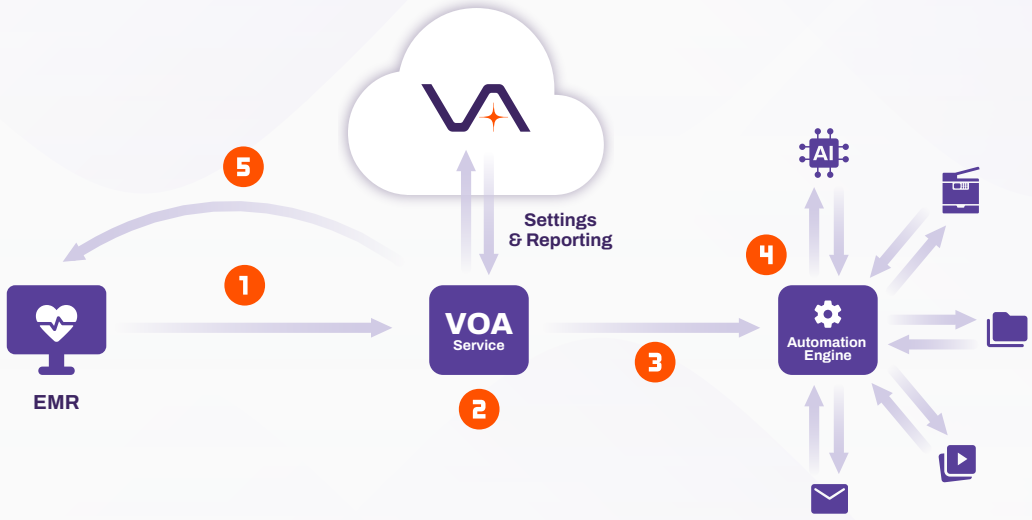
Reduced Infrastructure and Operating Costs: Eliminate print servers, reduce licensing costs for multiple systems, and minimize IT overhead.

High Availability: Create a highly available environment, ensuring the uptime of Vasion Output Automation services with automated print redirects on printer failure.

Why Vasion Output Automation is Built Differently

Unlike legacy OM systems that depend on resource-intensive, on-premise servers, Vasion Output Automation leverages a lightweight, self-updating service that runs on your network to efficiently process and route print jobs originating from your EMR system. This innovative design offloads complex logic processing and rule execution to the cloud, ensuring that print traffic remains localized and secure within your network. By utilizing a multi-tenant SaaS architecture, Vasion Output Automation provides unparalleled flexibility, enabling rapid adaptation and innovation in response to the dynamic needs of healthcare organizations.

HOW VASION OUTPUT AUTOMATION WORKS



01 Print job created by EMR

02 Print job received by VOA service

03 Begin orchestrated automation processes

04 Print job routed to configured output option

05 Verification of success sent back

This multi-tenant SaaS architecture not only supports seamless updates and scalability but also guarantees high reliability and redundancy, ensuring continuous and dependable service delivery. A cloud-centric approach minimizes the burden on local IT infrastructure, enhances security through centralized management, and fosters a more agile and responsive operational environment.

A NO-CODE RULES AND ROUTING ENGINE

By connecting to the no-code Vasion Automate workflow engine, Vasion Output Automation ensures that all print jobs follow the automation rules you have configured for each print job. Some of the possible automation rules include:

Automatic Redirection

Ensures print jobs are never held up due to printer failures or downtime.

User Reassignment

Reassign the printee of a job to another end user.

Print Prevention

Restrict the ability to print specific documents or information and protect sensitive information.

Set Paper Tray

Specify which documents should use a certain tray, overriding what was received from the backend system.

Duplicate Delivery

Distribute print jobs across multiple locations and have the same file printed on multiple printers.

Document Archiving

Automatically store a copy of the print job in a digital storage folder.

Round Robin Printing

Enable faster high-volume printing for increased efficiency or cost management.

Custom Workflows

Using the Vasion Automate workflow engine you can create your own custom rules, routes, and workflows.

CONFIGURABLE OUTPUT OPTIONS

After your print job has been processed using automation rules, Vasion Output Automation can deliver the physical or digital output to many different options, including:

- CENTRALLY MANAGED DIRECT IP PRINTING
- SECURE RELEASE PRINTING
- AI ANALYSIS AND PROCESSING
- DIGITAL STORAGE
- EMAIL INBOX DELIVERY
- VASION AUTOMATE WORKFLOW ENGINE

The Power of End-to-End Automation

The output from your EMR doesn't have to end with physical or digital delivery. Vasion Output Automation, part of the Vasion Automate platform, empowers you to orchestrate automations for complex business processes across all departments, software, and AI systems within your organization. The platform's AI-powered automation workflow engine uses click-in integrations, allowing data and processes to flow seamlessly through hundreds of available connections without writing a single line of code. Automating your organization to save time and money has never been easier.

Unparalleled Security

Vasion Output Automation is built on the cloud-native, highly available, fully immutable, AWS Well-Architected multi-tenant infrastructure of Vasion Automate, with certified security. It is designed to protect sensitive information and ensure that only authorized personnel have access. The key aspects of Vasion Automate security include:

Zero Trust Architecture

Vasion Automate employs a Zero Trust model, ensuring that every user and device is authenticated and authorized before gaining access. This model includes the use of Identity Providers (IdPs) for multi-factor authentication, enhancing the security of print automation and preventing unauthorized access.

Off Network Printing

Safely send encrypted print traffic across the internet to affiliate or remote clinics without the need for a VPN.

Secure Release Printing

Prevent HIPAA breaches by ensuring documents containing PHI are printed only when an authorized user is present and authenticated at the printer. This prevents confidential documents from being left unattended.

End-to-End Data Protection

Vasion Automate secures data in transit using TLS encryption and at rest with AES 256 encryption. This end-to-end protection ensures that sensitive information is safeguarded both during transmission and when stored.

Compliance and Auditing

Vasion Automate is compliant with ISO 27001:2022, SOC 2 Type 2, and FedRAMP High standards, and it includes comprehensive auditing and tracking capabilities. These features help healthcare organizations maintain compliance with regulatory requirements and provide a clear audit trail for all activities.

Role-Based Access Control (RBAC)

Granular and customizable permission and access profiles can be created so that users or groups can be restricted. This gives full control to adhere to your security policies.

To learn more, please visit Security and Privacy.

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Unlock the Power of Output Automation

As healthcare organizations strive to improve patient experiences, they invest heavily in processes, staff training, and best practices to maintain their EMR systems. Optimizing data output from these systems is becoming increasingly essential. Legacy Output Management printing solutions are inadequate in meeting these demands. This creates technological hurdles, incurs high costs, and limits organizations' ability to adapt to and leverage modern technologies.

Vasion Output Automation addresses these challenges by replacing outdated, expensive systems with a cutting-edge, cloud-based platform. It is built on the multi-tenant distributed architecture of Vasion Automate, which ensures high availability, redundancy, and security.

Vasion Output Automation streamlines workflows and reduces costs. It integrates seamlessly with leading EMR systems like Epic and Oracle Health (Cerner), unifying end user and EMR printing into a single, flexible interface with AI-powered automation and remote printing capabilities. Vasion Output Automation extends your output strategy beyond physical and digital document output by providing comprehensive end-to-end automation. This ensures maximum operational efficiency for your healthcare organization so you can deliver the best possible outcomes for the patients you serve.

Vasion is dedicated to being your long-term partner in automation. To discover how Vasion Output Automation can transform your healthcare organization's output management, schedule a demo with a Vasion sales representative today and see the difference for yourself.

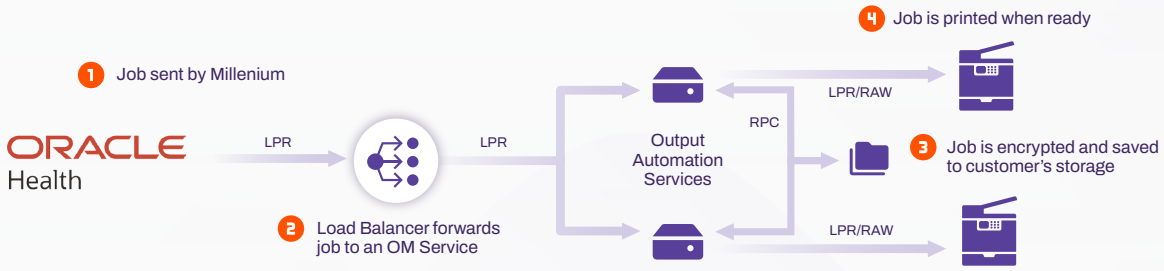
SCHEDULE A DEMO

APPENDIX #1

SYSTEM SPECIFIC WALKTHROUGH—ORACLE HEALTH (CERNER)

The Vasion Output Automation (VOA) service client receives print jobs via the Line Printer Remote (LPR) protocol from Oracle Cerner-hosted print queues. These queues are directed to the IP address of the VOA service client(s) running the Line Printer Daemon (LPD) service. If a load balancer is used in the organization's environment, it redirects the print job to an available service client, helping to distribute print traffic more evenly across the network.

When the LPD Service receives a print job, it examines the metadata to identify the user who originated the job and its intended destination printer. The job is then printed either via direct IP printing or held and released at a networked printer using Secure Release Printing over RAW, IPP, or LPR protocols. For printers at affiliate clinics, the job is processed using Off-Network Printing over port 443.



VOA also provides administrators with enhanced control over print queue changes in the event of print failures. Administrators can quickly redirect the IP address of the service client to a new print queue to recover from failures, without needing to contact Oracle Cerner for support.

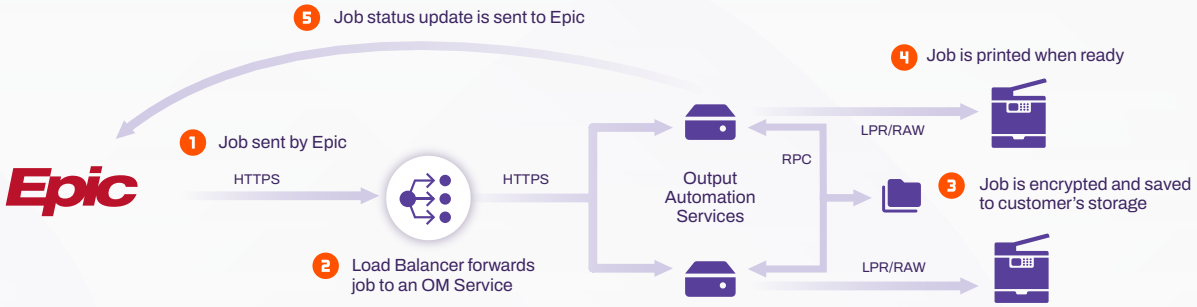
APPENDIX #2

SYSTEM SPECIFIC WALKTHROUGH—EPIC

Vasion Output Automation integrates with the Epic system through its Output Management API. Epic begins by creating a print job using the Epic Print Service. Administrators can configure the system to handle print jobs in one of two ways:

1. **Send the job to a print server:** The job is spooled, rendered by a driver, and then forwarded to the printer.
2. **Send the job to a pre-configured output system like VOA.**

In the second scenario, VOA's Epic Connector is used. Instead of rendering and printing the job through the print server, the Output Automation Service directly receives and routes the job to the printer. An Epic administrator sets a URL for routing print jobs, and the Epic Print Service converts the document into a PDF, XPS, or text file. This job is then encrypted and forwarded over HTTPS to the designated Output Automation URL. Optionally, the job can first pass through a customer's load balancer to distribute it to multiple redundant Output Automation service clients, thereby preventing single points of failure.



The VOA Epic Connector receives the job, analyzes the metadata, and temporarily stores a copy in the customer's shared storage for high availability. The VOA service examines the XML file included with the print job to obtain details about the destination printer, the user who initiated the job, print settings, and other relevant metadata for job delivery and reporting. If a service client fails during processing or holding of the print job, a redundant service client takes over.

Print jobs sent via direct IP printing are immediately forwarded to the printer. For Secure Release Printing or Off-Network Printing, the job is held on the service client until the user authenticates at the printer, at which point it is released and printed. Any stored redundancy data is then deleted.

APPENDIX #3

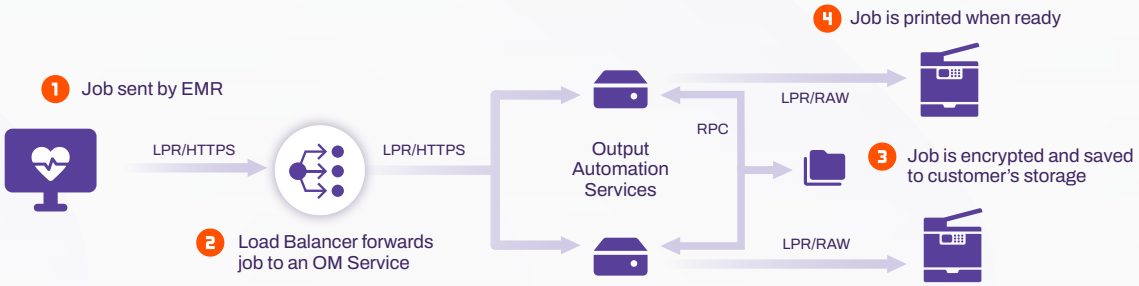
SYSTEM SPECIFIC WALKTHROUGH—EMR SYSTEMS

Some organizations use web-based cloud applications that lack native printing functions or the capability to connect with LPD/LPR. However, if the application can provide specific code elements, we can integrate the necessary information and connect to VOA via the HTTPS web service API.

The Vasion Output Automation API functions as an HTTPS web server, receiving print jobs from the originating application through web requests. These requests include metadata about the print job, such as the name of the destination printer, which is matched to a Vasion print queue. This information determines how to route the print job and what automation or settings to apply.

The Output Automation service client receives the job, analyzes the metadata, and encrypts and stores a copy of the job for redundancy until it is printed. Copies are deleted immediately after printing. Users can hold and release their print jobs either in the office or remotely, as long as domain or IdP usernames are included in the HTTPS request.

Additionally, Output Automation can receive LPR print jobs from any application that supports this standard. LPR is a widely used print standard, making Output Automation a flexible solution for the diverse environments found in healthcare systems.



APPENDIX #4

END-TO-END WALKTHROUGH

The Vasion Output Automation (VOA) platform offers all the tools needed to ensure proper delivery of output from systems like Epic, Oracle Health (Cerner), and others, tracking output from start to finish, regardless of its destination. There are three main stages in processing output: receiving, processing, and reporting.

Receiving Output

When first receiving output from an EMR or other system, the Vasion Output Automation (VOA) service client supports two methods: the API Print Service and the LPD Service.

API Print Service: Supports Epic and any other service that can submit print jobs via HTTPS. When Epic submits a file using its output API, it sends the file to VOA via a POST request, accompanied by an XML file containing metadata. This metadata specifies the destination printer, the user associated with the job, the number of copies, and any finishing options. VOA uses this information to process the file as it enters the workflow.

LPD Service: Supports Oracle Health (Cerner) and any other application capable of submitting print jobs via LPR. The LPD Service receives files using the LPR protocol and uses the "queue" field in the LPR print data to determine the job's destination queue, the user who submitted the job, and associated metadata. This information is used by VOA to process the file.

In both cases, a load balancer may be employed to distribute output traffic across redundant VOA service clients, ensuring high availability and balanced processing.

Processing

After a file is received by either the LPD or API Print services, it enters a workflow for processing. Once the destination queue is identified, the system checks for any additional settings, such as whether the job should be securely held, sent off-network, or if it is part of an automated process that needs to be forwarded to an appropriate Vasion Automate service.

Once the file is forwarded to a printer, email address, or workflow, or otherwise confirmed as delivered to its destination, the process moves to the reporting stage.

Additionally, the job is encrypted and saved to customer-hosted shared storage. If the original VOA service client becomes unavailable, a redundant service client can access the file from storage to continue processing the job.

Reporting

After the output reaches its final destination, a report is sent back to the EMR detailing the status of the job, where applicable. Additionally, Vasion Automate's reporting tools allow you to review the entire environment's activity, including which jobs succeeded or failed. You can also use these tools to reprint or redirect jobs after they have been processed.