

eBook

The Enterprise Leader's Guide to

Managing DevOps Value Streams



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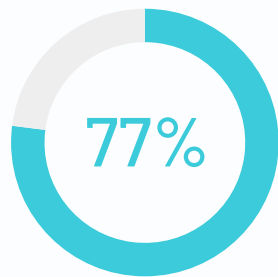
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Overview

Your enterprise is focused on a colossal task: aligning IT processes with business strategy to drive more digital value to your end users and customers. In the current climate, enterprises must continuously create enjoyable customer experiences by delivering quality solutions at speed and maintaining high performance and security of IT systems those solutions depend upon. The stakes for software development have never been higher.

IT can no longer operate in a vacuum. Enterprises need collaboration and visibility across developers, operations professionals and business decision-makers to ensure every effort is optimized toward delivering value to the customer. Many organizations are adopting methodologies like DevOps – which aims to shorten the development lifecycle and enable continuous delivery of software. With DevOps, software development is optimized, and silos are removed between Development and Operations to improve collaboration and delivery. But, still: how do enterprises ensure that these improvements to the software development life cycle directly map to more value for the customer?

Value stream management can fill this gap. It takes development and delivery processes, like those involved in DevOps, as well as the operational management of IT systems, and aligns it all with business objectives to ensure end users and/or customers receive the value or solutions they require, making isolated IT projects a thing of the past.



77% of respondents believe the role of the CIO is changing to be more business focused, aligning the business and tech sides of the organization.

ASG Technologies 2021
Survey Report: What's
Slowing Modernization?

What are Value Streams?

Let's start with the basics. A value stream is the sequence of events required to deliver customer value. For instance, imagine purchasing an apple at the grocery store. The value stream does not begin when the customer purchases the apple. It begins when the apple tree is planted, and from there includes watering, fertilizing, harvesting, preserving, packaging, transporting and displaying the apple. Finally, that apple is picked up by a customer, who pays for it and enjoys it. The same concept can be applied to IT – taking the steps required to deliver customer value and making them visible end to end.

Operational vs. Development Value Streams

In the world of IT, a value stream is either Operational or requires Development and Operations (DevOps).

An Operational value stream includes the people and sequence of actions required to deliver business value—created by development value streams—to an end user or customer. A practical (though simplified) example of

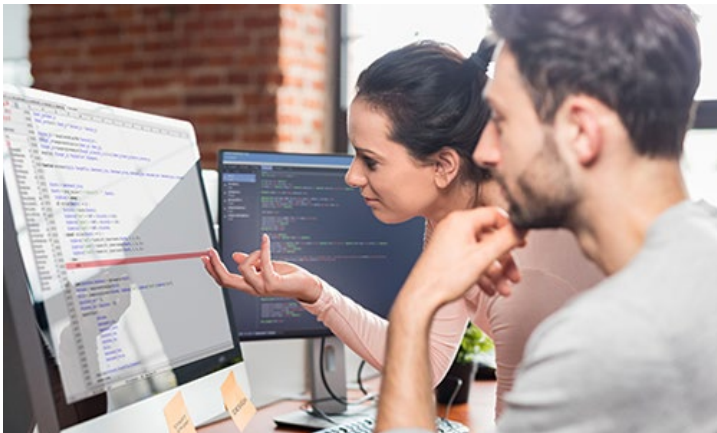
a typical operational value stream is the request from a consumer for an unsecured loan from a US bank, that might include steps of:

- Ingest request for unsecured loan
- Provide applicant with form requesting necessary financial, residency, income and other background information
- Obtain consumer credit report / score
- Process individual's details against internal credit evaluation standards
- Document eligibility decision & underwriting details (credit limit)
- Offer unsecured loan terms to applicant
- Obtain application agreement / commitment to loan terms
- Extend access to funds to consumer
- Issue initial statement to consumer

A Development value stream includes the people and sequence of actions required to develop solutions that provide business value and are delivered to end users or customers through Operational value streams.

Operational and Development value streams play distinct roles, but managing them separately perpetuates long-standing silos between people, processes and tools. DevOps can help your organization dismantle these silos to accelerate digital transformation, which leads to the importance of also managing your value streams through the lens of DevOps.

A DevOps value stream involves everything from development and delivery to production. It includes loops for Agile development cycles, uses many tools throughout the value stream and requires human intervention in several steps. For example: a company has a homegrown customer relationship management (CRM) system, and a salesperson wants to add a new field to the customer records. The value stream begins when that salesperson makes the request.



From there, it continues as:

- The ticket is created in a lifecycle management system like JIRA or Azure DevOps
- A developer creates the code
- They commit the code to a version control management system like Git, CVS, SVN or Visual Studio Team Services
- The code is analyzed, and security configurations are applied by products like WhiteSource, Synopsys, Micro Focus or Codacity
- The changes to the CRM interface are automatically tested with products like Selenium, or Xray
- The secure code is released into an infrastructure-as-code environment through products like Ansible, Chef and Puppet
- The code is deployed to production directly with products like ASG-Enterprise Orchestrator, Jenkins, Travis or Circle CI
- The environment and software are configured (e.g., with Kubernetes)
- The production environment is continuously monitored for security threats

The true end of the value stream is when the salesperson uses the new field, sees the value in the new functionality, and provides feedback.. Again, due to the length and complexity of this process, DevOps value streams will only run smoothly with the right visibility and management of them.

The Emergence of DevOps Value Stream Management

Gartner predicts that “by 2023, 70% of organizations will use value stream management to improve flow in the DevOps pipeline, leading to faster delivery of customer value.”¹

This begs the question, what are you using today to manage various value streams across your organization?

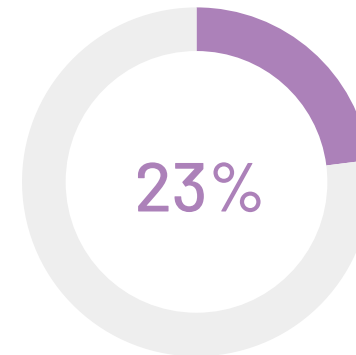
Moving from Workload Automation to Value Stream Management

Workload Automation (WLA) has been around for decades. However, it often exists in silos across an organization because various teams implemented different automation products over time. Your mainframe team likely selected a mainframe-based automation tool, the open systems group chose another, and inevitably an acquisition brought in a third (if not more). As a result, many companies do WLA, but they don't look at the entire value stream. When WLA is focused on specific needs at the business unit or technology level, enterprises lose the holistic picture of how and why they generate customer value.

In fact, maintaining focus on WLA poses three main challenges to enterprises operating in the digital-disruption economy:

1. Limited Collaboration

When enterprises focus on WLA, cross-team/ cross-platform collaboration remains limited. Teams continue to focus on their insular activities and business requirements, and struggle to bridge the gaps between culture, processes and tools. Without an end-to-end view of value streams, technology and organizational silos persist.



Almost one-quarter (23%) of respondents believe their organizations need value stream management to modernize their IT infrastructure.

ASG Technologies 2021
Survey Report: What's
Slowing Modernization?

¹Predicts 2021: Value Streams Will Define the Future of DevOps

2. Suboptimal Delivery of Value

In order to drive digital transformation, enterprises need to understand where business value is being generated within the organization, with what quality, at what speed and with what level of resource efficiency. Without this view, your organization can't optimize the flow of value across its complex silos. Ultimately, this underserves the business and its customers – and will cause your organization to struggle overcoming disruption as silos get in the way of agility.

3. Technical Limitations

Traditional WLA tools aren't usually built to solve problems related to collaboration or business objectives. WLA often requires an unreasonable amount of manual intervention for tasks such as auditing, security, compliance and delivery, hindering enterprises as they try to keep up with the fast-paced digital world.

DevOps value stream management (VSM) and Orchestration builds on the capabilities of WLA and contextualizes them within your enterprise's business objectives – specifically the pursuit to deliver more customer value. To truly optimize, your company must step back and look at the full value stream, from request for service to final delivery of the solution.

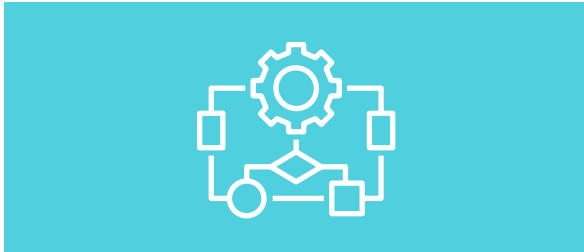
True Multi-Platform DevOps Value Stream Management

DevOps VSM helps resolve the challenges presented by siloed automation initiatives. To be effective, DevOps Orchestration must connect all platforms, from mainframe to cloud, for a true end-to-end view. For many organizations, the mainframe technology stack is especially integral to DevOps strategy. According to *ASG's 2021 Survey Report: What's Slowing Modernization?*, about half (49%) of respondents say most, if not all, of their core business functions still run on the mainframe. Fifty-eight percent of respondents say their organization has already adopted DevOps on the mainframe, and another 30% want to – meaning 88% of respondents see that mainframe is vital and here to stay. Additionally, 52% of respondents say their organizations have a hybrid cloud ecosystem that includes the mainframe, and another 34% want one that does. Conclusively, the IT infrastructure of the future includes the mainframe, which means DevOps VSM must include the mainframe, too.

However, ensuring end-to-end visibility has become increasingly difficult as value streams span on-premises, cloud-based and hybrid platforms. In a DevOps environment, especially, there are numerous complex platforms, process and tools interacting with and cooperating with each other. To deliver the best possible outcomes, enterprises need to use DevOps VSM thinking and employ a centralized automation platform to design, manage and automate value streams across existing technology and product silos.

The Core Tenets of DevOps Value Stream Orchestration

DevOps Value Stream Orchestration platforms help enterprises control their end-to-end value streams by deploying several key functions:



Automation

Successful automation can be boiled down into a simple statement: the task will automatically start when it should run. However, execution is not as simple. There are numerous questions IT pros must ask to ensure that a task is automated correctly. When should the task run? Are there variables affecting when it should run? What files need to exist? Should other tasks be completed first? Does this task take up resources (like processing power) that would prevent other tasks from running? DevOps VSM must provide good answers to each of these questions for the value stream to run smoothly.

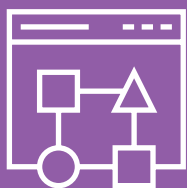


Orchestration

Orchestration is closely related to automation, though it goes well beyond coordinating simple dependencies between two tasks. Orchestration connects the complex interrelationships that enable the automation of a complete value stream. Think of orchestration as a symphony conductor. While each instrument (automated task) is beautiful, the symphony (a value stream) provides a full sound and a beautiful combination that no single instrument can achieve.

When it comes to DevOps orchestration, the process must make way for several steps involving human intervention. For instance, when a user requests a software change, that

should automatically create a ticket in Jira and then automatically notify a developer. That developer must take action and write code as part of that value stream. When the code is committed to a repository, automation can pick up again. Orchestration must be sophisticated enough to address both the technical intricacies of task-level workflows and the high-level view of value-generating processes spanning several technology stacks. When done right, orchestration should improve workload flexibility, allowing enterprises to shift workloads from the mainframe to other platforms and back again, and support faster time to value.



Visualization

The automation and orchestration of DevOps value streams are powerful – but how are data engineers supposed to remember how each process was choreographed? The visualization of automated workflows is a critical part of successful VSM. Good visualization helps to re-orient data engineers, so they can understand the impact of new changes and properly make adjustments. When a critical error occurs in the workflow, engineers will have insight into how long it will take to fix and how it will impact the downstream processing. This visibility helps to not only address the problem but also provides answers when managers come knocking.

Visualization is also essential for auditing value stream automation. If a value stream looks like a bowl of spaghetti – and sometimes they do – the enterprise can take steps to optimize the processing. Using the right tool, engineers can design and visualize value orchestration via an intuitive, browser-based experience. With this ease-of-use, enterprises can optimize thousands of workloads across value streams, increasing the value they deliver to customers at scale.

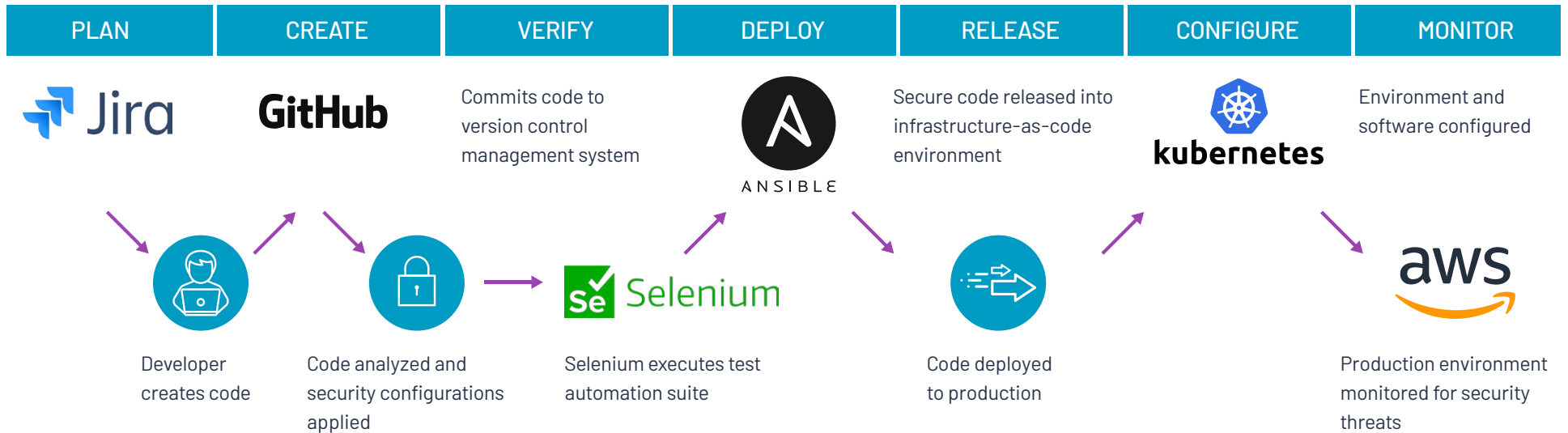


Integration

Value Stream Orchestration platforms integrate with best-of-breed DevOps solutions, including Kubernetes, Docker, Ansible, Chef, Puppet, Terraform, Selenium, ServiceNow, etc.

These platforms continually expand their ecosystem of integrations to provide flexibility to customers, each of whom have different preferences and needs that influence how they structure their DevOps toolchains. Because DevOps is a philosophy – versus a single solution – it comprises a series of tools. Each tool is used at different stages of the software development life cycle, making product delivery faster and more efficient. When enterprises deploy several open-source DevOps tools based on their needs, it creates a DevOps toolchain. It's critical that Value Stream Orchestration platforms can integrate with DevOps toolchains, so enterprises can leverage all the rich capabilities available in DevOps tools (which traditional WLA solutions lack).

ASG-ENTERPRISE ORCHESTRATOR



Governance

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Reporting and Analytics

The goal of DevOps is to make improvements – from speeding up time to market, to reacting to changing environments, to streamlining processes. Therefore, reporting must be central to any DevOps Value Stream Orchestration platform. Enterprises need visibility into the value stream to ensure each step of the process is working optimally. The solution should include a dashboard with the real-time status and progress of each value stream, showing where there are failures, where areas are running slowly and where there is room for improvement. With this view, administrators can correct errors impacting execution and deliver value faster.



DevSecOps and a Single Point of Control

A fully automated DevOps environment should be orchestrated from a single point of control. Along with several benefits, this setup introduces some risk, as the DevOps Value Stream Orchestration platform has privileged access to sensitive systems in the environment. Consequently, there is a growing focus on “DevSecOps,” which builds security in at every step. Tools such as Whitesource, Fortify or Synopsys can be used to maintain quality and standards and provide inspection and detection capabilities from source code through executable delivery.

Without a DevSecOps perspective of the software development life cycle and value streams, companies are more vulnerable to cyberattacks and fraud, which can compromise the organization and its customers. There is no shortage of cybersecurity horror stories. Recently, one organization with tens of thousands of customers had spyware inserted in its code right at the point of compile/build. This breach went undetected, and as a result, thousands of customers were infiltrated by the spyware from a simple product update. DevSecOps ensures that security is part of the development process to automatically detect any changes from source to destination.

Optimizing DevOps Value Streams Spanning Mainframe to Cloud

While efficiency, speed to market and continuous software delivery are all important outputs of a DevOps approach, the end game must be elevated. To compete in today's market, your enterprise must view everything through the lens of creating customer value. By shifting away from managing development and operational processes separately using siloed WLA solutions and other means, and shifting towards managing these processes as DevOps value streams, your enterprise can unite isolated silos of progress and create lasting, positive change for your business and customers.

It's especially important that you look at your entire IT environment, from mainframe to the cloud, and identify where DevOps can deliver value. Specifically, enterprises can't overlook the importance of the mainframe technology stack in their DevOps value streams. *According to ASG's 2021 survey report*, enterprises are moving multitudes of commodity workloads/ systems of engagement – e.g., payroll, email, HR, etc. – to the cloud because it's more cost-effective and efficient. However, they are keeping systems of record that provide a competitive advantage (e.g., customer data, business IP, enterprise applications based in COBOL, PL/1, Assembler, etc.) on the mainframe, because they are safer on a more reliable, available, serviceable and economical platform such as the mainframe.



As more customer-facing innovations, such as mobile banking apps, rely on the mainframe, it is vitally important that enterprises apply DevOps to these value streams. Hybrid cloud is the IT infrastructure of the future. If the mainframe is left behind, so is potential value that could be delivered to the customer.

With the right value stream orchestration solution, enterprises can manage automation, orchestration, visualization, integration, governance and reporting all from one console. ASG-Enterprise Orchestrator offers workload automation, value stream visibility and DevOps toolchain coordination enterprises need to optimize the creation and delivery of end-user and customer value. It delivers control from a single view and choreographs work across a broad spectrum of technology stacks and software packages, spanning capabilities from mainframe to cloud.

In such a competitive market, you need every facet of your organization working together toward a common goal: delivering immense value to your customers. DevOps value stream orchestration ensures your development and operations efforts deliver the biggest return possible at every step of every process.

About Rocket Software

Rocket Software partners with the largest Fortune 1000 organizations to solve their most complex IT challenges across Applications, Data and Infrastructure. Rocket Software brings customers from where they are in their modernization journey to where they want to be by architecting innovative solutions that deliver next-generation experiences. Over 10 million global IT and business professionals trust Rocket Software to deliver solutions that improve responsiveness to change and optimize workloads. Rocket Software enables organizations to modernize in place with a hybrid cloud strategy to protect investment, decrease risk and reduce time to value. Rocket Software is a privately held U.S. corporation headquartered in the Boston area with centers of excellence strategically located throughout North America, Europe, Asia and Australia. Rocket Software is a portfolio company of Bain Capital Private Equity.

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