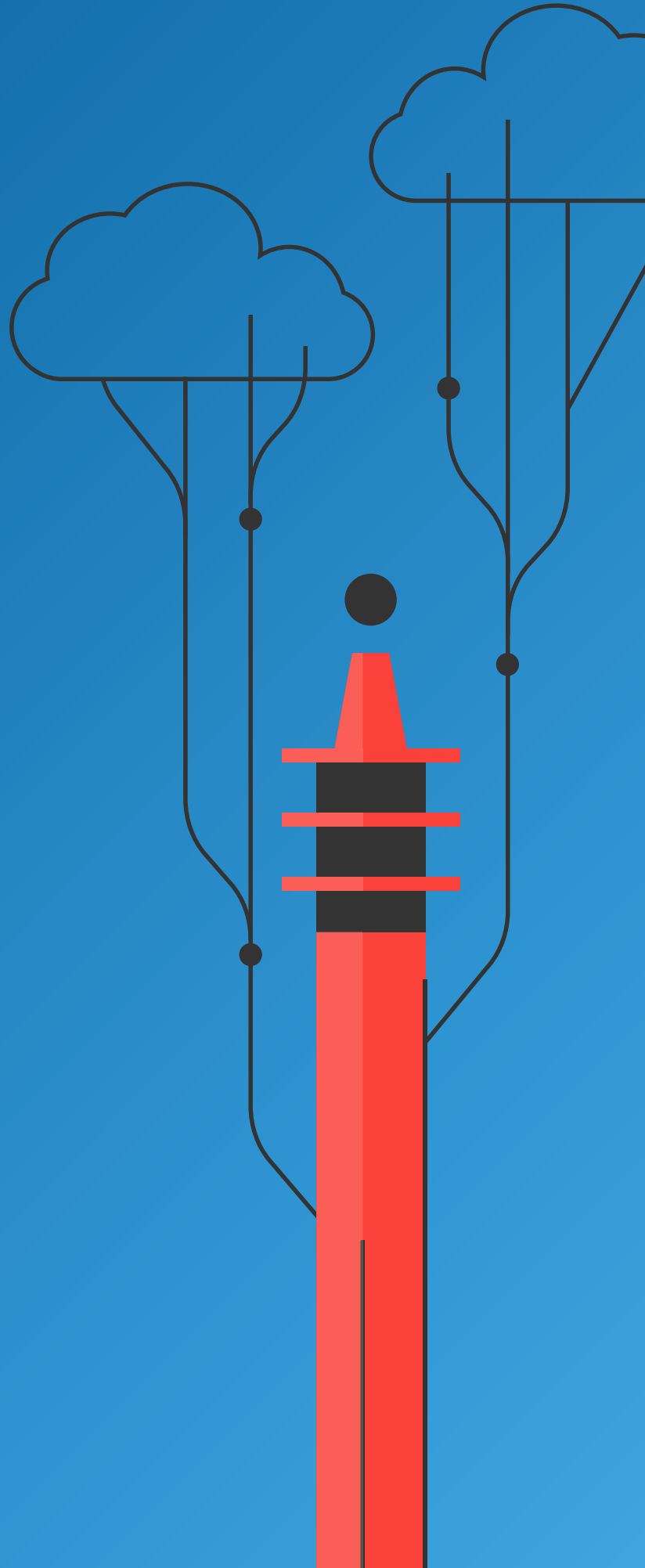


PLUTORA

**Accelerate
enterprise
software
delivery** simply
with complete
visibility,
oversight and
compliance



White Paper
Stay competitive
throughout your
unique digital
transformation
journey.



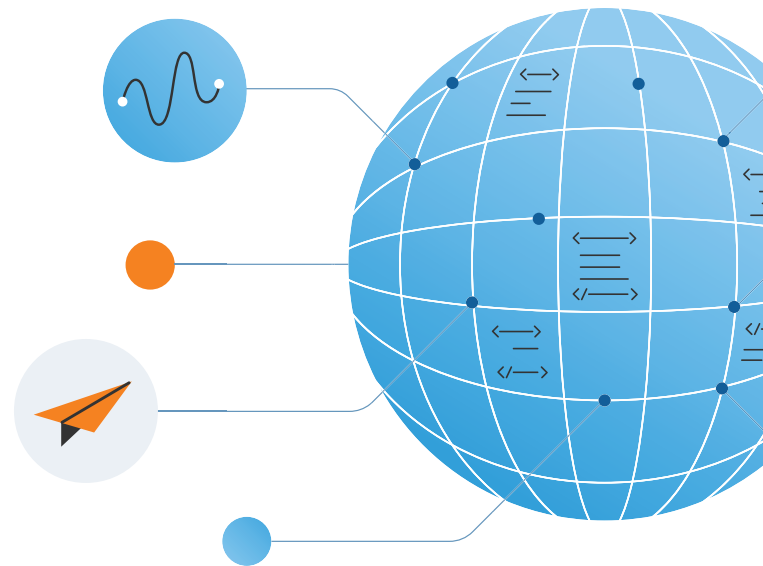
Overview

Today enterprises need to drive digital transformations or be left behind by disruption. Customer expectations and increasing competition have pushed best practices towards continuously delivering and improving customer-centric software. Shorter, higher quality release cycles are needed to continue to satisfy customer demand.

Plutora makes it possible for enterprises to navigate these fundamental changes and stay competitive throughout their digital transformation journey. Plutora enables enterprises to bring lean software development principles to the portfolio level by connecting each existing toolchain, process, and governance requirement under one SaaS Value Stream Management Platform.

Plutora is a management layer above every software delivery process across the enterprise, creating complete visibility and control to identify constraints of current process with the existing tools or methodologies to optimize them toward the desired state.

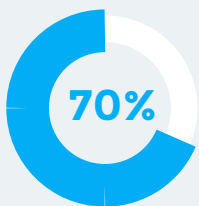
Plutora provides real-time metrics and AI-powered predictive insights to inform decision making and facilitate policy implementation at the global or local levels. With Plutora, enterprises seamlessly execute application releases throughout the portfolio with Management & Orchestration features that centrally manage and coordinate key activities and resources across existing toolchains.



Barriers to advancing enterprise software delivery

Enterprise software delivery is inherently complex. This is not only due to the software delivery workstreams that need to be coordinated but also to the diversity of tools, methodologies, and governance requirements, as well as the existing technical debt and pipeline interdependencies present in most enterprises. Yet, it is critical for enterprises to clarify the convoluted enterprise software delivery process and move it toward industry best practices.

This business need has fueled enterprise investment into their digital transformations, totaling **\$1.3 trillion in 2018**. Despite the high stakes, 70% of digital transformations fail to reach their goals because digital transformations are fundamentally different than most initiatives.



70% of digital transformations fail to reach their goals

Plutora identifies the current shortcomings of the existing processes and methodologies, guiding enterprises through their unique digital transformation journey and helping them overcome the **major software delivery challenges facing enterprises today:**

1. Fragmentary visibility within release pipelines

Though individual teams have access to the real-time status of their assigned work, gaining visibility along the entire application delivery pipeline from concept to cash is a formidable challenge. Typically, release pipeline data is stitched together with manual handoffs and tracking methods that populate project planning tools. This piece-meal reporting lacks the essential data leaders need to understand the current state of business initiatives in upcoming releases, such as the timeline from idea to production and release risks. Unable to pinpoint constraints, leaders are forced to act on partial and dated information. This leads to misaligned stakeholders, which enables the

uncontrolled proliferation of siloed scripts and automation and constrained change lead times.

2. Minimal coordination and governance across application release pipelines

In large enterprises, multiple, parallel release pipelines collectively form an application's delivery pipeline. Each of these disparate workstreams incorporates different methodologies, technologies, milestones, geographies, and artifacts. Enterprises have invested heavily in CI/CD tools to automate individual release pipelines and bring end-to-end visibility.

However, without any common structure connecting artifacts across release pipelines:

- 1 **Governance is intractable**
- 2 **Integrity is hard to maintain**
- 3 **Convergence of release pipelines into production is unreliable**

As microservices continue to expand, application functionalities become modularized and loosely coupled across teams making feature delivery increasingly difficult to track.

Leaders must rely on laborious and error-prone manual processes to coordinate application development and delivery across pipelines, restricting delivery frequency and change failure rate improvements.

3. Fragile portfolio oversight and management

Enterprise application releases depend on other teams, applications, and shared resources for successful development and delivery. At the portfolio level, tracking and coordinating these activities is essential for improving a feature's time-to-value for customers. However, each application release has its own delivery date, requirements, and dependencies. Further, as microservices continue to expand throughout portfolios, application functionalities become modularized and loosely coupled across teams making feature delivery increasingly difficult to track.

Stakeholders need to understand where epics are in the life cycle and what workflow items are completed to coordinate dependencies and avoid resource conflicts. With these capabilities, stakeholders would have the visibility and oversight to improve multiple metrics including deployment frequency, change lead time, change failure rate, and mean time to recover.

4. Unreliable frameworks for continuous improvement

The application portfolio and the associated application release pipelines are unique to every enterprise. The tools, methodologies, development strategies,

culture and many other factors within organizations impact both the baseline and desired state of software delivery.

Additionally, throughout the digital transformation journey, key performance indicators (KPIs) can shift between milestones. Even with automated tools, there is still uncertainty for IT leaders, business leaders, and front-line managers as to which metrics they should capture as KPIs. Though enterprises look to gather more data to combat this uncertainty, this often results in low-value data inundating stakeholders and exacerbating decision-making difficulties. Leaders and managers require real-time, actionable insights from each effort to make the informed decisions that drive continuous improvement.

Stakeholders need the visibility and oversight to improve metrics like:



Deployment
frequency



Change
lead time

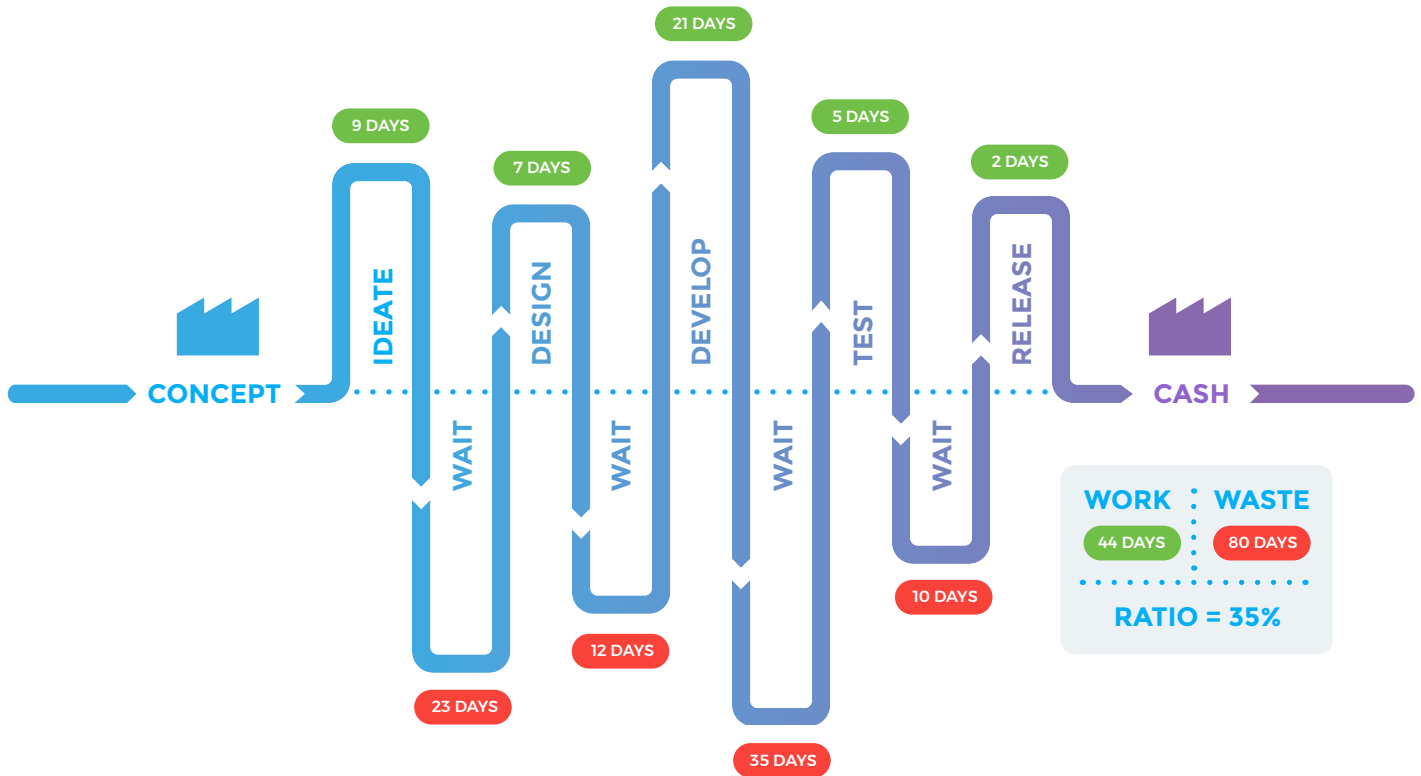


Change
failure rate



Mean time
to recover

Value Stream Management: The key to advancing enterprise software delivery



The software delivery value stream

An application's value stream is the flow of a product feature from concept to cash. One value stream can involve multiple application release pipelines, each with a different toolchain, methodology, and requirements. Application value streams can also have dependencies on other teams, applications, services, or environments.

Value streams apply to all applications, making it the fundamental metric for understanding how value is delivered to customers. This universality enables value stream optimization to improve application development and delivery regardless of methodology, tools, geographies, interdependencies, or team structures. By focusing on the application value stream, IT leaders leverage KPIs that measure the end-to-end process and not any particular technology, methodology, or proxy values.

Value stream mapping allows you to visualize the flow of features to identify constraints, such as manual handoffs, and activities that generate value.

The current state of value stream mapping

Value stream mapping identifies all the steps in an application's development and delivery. It allows you to visualize the flow of features to identify constraints, such as manual handoffs, and activities that generate value.

The standard value stream mapping process is done in-person with team leaders discussing the steps of the process and mapping the value stream with sticky notes or a whiteboard. While this does provide a benchmark for an application's value stream, it has significant shortcomings. The timing between steps is typically estimated as there is no system capturing that data.

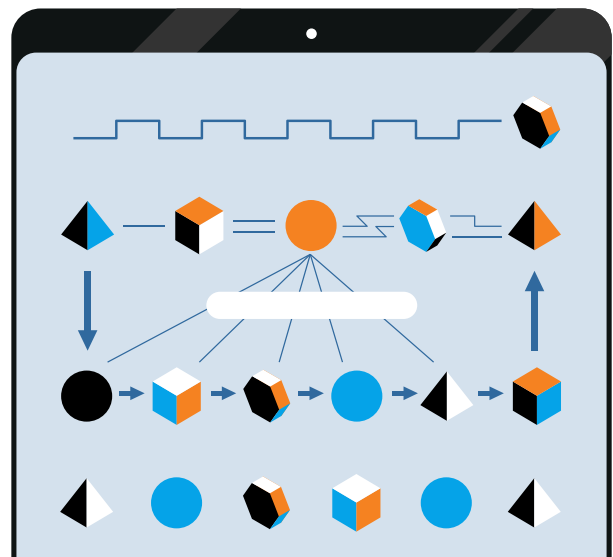
Much like the manual data collection along a release pipeline, these value stream maps are an incomplete snapshot that estimate a continuous and fluctuating process.

Accelerate enterprise software delivery

Managing software delivery value streams

Popular software delivery KPIs such as deployment frequency, mean time to recover, lead time for changes, and change failure rate track essential performance outcomes. But they are only outcomes and do not provide insights into software delivery processes to improve these outcomes.

On the other hand, value stream maps capture the process of an application feature from concept to cash. They identify process constraints and efficiency opportunities to improve software delivery KPIs. With each effort, updated value streams present new insights for improvement. Value stream management extends to the portfolio-level as the remaining constraints become dependencies on other applications or teams. These constraints need to be addressed through larger organizational and architectural changes.



This can include changing team structures from projects to products to create a consistent value stream, transitioning tightly coupled systems to be loosely coupled to create a more efficient release pipeline, or adopting agile or DevOps methodologies. This confluence of local and global optimization is the power of value stream management. By tracking individual metrics, leaders can continually identify incremental opportunities to improve software delivery performance throughout their digital transformation journey.

Adopting value stream management fuels a culture of continuous improvement from developers to front-line managers to IT leaders. Value stream management empowers individuals to implement small, localized improvement experiments that enable robust impact measurements and inform decisions to either expand the test or to design the next improvement experiment. Empowering the entire IT team to create improvement experiments drives the enterprise sustainably through the complexity of digital transformations.

Process constraints can be addressed through these organizational changes:



Changing team structures from projects to products

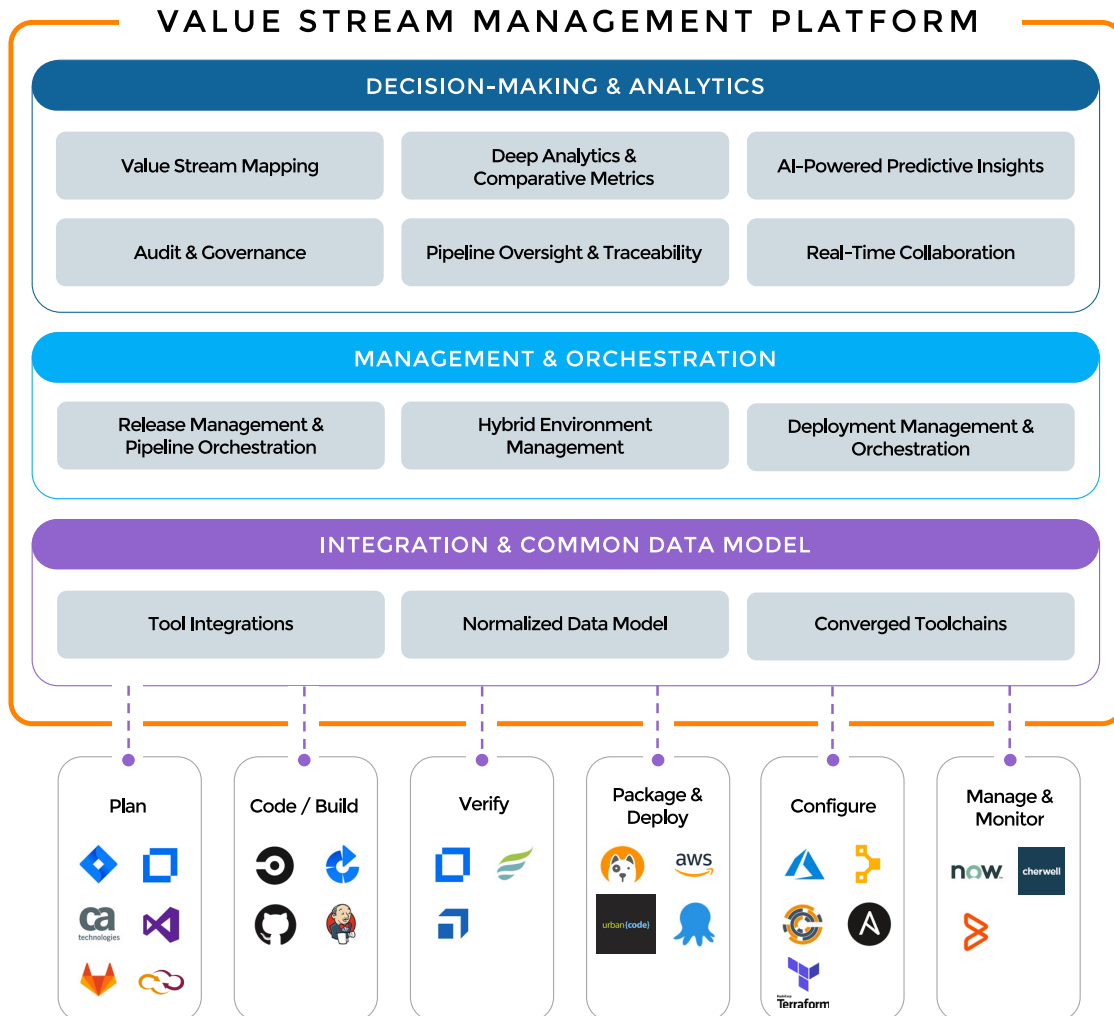


Transitioning tightly coupled systems to be loosely coupled



Adopting agile or DevOps methodologies

Plutora's Value Stream Management Platform



Built to support the complexity of enterprise software delivery, Plutora is the only platform that provides live portfolio-wide metrics and analytics to guide continuous improvement in application delivery processes. Plutora creates a management layer unifying an enterprise's existing toolchains and processes to create

complete visibility and control of the portfolio. From intermixed methodologies, disparate toolchains, multiple release processes, and substantial governance requirements, Plutora streamlines policy implementation, execution, resource coordination and end-to-end oversight.

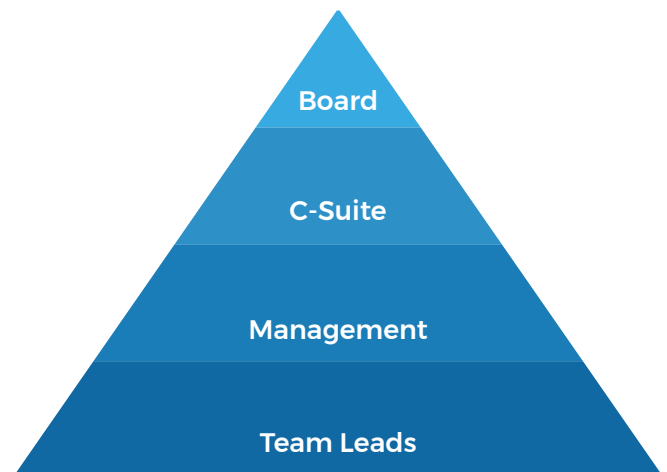
In today's fast-paced, and increasingly sophisticated software delivery life cycles, it is fundamental in every role to have access not only to data but also its insights. Throughout an enterprise, each role requires specific information, accessed securely through Plutora with role-based SSO. IT leaders require high-level, portfolio-wide reporting while front-line managers need detailed, release-specific reports for daily decision making. Through its multiple features including Decision Making & Analytics, Management & Orchestration, and Integration & Common Data Model - the Plutora Value Stream Management platform provides actionable information and control needed throughout the enterprise to continually deliver higher quality software faster to its customers.

It is fundamental in every role to have access not only to data but also its insights.

Decision Making & Analytics

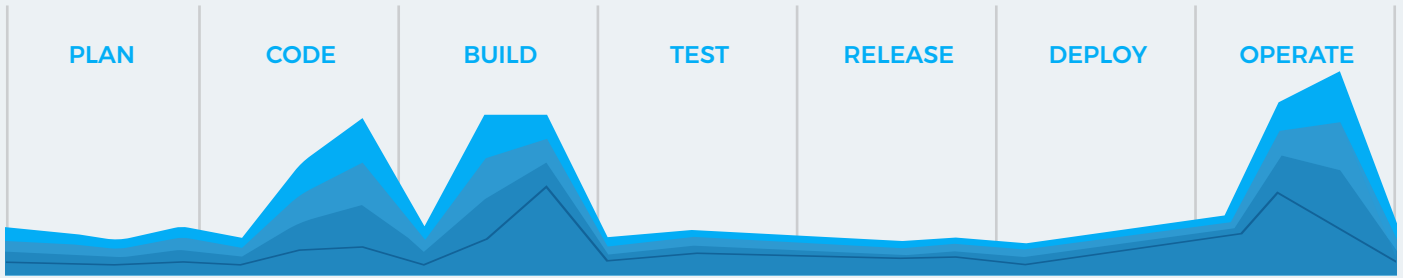
The Decision Making & Analytics features power an enterprise IT culture of continuous improvement with real-time success metrics of local and global improvement decisions while creating

Role-based information maximizes oversight, control & alignment



predictable software delivery processes. Beginning with mapping value streams to identify the time-to-value from idea to delivery, Decision Making & Analytics provides the role-based information needed to understand the status, key performance indicators and improvement opportunities from local to global levels of the portfolio. Decision Making & Analytics enables portfolio-wide digital transformation management with oversight and control of release activities, processes, and pipeline coordination combined with complete visibility, empowering cross-team collaboration to coordinate efforts and quickly resolve issues and RACI workflows to enable real-time stakeholder engagement and alignment.

Value Stream Mapping captures process steps from idea to delivery, providing performance baselines across the portfolio



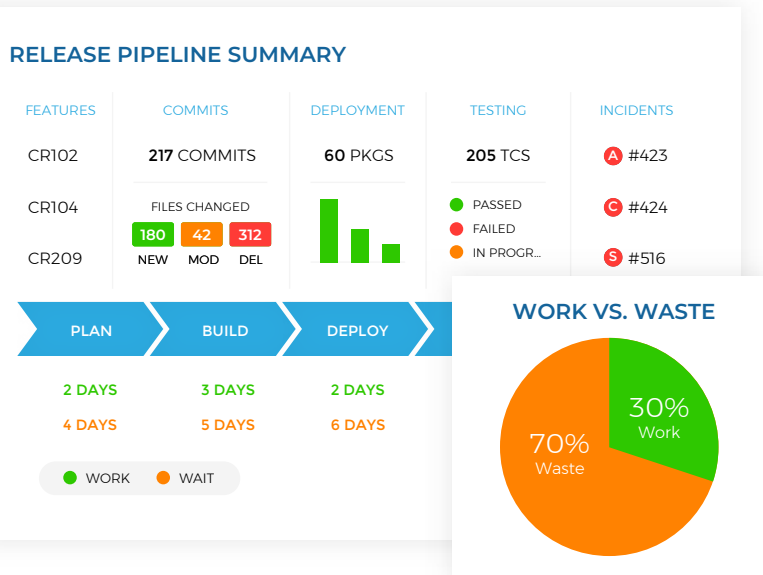
1. Value Stream Mapping

Value Stream Mapping identifies constraints and time-to-value by capturing process steps from idea to delivery, providing performance baselines across the portfolio. Value stream maps help visualize process inefficiencies and to quickly evaluate improvement opportunities, enabling the optimization of development pipelines independent of technology or methodology.

2. Deep Analytics & Comparative Metrics

Deep Analytics navigate the increasing volume of enterprise software delivery data that can inundate IT leaders and managers by extracting value from big data sets to provide actionable information.

Drive informed decision making with Deep Analytics that consolidate release, quality and deployment data points and interactions across tools into application release and portfolio performance knowledge. Focus on outcomes and leading indicators to evaluate IT performance by tracking key performance indicators (KPIs) trends to tie local decisions with end-to-end management. Support localized decisions within the broader context of global measurements to ensure local optimization hasn't created global degradation and evaluate scaling local decisions globally.



3. AI-Powered Predictive Insights

AI-Powered Predictive Insights inform decision making with “what if analysis.” Integrating the outcomes of efforts across the portfolio into the Plutora AI continually refines software delivery insights. From identifying local change impacts on other releases and downstream dependencies to evaluating cost reduction opportunities, predictive insights build reports that show progress against identified goals.

4. Audit & Governance

A. Governance

The Plutora platform allows enterprises to build quality into release processes by involving compliance teams in defining release activities. Governance gates control the criteria for an effort to proceed such as quality, security, and performance tests that enforce software delivery life cycle decisions and ensure application compliance as the delivery frequency increases. Enterprises are able to define and track the status of key activities of both internal team members and external IT teams, milestones and stage gates during release execution.

B. Release Audits

Release Audits facilitate post-implementation reviews, supporting

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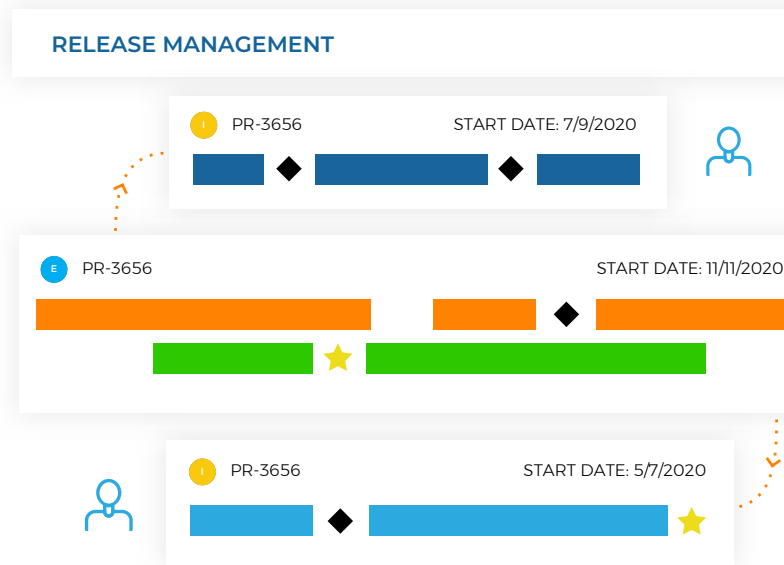
the continuous improvement of release processes. With Plutora, maintain governance and compliance while accelerating change in the software development life cycle with automatically generated release histories. These fully auditable release histories provide complete traceability of release artifacts and changes within and across projects from original business requirements to production release, such as deployment activities including start time, end time, and relevant notes.

The Release Audit feature helps enterprises to improve coordination efforts by reviewing the outcomes of each release with summarized activities, and comparisons of planned and actual release dates.

The screenshot displays the 'RELEASE HISTORY' section of the Plutora platform. At the top, there is a search bar labeled 'Live Search' and a filter icon. Below the search bar, there are three filter options: 'Added', 'Modified', and 'Deleted', each with a checked checkbox. The main content area shows two entries for release history items. The first entry is for 'Millard Charney' and includes fields for 'RELEASE:', 'COMPANY:', and 'STATUS:'. The second entry is for 'Carey Mcfarling' and includes fields for 'ACTIVITY:', 'PACKAGE:', and 'DUE DATE'. A vertical line on the right side of the entries is marked with a green plus sign and a red minus sign, indicating expandable and collapsible sections.

5. Pipeline Oversight & Visibility

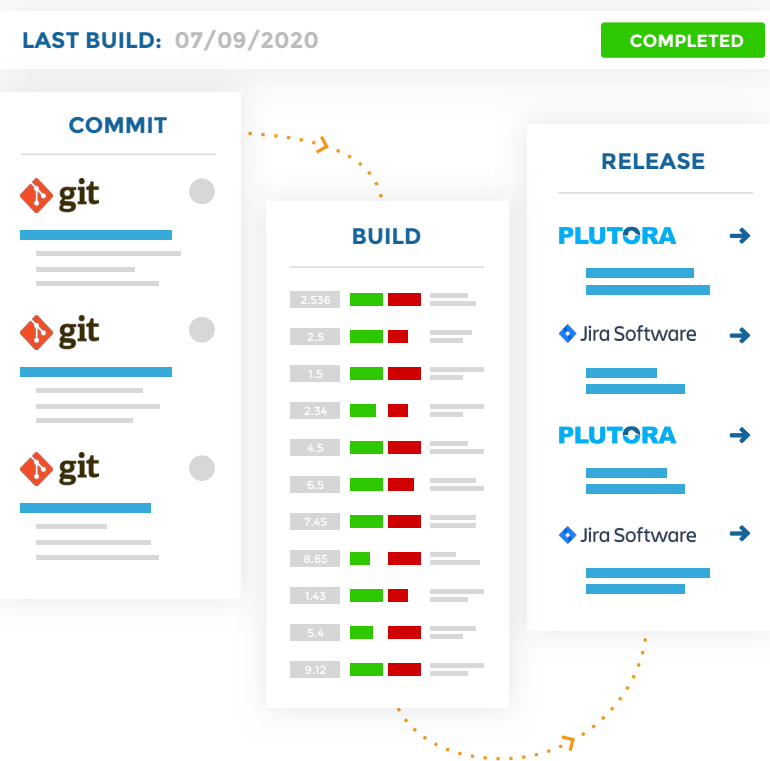
With value stream management, gain oversight of the portfolio's CD pipelines, with notifications and interactions between stakeholders as features move through the software delivery lifecycle. End-to-end visibility of the initiatives, epics, and user stories flowing through CD pipelines and their links to environments and associated builds informs stakeholders of the status of value delivery throughout the portfolio. Issues identified through this oversight process use these metrics as launch points to further examine and evaluate risks such as build readiness and release readiness to further evaluate CD pipelines and any risks to deployment success.



6. Real-Time Collaboration

End-to-end visibility enables real-time collaboration across teams. This collaboration facilitates concurrent work across teams to drive operational efficiency by creating transparency between self-directed teams.

The Plutora value stream management platform allows enterprises to approve policies by defining roles and responsibilities and the associated workflows. Workflow milestones and gates can trigger automated RACI notifications of due dates, missed deadlines or other workflow milestone elements to ensure that issues within the portfolio are addressed promptly.



Management & Orchestration

The Management & Orchestration features reduce the time-to-value and cost of application changes with Management features that define and organize process requirements and Orchestration features that simplify complicated process execution.

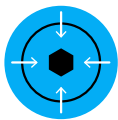
Today's enterprise application delivery processes often include mixed methodologies, heterogeneous technologies, and pipeline interdependencies. Plutora provides a complete solution for managing the complexity of enterprise application delivery portfolio-wide, independent of method/ology or technology.

Management features create a single source of truth for application development and delivery processes, avoiding the risk of process governance criteria and configurations drifting from each other while improving application change reliability. Orchestration features provide process execution coordination, visibility, and monitoring to reduce release lead times and costs of application changes. Management & Orchestration drives enhanced collaboration and coordination for all the key elements of a successful release – the timing, composition, status, and notifications to stakeholders – eliminating the need to piece together the shape of a release from multiple, unreliable sources.

Key elements of a successful release:



Timing



Composition



Status



Notifications

With Plutora, enterprises can achieve seamless release execution by coordinating the execution of complex enterprise release processes that include interconnected activities across multiple pipelines.

1. Release Management & Pipeline Orchestration

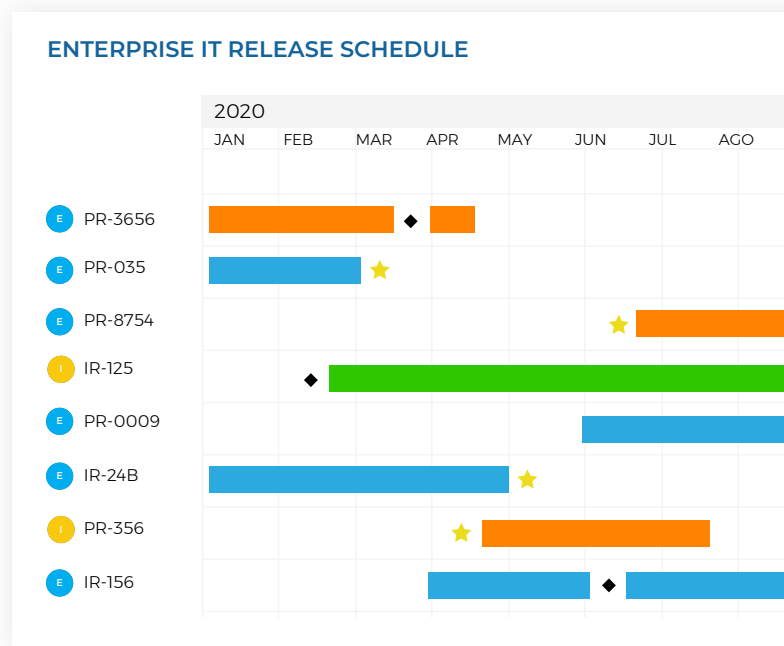
Release Management & Pipeline Orchestration enables release scoping, scheduling, templated processes, and monitoring to manage risk and optimize releases across the enterprise.

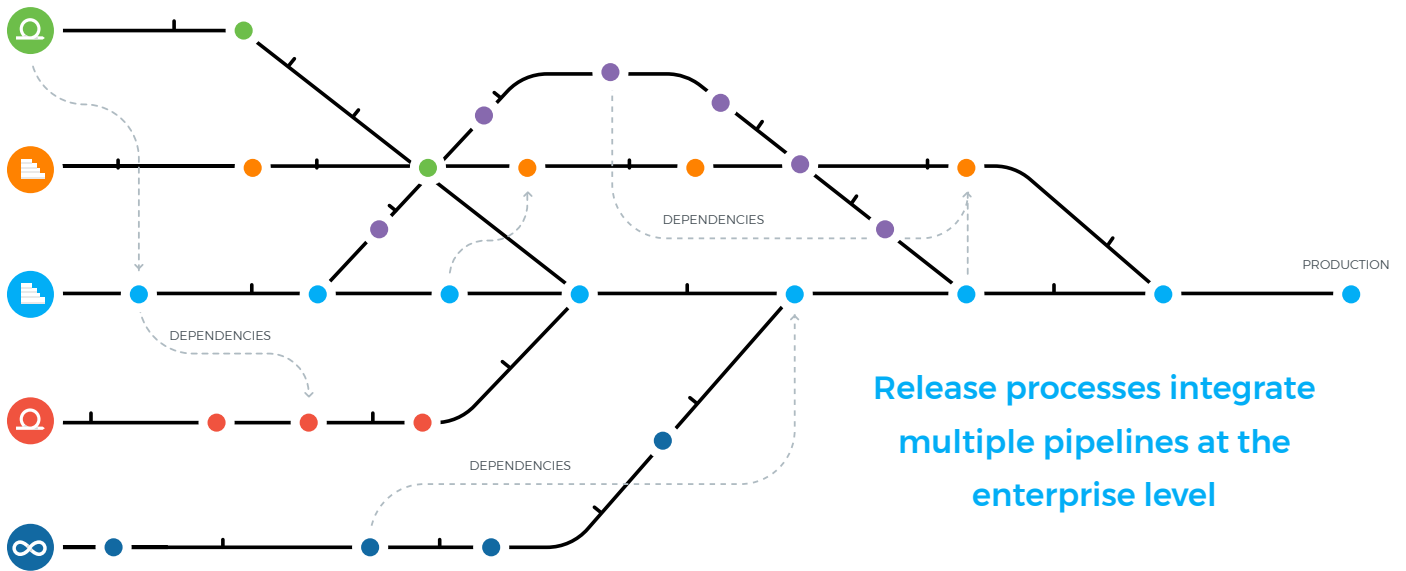
With Plutora, enterprises can achieve seamless release execution by coordinating the execution of complex enterprise release processes that include interconnected activities across multiple pipelines. Through criteria gates within the release process, real-time monitoring and automatically generated release audits provide release managers and stakeholder end-to-end visibility and control of enterprise software delivery as release frequencies increase.

A. Release Plan and Schedule

Continually optimize releases by assessing release risk and controlling their user story scope and schedule. Understand environmental dependencies between releases and the systems impacted by a release, the nature of that impact (direct code impact or downstream regression impact), and the number of changes involved to inform scheduling.

Centralized scheduling aligns resources across the portfolio in a consolidated release calendar, informing team members of upcoming efforts and enabling cross-team collaboration.





B. Release Quality and Compliance

At the enterprise level, release processes integrate multiple pipelines composed of different teams, tools, and methodologies creating burdensome governance requirements that constrain release velocity. These expansive release processes also include both manual and automated tasks making them difficult to even visualize and nearly impossible to monitor in real time.

Standardized release processes bring predictability and efficiency to the release process by capturing every activity, gating criteria, and dependency in a release template.

The release template defines manual and automated tasks and integrates activities with release automation, CI/CD, and other tooling. This templatization also enables complete release traceability, which is captured in an automatically generated release audit.

Verify release quality and compliance and assess release risk with trending data and defect metrics for individual projects, or in the context of a heterogenous application stack.

C. Pipeline Orchestration

Enterprise release execution is complicated, requiring heavy governance and multiple pipelines. When managed manually through spreadsheets and meetings, releases are prone to failure due to errors in the precise timing and required sequencing of activities. Pipeline Orchestration delivers frictionless governance and streamlines the coordination and configuration of release execution creating more efficient, resilient, and faster releases. Coordinate and configure the interconnected automated and manual tasks, teams, and resources through the delivery phases and criteria gates of an enterprise release, accelerating release velocity. This delivers end-to-end real-time activity status and metrics throughout release pipelines, which facilitates communication between project and product teams, release managers, and stakeholders.

Plutora's Pipeline Orchestration delivers releases that are:



Efficient



Resilient



Fast

RELEASE REPORTING					
RELEASE NAME	OWNER	COMPLETED	PROGRESS	NOT STARTED	OVERDUE
PR-3656	Mabel Lunc...	4	4	3	7
PR-035	Tamra Pang...	56	7	0	23
PR-8754	Shad Angev...	4	4	19	13
IR-125	Jc Chatman	0	0	7	0
PR-0009	Aurelio Haack	4	2	9	4
IR-24B	Alfredia Gabr...	0	10	7	7
PR-0343	Jacque Wenz	65	0	9	0
IR-24B	Gertrudis Va...	4	0	25	7

D. Release Reporting and Analytics

Continually monitor release performance with reporting and analytics. Release insights trace release artifacts as they flow through the system, monitoring release activity with flexible filtering views to evaluate individual releases, projects, or the entire enterprise portfolio. Additional reports provide further context of the release's status including its burndown chart, impact matrix, release health, its associated application's health, and, when complete, its build readiness. This broad release, test, and quality data can be consolidated into centralized dashboards that identify trending or specific application quality metrics such as completion status for each phase which can simplify monitoring processes.

Hybrid Environment Management

Hybrid Environment Management simplifies and centralizes hybrid cloud, physical, and virtual environment scheduling, configurations, code versions, and change history, enabling IT teams to save on development and test time with every release. With Plutora, all stakeholders can view all active environments and monitor code changes, when environment versions were deployed, and what tests have been run.

1. Catalog and Configurations

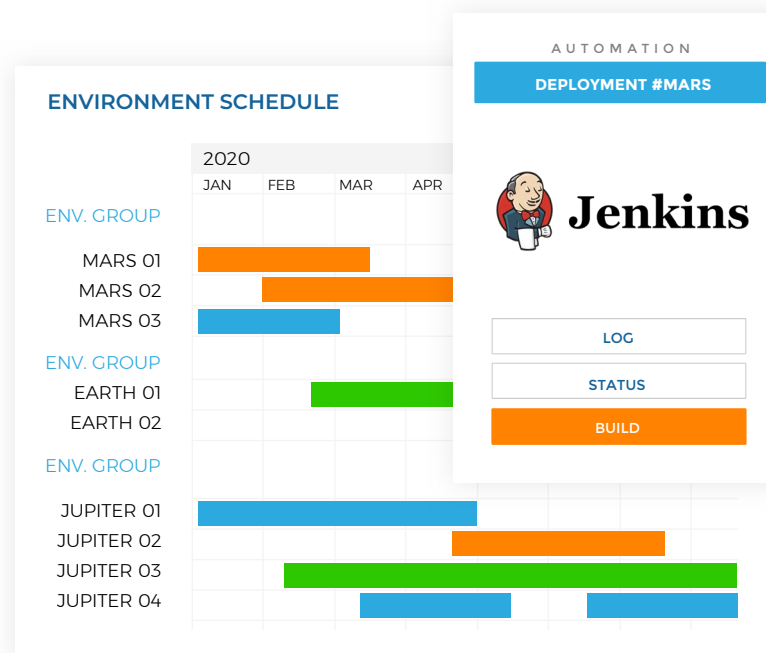
Managing environment demand at the enterprise level requires a real-time understanding of the currently available environment assets. The centralized environment catalog and configurations provides real-time access to all the environments in the enterprise and their configurations.

With Plutora, all stakeholders can view all active environments and monitor code changes, when environment versions were deployed, and what tests have been run.

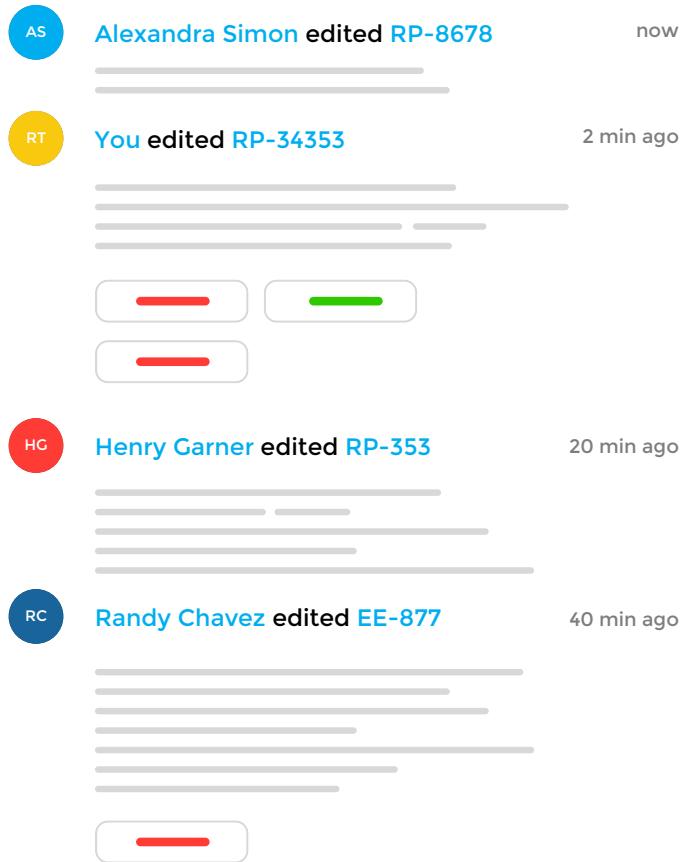
Eliminate error-prone manual configuration and change control management processes by centrally defining test environments and reliably tracking configurations, code versions, and change history to ensure accurate test coverage.

2. Scheduling & Booking

Consolidate environment scheduling with the self-service booking engine that incorporates role-based workflows and centralized schedules. Hybrid Environment Management centralizes booking approvals, conflict resolutions, proactive maintenance window scheduling, and system dependency by tracking configuration change requests, manage approvals, and version control, increasing environment management efficiency across the portfolio.



AUDIT HISTORY



3. Quality and Compliance

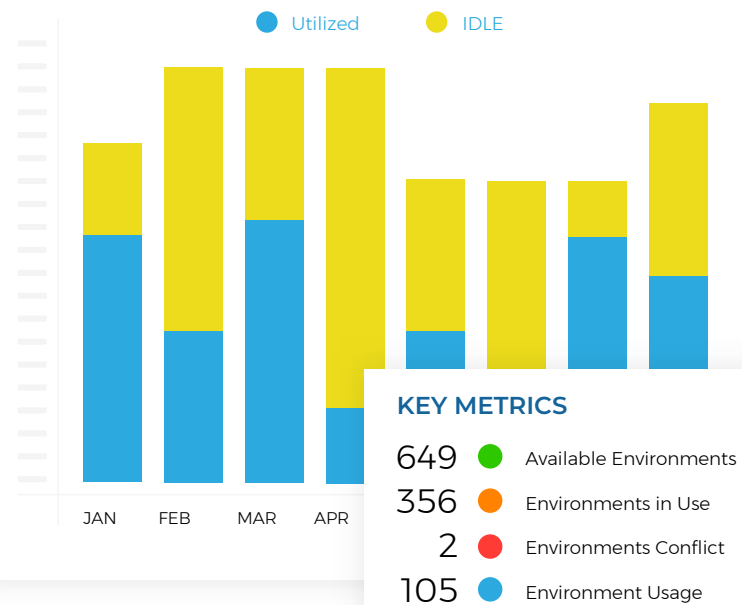
Protect environment performance and security with real-time environment data and automatically generated environment audits. Assess risk from environment data trends and defect metrics of individual projects or across a heterogeneous application stack. Automatically generated environment audits include complete and traceable configurations and change histories to demonstrate compliance, identify errors, and reduce configuration drift.

4. Reporting & Analytics

Optimize environment usage and resource spend. Utilization reports provide insight into how environments are being used to identify opportunities to decommission old environments and develop new cloud environments. Evaluating environment chargebacks with stakeholders to resolve issues and better provide resources for the organization further increases resource utilization.

Analytics of environments utilization and release schedule provides environment forecasting for teams to accurately allocate resources and minimize time-strapped QA teams waiting for test environment availability.

ENVIRONMENT UTILIZATION



Deployment Management & Orchestration

Deployment Management & Orchestration coordinates the manual and automated activities of go-live events. Plutora replaces the stress of sleepless weekends managing go-live events through spreadsheets and meetings with a command center, tracking activity progress of the hundreds of team members often involved in enterprise go-live events in real-time. Plutora enables the planning, approval and rehearsing of each go-live activity, enabling teams to act with certainty, improving efficiency, and reducing the risk of failure.

1. Deployment Management

Enterprise deployments are complex and include human and automated tasks. Even with CD pipelines in place, multiple manual tasks still remain. With Deployment Management, creating a standard and repeatable deployment plan that defines the order and timing of activities, dependencies, or conflicts with other applications removes the guess-work from go-live events. Assign deployment automation, configuration management, and test automation tools to specific activities, including 'close the ticket' in ITSM tools to accelerate deployment execution by triggering automated tasks.

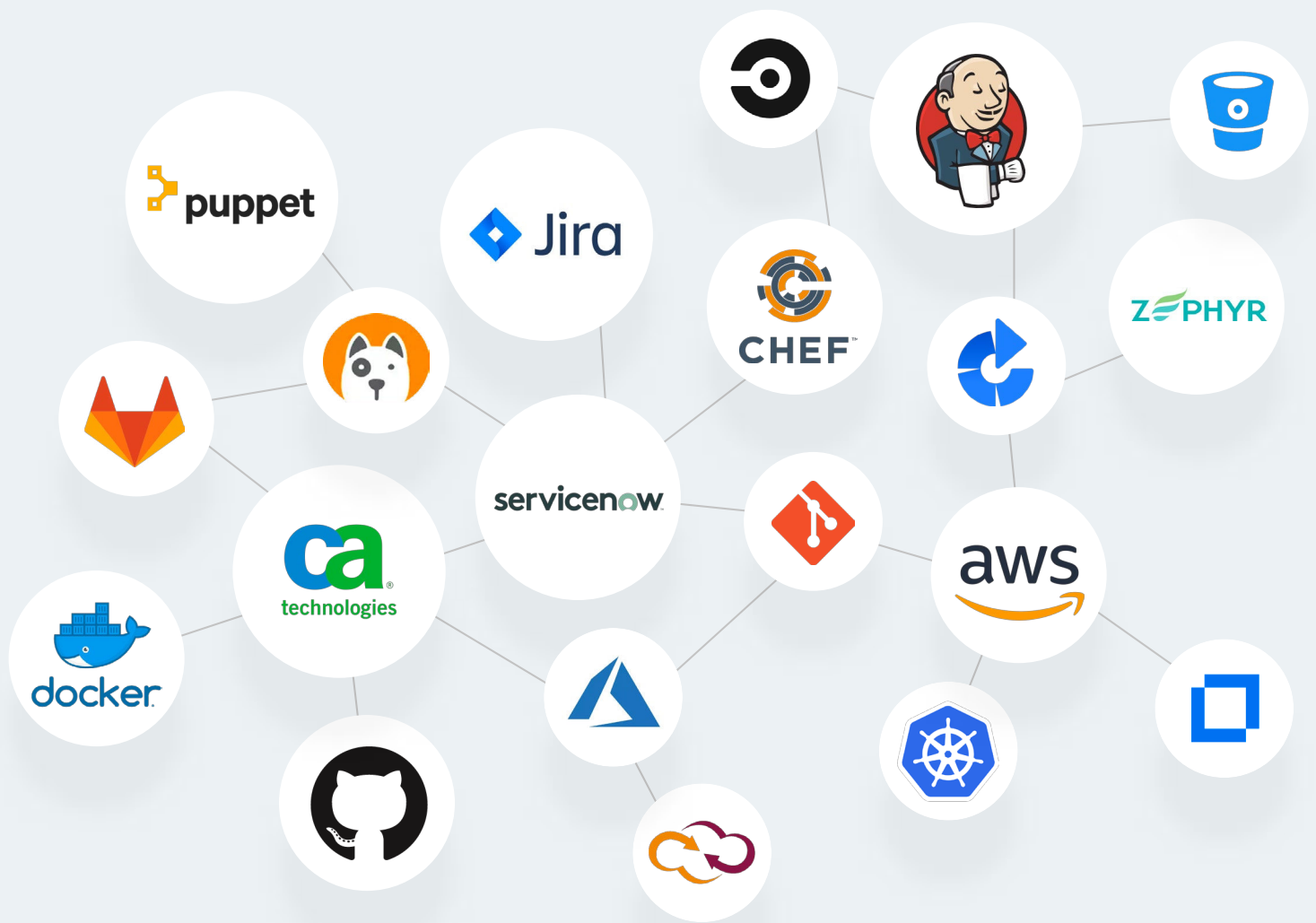
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Scripts can automate deployments directly in external applications such as AWS Codeship, Red Hat OpenShift, Jenkins, Bamboo, UrbanCode uDeploy, Puppet, and many more. Deployment Management's centralized repository of deployments plans, artifacts, and activities increases deployment predictability, transparency and process efficiency.

2. Deployment Orchestration

Deployment Orchestration creates a collaborative environment coordinating both manual and automated deployment activities to ensure maximum velocity regardless of the level of automation. Enabling real-time status tracking across teams and geography, go-live activity timing and sequencing can be rehearsed ensuring resilient deployments. Automated notifications keep stakeholders up to date with distributed static snapshots or interactive dashboards. Lastly, checkpoints highlight key milestones in deployment progress while logged issues inform post implementation reviews.

DEPLOYMENT PLAN LIBRARY					
RELEASE ID	RELEASE ID	DURATION	STATUS	COMPLETED	
M	Master Exec.	PR-3656	45 Days 4.5 Hours	DR AP EX ✓	<div style="width: 18%;"></div> 18%
	Server	PR-365-B	12 Days 1 Hours	DR AP EX ✓	<div style="width: 75%;"></div> 75%
	Migration	PR-365-C	64 Days 5 Hours	DR AP EX ✓	<div style="width: 50%;"></div> 50%
	DBs	PR-365-D	22 Days 4 Hours	DR AP EX ✓	<div style="width: 82%;"></div> 82%
M	AI Center	PR-0009	124 Days 7 Hours	DR AP EX ✓	<div style="width: 65%;"></div> 65%
M	Mobile	IR-24B	42 Days 1 Hours	DR AP EX ✓	<div style="width: 95%;"></div> 95%
M	Plan Earth	PR-0343	23 Days 6 Hours	DR AP EX ✓	<div style="width: 7%;"></div> 7%



Integration & Common Data Model

The Integration & Common Data Model features enables portfolio-wide, end-to-end visibility and control of software delivery processes. Integrating individual tools throughout the portfolio provides Plutora the granular data and precision control to deliver the powerful capabilities

of the Decision Making & Analytics and Management & Orchestration modules. Each data point across the enterprise is normalized to enable portfolio-wide analytics, independent of tools and methodologies. This normalized data is then mapped to the defined release pipeline phases of the portfolio, converging toolchains into a single pane of glass in Plutora.

1. Tool Integrations

Plutora integrates with popular software delivery cycle tools including plan, code & build, verify, package & deploy, configure and manage & monitor. Multiple integration methods provide support for even the most complex systems, building low-level, two-way communication between an enterprise's software delivery systems and Plutora, enabling end-to-end observability and control.

2. Normalized Data Model

The Normalized Data Model includes standardized elements for every aspect of the software delivery process. Every tool data point is mapped to the Normalized Data Model, creating data that is able to be used globally throughout the portfolio, independent of methodology and tools.

About Plutora

Plutora, the market leader of value stream management solutions for enterprise IT, improves the speed and quality of software creation by capturing, visualizing and analyzing critical indicators of every aspect of the delivery process. Plutora orchestrates release pipelines across a diverse ecosystem of development methodologies, manages hybrid test environments, correlates data from existing toolchains, and incorporates test metrics gathered at every step. The Plutora

This means that tool data such as ALM features are uniformly defined throughout a portfolio's many toolchains and designed to interact with standard PPM or test data and ITSM systems.

3. Converged Toolchains

Converged Toolchains, the unification of toolchain data to provide end-to-end visibility and control of application delivery pipelines, results from structuring normalized data into an existing software delivery process. For example, a converged toolchain correlates a specific ITSM 'change' with a developer 'user story', tester 'requirement' and planning 'initiative' within Plutora, enabling the transformation capabilities of the Value Stream Management Platform's other modules.

Platform ensures organizational alignment of software development with business strategy and provides visibility, analytics and a system of insights into the entire value stream, guiding continuous improvement through the measured outcomes of each effort.

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Learn more: www.plutora.com

Email: contact@plutora.com