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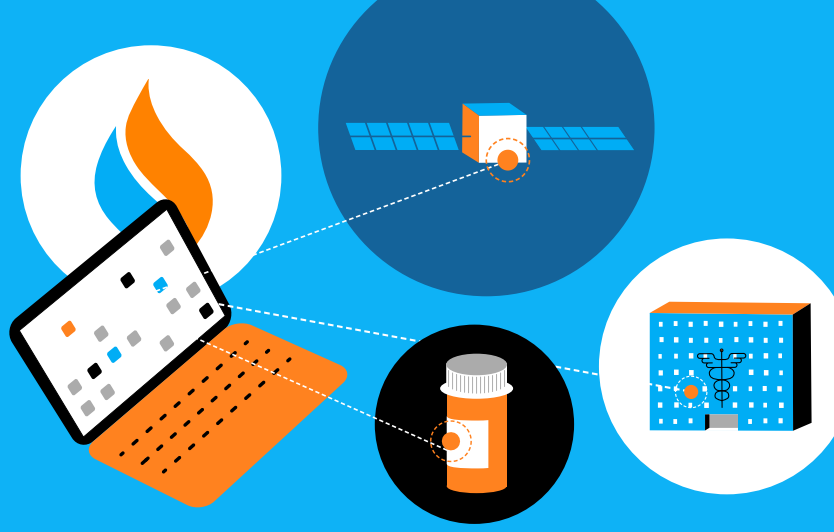
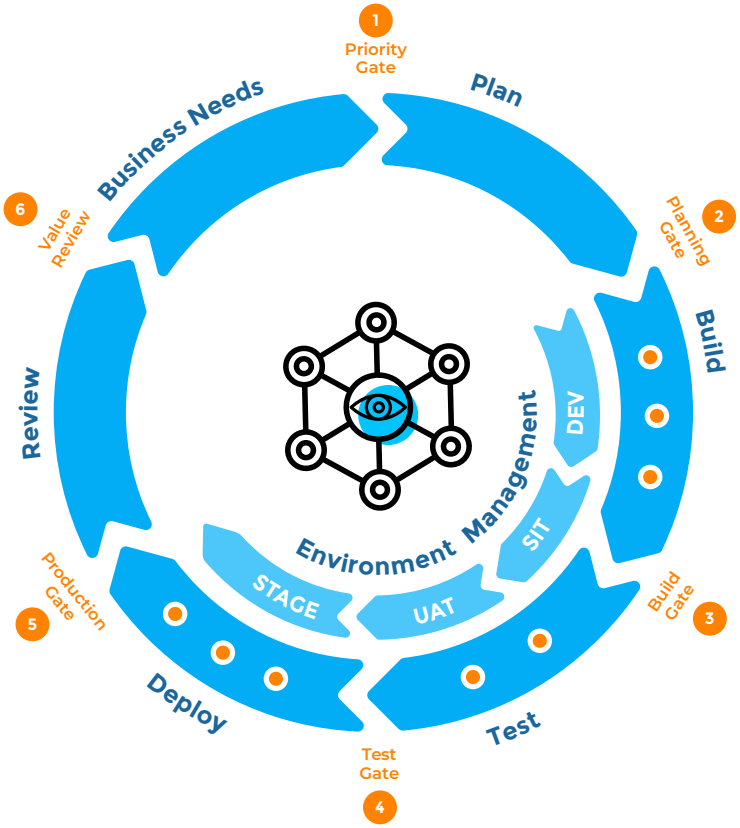
WHITE PAPER



What is Enterprise Release Management?

Enterprise Release Management (ERM) is an emerging set of practices designed to support enterprise change initiatives and software delivery across multiple projects within large organizations. This whitepaper defines the scope of ERM and enumerates both the challenges motivating the adoption of ERM as well as the common characteristics of organization most likely to benefit from ERM.



Release Management accelerates business

Highlights

- A definition of ERM and an enumeration of the activities defining this emerging practice area.
- Exploration of job functions that both support and are supported by an ERM practice.
- Identification of ERM as a practice designed to support and accelerate DevOps practices across increasingly agile enterprises.
- Concrete examples of how organizations benefit from ERM.
- Benefits of ERM to the Enterprise.

What is Enterprise Release Management?

Enterprise Release Management (ERM) is the management of the software delivery lifecycle across multiple projects and departments within a large organization. It is the orchestration of activities and resources across multiple, interdependent software releases and changes initiatives to deliver software at scale while managing both the technical and organizational complications that accompany delivering changes to enterprise-scale, composite systems within a large organization.

It's easy to say that ERM is a "holistic approach" and a "multi-disciplinary IT governance structure," but these abstract definitions don't help. We've written this paper to add clarity to a practice that most market leaders are already following but which few have defined. Enterprise Release Management isn't magic, and it isn't "market speak." It is defined by the practices that will come to define the efficient software enterprise in the coming years and it is the full realization of agile in the enterprise.

Practices that Define Enterprise Release Management

Enterprise release management is a practice area that covers a wide array of activities all focused on delivering software, but ultimately it is defined by a set of practices that support a multi-project, cross-functional approach to managing the end-to-end release process.

Multi-project Release Coordination

Maintaining a consolidated event calendar across all projects included in a large, composite release. This includes the orchestrated deployment of these projects to applications in the enterprise operating environment.

Environment Management

Tracking capacity requirements and work-effort for environments required during the software delivery process. Support decisions regarding the use of automated provisioning of environments or scheduled use of shared persistent environments.

Automated Release Reporting

Capturing metrics and key performance indicators for all release-related processes, gates and resources, presented in dashboards for all stakeholders to identify progress toward the enterprise release.

Continuous Process Improvement

Measuring release-related metrics and tracking progress across the end-to-end software delivery process to support an iterative approach to process improvement.

The four practices that define enterprise release management are all organized at a strategic, portfolio-wide level to provide IT management with visibility into the most tactical processes that serve to support coordinated releases.

As organizations adopt a more agile and accelerated approach to software delivery with an emphasis on best practices at a tactical level, enterprise release management provides a series of practices designed to foster and support this agility and align it with decision-makers responsible for entire portfolios.

ERM Supports Release-related Job Functions

Large organizations engaged in enterprise-wide release management seldom have a single "enterprise release manager." Instead of a single, "enterprise-wide" responsibility, most large, decentralized organizations assign responsibility for more strategic, release management functions to several existing roles. An enterprise release management practice supports and is supported by the following job functions:

IT Portfolio Management

An efficient ERM practice provides portfolio managers greater visibility into changes affecting multiple systems to create a consolidated status for change initiatives across an entire portfolio. By assembling data across multiple initiatives, ERM facilitates a process of continuous improvement at the portfolio level giving organizations a central mechanism to track common challenges and lessons learned. With ERM IT Portfolio Managers make strategic adjustments to both staffing and spend across departments as change initiatives evolve continuously.

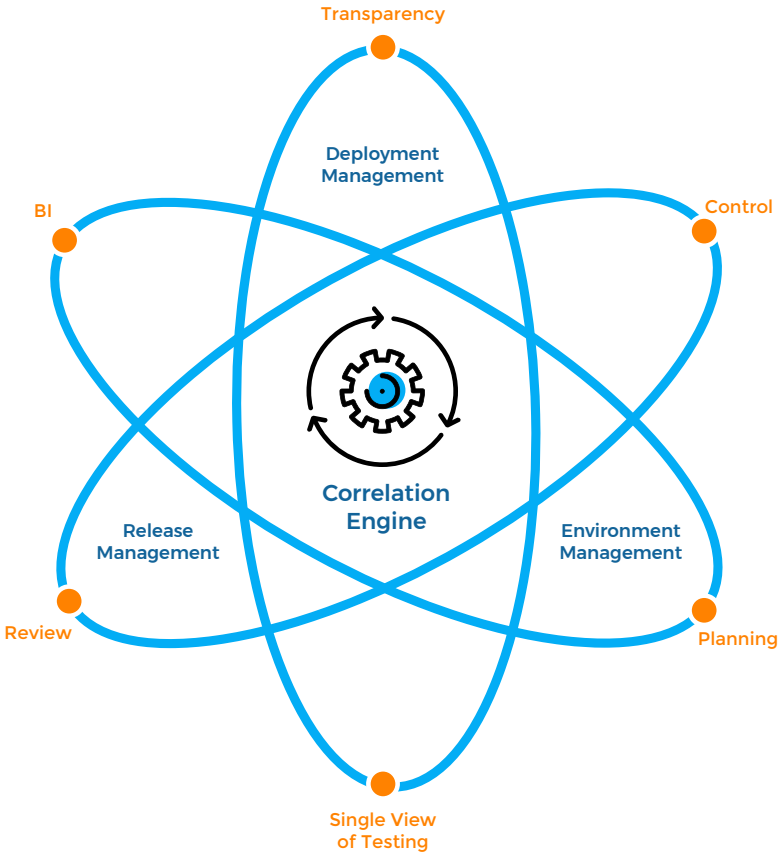
Release Management

ERM creates a standard view of the end-to-end release lifecycle providing better decision support to release managers responsible for delivering software on time and under budget. Armed with a more detailed and accurate view of project status organizations practicing ERM are able to release more frequently and with greater integrity and predictability. Dependencies between systems are tracked and release managers are able to accurately assess the impact of scheduling changes to a consolidated timeline. An ERM practice maintains an up-to-date model of resources supporting a release, giving release managers the ability to gauge the capacity of an organization to support an ongoing, iterative release process by tracking organizational capacity and non-production testing environments.

Enterprise Release Management addresses a critical gap in the enterprise. It is the bridge between tactical 'agility' and a more strategic "acceleration" across an entire enterprise."

Roles supported by ERM:

- IT Portfolio Management
- Release Management
- Environment Management
- Quality Management
- IT Service Management
- Product Management



"Instead of being defined by a central "enterprise release management" group the enterprise release management function is shared across multiple departments and multiple teams with IT portfolio managers and higher-level project managers supporting multiple departments with the necessary infrastructure and tools to facilitate enterprise-wide release management activities."

Environment Management

Individuals and teams responsible for the allocation, provisioning, and configuration of production and non-production environments are often at the mercy of shifting schedules and unreliable estimates of capacity requirements during the software delivery lifecycle. A comprehensive approach to Enterprise Release Management incorporates production environment, nonproduction testing environment, and data environment effort and requirements into an overall plan to support software delivery. Under an ERM practice environment, management can use a continuously updated and more accurate status to make more efficient use of both physical and cloud-based infrastructure to support software delivery.

Quality Management

With ERM, quality assurance and quality engineering managers are able to forecast demand and allocated limited testing resources across multiple projects in response to shifting schedules. With an ERM practice, QA managers have better visibility into the release pipelines and so can better prioritize and allocate resources.

IT Service Management

Service managers need clear visibility into the progress of the handling of their change requests and can now track them through the release process. Service managers gain confidence and are exposed to less risk as changes are deployed in a structured and repeatable way.

Product Management

Under a strong ERM practice project, managers are no longer spending 30-40% of their time distracting key resources with meetings to measure status or maintaining manual spreadsheets tracking progress toward a release goal. Project managers benefit from an always up-to-date picture of project status and are able to manage scheduling and resource conflicts across groups as they develop.

ERM Assembles Data in Support of Strategic Decisions

Enterprise software development has undergone a dramatic transformation in the last decade as most companies have transitioned to more iterative, agile approaches to software delivery. This overall acceleration of the software development effort has been focused squarely on more tactical practices related to software development.

From source control to scrums to deployment automation, most IT departments are moving quickly and assembling a large amount of data related to software delivery.

Successes at the tactical level have yet to be integrated into systems to support more strategic decisions at the portfolio level. While single projects can move quickly using a modern toolset designed to support rapid delivery large organizations managing complex releases involving considerable risk are still forced to manually assemble information from a heterogeneous collection of disparate IT systems. ERM integrates information from a variety of sources to support a more continuous approach to planning and managing large-scale releases.

When these systems are integrated, ERM dashboards become a single pane of information providing up-to-date information across the entire department giving management the ability to gauge progress immediately without introducing disruption in the form of status meetings. Developers working on one project can gain an immediate awareness of how the changes they are making affect the overall schedule and managers gain fine-grained insight into the progress of a project.

ERM serves to connect the low-level productivity tools that have come to define agile success. The issue trackers, continuous integration systems, and distribution code repositories that are the signature of a new, more iterative approach to development are often in conflict with the static snapshots currently captured by today's IT management and ITSM delivery tools.

With a modern ERM solution, management tools are connected to the day to day realities of both IT service managers and developers creating a single source of truth allowing management to understand status directly from the source.

"When an ERM practice has connected these tactical tools into a single, consolidated dashboard all participants in an enterprise release have a greater incentive to more accurately measure activity and track progress. Standing up a strong ERM process creates a feedback loop that encourages more agility and acceleration both at the project level and the portfolio level. Enterprises are sitting atop a wealth of information and ERM makes that information more visible to management."

Systems Affected by ERM

- Continuous Integration Systems
- Deployment Automation Systems
- Application Release Automation
- Change Management Systems
- Project Issue Trackers
- Portfolio Management Tools
- Monitoring and Analytics Systems
- Automated Testing Infrastructure
- Source Code Management Systems
- IT Portfolio Management Tools

ERM Facilitates Process Improvement Across the Enterprise

Across industries time to market for new software initiatives is decreasing over time and the frequency with which releases are transitioned from development to production is increasing. Put simply, every major company is turning into a software company and software is being delivered faster. This transformation is driven by the widespread adoption of agile methodologies alongside the increasing prevalence of DevOps as a philosophy affecting the release and operational agility.

As highly competitive markets continue to reward organizations that can deliver quality software faster and more frequently it is essential that enterprises focus on identifying opportunities for greater efficiency. It doesn't matter how quickly an individual team can deliver if that team is constantly waiting due to environment issues or coordination problems between internal and external partners. Every software release should yield information leading to process improvements for the next iteration. ERM is how an enterprise accelerates.

ERM supports process improvement for increasingly agile enterprises by capturing accurate status throughout all phases of the release cycle. ERM provides an institution with rich historical data that can be analyzed after every release cycle. Under an ERM practice-specific, release-related metrics are captured and assessed and a rigorous post-release analysis is performed such that improvements can be identified and modifications to release strategy can be introduced into an iterative process of continuous improvement. ERM is an agent of change. Organizations can start to track the performance of now isolated DevOps and Agile initiatives and establish common best practices to facilitate the transition of all projects to modern, iterative release processes.

"Self-service deployments, release automation, and more distributed operational responsibility have created a situation where the remaining obstacles to efficient execution are self-imposed. While teams can move very quickly the overall enterprise and the organization is struggling to keep up. How can companies move faster while managing risks associated with large, interconnected software systems."

Common Characteristics of Organizations Benefiting from ERM

ERM is especially useful when an organization maintains systems so large that no one group fully understands the scope of the overall system. Enterprise Release Management functions are designed to facilitate visibility across systems no matter the scope they cover. Examples include an e-commerce system implemented as a series of dedicated services including inventory, payment, and front-end website development.

Another example would be a large enterprise that has built a website that interacts with a CRM system such as PeopleSoft or Siebel.

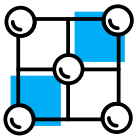
There are three characteristics that drive the need to establish a strong ERM practice and they are all related to the complications that accompany scale:

Team Size

The number of people involved in an enterprise release.

Companies benefiting from ERM are large enterprises consisting of multiple departments spanning one or more business units supported by one or more IT departments. ERM is applicable for companies with over 100 direct participants in the software delivery lifecycle.

If a company has more than three groups coordinating to deliver software with more than 100 direct participants it is a prime candidate to benefit from ERM. ERM provides a higher level of strategic release management to align personnel across departments and address obstacles and communication issues that may arise outside of individual groups.



System Scope

The scope of an enterprise system and interdependencies between subsystems affected by an enterprise release.

Large, composite enterprise systems are characterized by the presence of multiple interdependent subsystems including both systems developed by internal application development teams and third-party services such as content delivery networks and payment gateways.

These composite systems involve multiple, independent development groups often spanning several organizational structures both internal and external and subsystems are linked together in a hierarchy creating an overall enterprise architecture. Changes are rarely confined to single, isolated components in a composite system and when application features or services are implemented multiple components in a composite system are impacted simultaneously.

Application Risk

The amount of risk presented by an enterprise release.

High-risk industries such as e-commerce, government, and banking require a constant commitment to 24/7 availability. Uptime is the primary concern for a business designed to serve consumers and any organization of sufficient complexity is faced with the challenge of controlling the impact of software releases. As software releases are the primary source of downtime in most enterprises, there's a special sensitivity and awareness when it comes to managing release-related risk.

When contingency planning isn't optional and when minutes of downtime or even transient downtime can impact the business an ERM practice is focused on identifying and managing risks associated with multi-project deployments.

Examples of ERM-driven Organizations

The following brief descriptions outline how ERM would affect the release process for hypothetical companies in several high-risk industries.

Internet Banking

A financial institution maintains a large, composite system of interconnected subsystems all dedicated to supporting the ongoing operation of a bank supporting both physical branches and a popular online presence. This bank consists of the following major subsystems, all of which are mission-critical for 24/7 operations: accounts, payment processing, account security, fraud detection, responsive front-end for the web and mobile customers, ATM systems integrated with a series of back-end services, along with a series of Oracle databases.

While a single release may only affect four or five application systems the organization conducts regular releases that have the potential to affect all subsystems. With an established ERM practice, IT portfolio managers, service managers and IT executives can see a consolidated release schedule and can assess the level of risk to on-time delivery when delays are introduced to the schedule. Teams avoid downtime across the entire system as the ERM function identifies high-risk operations and processes that need to be carried over from release to release.

Health Care Information Management Systems

The complexity of healthcare information systems is growing with the introduction of medical devices that can gather an array of data that is then stored in centralized databases and used to support life-or-death decisions by medical professionals. When a large hospital or a consortium upgrades a critical database or upgrades an installation of Cerner or EPIC, great care needs to be taken to avoid even a momentary interruption in availability.

A large consortium of hospitals requires a solid ERM function to track release impact and availability and to organize the various production and non-production testing environments required to validate that software change initiatives are completed in a way that produces zero impact on the life-sustaining functions of an HIMSS system. Unlike an SMB releasing a new software upgrade, a consortium of hospitals needs to keep track of deployment playbooks and contingency plans in case a software release process experiences unplanned problems.

E-Commerce

A large e-Commerce operation supporting both physical locations and an online presence is comprised of several interrelated systems. There is a system to expose and track inventory for a front-end web application, several mobile applications designed to support online integration with in-store experiences, and more than 20 independent services teams providing information that is ultimately presented to the user via a responsive web interface.

E-Commerce is a very competitive market and large sites live and die by the speed with which new data and new features can be implemented. As the organization creates ever more composite, service-oriented architectures the level of specialization required to create any one subsystem conflicts with the need for project-level release managers to have an awareness of risks presented by releasing code to multiple systems at the same time. With an ERM practice, sites can adequately allocate resources and plan complex releases that require perfect orchestration to avoid even a few minutes of high-profile downtime. As more and more groups navigate to a continuous deployment model inspired by companies such as Amazon, e-Commerce companies face the challenge of creating the right ERM governance gates to facilitate agility while preserving the control that management requires to support commerce at scale and mitigate the risk of downtime.

Realizing Potential – The Benefits of ERM

With ERM organizations can achieve real agility above the level of individual projects. When management functions are informed by feeds updated continuously and when multiple departments agree upon consolidated dashboards of release progress organizations can start focusing on efficient execution and avoid interrupting productive resources just to measure progress.

Enterprise Release Management is a new way to coordinate and track what enterprises are already doing in a more focused manner.

Unlocking the Organization: Tackling Complexity

The more teams, departments, and projects involved in a release the more likely it is that your release processes are approaching a fundamental complexity limit. ERM is the only way to move past these organizational limits as it shifts the organizational and coordination challenges to tools that are automatically gathering data from systems that have been instrumented to provide updated snapshots of status and schedule.

As teams continue to drive toward continuous deployment the challenge of traditional project management approaches these limits of complexity. While "bottom-up" agility results in a dramatic project or department-wide improvements this approach doesn't scale to the scope of an entire enterprise. ERM provides a model to bring low-level agility to the portfolio level.

Visibility: Reality-based Management for the Enterprise

With ERM IT portfolio managers and IT management have visibility into the progress of large-scale software projects. Without ERM the best an organization can do is guess at the current status and risks. ERM is an always-on management function – it is release management integrated into the way projects and departments collaborate. It structures interactions and planning around a singular goal of delivering software.

Greater Alignment, Greater Agility: A New Way to Deliver Software

Enterprise Release Management is a new way to coordinate and track what enterprises are already doing in a more focused manner. An enterprise already has multiple release managers each focused on individual projects, but many lack an overall initiative to encourage more continuous alignment between projects. The enterprise already maintains a calendar of release dates and plans business-functions accordingly. What most businesses lack is a more detailed view of this release calendar that can be used to mitigate risk.

Conclusion: ERM Accelerates the Enterprise

ERM captures the best practices and alignment strategies of the top performers and creates a new, company-wide approach to unifying efforts around the singular goal of delivering software efficiently.

While many organizations have successfully created focused groups leveraging both Agile Software Development alongside DevOps most organizations have yet to create a comprehensive strategy for adopting such practices across the enterprise. ERM provides a context for identifying opportunities for greater efficiency and for using ERM as a tool to move projects toward a more iterative and agile approach to software delivery. ERM makes it possible to scale agile beyond the project or department level.

Enterprise Release Management: A Summary

- Enterprise Release Management (ERM) is the management of the software delivery lifecycle across multiple, interdependent projects within an enterprise.
- ERM is comprised of the following activities: Multi-project Release Coordination and Deployment, Environment Management, Automated Release Reporting, and Continuous Process Improvement
- ERM provides greater visibility and decision support for IT portfolio managers, release managers, environment managers, quality professionals, IT server managers, and project management assembling tactical data across agile development teams to support a more strategic approach to managing large scale change initiatives and software delivery.
- ERM goes hand in hand with DevOps initiatives as it fosters a data-driven approach to identifying opportunities for process improvement and greater efficiency in an end-to-end release cycle.
- ERM benefits organizations with 100 of more direct participants in a release cycle maintaining large, composite systems spanning both internal applications and third-party systems to deliver systems exposed to significant application risk.
- ERM plays a critical role in accelerating software delivery, bridging strategic, portfolio-wide management functions and the more tactical, project-level agility that has come to characterize software delivery in the enterprise.

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 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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