

Open Application Lifecycle Management (ALM)

UNLOCKING THE FULL VALUE OF MANAGED SOFTWARE DELIVERY

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Executive Summary

Application Lifecycle Management (ALM) is emerging as a promising approach to improving the software delivery process. However, "traditional" ALM hasn't been able to reach its full potential for delivering business value. Why? Because vendors are aggressively pushing restrictive, end-to-end ALM solutions that aim to lock customers into proprietary IT platforms. Customers soon find that these solutions don't integrate well with their existing development processes, tools and platforms. Unfortunately, this leaves software development teams with disconnected processes and silos of ALM data, which in turn prevents them from realizing the full value of ALM.

To overcome this challenge, a new approach is required, one that enables customers to deliver software on top of a mixed development environment. With Borland's Open ALM solutions, organizations can leverage their existing software development assets and IP and achieve visibility, traceability and discipline across the complete software delivery cycle. Customers can now benefit from an optimized ALM platform, with the advantages of a fully connected, managed and measurable software delivery process.

Predictable Software Delivery: Mission Impossible?

Software development is an intrinsically complicated undertaking. Delivering reasonably defined software within acceptable quality, budget and time-to-market constraints requires constant coordination of a vast number of activities among many professionals. The complexity of managing and tracking software delivery projects increases when organizations decide to leverage distributed development models, such as offshore development or outsourcing. As a result, project cancellations and failures are ubiquitous. Cost overruns, schedule slippages, low quality and poor reliability are disturbing norms in the software industry.

Consequently, software development organizations have been increasingly pressured to become more mature and to adopt well-orchestrated, systematic and process-centric approaches that follow the steps of more traditional engineering disciplines.¹ With growing standardization and adoption of enterprise development platforms, the challenges facing the industry have become less technical in nature.

Rather, the ability to achieve consistent and predictable value from software development has become a top priority for many software executives who need the confidence that their teams will be effective in their delivery. With this in mind, companies like Borland have designed ALM platforms to address the demand for consistency and predictability of software delivery.

¹ Major industry trends, such as accelerated adoption of the CMM/CMMI process improvement framework and increased reliance on outsourced development models are closely related to this evident transformation of the software development industry.

The Emergence of ALM

As the application development tools industry responds to the need for predictable software delivery, it has expanded its focus beyond tools for individual developer productivity. Vendors have expanded the breadth of their portfolios to address additional roles in the delivery process, and integrated existing and new capabilities into their offerings. These suites of products, often marketed and sold as team-based development platforms, have marked the emergence of Application Lifecycle Management, or ALM, as a new market category and as a software development discipline.

ALM platforms specifically address the challenge of increasing the consistency and predictability of software delivery. They do that by providing integration and automation for each of the major roles that participates in the process, and by automating the following capabilities:

Measurability	<ul style="list-style-type: none"> • Enabling the definition of systems of measures around quality, productivity, progress and risk • Reporting and analyzing such metrics throughout project execution
Alignment	<ul style="list-style-type: none"> • Aligning LOB and IT priorities • Aligning project outcome with expectations of end users
Discipline	<ul style="list-style-type: none"> • Defining, deploying and tracking compliance with software processes • Introducing more rigor to the process of managing change and predicting its impact

These capabilities enable IT managers to balance and prioritize their software project portfolios, while achieving increased levels of control over their teams and much better visibility into project execution. With ALM, executives can also be assured that the software development process is far more auditable, which supports better corporate governance and helps the organization to demonstrate compliance with various regulations.

The ALM Industry

Initially, Borland and IBM Rational were among the few innovators that recognized the importance of the ALM trend, and shifted their product strategies to explicitly support it. Reacting to the evident opportunity, more companies such as Microsoft, Telelogic, Mercury and Serena jumped on the ALM bandwagon.

Today ALM is an established trend and a growing industry, which is recognized by industry analysts. ALM vendors provide a wide array of tools and technologies to support the process of software development. These tools go well beyond the traditional focus on individual developer productivity, and attempt to deliver a team-oriented methodology and tooling for software delivery.

To deliver a viable ALM solution, vendors must address the “extended” application development team, and include roles that participate in the wider process:

- Executive needs are addressed with portfolio-level dashboards that surface important project metrics such as risk, progress and quality.
- Project managers’ needs are addressed with tools for project planning and tracking, tradeoff analysis and resource allocation.
- Analysts’ needs are addressed with tools to facilitate requirements definition, interaction with end users and other stakeholders, and the management of requirements throughout the project lifecycle, including changes over time.

- Architects' needs are addressed with tools to facilitate visual modeling of various application aspects (components, data, process) as well as tools for describing design patterns and enterprise architectures.
- Developers' needs are addressed with sophisticated coding environments, as well as with code-level quality tools, such as performance profilers, unit-testing frameworks and automated code audits.
- Quality assurance engineers' needs are met with tools for test creation and management, automated regression and functional testing, and automated performance testing.
- The needs of the overall team are addressed with team-wide infrastructure that provides facilities for collaboration, process guidance, change management and version control.
- Software process managers' needs are addressed with tools for modeling and deploying a set of enterprise-wide process standards.
- The needs of end users and business stakeholders are addressed with tools that automate demand management and provide self-service capabilities around communicating requirements, reporting defects and tracking their delivery status.

ALM is widely recognized as a huge leap forward for the application development tools industry and for its customers. Interestingly, the latest Chaos report from the Standish Group indicates that failure rates of software projects have decreased to about half compared with a decade ago, an improvement that can be partly attributed to the emergence of ALM. However, deeper investigation of customer needs reveals that despite the obvious benefits of ALM, its full potential is still difficult to realize without changing the fundamental approach used to integrate processes and tools that are used across the software lifecycle.

ALM Business Value is Largely Unrealized

To better understand why current solutions make it difficult to unlock the full business value of ALM, let's take a closer look at typical software development and operation environments. We will examine how software is produced and deployed in terms of processes, development tools and runtime platforms. Ultimately, this discussion explains why software delivery remains one of the last business processes not being performed—let alone automated—in a consistent and predictable fashion.

The Enterprise IT Environment: A Case Study in Heterogeneity

The introduction of the Internet and its adoption as a major commerce platform, as well as constant pressures to operate in a lean and agile manner, have caused major changes in the average enterprise IT organization. The crux of these changes revolves around an architectural evolution, which is designed to progress IT responsiveness, level of service and efficiency, through migration from legacy technologies into modern application platforms. The key areas of evolution are:

- Migration from monolithic, mainframe-based custom applications to new development done on enterprise distributed platforms, namely J2EE™ and .NET
- Migration from packaged enterprise applications built on legacy architectures to process execution and composite application frameworks, such as SAP NetWeaver and Oracle® Fusion
- Adoption of specialized platforms for specific needs, such as scripting languages for dynamic, database-centric Web applications (PHP, Ruby, and so on) or platforms for the development of rich Internet and media applications (for example, Adobe® Flash®/Flex™)

Each of these technologies is associated with specific application development tools (often offered by multiple vendors), which cover analysis, design, coding, quality assurance, version control and configuration management.

It is reasonable to assume, especially for medium to large-size corporations, that in the foreseeable future every enterprise IT environment will include a combination of at least three of these deployment targets: mainframe, distributed (J2EE or .NET) and business process runtimes (SAP or Oracle). It is also likely (as is becoming increasingly evident) that some organizations deploy software to both J2EE and .NET.²

Conflicting Agendas

It is interesting to note that for obvious reasons some IT vendors attempt to influence the heterogeneous nature of enterprise IT as much as they can. These vendors aspire to completely “own” the IT organization by pushing cradle-to-grave solutions, which include software development tools, application runtime environments, as well as network and system management tools. The largest vendors include the operating system or even the hardware as part of their solution. It goes without saying that such solutions include a significant component of professional services.

Despite this massive promotion of comprehensive single-vendor stacks, the reality is that many customers simply cannot adopt this approach. Such organizations promote heterogeneity at all levels, and therefore have a different set of priorities, which emphasize objectives critical to the customer (rather than to the vendor):

- Maximize competitive advantage—organizations that strive to deliver the best product or service tend to cherry-pick best-of-breed platforms and development tools based on project fit, to gain specific end-user advantages provided by each platform. This often happens in separate projects, but may as well happen in the context of a single project, resulting in “hybrid” applications that span multiple technology domains. Some relevant examples include:
 - o Composite applications or services that wrap mainframe, packaged applications and homegrown distributed applications
 - o J2EE/.NET hybrids that leverage the power and UI experience of .NET on the client side, and the scalability, manageability and security of J2EE on the server side. This architectural pattern is particularly common in the finance vertical, and is used for high-performance trading platforms, given that Windows® is the de facto standard desktop of Wall Street
 - o Flash/J2EE hybrids that combine the power of Adobe Flash as a RIA and video streaming platform and the J2EE server-side advantages to achieve highly scalable, rich multimedia experience
- Cut development costs—organizations attempt to reduce the cost of software development and deployment by utilizing a combination of homegrown and open source tools and runtimes. In this context, it is worth mentioning the growing popularity of the LAMP stack (Linux, Apache, MySQL, PHP), and its increasing adoption in the enterprise.
- Decrease time to market—organizations may prefer certain development tools based on specific productivity enhancements that they incorporate. These have the potential to dramatically reduce time to market.
- Leverage legacy investments—any rip-and-replace approach has a significant barrier, since most organizations are unwilling to give up the significant investments made in older runtimes and tools.
- Reduce risk—some IT vendors provide nonstandard proprietary support to their platforms, which are viewed as risky in the eyes of their customers. Getting locked into your IT vendor platform may result in a significant business risk, especially if that IT vendor is or will become a competitor.

² Major industry trends, such as accelerated adoption of the CMM/CMMI process improvement framework and increased reliance on outsourced development models are closely related to this evident transformation of the software development industry. IDC Insight report about J2EE and .NET usage (Steve McClure) states that 10.4 percent of current .NET users expect that they will also get involved with J2EE/J2ME™ in the next 12 months; 11.9 percent of J2EE/J2ME users expect to get involved in .NET development in the next 12 months.

IT Heterogeneity: The Biggest Challenge for ALM

To summarize, many IT organizations view heterogeneity as the only alternative because of the many business advantages associated with it. More often than not, development teams use a wide variety of tools that were not designed to interoperate. There is no single vendor that provides tooling to cover all activities necessary in the context of a single software project. Further, there is no single vendor that can completely cover the three primary domains of legacy maintenance and modernization, packaged applications extension and customization, and new development of distributed applications. Therefore, it is likely that organizations will continue to use diverse development tools within the same project and across different technology domains.

For this reason, ALM's biggest challenge is development tool heterogeneity. To recall, ALM strives to achieve consistent and predictable software delivery through automated measurability, alignment and discipline. However, these qualities of software delivery become much harder to achieve in a highly heterogeneous environment:

- While measurability requires harvesting metrics across disparate application development tools and repositories, there is no adopted standard that facilitates such data aggregation. Since no common information schema is available for all tools that participate in the process, it also becomes essential to “normalize” harvested metrics and to be able to correlate them to the context of specific projects.
- Alignment requires tracing deliverables and activities all the way from IT strategies down to deployed modules. This degree of traceability is very hard to accomplish when process assets and activities reside in disparate tools and repositories. There is no standard facility that enables automatic definition, collection, management and utilization of traceability information.
- Discipline requires deploying, enacting and monitoring multiple overarching processes to govern software delivery. This becomes much harder when sub-processes reside as “process islands” within a variety of process-enabled tools. No standard mechanism exists to provide choreography of such sub-processes (according to a higher-level process) or to deploy process components into these tools. There is also no common terminology to describe processes across disparate tools, which all use their own languages of “Items,” “Artifacts,” “Projects,” etc. The other aspect of discipline calls for rigorous change management and impact analysis; however, these capabilities require end-to-end traceability to be properly realized. As already discussed, end-to-end traceability is much harder to achieve in a heterogeneous development environment.

To overcome these challenges, organizations that practice ALM often end up developing multiple ad hoc point-to-point integrations, which fill the process gaps between the various development tools that they use. Such integrations are fragile, break with upgrades or changes of tools, and are costly to build and maintain. They also result in software processes that cannot be easily managed, measured and audited. Obviously, this approach is unsustainable and not cost-effective.

Therefore, most IT organizations pose big challenges for ALM vendors. These organizations would like to get the huge value associated with ALM, namely a dramatically improved software delivery process that yields the required consistency and predictability. However, on top of that ALM customers also want:

- To be able to use a mix of runtime platforms in a manner optimized to their business objectives
- The freedom to use a mix of commercial and open source application development tools, which are optimized to the deployment targets that they decide to utilize
- The freedom to use a variety of commercial or custom software development processes that are optimized to organization culture, project types and underlying technology

To address this challenging set of requirements, a new approach for ALM is needed, an approach that enables customers to unlock the full value of ALM on top of a heterogeneous IT environment. Borland's recently announced Open ALM vision and product strategy is directly aimed at addressing this challenge. It is the only ALM solution that is fundamentally designed to enable IT organizations to predictably deliver software on their own terms.

Conquering Heterogeneity: The Final Frontier of ALM

Open ALM advances Borland's established vision and product strategy. It represents a major architectural shift that is unique in the commercial ALM market. In fact, when fully realized, the Borland Open ALM platform and its associated applications could bring tremendous value to customers that don't use even a single Borland application development tool.

To be sure, Borland views its tools business as vital, and will continue to innovate and deliver best-of-breed tools to the extended software development team. Borland's tools will be gradually migrated to support the Open ALM strategy, which will enable them to participate in an Open ALM-based orchestration of software delivery. However Borland's tools could be replaced, if customers see fit, with any third-party or open source tool that supports their development needs. This level of modularity and flexibility is what makes Borland's product strategy exceptional among ALM vendors, many of whom attempt to own the complete software delivery chain.

Benefits of Open ALM

Open ALM provides the functional value of ALM while introducing unprecedented levels of flexibility at the process, tools and platform levels. More specifically, Open ALM customers would:

- Be free to choose any combination of platforms and runtime environments in the context of a single software project or across different projects, based on business priorities and project fit
- Be free to choose the best development tools for chosen platforms, per economic considerations, specific productivity enhancement and technical fit
- Be free to choose or design development processes that are best fit for their projects and chosen platforms, as well as match their organizational culture and time-to-market needs

The Open ALM platform and its supporting tools will, for the first time, enable IT organizations that deploy heterogeneous application development environments to:

- Gain unparalleled, multidimensional and customizable visibility into progress, quality and risk metrics of projects and portfolios, to support project management and process improvement initiatives
- Reach the holy grail of full lifecycle traceability to support true alignment of business objectives and development activities, better correlation between end-user expectations and project outcome as well as better project management through accurate and comprehensive impact analysis
- Achieve a new level of control over software delivery through automated process-driven orchestration of practitioners and tools that participate in the lifecycle

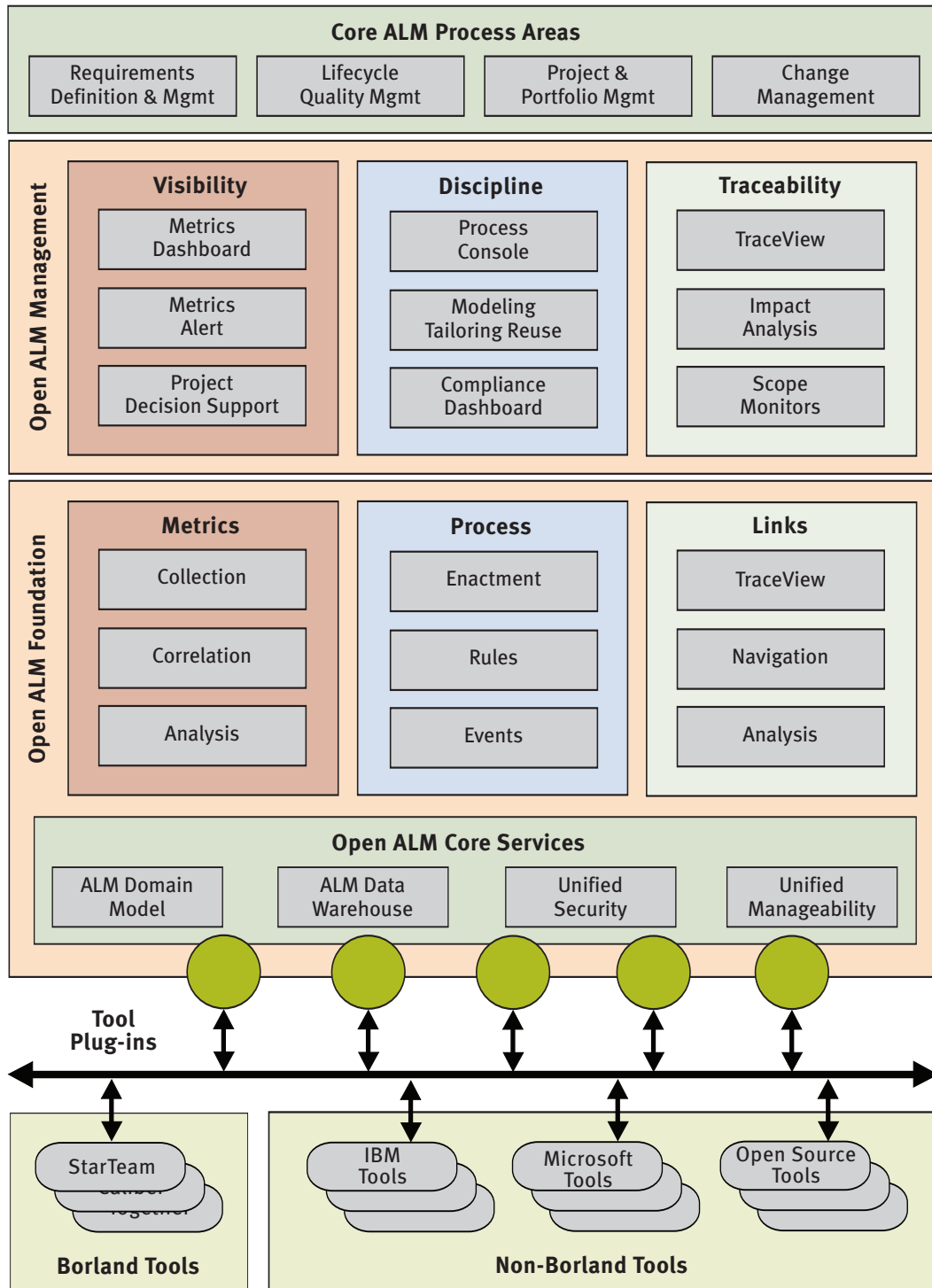
These capabilities enable superior team productivity, support quality initiatives and ease the burden of compliance with internal and external regulations. They will be delivered in a set of infrastructure-level components and enterprise ALM management tools. On top of that, customers can also use Borland's best-of-breed integrated application development and portfolio management tools to realize the value of four core process areas:

- **Project Portfolio Management (PPM)** – tools and automated processes to control the development of a top-down software delivery strategy, and to manage the execution of a portfolio of software development projects
- **Requirements Definition and Management (RDM)** – a set of tools and best practices to ensure that project requirements are accurate and complete, can be effectively traced back to business objectives and are optimally covered by software tests
- **Lifecycle Quality Management (LQM)** – discipline and tools to govern the definition and measurement of quality across all phases of software delivery. It is designed to detect and prevent quality problems early in the process, when the cost of fixing is relatively low, and to enable QA teams to ensure their tests are complete and based on end-user requirements
- **Change Management (CM)** – infrastructure and tools to help predict the impact of changes and to facilitate management of assets and activities related to the changes across the lifecycle, in single-site or multisite delivery models

Borland's Open ALM Solution

As previously mentioned, the major objective of ALM is to achieve predictable and managed software delivery through automated measurability, alignment and discipline. We have seen that each of the three dimensions of ALM becomes much more difficult to accomplish in a heterogeneous application development environment, and therefore presents a set of specific problem areas to ALM customers.

Borland's Open ALM platform is architected as a set of three solution areas, each of which is intended to specifically address one of the major ALM problem domains. Every Open ALM solution area is based on a highly modular and extensible infrastructure layer and delivers its business value through a set of dedicated applications. The purpose of the infrastructure layer is to enable the Open ALM platform and applications to work with any combination of commercial or open source development tools and processes, regardless of vendor or expected runtime technology. The diagram on the following page provides a conceptual decomposition of Borland's ALM solution.



Borland's Open ALM solution architecture

Open Business Intelligence for ALM

Open Business Intelligence for ALM (OBI4ALM) is based on a standard infrastructure and applications to increase measurability of progress, quality productivity or any other custom metric of software projects in a heterogeneous application development environment.

OBI4ALM provides infrastructure for unobtrusive, distributed collection of data, correlation and analysis of metrics from any application development tool that registers itself with it. By pulling predefined metrics from its data sources, the OBI4ALM infrastructure unifies information silos that are scattered across the software delivery cycle. Such consolidation provides powerful capabilities, such as an aggregated project view of metrics and the definition of new project metrics that combine several lower-level ones.

The OBI4ALM infrastructure employs a data warehouse, which stores current and historical information harvested from tools that participate in the various phases of the software delivery process, using a structure that is optimized for querying and analysis.

OBI4ALM applications are capable of transforming the collected metrics into actionable information, enabling decision making and early awareness of problems:

- Real-time dashboards—customizable views of key performance indicators, showing trends over any time period
- Metrics-based alerts—configurable notifications that get triggered under certain conditions (i.e., when a certain threshold is crossed). Alerts help to accelerate management responsiveness to various project problems, such as slow progress, low quality, insufficient productivity or any other problem that can be quantified using metrics
- Decision-making tools—analytical tools that use historical project and cross-project information to facilitate various project management decisions

Open Process Management for ALM

In the final analysis, process is the most important concept that permeates the software lifecycle. Far more than sharing information structures across tools used by various roles, or providing UI-level integration of features, it is the process that has the true potential of coordinating activities of humans and systems that participate in the delivery of software, while at the same time ensuring conformance to agreed-upon policies and monitoring quality of execution.

Open Process Management for ALM (OPM4ALM) provides infrastructure components and a set of applications used to model, deploy and enact multiple software processes across an entire heterogeneous application development environment. Going way beyond providing guidance and allocating tasks to process practitioners, OPM4ALM also uses the process automation layer as the primary "glue" for integrating client side, server side and methodware, according to rules captured in the process models. From this point of view, the integration among application development tools is in fact driven by the underlying processes, which becomes the fundamental enabler for effective team productivity.

OPM4ALM Infrastructure is built around a distributed process engine, which enables the modeling, tailoring, deployment, orchestration and choreography of multiple software delivery processes, across a heterogeneous environment of development tools. Process events definition and management is an important part of OPM4ALM infrastructure, as Open ALM tools can subscribe to "listen" to such events and receive notification when they occur. The process engine also enables the flexible definition and evaluation of rules, which help to describe and enforce application development policies.

OPM4ALM applications surface the business value of the process infrastructure layer. They provide:

- Tools for process modeling, customization, tailoring and reuse, which enable effective design of commercial or custom software processes using a rich and capable software development meta-model
- Enterprise-wide software process console that shows a consolidated bird's-eye view of entire software processes that are deployed in various projects, across disparate development tools
- Process compliance dashboard that exposes process deviations and their potential implications, and provides reporting features useful for compliance initiatives
- Measurement and reporting based on metrics specific to each process

Open Traceability for ALM

End-to-end process traceability supports many important ALM benefits. To name a few, it is a critical enabler for business-driven development, requirements-based development and testing, and accurate change impact analysis.

Open Traceability for ALM (OT4ALM) provides infrastructure to create and classify relationships between assets created in the software delivery process, regardless of the tool that hosts them, establishing a flexible graph of asset links. It also provides the means to navigate the asset relationship graph and to optimally query and mine data that is captured in it.

OT4ALM provides applications that transform captured traceability data into actionable information:

- Automated planning, change impact analysis, accurate cost/budget predictions
- Scope monitors—early alerts for scope deviations (i.e., assets that do not trace to requirements) and unimplemented requirements
- Reuse analyzer—enables reuse of complete asset trees (from requirements to models to code and tests) rather than simple reuse of code modules
- TraceView—cross-project interactive traceability viewers that help locate every process asset and relate it to other assets

Common Platform Infrastructure

The Open ALM infrastructure includes two components that are shared across all solution areas:

- **ALM meta-model** – a common language to describe software processes, process asset relationships (traceability) and measurement units (metrics). The ALM meta-model provides a rich conceptual model for the software delivery domain. It is essential for describing the standard vocabulary that all Open ALM-compliant tools must understand in order to effectively participate in the Open ALM platform.
- **ALM integration layer** – an extensible and pluggable integration mechanism and SDK, which defines the standard manner in which ALM tools can be invoked, ALM metrics can be harvested and asset traceability graphs can be navigated. To support and participate in the ALM platform, a tool needs to provide a platform plug-in that conforms to the Open ALM-standard API, or utilize a custom adapter that connects it to the rest of the application development environments through processes orchestrated by the Open ALM platform.

The Road to Open ALM

Over the next 24 months, Borland will incrementally roll out the infrastructure, applications and tools that comprise its Open ALM platform. Borland also intends to round out its product offering with a comprehensive set of professional service programs, designed to accelerate the deployment and ensure the success of enterprise Open ALM implementations.

Some of the advantages of Open ALM can be enjoyed by customers today. Organizations that seek to improve their quality, change management and project management processes, will find the current Borland solution extremely compelling. This solution provides highly automated and integrated support for four critical application development process areas:

- [Project and Portfolio Management \(PPM\)](#)
- [Requirements Definition and Management \(RDM\)](#)
- [Lifecycle Quality Management \(LQM\)](#)
- [Change Management \(CM\)](#)

These solutions are delivered through tight integration between Borland tools and third-party tools, which gives customers the desired flexibility that they seek while significantly improving their ability to manage software delivery projects today.

Why Borland?

Throughout its long history of innovation, Borland has consistently partnered with its customers to enable them to build software the way they see fit. With its uncompromising adherence to standard-based development and broad multiplatform support, Borland has offered IT organizations the flexibility and freedom to choose what they require. With Open ALM, Borland elevates its traditional values to a whole new level, which clearly separates it from the pack of ALM vendors and non-commercial ALM initiatives.

When it comes to the largest ALM vendors, IBM Rational and Microsoft, it can hardly be claimed that serving the customer agenda is of top priority, as both of these vendors continuously attempt to leverage their development tools to lock customers to their middleware and system management platforms.

In contrast, Borland has always insisted on standard Java™ and J2EE support, had strong and integrated support for Microsoft's platform, languages and development tools, and continues to be very committed to extending Microsoft's ALM solution in meaningful ways. The investment made by Borland to support the latest Microsoft® technologies is very significant. For example, CaliberRM™, which is the first fully integrated requirements management solution for Team System, is recommended by Microsoft to complement the basic requirements functionality delivered by VSTS. Borland plans to continue to enhance the synergies between the Java and .NET platforms by providing additional capabilities such as UML to C# code generation and support for Microsoft Domain Specific Languages (Microsoft's alternative to UML).

The open source movement has also identified the challenge that heterogeneity creates for ALM. The objectives of several Eclipse initiatives, Application Lifecycle Framework (ALF), Corona, and the Eclipse Process Framework (EPF), are somewhat aligned with those of Borland Open ALM. While Borland understands and identifies with the motivation behind these projects, it feels that their approach is insufficient. Both ALF and Corona are attempting to deliver components of the Open ALM infrastructure only. However, Open ALM represents a more holistic approach, since it also enables customers to extract business value from such infrastructure out-of-the-box, through a set of value-add applications.

In its quest toward Open ALM, Borland goes further than any other ALM vendor, and has recently expanded its horizons to cover additional application development domains. Borland is also investigating the best approach to support packaged application development projects on the SAP NetWeaver and Oracle Fusion platforms.

Conclusion

Borland is uniquely positioned to help ALM customers build software on their own terms. The Open ALM vision and product strategy clearly differentiates Borland from other ALM vendors as well as from open source initiatives. Borland is the only major ALM vendor that genuinely accepts the reality of IT heterogeneity, and attempts to enable ALM adopters to leverage their existing investments in development processes, runtimes and tools. Borland's process-driven integration approach further separates Borland from its peers, enabling it to deliver ALM-wide visibility, traceability and discipline.

As Borland begins to roll out the Open ALM infrastructure, applications and compliant development tools, customers will be able, for the first time, to unlock the full value of ALM, and experience the benefits of a fully connected, managed and measurable software delivery process.

Safe Harbor Statement

This release contains "forward-looking statements" as defined under the U.S. Federal Securities Laws, including the Private Securities Litigation Reform Act of 1995 and is subject to the safe harbors created by such laws. Forward-looking statements may relate to, but are not limited to, the features available in, and the potential benefits to be derived from, Borland products and solutions, plans and market acceptance of such products and solutions, including the Borland Open Application Lifecycle Management solution. Such forward-looking statements are based on current expectations that involve a number of uncertainties and risks that may cause actual events or results to differ materially. Factors that could cause actual events or results to differ materially include, among others, the following: rapid technological change that can adversely affect the demand for Borland products, shifts in customer demand, shifts in strategic relationships, delays in Borland's ability to deliver its products and services, software errors or announcements by competitors. These and other risks may be detailed from time to time in Borland periodic reports filed with the Securities and Exchange Commission, including, but not limited to, its latest Annual Report on Form 10-K and its latest Quarterly Report on Form 10-Q, copies of which may be obtained from www.sec.gov. Borland is under no obligation to (and expressly disclaims any such obligation to) update or alter its forward-looking statements whether as a result of new information, future events or otherwise. Information contained in our website is not incorporated by reference in, or made part of this press release.

Borland is the leading vendor of Open Application Lifecycle Management (ALM) solutions - open to customers' processes, tools and platforms – providing the flexibility to manage, measure and improve the software delivery process.