IKAN Development: IKAN ALM
An Open & Complete Application Lifecycle Management Solution

IKAN ALM Background: DevOps Evolution For Simplistic & Timely Application Delivery

The recent evolution of Cloud, Analytics, Mobile and Social data sources have rapidly increased the speed of data creation and associated data storage. These new data sources have the potential for delivering business value, while relying upon rapid and agile application development processes to unlock this new potential, with both planned and unplanned application development cycles. In an ideal world, a start-up business with a green field data centre could easily deploy the latest DevOps techniques for simplified and strategic Application Lifecycle Management (ALM) processes. In reality, for most IT environments this is not the case. Equally for the legacy data centre, a requirement to evolve from traditional waterfall to rapid and agile application development processes, for a multitude of IT environments and programming languages is typical. Therefore it is not unusual for a plethora of tactical and environment specific products, with limited or zero interoperability, for the requisite Build, Deploy, Lifecycle & Approval processes of application code.

Legacy applications must not prevent organizations from reaching their digital transformation goals. The de facto modern DevOps practices used by successful Application Development organizations to deliver mobile and cloud applications faster, must be deployed for legacy applications. There are many easily deployed open framework tools and solutions available for code development and testing, separating the underlying server or environment from the application developer. Equally a simplistic and timely approach is required for the cradle-to-grave source code management and deployment phases incorporated into the mission critical Application Lifecycle Management (ALM) process.

IKAN ALM Introduction: A Single or Multiple Vendor Environment ALM2.0+ Solution

The first generation of ALM tools were just that, a set of largely standalone tools. Over time, these ALM 1.0 tools demonstrated an increasing number of deficiencies, including integration, interoperability, synchronization, et al. Ultimately this generated an environment incorporating many manual and repetitive arduous tasks, requiring increasing manpower resource, while introducing too many opportunities for human error…

The next generation of ALM tools, named ALM 2.0 or more latterly ALM 2.0+, vowed to resolve these deficiencies by utilizing an open framework. Therefore ALM tools are no longer deployed on an insular basis, but fully integrated to support the entire development process. These integrated tools communicate and share metadata and features, incorporating automated, repeatable and auditable common services to safeguard transparency via an analytical, secure and workflow based environment.

From an Application Lifecycle Management (ALM) context the IKAN ALM solution functionality starts where traditional versioning systems stop, improving the entire application development process, eradicating any notion of radical, time consuming and costly migration activities.

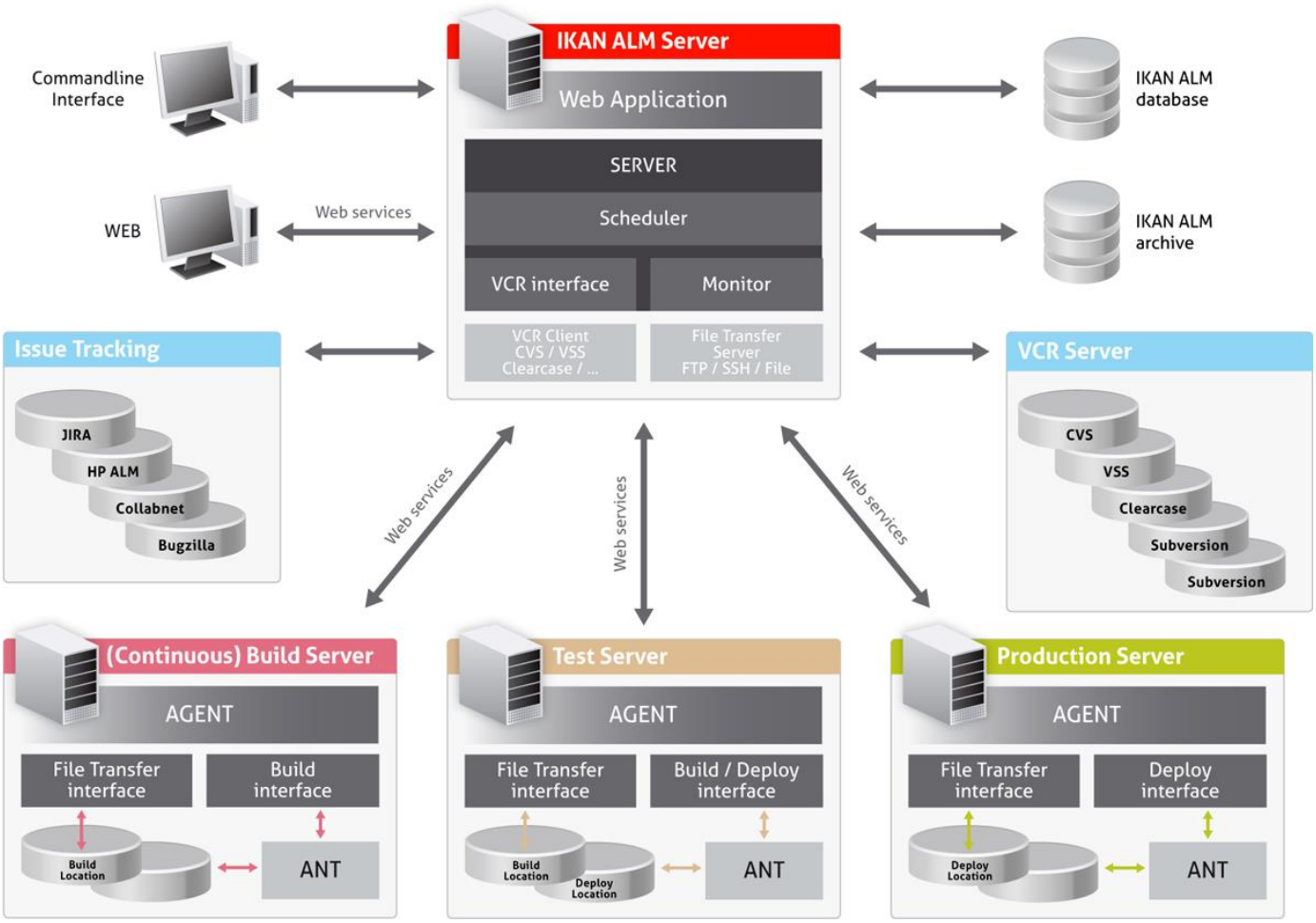
The IKAN ALM solution can be configured for a stand-alone or more typically multiple vendor solution, for Build, Deploy, Lifecycle and Approval Management. The IKAN ALM solution recognizes the ALM 2.0+ premise, complying with popular process standards and governance rules.

IKAN ALM offers a uniquely integrated web-based Application Lifecycle Management platform for both Agile and traditional software development teams. It combines Continuous Integration and Lifecycle Management, offering a single point of control, delivering support for build and deploy processes, approval processes, release management and software lifecycles. From a pragmatic and common-sense viewpoint, typically organizations want to continue working with their preferred tools in their preferred environment. Being ALM 2.0+ compliant, IKAN ALM fully integrates with any versioning tool and any issue tracking tool, providing ALM reports across repositories. Therefore IKAN ALM offers an evolutionary approach, allowing an organization to leverage from timely ALM benefits, without risk and without the need for displacing any existing technologies. Over time, should the organization wish to displace older legacy ALM software products, they could so, leveraging from the stand-alone or multiple vendor flexibility of the IKAN ALM solution.

IKAN ALM incorporates ready to use solutions and processes for multiple environments. These solutions include ALM 2.0+ compliant processes and the necessary scripts to automate the integration with a specific environment, including but not limited to CA Endevor (SCM), CollabNet, HPE ALM/Quality Centre (QC), Oracle Warehouse Builder (OWB), SAP, et al.

IKAN ALM: Architecture

The IKAN ALM architecture consists of a centralized main server and distributed agents, supporting a multi-tier and cross-platform solution, seamlessly and easily managed with web browser GUI and Command Line interfaces:



The IKAN ALM central server is an open framework web application responsible for User Authentication and Authorization, User Interface Processing, Distributed Version Repository Management and Scheduling Code Builds. The IKAN ALM agents perform the application build and install functions.

The data repository is an open central database where all administrative data and the audit trail history are stored. IKAN ALM communicates with the repository using standard JDBC interfaces. The required JDBC drivers are installed along with the product. The repository can reside in any RDBMS system, including IBM DB2/UDB, Informix, Microsoft SQL Server, MySQL, Oracle, et al.

Source code is always stored in a Version Control Repository. IKAN ALM integrates with all the typical versioning systems including Apache Subversion, CVS, Microsoft Visual SourceSafe (VSS), IBM Rational ClearCase (UCM & LT), Serena PVCS Version Manager, et al. The choice of IDE often drives the choice of the Version Control System (VCS), where organizations can have more than one operational VCS. IKAN ALM is a solution that provides a unique process control over all versioning systems present in the organization. IKAN ALM stores each build result within its central server filesystem, labelling the source accordingly in the associated versioning system, guaranteeing a correct source-build relationship.

IKAN ALM safeguards Authentication & Authorization interacting with the organizations security deployment (E.g. Active Directory, LDAP, Kerberos, et al) via the Java Authentication and Authorization Service (JAAS) interface.

IKAN ALM: Build, Deploy, Lifecycle & Approval Management Solution

For fully compliant and cradle-to-grave ALM 2.0+ management, IKAN ALM incorporates the following functions:

Build Management

Build management orchestrates the complex software assembly, testing and packaging processes that deliver the final product executable. Today, automated environments for builds are a common feature. A centralized, reliable build strategy is therefore crucial for an effective ALM approach and Continuous Integration is one way of doing this.

Continuous Integration gives projects early feedback on code quality, reducing development time, while increasing Production quality. Of course, the development process does not end with the integration build. The result must be QA tested, rebuilt with other compilers or operating systems, deployed under different application servers, and tested on distinct versions of the underlying application database. These are error-prone processes and thus ideal candidates for automation. This is the only way to guarantee that the code used to create the build result after a Continuous Integration process is the same as the code deployed and running in a Test environment. This extensive testing process should identify any Production environment problems and so the Test and Production environments must be functionally equivalent. If this is not the case, Production problems could ensue…

Deploy Management

Traditional change management systems focus on source code control, often overlooking software deployment activities. When you have automated Continuous Integration and code promotion for the Test environment, the next important step is a controlled process for Production deployment. Ideally the Production and Test environments are functionally equivalent, while Production environments are not typically used for Application rebuild activities. The IKAN ALM solution solves complex deployment issues, like keeping clustered servers synchronized, or synchronizing applications with their database.

Lifecycle Management

Application development is so much more than coding! Once the code has been developed, it must be tested, approved and delivered to the Production environment. Historically the fine-line of anarchy and bureaucracy was never so evident, the developer wanting their code implemented ASAP, while the operations teams would wait until the requisite authorization process. Hence the need for DevOps, safeguarding an optimized and timely software change workflow process to satisfy the requirements of the entire project team.

IKAN ALM audits any changes (E.g. Who, What, Why, When, Approver, et al), orchestrating the various components and phases of Application Lifecycle Management, delivering an automated workflow to drive a continuous flow of activity throughout the development lifecycle, efficiently coordinating and optimizing application development changes.

Approval Management

As per the DevOps objective, to improve the communication within the project team, it is advisable to set up approval and notification processes for this last step of the lifecycle. It is good practice to notify project members that a Production deployment is scheduled. It is a better practice to safeguard a rounded approval process before Production deployment, so that all relevant teams (E.g. Development, Change Management, Operations, Business Users, et al) can participate in the final deployment (roll-out) process.

Even with the perfect and fully audited Approval Management process, errors will occur. Therefore automated regression processes are mandatory to safeguard minimal Production service impact. A well-defined and tested regression process facilitates such error scenarios, while IKAN ALM simplifies this code regression process.

IKAN ALM Integrations

IKAN ALM is an open-framework and ALM 2.0+ compliant solution, seamlessly integrating with other ALM products typically utilized by today's data centres. IKAN ALM is a solution that facilitates evolution as opposed to revolution and as such, is designed to work with other ALM products, whether currently deployed or not!

Requirements Solutions

Although requirements setting is not an integral part of the actual IT development process, they can be integrated within IKAN ALM. For example, an issue tracking system is commonplace within the application development process and its outputs can be automatically followed throughout the whole lifecycle.

Issue Tracking Systems

An important lesson for life and therefore IT processes is to never repeat the same mistake twice! Therefore it is imperative that issues encountered during the code development and Test environment processes, can be followed up throughout the complete lifecycle. IKAN ALM monitors the full lifecycle of an issue from start to finish with integration for all commonly used issue Tracking Systems, including but not limited to, Bugzilla, CollabNet, HPE ALM/Quality Centre (QC), JIRA, Team Foundation Server (TFS), et al.

Version Control System (VCS) Tools

There are a plethora of capable Version Control System (VCS) tools that lack automated build or deployment, library management and other important ALM tasks. Many of their users would like to evolve to a higher level of ALM practices without having to abandon their favourite versioning tool. With its open framework, ALM 2.0+ compliance and evolutionary approach, IKAN ALM allows users of their favourite VCS tool to retain this functionality, while benefitting from the cradle-to-grave and end-to-end ability of IKAN ALM.

IKAN ALM integrates with all the typical VCS tools including Apache Subversion, CVS, Microsoft Visual SourceSafe (VSS), IBM Rational ClearCase (UCM & LT), Serena PVCS Version Manager, et al.

Build Management Tools

IKAN ALM incorporates its own full-service build facility. With its open framework, ALM 2.0+ compliance and evolutionary approach, IKAN ALM allows users of their favourite Build Management (E.g. Team Foundation Server/TFS) tool to retain this functionality, while benefitting from the cradle-to-grave and end-to-end ability of IKAN ALM.

Test Support Tools

Without doubt, the testing phase is one of the most important and resource intensive tasks of the development process. Specialized testing software simplifies and optimizes this testing process, but typically the Development team is not involved in the actual testing process. Integrating the testing tools into the Application Lifecycle Management (ALM) process facilitates optimal DevOps, facilitating better communication and cooperation between the Testing and Development teams, sharing information in a timely and pragmatic manner. With its open framework, ALM 2.0+ compliance and evolutionary approach, IKAN ALM facilitates such integration, having a certified qualification with HPE ALM/HP Quality Center (QC).

IKAN ALM Compliance

In an environment with ever increasing mandatory regulatory compliance requirements, IKAN ALM simplifies the processes for delivering such compliance. As per the IKAN ALM Build, Deploy, Lifecycle and Approval Management framework, compliance for industry standard regulations (E.g. CMM, ITIL, Sarbanes-Oxley, Six Sigma, et al) is delivered via a reliable, repeatable and auditable process throughout the development life cycle.

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IKAN ALM Benefits

Clearly any IT organization can benefit from a fully integrated ALM 2.0+ solution, by enforcing and safeguarding the ALM process is repeatable, reliable and documented. Regardless of the development team headcount size, ALM releases key people from repetitive and less interesting tasks, allowing them to focus on delivering today's Analytics based, Cloud, Mobile and Social applications. A fully integrated ALM 2.0+ solution such as IKAN ALM allows for simplified legacy environment modernization, while simultaneously allowing for experimentation and improvement of all environments alike, both legacy and new.

The positive outcomes of any ALM solution for an organization should not be under estimated, including the following benefits:

- Optimized cost (TCO) and budget management ability
- Production code build and deployment time reduction
- Improved time-to-market for agile/legacy applications alike
- Improved application code release consistency and quality
- Enhanced Production service to business users/customers
- Timeline and manpower reduction for application releases
- Optimized MTBF and MTTR by reducing human errors
- Ability to control the development process at any moment
- Maximization of stakeholder satisfaction as per DevOps
- Optimized DevOps type collaboration between IT teams
- Creation and management of an Agile IT environment
- Investment protection of existing ALM tools and processes

For more information please visit the Value-4IT IKAN ALM Portal, Email our Sales Team or call us on +44 (0) 845 0579386.

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