



Continuous Inspection with Serena Dimensions CM

*Achieving high velocity with quality for complex product
and application development teams*

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The visibility and insight that Dimensions CM 14 provides allows us to see if we are converging to quality or diverging from quality in real time.

*Ken Vane
Navy Federal Credit Union*

Why Continuously Inspect

In the race to deliver software faster and adopt modern development practices, enterprises must avoid increasing the security, compliance, and performance risks in the software development lifecycle. Managing SDLC risk is particularly critical in sensitive, highly regulated sectors such as financial services, government, healthcare, automation and defense.

Important concerns for application development teams now include adherence to coding standards as well as increased application complexity that might impact code quality. Incorporating a continuous inspection toolchain into your development process addresses both these issues by detecting potential code errors and ensuring compliance with coding standards.

A continuous inspection toolchain typically includes build tools, unit test tools, static analysis tools, coding style tools, and increasingly security and risk analysis tools.

The adoption of DevOps practices, such as ‘Shift-left’ is driving adoption of a desire to continuously integrate and inspect the software changes from development, with code-oriented solutions with integration to a DevOps tool chain.

Why is Continuous Inspection important for complex applications in both Enterprise IT and Product Development? Because it enables development to rapidly respond to code issues, findings and vulnerabilities while improving the quality of their products at a lower cost and speeding release readiness.

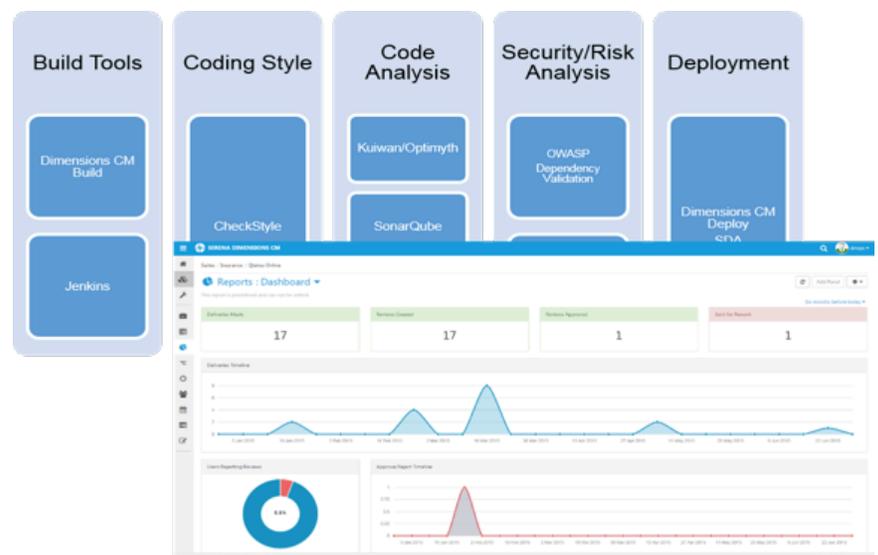


Figure 1 – The need for Continuous Inspection

Build Configurations

When selecting your Build tool, it is important to consider your build configuration options. Within any development team consideration needs to be given for Debug, Release and Test. Teams may use a debug build while developing, a continuous integration or build server might use test configurations, and release builds may be required to ship or deploy to include source to load integrity.

Dimensions CM Build supports all three build configurations and for formal “turnover” builds, is uniquely able to capture and store all associated build artifacts, build dependencies and relationships between artifacts. With both the source code and the software bill of materials versioned, Dimensions CM uniquely delivers immutable baselines for release and audit purposes. Deployment areas are now auditable, ensuring the integrity of promoting and deploying artifacts through the path to production, and subsequent change impact analysis is simplified.

Peer Code Review

Statistics prove that peer code review is one of the most effective ways to improve software quality by reducing defects upstream. By aligning a peer code review within an automated Continuous Inspection process, code reviews become highly effective, collaborative and rapid.

Dimensions CM includes a collaborative web-based Peer Code Review that facilitates development team collaboration, communication and learnings whether collocated, or geographically distributed, including off-shore and outsource partners.

In addition to reviewing code, the results from the continuous inspection toolchain are also made available within the Peer Code Review, providing timely feedback on the status and any findings or errors arising from the automated Build, Unit Test, Static Code Analysis and Web vulnerability assessment tools.

With Peer Code Review and the Continuous Inspection toolchain integral to your team’s Dimensions CM practices and processes, aggregated Dashboard KPI Metrics provide critical insights into the software quality that increases confidence in decision making for downstream QA and Release teams.

Ensuring your projects and sprint deliverables have high-quality code results in fewer bugs and influences the maintainability, extensibility and readability of software applications, which have a direct impact on the ROI for your business.

Expert Tools

Experts are tools that perform actions on development streams, such as examining the health and quality, and report back measurements and findings. Experts are triggered when a delivery is made to the stream and a changeset is created, or on a determined schedule. For example, on automated schedule running nightly, or triggered running a build on every commit.

You can configure experts to run in a sequence, called an expert chain, and can create multiple independent expert chains to run on a stream. Expert results are inspected in an activity view or on a review page and are also aggregated in a Dashboard of KPI Metrics that visualizes the overall development stream’s quality.

Static Analysis, Code Review and Testing

There is growing recognition of the value in integrating code-centric tools within an automated development process. When automated in a tool-chain and results made available as feedback directly to developers, adoption and usage increases.

Metrics generated from a continuous inspection toolchain can illustrate technical debt and provide a definition of done, while providing aggregated KPI Metrics showing the convergence or divergence from your quality goals.

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*A synergistic combination of formal inspections, static analysis and formal testing can achieve combined defect efficiency levels of 99%.**

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Capers Jones

Summary

Continuous Inspection can dramatically improve code quality and development productivity while reducing costs of re-work.

Serena Dimensions CM provides an optimized development experience while integrating a continuous inspection toolchain, assuring a high degree release readiness for successful deployments.

Strategy	Percentage of defect found
Testing	35% to 85%
Inspection	On average 85%
Static Analysis	40% to 85%

Supported experts

The Continuous Inspection toolchain is extensible while supporting the following out-of-box experts:

Build Server Experts	Dimensions CM Build, Jenkins
Code Checking Experts	Checkstyle, PMD
Static Analysis Experts	Kiuwan, SonarQube
Security/Risk Analysis Experts	OWASP, Fortify
Deployment Experts	Dimensions CM Deploy, Serena Deployment Automation

*Capers Jones: Combining inspections. Static Analysis and Testing to Achieve Defect Removal Efficiency above 95%, January 2012.



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Serena Software is the largest independent Application Lifecycle Management (ALM) vendor with more than 2,500 enterprise customers. Serena helps the highly regulated large enterprise move fast without breaking things – increasing velocity of the software development lifecycle while enhancing security, compliance, and performance. More information is available at www.serena.com.