

AutonomioTM

**AUTONOMOUS TESTING FOR
ORACLE[®] CLOUD APPS**

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1. Artificial Intelligence in Software Testing

There are lots of inefficiencies and waste in the way software is developed today. Agile and DevOps coupled with value stream management eliminate waste and focus on business value. At the same time, app architectures with loose coupling and micro-services will only increase the number of moving parts to manage. The complexity will go beyond what humans can manage and interpret.

AutonomIQ's vision is that Artificial Intelligence (AI) agents, bots, and embedded capabilities (in tools) will become the dominant enabling technologies for software development, testing and release teams managing complexity. At AutonomIQ we believe that AI – in particular machine learning, and predictive and deep learning – will slowly but surely encapsulate the entire software development life cycle.

AutonomIQ envisions the initial impact of AI optimizing the software testing lifecycle, before moving further into the life-cycle and disrupting the other elements. In software testing, the three areas AI will be disruptive are:

1. AI will ingest and synthesize vast amounts of natural language content – requirements and descriptions – and using these: automatically generate test cases
2. AI will make determinations as to which test scripts should be autonomously generated to ensure the application is tested consistently with its Use and Test cases
3. Finally, AI will process all the changes occurring across the application landscape, and autonomously keep the software testing assets synchronized with those changes

AutonomIQ's end state vision for AI in software testing is a world where AI agents will automatically learn code and predict software bugs *before* they occur, and, in any case: automatically remediate bugs and heal software in the event of gaps in the predictive process.

2. Key Testing Challenges with Oracle Cloud Apps Implementations and Upgrades

Oracle Cloud App project managers and applications owners are currently being squeezed. On one side of the equation the business is keeping up the pressure demanding ever faster functionality delivery. While on the control side, they must not compromise quality; and they must keep delivery and project costs flat.

Closer inspection of the challenges facing Oracle Cloud App Managers:

- a. **Deliver transformation projects faster without compromising quality** – It is relatively straightforward to implement “green-field” Oracle Cloud Apps applications. More realistically however, the demand includes customizations and/or complex integrations with other application landscapes. Managers find they are also responsible for identifying all the test scenarios, creating the testing assets, *and* executing them – which consumes on the order of 30-40% of combined delivery time. Meanwhile, part of the architectural promise that drives top management support is the expectation that

Oracle Cloud app adoption will deliver tangible financial benefit, in very short order: *months, not decades.*

- b. **Manage testing through constant changes.** Managing the volume of testing artifacts across release cycles, and managing enhancements of Oracle's underlying Cloud Apps stack, is a constant challenge. Previously, change came from the dev team. Today, Oracle Cloud Apps implementation and upgrade projects are subject to changes coming in from any number of sources – internal, APIs, SaaS integrations, cloud infrastructure changes, changes from Oracle (i.e. periodic updates) and on and on. Even elite enterprise dev and testing teams find themselves severely challenged by the intensity and frequency of change. To survive, IT must enlist and adopt approaches as intelligent, sophisticated and forward looking as the problems demand.
- c. **Cloud Apps are often mission critical and therefore must have highest quality.** In many organizations, Oracle Cloud Apps form the nerve-center of the business operations. This means the application stack is expected to deliver to the highest levels of Quality, Availability and Performance. There is nothing ambiguous about the severe financial and reputational damage downtime due to quality will inflict on IT leaders Accordingly, they must be sure their Cloud Apps testing is as rigorous, thorough and as effective as possible prior to production.

3. Need a New Approach for Testing Oracle Cloud Apps Implementations and Upgrades

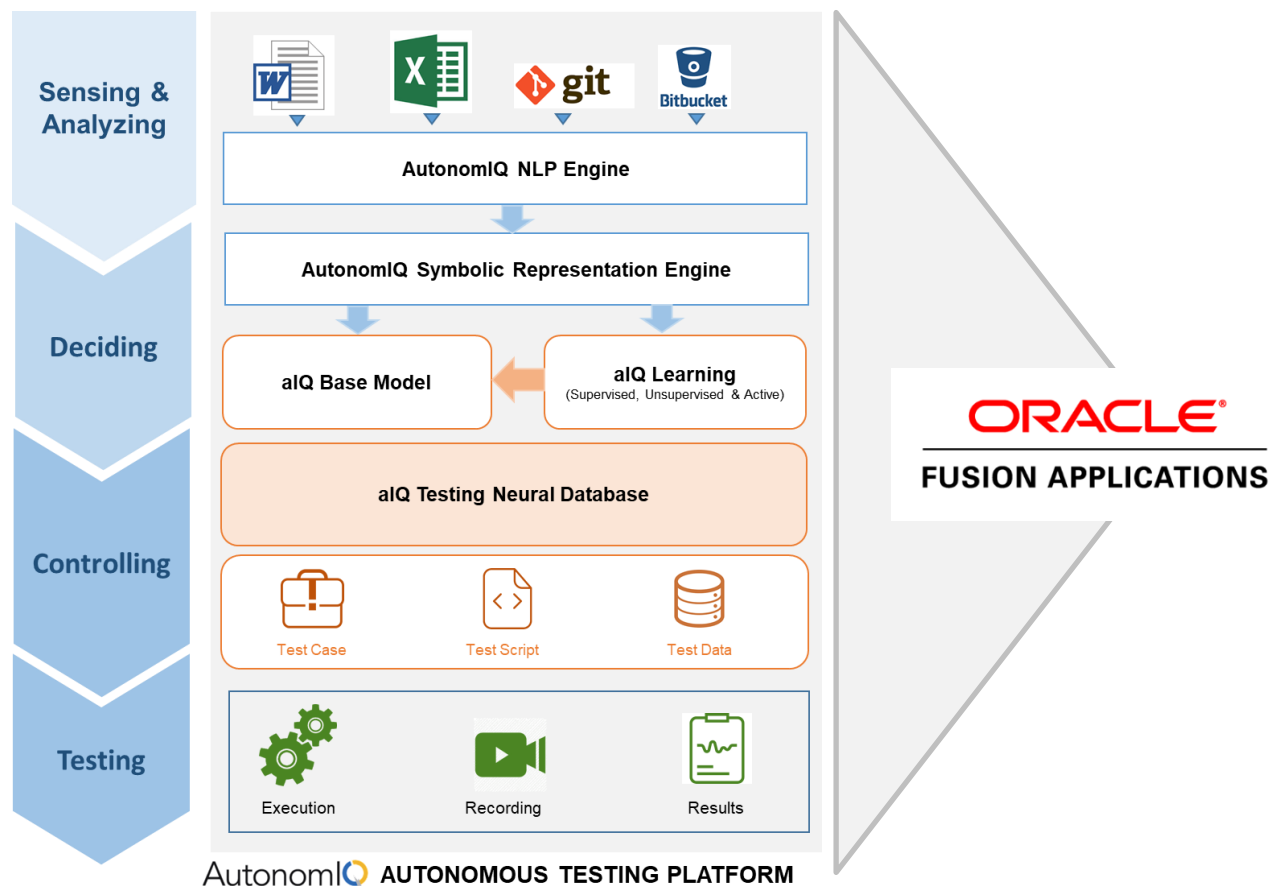
The legacy approaches of manual testing, and the previous generation test automation frameworks sufficiently demonstrated their shortcomings. They didn't keep up in the previous decade, and they are not nearly enough to address the new demands in terms of test density, cadence and volume. Even augmenting with modern CI/CD or dev-ops approaches only partially solves the problems, because, in part, it is only burden shifting many of the same software testing challenges to a different implementation and upgrade methodology.

Instead, IT leaders need to strike at the heart of the matter – a reinvention of software testing for modern Oracle Cloud Apps world – Autonomy. IT Leaders need and increasingly demand an updated software testing approach that autonomously manages the testing lifecycle, by auto-generating testing artifacts for Oracle Cloud Apps and autonomously executing them through the lifecycle of the project.

This new approach to software testing has to make “software testing” appear as if it were inherently integrated in to the implementation and upgrade cycle, made available and instantly executed at scale and on-demand as soon as code commits occur.

4. Autonomous Testing for Oracle Cloud Apps by AutonomIQ

Like an autonomous car, the Autonomous Testing for Oracle Cloud Apps by AutonomIQ offers a level of automation and agility that simply stated: manual testing and human powered test automation can never deliver. Compared the Autonomous Testing approach to legacy Modes and processes.



Continuous Process

a. Autonomous Generation of Test Artifacts

Autonomous Testing for Oracle Cloud Apps, automatically generates all the test artifacts required for executing tests. This includes test cases, scripts and test data. All the artifacts are generated at the time of code commit and integrated in to the Cloud Apps developer work-flow.

This reduces test analyst and test automation labor required to understand, validate, write, troubleshoot and tune the various testing artifacts and freeing testing resources to work on higher value tasks.

b. Autonomous Self-Healing of Test Artifacts

The Autonomous Testing for Oracle Cloud Apps, constantly maintains the state model of the Cloud Apps application and all the changes occurring in the Cloud Apps landscape. This could be in the form of changes from within project team, from external sources like API changes, Oracle upgrades, other integration points etc.

The AI engine of AutonomiQ constantly gathers all the changes occurring in the application landscape for Cloud Apps environments and automatically modifies the right test artifacts

required for executing tests. This includes test cases, scripts and test data. All the artifacts are constantly synchronized with the changes occurring in the environment in real time.

This reduces the amount of manual work and effort involved in detecting, correlating, analyzing and updating all the test artifacts and instead completes these tasks autonomously for you.

c. **Autonomous End-to-End Business Process Validation**

One of the key challenges in Oracle Cloud Apps implementations is ensuring the integrity of the end to end business process. The Autonomous Testing for Oracle Cloud Apps, autonomously configures business processes and ensures that the testing scenarios address the end-to-end business process testing scenarios.

This ensures that the Oracle Cloud Apps implementation or upgrade project delivers the business process scenarios that business users are going to use on the final outcome.

5. Conclusion – Game Changing Intelligence to Testing Oracle Cloud Apps

The Autonomous Testing for Oracle Cloud Apps by AutonomIQ is the only solution that enables IT leaders to leverage AI and machine learning in an effective manner to transform their software testing lifecycle for Oracle Cloud Apps applications.

With Autonomous Testing from AutonomIQ, customers uniquely get the best domain specific Artificial intelligence algorithms and autonomous technology for software testing. This combination provides the most intelligent, fastest, proven solution at the lowest cost as all software testing tasks are fully automated.