

Improving leverage, scale and visibility by implementing Quality as a Platform

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About Vistaprint

We empower millions of people worldwide to:
Make a living Make a connection Make a difference

- We provide affordable, low-quantity, high-quality customized products for small and micro businesses wanting to make a professional impression with customers
- Offerings include physical and digital products
- We operate as a direct-to-customer marketing channel
- Revenues of over \$1B in FY2012 with a typical YoY growth rate of around 20%.



Problem Statement to Vision


Needed long-term strategy for how QA, its practices and systems would evolve to support our complexity and growth

Scale: Limited use of approaches for effectiveness and need for systems thinking culturally
Obj: Enable and support multi-year global growth cohesively with people, process, infrastructure and systems

Leverage: Increasing duplication in practices & tools and cost of maintenance
Obj: Improve practices and systems to enable effectiveness (find more) and efficiency (do more)

Visibility: Point solutions and practices
Obj: Ability to systemize and empower decision-making across a broader set of people.


Envisioned - Quality as a Platform



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Why a world-class Test Management System?

Problems / Needs	Initiatives
<p>Multiple repositories capturing test information</p>	<p>Deploy Test Management System (HP ALM)</p>
<p>Needed a way to determine test coverage by area</p>	<p>Structure Test Plan the same as the software taxonomy</p>
<p>‘Limited to no reuse’ and no structured approach to test design leading to inefficiencies</p>	<p>Use of templates and building blocks to make test architecture modular</p>




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Why implement an Automation Platform?

Problems / Needs	Initiatives
<p>Large set of scripts with no test objectives</p>	<p>Deploy HP ALM integrated with automation</p>
<p>Multiple automation frameworks</p> <p>Needed a framework that members outside of the automation team could use and extend</p>	<p>Implement Unified Automation Platform (UAP)</p>


Our automation platform is home grown as it best fit our organization needs

Functionality
Extensibility
Scalability
Usability
Efficiency


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Why extend to a 'Quality Platform'?

Problems / Needs	Initiative
<p>Operational model would not support projected business scale without significant expense and risk</p> <p>Provide comprehensive reporting to help in making timely decisions</p> <p>Highlight system instability and drive component and architecture changes</p>	<p>Implement the Quality Platform with HP ALM and UAP as cornerstones, integrated with a quality DB and reporting system.</p>


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The Vistaprint Quality Platform

Platform that integrates specific quality-related components and correlates information from other systems to:

- Drive test planning, risk-based test execution, and effective triage
- Identify projects, releases & deployments that are 'at risk'
- Provide comprehensive reporting to help in making timely decisions
- Highlight system instability, drive component refactoring and architecture changes
- Support QA, development and operations organizations.

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Platform Development – Org Approach

Key Takeaways

- Executive sponsorship
- Setting expectations and gaining ongoing buy-in
- Growing a software team to build and operate the platform
- Timely and periodic communication on progress
- Engaging with a partner
- Balancing implementation and adoption against our ongoing three week release cycle

FY11 Q4			FY12 Q1			FY12 Q2			FY12 Q3		
April	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar
Buy and Install			Customize			Integrate, Train & Pilot			Roll Out		
<div style="background-color: #666; color: white; padding: 5px; margin-bottom: 5px;">Evaluate & recommend TMS (HP ALM)</div> <div style="background-color: #666; color: white; padding: 5px; margin-bottom: 5px;">Install and validate ALM, LR and HP FT</div> <div style="background-color: #666; color: white; padding: 5px;">Customize ALM – setup</div>			<div style="background-color: #666; color: white; padding: 5px; margin-bottom: 5px;">Customize ALM - project</div>			<div style="background-color: #666; color: white; padding: 5px; margin-bottom: 5px;">Pilot ALM</div> <div style="background-color: #666; color: white; padding: 5px; margin-bottom: 5px;">Develop & deliver ALM training</div> <div style="background-color: #666; color: white; padding: 5px; margin-bottom: 5px;">Porting planning and design</div> <div style="background-color: #666; color: white; padding: 5px;">Re-engineer tools for integration</div>			<div style="background-color: #666; color: white; padding: 5px; margin-bottom: 5px;">Three phased ALM rollout</div> <div style="background-color: #666; color: white; padding: 5px; margin-bottom: 5px;">Demo ALM canned reports</div>		

Vista

Some numbers for later use...

- 6000+
- 4-times
- 50%
- 30%
- Around 70%
- Doubled in 18 months

Test Management – Now...

Outcome and Benefits

- **One repository:** Deployed **HP ALM**
 - Over 6000 tests and configurations under management
- **Test coverage:** Test plan structure mirrors our technology taxonomy
- **Test efficiency:** Modular test architecture is leading to significantly lesser number of tests being written.

Why HP ALM?

- Rich set of features
- Ability to integrate with other systems
- Long-term support for future growth
- Reach into development and operations
- Support for effective test design
- Robust support for metrics and reporting
- Global reach of support.

Unified Automation Platform (UAP)

Problems / Needs	Solution
Large set of scripts with no test objectives	Deployed HP ALM integrated with automation (using HP's APIs & Web Services)
Multiple frameworks, each deficient in functionality, with significant maintenance costs (45 to 60%)	Implemented Unified Automation Platform (UAP)
A framework that members outside of the automation team could use and extend	

Scripting Layer

Biz Layer

Apps and Services

Common Library

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Outcome and Benefits

- Supports **multiple test objectives**
- **Integrates** seamlessly with ALM and JIRA through Integration Services
- Offers **rich framework** with thin scripting layer
 - reduces maintenance time (**plan: 25%**)
 - promotes broader use
- A rule-based triage system to help **accelerate and improve diagnosis** post-run.

ALM Integrated with Automation Platform

The diagram illustrates the integration between HP Application Lifecycle Management (ALM) and the Unified Automation Platform (UAP). On the left, the ALM interface shows a 'Releases' section with various release versions (24.4 to 24.8). An arrow labeled 'Test Sets' points from ALM to the 'Scheduler Application' on the 'Scheduler Server'. The Scheduler Application sends 'Reservations' to the 'QP DB' (Quality Plan Database). The QP DB sends 'Jobs' to the 'Dispatcher' on the 'Automation Host'. The Dispatcher sends 'Runs' to the 'Test Runner', which then executes 'Test Scripts'. The Test Runner returns 'P/F Results' (Pass/Fail Results) back to the Dispatcher. A bidirectional arrow labeled 'Run - Configurations and Results' connects the Integration Services layer to the Automation Host. The Vistaprint logo is visible at the bottom left.

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Quality Platform - Reporting

Need	Solution
Provide comprehensive reporting to help in making timely decisions	Implement Vistaprint's Quality Reporting Platform <ul style="list-style-type: none"> To provide real-time and historical information to decision-makers Leverage ALM wherever possible.


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The Reporting Initiative

- Selected the technology – QlikView
- Focus on 3 pegs – Progress, Coverage and Quality
 - Release test progress report (tickets and regression tests) that helps us manage scope – In Use
 - Test asset health / coverage report that helps us manage our test assets – In Definition
 - Defect based quality report – In Q4 FY13.


Obj	TestName	TestStructure	PassRate	ActiveTestCycles
Cap Support	is Support	is	89.6%	31
FullRelease	is Operator	is	100.0%	35
	is Document Pla	is	76.9%	141
	is	is	6.9%	4
	Electronic Ser	is	34.7%	25
	Global Interne	is	100.0%	10
	Working Aut	is	85.0%	11
	Payments	is	72.5%	190
	Products	is	84.2%	460
	is	is	87.5%	20
	Support	is	79.5%	1164
Total				1462

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Q & A


Thank You



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Backup Slides



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Test Architecture

Step Name	Description
Call <Launch Session, Log In with an Existing Shopper, Enter Website Context>	Call <Launch Session, Log In with an Existing Shopper, Enter Website Context> with the following parameters: signed_in_box_value = ?, email = ?, CookieType = ?, password = ?, Server = ?, Browser = ?, PPP-SourceID = ?, FeatureValues = ?, Environment = ?, Customer Type = ?, Locale = ?
Call <Navigate to the Order Details Page>	Call <Navigate to the Order Details Page> with the following parameters: alt_order_id = 2
Verify Item Table is visible	Verify table id="order-display" is visible
Verify RAL data is accurate	Verify tr id="CartItem1" contains: <ol style="list-style-type: none"> Item Name = "Return Address Labels" Quantity = 140 Price = \$3.99 Subtotal = \$3.99

Time Savings
Use of *configurations* reducing the number of tests by 4 times

Effectiveness
Templates representing around 50% of Area Acceptance Test steps

Reuse
Same templates representing 50% of regression test steps

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Test Architecture @ 10,000 ft

Area 1

Area 2

Area 3

Building blocks are individual (parameter-driven) actions performed on a feature.

Templates are strings of building blocks linked together to create flows through an area of the application.

Example Test Case

Step 1: Get through Area 1 →

Step 2: Get through Area 2 →

Step 3: Get through Area 3 →

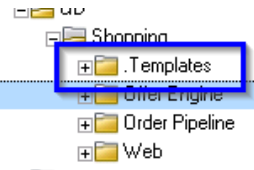
Step 4: Perform action

Step 5: Perform verification

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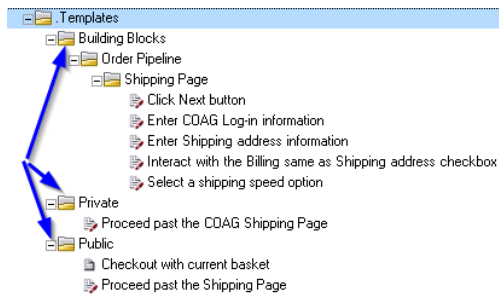
Where Templates Live

A template directory will at the Area level. A period is placed before the folder name to allow it to sort first alphabetically.



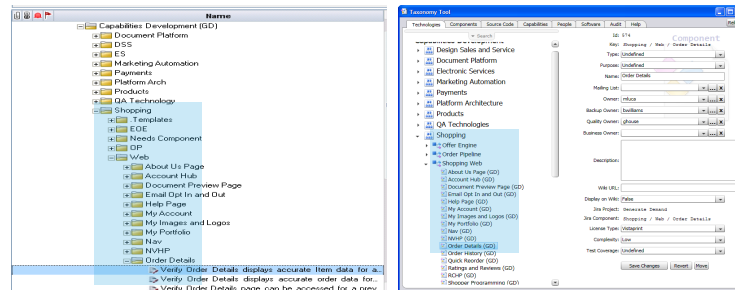
Under each template directory is a three-pronged structure

- **Building Blocks** for the area
- all **Public** actions that anyone might perform frequently
- **Private** actions that only an area would need.



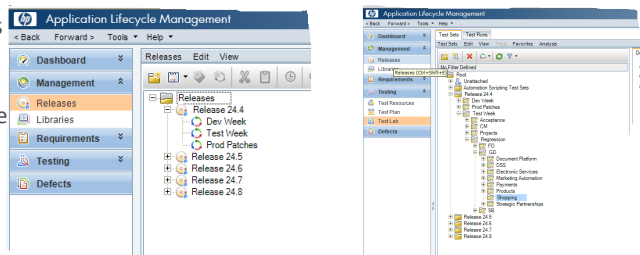
ALM Customizations

Test Coverage by area



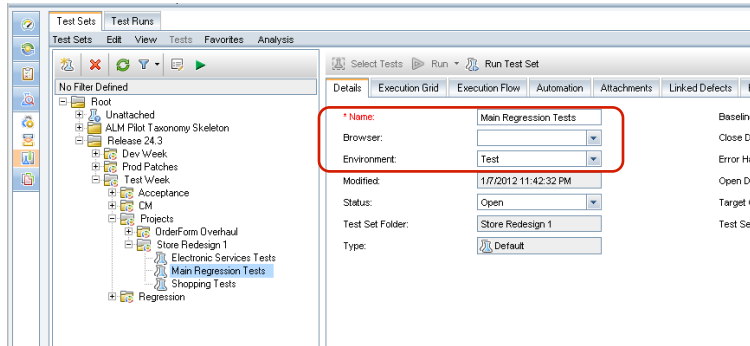
Customized the Releases and Test Lab module structure for

- objective and cycle-based test execution
- Integration with reporting.



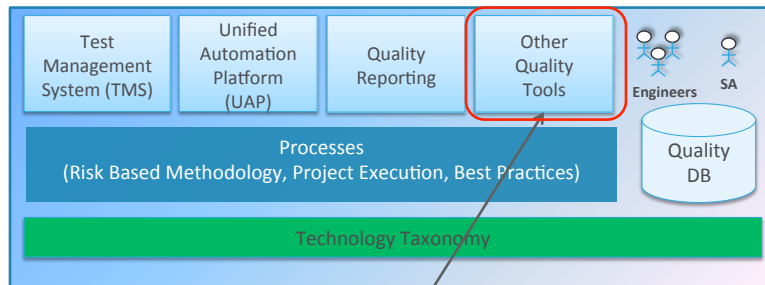
ALM Customization - Test Set Parameter Overrides

The Test Lab module has the ability to override a predefined set of parameters across all tests in a test set. Parameter overrides done through custom fields on the Test Set Object.



Overrides currently implemented are Browser and Environment

Quality Platform – Other Tools



- Performance Testing Tools
- Environment Monitoring Tools
- Utility programs that evaluate and execute tests in specific areas
- etc.,

