TRANSFORMING TO NEXT-GEN APP DELIVERY FOR COMPETITIVE DIFFERENTIATION
Renaissance Delivery Experience Ecosystem
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Introduction

Customers today are smart, connected and empowered. They have higher expectations from their apps, and share both good and bad experiences with the entire community. This in turn has increased the expectations for organizations to deliver applications faster and more frequently to provide significant competitive advantage. Delivering applications for ‘Competitive Differentiation’ is critical for enterprises today.

While agile and rapid prototyping practices enable faster software development, enterprises need a Next Generation Application Delivery Organization where their aging legacy technology and traditional application delivery processes will be transformed into an abstracted as-a-service computing and orchestrated delivery ecosystem, with changes in the culture and structure of their delivery organization.

This paper explores application delivery challenges faced by the enterprises in an agile software development environment and provides insights into how and why enterprises need to transform to a Next Generation application delivery organization to deliver for the age of the customer.
Driving Transformational Forces

Enterprises shifting to the path of faster application delivery face challenges with development and operations, which in turn pile up challenges for business, in terms of aligning with strategy and governance.

Legacy development infrastructure and traditional monolithic applications force developers to build applications with regards to the architecture of the underlying hardware and software platforms. Monolithic architecture pose challenges for developers for incremental changes to meet customer expectations. Today, developers need to blend components and services from many different sources - open source, third-party commercial and bespoke. They face challenges with variability in the technologies and leverage them in the context of their monolithic architecture.

Development Challenges

Increased load piled-up by development team through agile software development increase pressure for operations team. Provisioning infrastructure and setting up environment for every project is time consuming. There are manual, repeated and error-prone activities for every release due to dependencies between application and middleware. Keeping track of environments and application changes is an on-going challenge for operations. Most of the issues that come post production are environment related and there is always a service continuity risk with the manual rollback.

Business Challenges

While agile process, automation and tools address some of the above challenges, all of these would be in silos and replicate the automation of their existing legacy and manual processes. These silos will increase and pile-up challenges for business in terms of alignment with business vision, strategy, Enterprise Architecture (EA), governance and compliance.

Operational Challenges

How long does it take to deploy a code change?

How long does it take to release to production?

How long does it take for deployment?

Strategy & Governance
Develop & Build
Test & Release
Provision & Deploy

APPLICATION DELIVERY LIFECYCLE
**Transformation to Next Generation**

Enterprises need modernization of their today’s architecture, applications, technologies and platforms with changes in culture and structure, to address the above challenges.

**Micro Services Architecture Transformation**

A transformation to Next Generation SOA, which is enabled by API and loosely coupled small SOA services, which in turn enables faster assembly and delivery of business capabilities.

**Continuous Delivery & DevOps Transformation**

A transformation to the next evolution of agile, that extends the practice of agile development to delivery – from ideation to production and over com the barriers of the walls between development, operations and business, through collaboration and co-operation practices.

**Lean Portal Transformation**

A transformation to Next Generation ‘Portal-less portal’ and easy-to-deploy portal, built using Web2.0 technologies, REST and Web Oriented Architecture (WOA) approaches.

**Open Source Transformation**

A migration to open source ecosystem platforms and tools for application development and delivery not just to save the cost, but to gain access to flexible and customizable software and collaborate on open source projects for new ideas and innovation.

**The Next Generation App Delivery Ecosystem**

Enterprises need a Next Generation, which is an abstracted as-a-service computing and orchestrated delivery ecosystems, to address the above challenges.

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<th>Organization’s Existing/New SDLC Tools (Requirements, Problem, Incident, Change, Quality &amp; Configuration Managements)</th>
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### Plan & Develop
- Epic Owners, Portfolio Backlogs
- Epic Owners, Portfolios, Backlogs
- Development, Test, Governance
- Source Code & Artifacts Management

### Build & Test
- Build Lifecycle Configuration
- Delivery Pipeline & Workflow Configuration
- Automated Build, Unit & Functional Test
- Static Code Analysis & Code Coverage
- License Compliance

### Provision & Release
- Environment & Inventory Configuration
- Automated Environment Provision
- Environment Changes Tracking
- Release Planning & Tracking
- Collaboration Dashboard

### Deploy & Govern
- Deployment Process Design
- Application Snapshot Configuration
- One-click Deployment & Rollback
- Application Lifecycle Management
- Metrics, Reports & Feedback

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**Customers**

**Epic Owners & Enterprise Architects**

**PMO, Product Owners & Scrum Masters**

**Solution Architects, Developers & Testers**

**Operations**

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**Middleware**

**Micro-Services & APIs**

**Host Operating System (OS)**

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Approach to Renaissance Experience Delivery

Enterprise needs an incremental, new approach for modernization. The key lies in assessing current delivery capabilities, planning and developing an implementation roadmap that mitigate their service continuity risks.

On-demand, Self-service Automation

Emerging as-a-service computing standardizes environment and automates it to enable on-demand self-service. Example of this is self-service environment provisioning: provisioning environments on-demand when needed and decommissioning when done.

App Containerization

Emerging application containers based on emerging architecture style 'immutable infrastructure', provide infrastructure abstraction that enable to develop an app using any language, ship from developer's laptop through QA, staging and production, and run on any infrastructure whether on premise or data center VMs or public clouds. For developers, containers provide a means to create micro-services and perform integration testing by deploying the necessary micro-services. For operations, the containers provide a means of deploying major releases fractionally, testing them with small portions of the user base, before rolling them out across the entire infrastructure.

Continuous Delivery Orchestration and Integration

Leveraging standardized environments, emerging app delivery ecosystem provides a continuous delivery engine that automates the repeatable tasks from initial planning, through provisioning to deployment by orchestrating various processes and tools, integrating with enterprise's existing systems. The ecosystem platform provides visibility into the entire value chain and enables improved communication and collaboration between IT users and stakeholders.

Services Integration Maturity and Modernization

Assess enterprise’s current IT integration capabilities - applications, services and APIs and develop an implementation roadmap to transform to loosely coupling and Micro-services architecture. New applications can leverage Micro-services architecture from the start. For existing applications, refactor the frequently changing code from application into an independent service and exposing as an independent API for external access.

Continuous Governance and Compliance

Emerging application delivery enforces governance and compliance throughout the lifecycle of delivery enabled by automated continuous delivery process and API-driven testing, which in turn is enabled by loosely coupled architecture.

Continuous Delivery Maturity and Incremental Pipeline Automation

Identify gaps in agile, continuous delivery and DevOps Practices and tools. Implement a configurable delivery pipeline and automate each delivery process incrementally, by orchestrating the required tools as part of the delivery pipeline.

Application Services Governance Maturity and Incremental Automation

Assess enterprise's current services and APIs governance in the context of their overall business and IT governance. Identify gaps in policies applied throughout their development and delivery lifecycle and implement governance automation and API-based testing in each stage of the delivery pipeline.
Conclusion

Enterprises shifting to the path of faster application delivery, need modernization of their architecture, applications, technologies and platforms with changes in the culture and structure of their delivery organizations. Faster application delivery organization requires a new generation ecosystem platform which provides an abstracted and standardized environment that enables on-demand self-service, and automates the repeatable tasks from initial planning through provisioning to deployment by orchestrating various processes and tools, and by integrating with enterprise’s existing systems.

The key to renaissance Experience Delivery lies in the organizations readiness in adopting changes and an incremental, new approach for modernization. The greater the focus on shifting to the path of Next Generation application delivery, the sooner they accelerate the delivery of applications for ‘Competitive Differentiation’ with greater customer experience.

About The Author

Sabir Ahmad is a senior architect in Wipro’s Connected Enterprise Services practice. Sabir has extensive experience in Architecture, Consulting and IP/Solutions Development in the areas of Agile, SOA, Open Source, Portals and Social Media. His charter includes incubating, defining, strategizing and governing Next Generation Agile Delivery services and solutions for customers from their initial planning to deployment of applications, to production.

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