IDC TECHNOLOGY SPOTLIGHT

Autonomics-Applied Application Management

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Expectations on delivering business value from application lifecycle management activities have ratcheted higher. IT organizations face increasing pressures to support evolving business needs as well as better respond to faster pace of changes in business requirements. The increasing pressures can overwhelm IT managers and their application development operations (DevOps) teams. To better support the speed of business, and more quickly adapt to constantly evolving business environments, IT organizations must automate their application lifecycle tasks and application management as well as develop sound cognitive abilities to predict and resolve application issues before they reach users or worse, customers. This paper examines the use of autonomics within development organizations and also explores the role Capgemini's Autonomics Platform-as-a-Service can play in aiding organizations with streamlining their application lifecycle operations.

I. Introduction

Business Expectations on Application Management Have Intensified

In the past, many organizations turned to outsourcing services to help drive business value for their application management tasks. These approaches centered on utilizing low-cost labor in off-shore delivery models coupled with vast numbers of resources to execute application management tasks manually. While traditional outsourcing practices for application management generated cost benefits, they often were time consuming and limited in ability to proactively, cognitively, and predictively circumvent application management issues before they arose. Moreover, the emergence of the internet as well as the introduction (and subsequent growing adoption) of social media as communication outlets has created greater challenges for how organizations execute their businesses and their needs to redirect their corporate energies at a moment's notice. Because of these circumstances, organizations face intense pressures to overcome:

- **Increasing speed of business change**. Newer communication channels like the web and social media are speeding up information exchanges. The speed by which information becomes available, disseminated and consumed, means that organizations need to be able to respond to urgent matters quickly, or risk reputation or loss of business. Organizations face increased pressures ability to respond to unplanned business needs, and according to IDC's research, 53% of businesses need to respond to urgent events within a 48 hour time period (see figure). What this means is that organizations need to not only possess measures and mechanisms that enable rapid response, but also possess methods to automatically and predictively detect application runtime dangers to ensure business applications are always up and running to support business users in times of unexpected need.

- **Heightening time-to-value expectations for application services**. Building applications, deploying applications, and servicing applications all face increasing pressures for the speed by which any development, testing, and management activities can be executed. Using mobile

applications as an example, a recent IDC application outsourcing survey revealed that more than 50% of organizations would expect their service provider to deploy a mobile application within 10 days or less. (see Figure 1) What this means is that lines of business expectations are growing more intolerant of application service delay. Organizations need applications to be available, and up and running or risk detriments to business continuity.

- **Increasing expectations on application return on investment (ROI)**. The value of application investments is facing increased expectations. Much of an application's value is rooted in the productivity gains it generates for its users. When an application is being serviced, whether for patches, enhancements, or upgrades, application downtime due to development and maintenance directly affect user productivity levels as well as the resulting cash flows for human resources using the applications. Using mobile applications as an example, IDC's research has shown that nearly 50% of organizations would expect their mobile applications to generate a 10-25% return on investment over a five year period. (see Figure 2) What this means is that organizations expect their capital used to support applications must generate business value not simply be a cash drain on the organization. There has to be productivity benefits delivered.

Figure 1

Expectations for Mobile Application Service Delivery

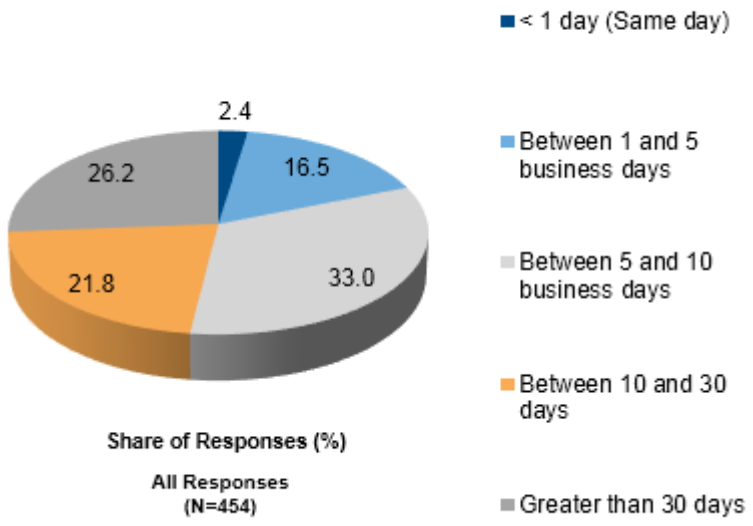

Figure Source: IDC U.S. Application Services Survey, Q4 2014

Figure 2

ROI Expectations for Mobile Applications

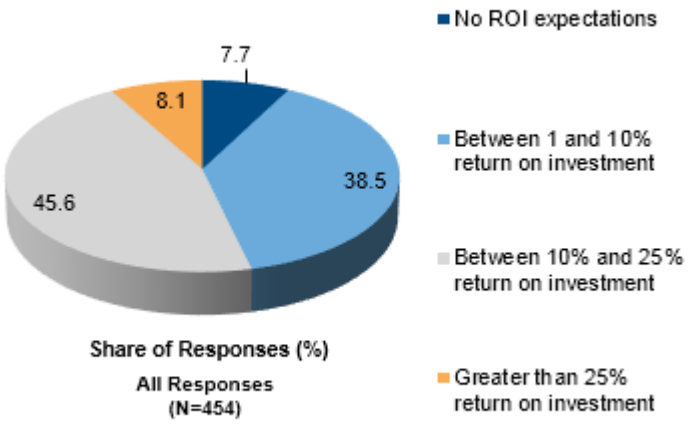

Figure Source: IDC U.S. Application Services Survey, Q4 2014

Automation, Predictability, and Resiliency Can Circumvent Challenges

Challenges to better support the pace of business change, speed of application maintenance, and rising application ROI expectations are driving organizations to evaluate traditional application management approaches and improve their development operations (DevOps). To ensure business speed and minimize application downtime for maintenance, organizations need cognitive tools that can sense, predict, and autonomously resolve their application maintenance issues across business processes, the application layer itself, and underlying infrastructure. Rather than spend additional money on labor to build greater bench strength that can be wasteful and inefficient, organizations need to consider implementing digital labor (or technology automation) that prevent application issues from surfacing. Although automation in application lifecycle management isn't a new concept, what's been missing has been a holistic, integrated, and centralized level of autonomous processes across application lifecycle management facets. Also known as "autonomics", such automated solutions coordinate and stitch together islands of automated application lifecycle management activities; such as testing, scripting, code promotion, application monitoring, and overall approaches and methods for issue resolution.

- **Use of digital labor can speed up application management tasks**. Traditional drivers for outsourcing application management (AM) have centered on reducing labor costs. However, with a maturing market for outsourcing services, labor arbitrage is becoming harder to achieve. The supply of outsourced labor has grown and use of labor instead of technology can result in longer resolution time for tasks to be executed. To drive cost reductions further in operational AM tasks, as well as speed up delivery of AM activities, organizations need to invest in higher levels of automation within the way they execute their overall AM activities.

- **Shifting to digital labor can streamline IT resource management and boost IT cash.** Through substituting labor with technology and automation, organizations can free up resources that were once dedicated to AM tasks and dedicate them to other value-added work in the IT portfolio. Such tactics can aid organizations with aligning their human resources to more complex tasks and strategic thinking that cannot be automated within IT, and free up IT operational cash to be put to work elsewhere in the organization.

III. Benefits

Use of automation within application management activities yields benefits that include:

- **Increased agility and flexibility**. Incorporating autonomics capabilities within application management can aid with building agility and flexibility by freeing up IT resources to focus on higher value-added initiatives. By repurposing resources, the IT organization is enabled higher levels of agility and flexibility to deploy resources more effectively and efficiently within the organization.

- **Intelligent business insights and predictive issue avoidance**. Incorporating autonomics capabilities within application management can aid with proactively detecting application management issues before they happen. Using predictive methods can help organizations better optimize their resource utilization and avert application outages that can disrupt business continuity.

- **Secure and consolidated systems knowledge and business analytics**. Incorporating autonomics capabilities within application management can create higher levels of information clarity. Autonomics solutions create systemic logs and offer higher levels of data traceability that can be shared from resource to resource, versus manual fixes which don't often get catalogued into reporting and are not shared across disparate resource groups.

- **Cost savings and improved ROI.** Incorporating autonomics capabilities within application management can help reduce costs and improve application management ROI. By using autonomics and digital labor instead of manual labor, organizations can reduce the amount of time it takes to execute application management tasks; thereby saving manual resource hours. Applying this to a large scale of applications, organizations can stand to generate significant cost savings over time, which in turn generate higher cash flows and stimulate ROI.

IV. Trends

Over recent years, IDC has witnessed several trends within the application services arena that are causing organizations to evolve how they approach application management. Most recently IDC has seen that:

- **App Portfolios are growing and creating additional stress on IT management.** According to IDC's application outsourcing survey conducted in late 2014, a 25% of organizations have 1000 or more distinct applications within their application portfolio today, and within 5 years, 36% of organizations expect to have 1000 or more distinct applications within their portfolio. (see IDC#254260) What this means is that many organizations will begin to feel the burden of maintaining a growing portfolio of applications with the same (or fewer) resources in the future. Running IT as is with limited automation capabilities will stress IT's ability to deliver to business expectations and increase operational risks for the organization.

- **The priority of application modernization is rising as a strategic initiative**. The push to modernize existing application portfolios is growing in priority. (see IDC#254260) Digital transformation is placing additional pressure for IT and its resources to deliver business value. With mounting importance on modernizing applications, IT departments are going to need

significant, skilled resources to help upgrade applications, migrate legacy applications, replace underlying infrastructure, and assess risk impact to the organization.

V. Capgemini's Autonomics Offering

Capgemini's Autonomic Platform-as-a-Service is designed to help customers orchestrate an integrated application development workflow environment with autonomic processes that build, deploy, scale, test and provision quickly, while maintaining system quality and integrity. The Autonomic Platform-as-a-Service uses processing and software builds to accelerate development activities and management, as well as promote avoidance and early resolution of integration and software issues. The platform can also be configured to automatically deploy software packages, adjust scale when needed, and run QA testing of the application environment.

Benefits

Capgemini's autonomics offering targets the following benefits:

- An integrated DevOps approach to application management
- Increased agility and flexibility in application development, testing, and management
- Intelligent business insights and predictive issue avoidance
- Secure and consolidated systems knowledge and business analytics
- Greater value and ROI
- Cost savings through automation

Autonomic Platform-as-a-Service is designed to constantly monitor, detect and heal any issues that may arise in application systems and underlying infrastructure. Using insights and data from a customer's systems, the Autonomic Platform-as-a-Service can help IT managers predict likely outcomes and circumvent DevOps issues before they become problems.

Challenges

While Capgemini provides an autonomics solution to address organizations' shortfalls with automating their predictive, cognitive, self-healing application management activities, the offering faces a few market headwinds that have emerged within worldwide application services markets.

- **Vendor services consolidation**. IDC research has found that services buyers are showing increased interest in consolidating their vendor management. Services buyers have indicated that while they do not want to consolidate their services vendors down to just one provider, they do want to condense the number of vendors they utilize to streamline vendor management activities (see *2014 U.S. Infrastructure Outsourcing and Cloud Services Buyer Study,* IDC #246992) and drive down vendor management costs. Analysis suggests that 90% of customers prefer to have 10 or fewer service providers. The desire to consolidate providers means that competition for deals will likely grow more intense.
- **Services bundling**. IDC analysis of worldwide application management deals shows an increasing amount of service bundling activity across multiple aspects of the application service life cycle. Bundling application management services and solutions along with other services (such as testing, application development, and infrastructure management services) is an approach that many service providers are utilizing to keep their services pipelines healthy,

maintain stickiness with their existing clients, and fend off competitive threats from newcomers. For Capgemini to break ground with winning new client logos using its autonomics solution, the provider will need to quickly and easily demonstrate strong business value with its autonomics solution to gain traction with new customer logos.

VI. Conclusion

Automating application management tasks and administration is an excellent strategy to help expand and unlock business capabilities. Through utilizing autonomics and autonomous computing, IT organizations can be better positioned to help generate new sources of operational cash, which in turn, can fund and support overall business capability expansions. IDC believes automation within application lifecycle management will continue to grow in importance over the coming years as organizations seek to drive higher levels of application management speed and cost savings, and along these lines IDC recommends organizations:

- **Define clear and measurable goals and objectives.** Outline specifically what automation will and will not bring to your organization's application management, DevOps, and infrastructure management activities. Use these goals and objectives as the anchoring foundation for how your organization intends to (and will) be successful with implementing comprehensive automation across the various facets of DevOps, application management, and infrastructure management.
- **Assess the existing state of automation within your application lifecycle management**. Many organizations have "pockets" of automation within their application management environment. Some have created automation within their quality assurance areas, while others have created automation in their application performance management and infrastructure management areas. In large organizations assessing levels of automation can be difficult because the overall IT organization may be decentralized across business units and distributed across geographies. Nonetheless, it's important to get a macro understanding of automation levels within development, testing, release, management, and infrastructure functions to understand maturity levels, and help size opportunities where automation of application lifecycle management activities can generate value.
- **Explore, size, and triage areas of application management to automate**. As you explore and inventory your organization for automation opportunities across applications, infrastructure and process management areas, measure how the activities link to or may affect various lines of business areas. Generate estimated costs, metrics, and risks to the line of business users for routine and major application management tasks. Prioritize automation areas by level of business risk and impact, as well as estimated use of operational cash.
- **Develop a governance and overarching performance monitoring model**. Even with increased autonomous computing across various application lifecycle management areas, organizations still need to develop a governance and oversight model to monitor performance and explore areas for further automation. While the goal of autonomics is to enhance efficiencies, speed up application management tasks, and eliminate overhead and excess costs, organizations still must develop escalation paths, define measures of success to ensure any autonomics solution is providing value. Establish a set of resources that will help guide, direct, and manage the program, such as a steering or management committee.