



I D C V E N D O R F O C U S

Enhancing IT Operations for Digital Transformation

November 2015

Sponsored by Virtusa Corporation

Introduction

In the changing construct of business, social and economic realities, technology emerges as a key enabler of digital transformation for enterprises to remain relevant, engaged and competitive. The need for digital transformation is an existential requirement. It is also difficult and complicated, and requires resources and capabilities which are scarce. In this conundrum of complexity, the role of technology is to enable simplicity in usage, ease in business enablement and speed in customer engagement.

IDC believes automation, agile and DevOps are three elements to building a highly effective, resilient yet flexible and agile IT operational environment for enabling digital transformation. These three elements working in cohesion offer significant ROI benefits for business and TCO reductions for IT.

Automation, Agile DevOps and Analytics

Digital transformation and the need to accelerate innovation are key drivers for changes in the IT and business service management practices. Both of these drivers can be said to have originated from the LOB managers who are leading the shift to digital. Yet, IT needs to have standardized, repeatable and scalable architectures which can facilitate greater efficiency for LOBs, through consistent governance and compliance principles. For several businesses, this underlying IT architecture has cloud at its base (which in turn realizes aspects of service-oriented architecture [SOA], enterprise service bus [ESB] and automation), on top of which aspects of mobility, big data/analytics et al are layered through adoption of agile and DevOps. The changing role of IT and LOB for driving digital transformation (see Figure 1) will necessitate investment in building an IT environment which is process-aligned to absorb complexity and negate operational disruption.

As a result, there are three key trends impacting the change in service management:

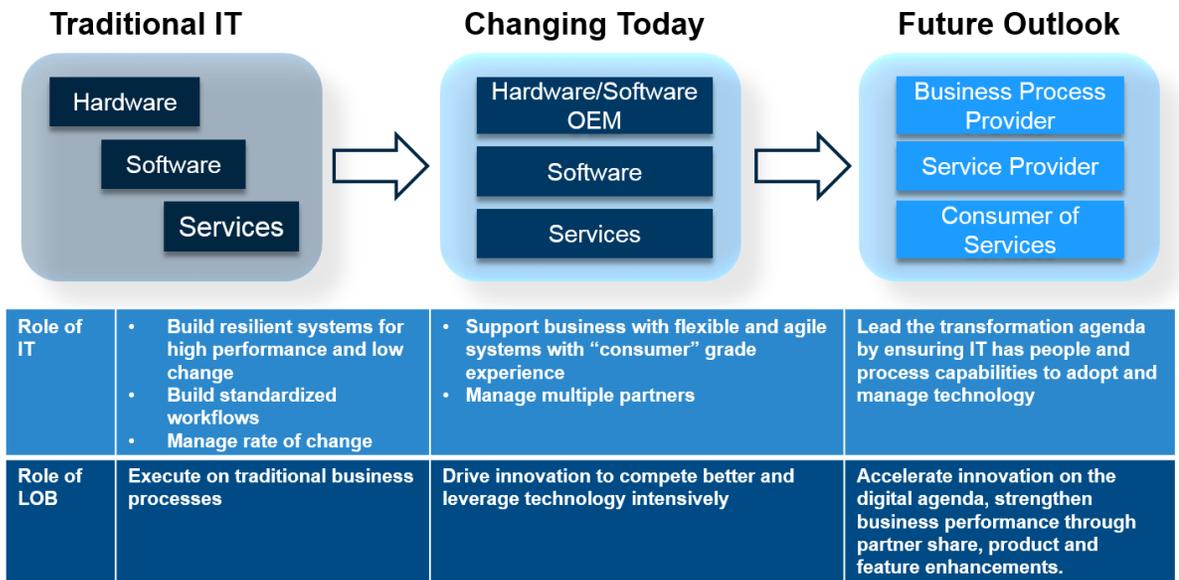
1. **Automation for Simplicity:** CIOs need to be working towards building visibility across the value chain with the harmonization of processes across different IT (traditional/legacy, private, public, virtual private) environments. As part of this, the need for automation (from a service delivery perspective) and orchestration (from a workload perspective) will become paramount. Furthermore, it is incumbent upon IT organizations to have a progressive automation agenda to enable time-bound evolution from task automation to work-flow automation. However, automation will requires CIOs to look beyond tools and evaluate enterprise maturity in enabling self-learning environments across the enterprise infrastructure. The focus, therefore, has to be on process enhancements (ITIL, in particular, provides a useful reference) and reskilling of manpower.
2. **Agile DevOps:** IT organizations are struggling to bring together the best of both ITIL and agile to the forefront while elevating the real reason for these investments, which is driving business value and outcomes. The emphasis for agile DevOps is to directly provide value to business by enhancing customer experience through rapid incorporation of customer feedback and market cues into

product and service offerings. As such, agile DevOps introduces a high level of visibility and transparency across IT and LOB by including shared stakeholders. While agile DevOps takes an external/customer focused view as compared to ITIL, which is internally focused far too often, the integration of these elements leads to the creation of an IT environment which is best placed to drive and enable digital transformation for improving organizational performance and enhancing business value.

3. **Analytics:** A high degree of automation enables the next wave of higher order benefits within the realm of infrastructure management through predictive and preemptive capabilities. Successful IT environments need to work on lead-metrics which in turn implies analytics-based decision making around optimization of resource provisioning and IT operations. To achieve this objective, concepts of heuristics analysis and machine-to-machine (M2M) learning have to be implemented from a perspective of enabling a highly flexible yet resilient operational capability.

Figure 1

Evolution of Role of IT and LOB



Source: IDC, 2015

Benefits of the Approach

Taking an overarching process architecture perspective has several merits. However, this does not imply a big-bang approach and not everything has to be addressed at the same time – in fact it is recommended to have a services transition plan that will decide the pace of change.

First, this approach implies less manual intervention is needed, which leads to not only better resource utilization but also standardization in service delivery processes and consistency in service experience across the enterprise and customer environment. IDC has observed that approximately 74% of errors in service delivery are due to manual intervention, and therefore an automation-led approach essentially removes, or can remove, a significant chunk of failures.

Secondly, by adopting automation (and in a phased approach), IT leaders can expect to lower their total cost of operations. However, this is just the first step. By integrating automation with agile DevOps, the enterprise IT environment can support the speed for business. By bringing in agile DevOps into the services delivery construct, IT departments are able to support a higher speed of innovation. Effectively, agile helps realize the "build-fast, fail-fast" paradigm, which leads to faster incorporation of customer/consumer feedback, thereby enhancing the product and services relevance and acceptance in the market. While automation, even on its own, can contribute significantly to cost reduction and process optimization, implementation of agile DevOps through increased automation acts as a force multiplier for the benefits achievable from automation.

Thirdly, automation in conjunction with machine learning and predictive analytics, enables an environment that gets increasingly efficient and optimized over time. Predictive analytics enable preemptive, rule-based actions to help realize a highly predictable and optimized enterprise IT environment with minimal manual intervention, freeing up the bandwidth of the enterprise IT team to focus on strategic business enablement through technology.

So, why is this important now? Globally, IT departments expect to double the number of monthly application deployments by 2017 and while doing so, they need to accelerate the pace of application delivery by 15–20%. Therefore, it is paramount that CIOs are in a position to operate a highly automated IT environment which is configured to support the pace of digital transformation that businesses need to maintain relevance in today's market.

The Business Case for DevOps

*IDC estimates that the total annual cost of unplanned application downtime among Fortune 1000 companies is in the range of **US\$1.25 billion to US\$2.5 billion**. While a DevOps environment by itself will not completely eliminate downtime, IDC estimates that integration of development/production environments under the DevOps construct can accelerate delivery capabilities by up to 20%, shrinking the mean time to resolution (MTTR), and resulting in direct annual cost savings in the range of **US\$250 million to US\$500 million** in the above illustration. This is in addition to the direct reduction in outages in the first place as the development and test environments are integrated allowing for bugs to be found and fixed before they become issues in production. A well-designed, highly automated DevOps environment can thus be considered a worthwhile investment that more than pays for itself over time.*

Virtusa's Approach to IT Operations Effectiveness

Automation is core to Virtusa and runs right through the company's entire range of service offerings. The company's philosophy is based on the three tenants of Glass House (transparency across operations), Scale Out (monitoring and service enablement) and Rising Tide (knowledge integration for autonomics). With the emphasis on transforming IT operations through proactive, predictive, problem solving, the company has shared with IDC case studies and demos where it is able to reduce overall operational tasks by 50–60%, reduce non-production TCO by 30–40% for application environments, and lower downtime by 70% through analytics for autonomics. Virtusa's claims are not light – in order to achieve the confidence and capability in service delivery, the company has consistently worked on its R&D as well as undertaken acquisitions (such as Apparatus Inc.) to improve its competitive position in the market.

The company aims to achieve the following three objectives as part of its customer engagements:

1. Ability to be agile with changing business requirements while being agnostic to underlying IT environment's complexity; scale up or down in sync with the evolutionary curve of both business growth and technology fitment.
2. Empower the IT environment through features like auto-healing, auto-provisioning and other automated enablement.

3. Optimize cost and improve resource utilization through elimination of manual intervention for performing predictable, redundant and common activities.

Offerings

There are three components to Virtusa's offerings: pre-emptive managed IT services, automate IT operations and agile DevOps. Presented below are key highlights based on IDC's assessment of these offerings.

Pre-emptive Managed IT Services

Although much has been spoken about this category of services across the industry, "preemptive" is not easy to achieve. Challenges are associated with identification of elements of the IT stack to be prioritized and the thresholds that need to be defined in order to initiate the pre-emptive management. In addition, processes pertaining to service delivery need to be re-defined and there has to be a culture of consistent and predictable change management to have "preemptive" capabilities enabled. Virtusa integrates analytics and action processes into a single platform called Kore. This platform leverages time-series analysis of health check of devices to feed into a metadata structure which benchmarks the health of devices/equipment against global best practices or customer defined benchmarks. The action processors are then able to "auto" identify potential issues and flaws through which it is possible to identify and remediate roadblocks in development and operational environments in advance. Through automatic performance measures, customers are available to gain recommendations (and not just data dashboards) on system performance, security and stability of the overall IT environment. This approach allows Virtusa to reduce downtime quite significantly.

Automated Operations

For operating a highly efficient IT environment, automation is a necessity. While most customers continue to take a tools-based approach to automation, the diversity and complexity of existing IT environments makes it almost inevitable that the customers end up with an assortment of tools that do not communicate with each other. To address such situations, Virtusa takes a consulting-based approach (akin to enterprise asset exploration) and identifies tasks to be automated and the extent to which they can be automated most effectively. The express goal of this exercise is to lower the time to get workloads to production and shorten the feedback loop between customers and development teams. Virtusa's references showcase 90%+ effort reduction across different scenarios, such as auto backup (for event and run book automation), auto-provisioning of VM (workload automation), and auto SRM scheduling (workflow and process automation). It is with such automation processes that the company claims to lower effort needed for operational tasks by 50-60%.

Agile DevOps

DevOps is akin to a unicorn in today's IT environment. While everyone wants to leverage DevOps, it is difficult to gain the level of automation-enabled process efficiencies and capabilities to drive DevOps effectively. In addition, cultural challenges presented by acclimatization to traditional development and operations practices are difficult to overcome. Virtusa's emphasis within DevOps is largely centered on *continuous delivery*, with the focus on lowering TCO while improving production release rates.

The company's solution offerings pivot around intense **collaboration with customer teams** across development and testing, operations and process/project teams. Within its agile DevOps paradigm, the company brings together three key tenants:

1. **Collaboration Culture and Mindset:** With emphasis on the end customer, Virtusa works with its clients to foster a culture of continuous improvement through the establishment of team incentives, KPIs and enabling a culture of trust and tight relationships.

2. **Application and Infrastructure Operations Standards:** Through an integrated view of application development, deployment, management and monitoring, the company is able to offer a "single pane of glass" for operations management. The company works with customers to identify the priority areas for DevOps implementation and jointly works with the customers towards realization of efficiency enhancements.
3. **Development Standards:** Virtusa helps customers to set up scrum environments for agile development and implementation of test driven development. The approach is typically non-disruptive to an existing test environment, and yet provides measured enhancements to enable higher quality assurance.

KORE – The Secret Sauce

The Kore Managed IT Solutions platform sits at the heart of Virtusa's automation initiatives within customer environments. The Kore platform combines cloud/virtualized infrastructure management; unified communication platforms; collaboration and content management; data management, backup and disaster recovery; and mobile device management to deliver managed solutions to customers.

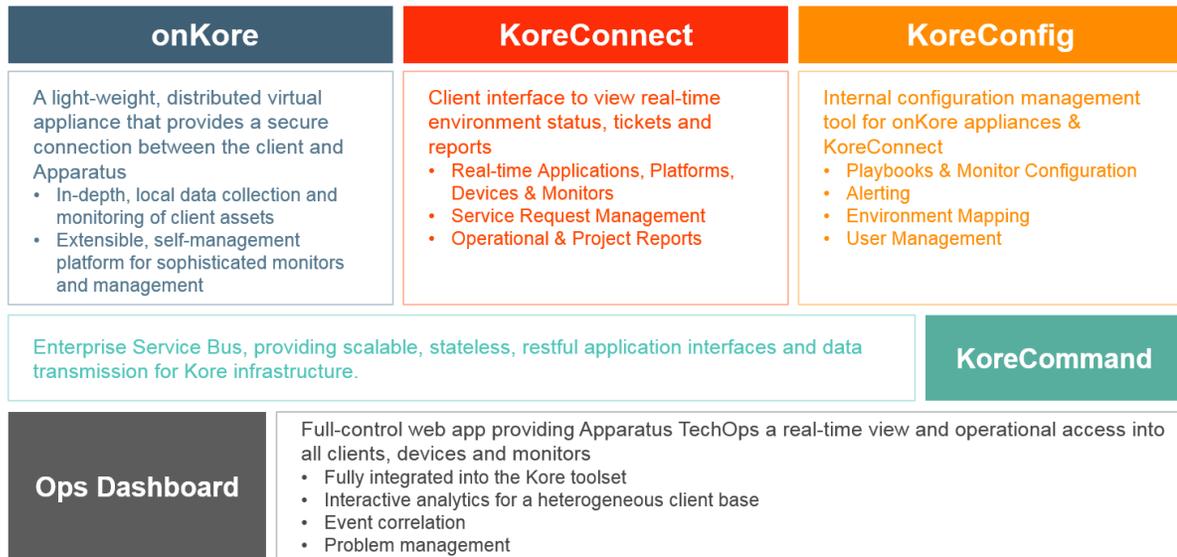
As shown in Figure 2, Virtusa's Kore Managed IT solution comprises several discreet components that together provide integrated management capability:

- The KoreConnect client portal provides real-time visibility of the system through interactive and configurable dashboards, along with ticket tracking and customizable report generation.
- The onKore virtual appliance provides a secure connection between the client device and Kore's RIM center to enable data exchange, client monitoring & advanced reporting.
- KoreConfig provides advanced configuration management capabilities for both KoreConnect and onKore, improves governance and accelerates troubleshooting.
- The KoreCommand enterprise serial bus (ESB) provides an extensible (through RESTful APIs) data transmission channel for the Kore architecture that enables increased automation.
- The Ops Dashboard, which is integrated with Kore's toolset, provides the Virtusa technical operations team real-time view and access to manage all of the client's infrastructure.

Figure 2

The Kore Managed IT Services Platform

Kore Components



Source: Virtusa Corp, 2015

Kore platform serves as a centralized management interface providing a unified view on system performance, security and stability of overall IT environment. The platform collects metadata about a client's environment allowing Virtusa's TechOps team to compare and receive proactive notification of changes. The platform leverages historic data to build predictive models that provide capabilities for What-If analysis and enables the team to make smart decisions

More importantly, however, the Kore platform enables a high degree of automation that delivers higher efficiency and reduces operational effort by up to 60%. The scope of automation within the purview of the Kore platform encompasses event responses, runbooks, workloads, workflows and processes. The high degree of automation facilitated by the Kore platform also enables Virtusa to provide an agile DevOps solution that ties together automation across resource provisioning, application development, testing, build & deployment and operations, significantly enhancing efficiency and reducing the total cost of operations across non-production environments by 30–40%. This is particularly useful for enterprises that rely on continuous delivery and rapid go-to-market cycles to maintain high responsiveness to market trends and dynamics.

Engaging with Virtusa

Virtusa provides both discreet automation services and automation enablement as part of its shared services umbrella for infrastructure management. Virtusa's hybrid-automation approach allows customers to not only set the pace of automation enablement within their IT environments, but also choose the tools and platforms (internal, third party or Virtusa's) to work with.

Automation is a horizontal solution line across enterprise computing, end-user computing, application integration, network and security, allowing for end-to-end automation across entire processes, rather than establishing hand-off points across traditional IT silos. The benefits of this approach are clearly visible in the implementation of Virtusa's Agile DevOps solution that allows enterprises to maximize the benefit that can be realized through extensive automation within their IT environment. Such an

approach is particularly appealing to enterprises that are interested in employing end-to-end automation as a key business enabler, and not just as a lever for driving operational efficiency improvement in piecemeal processes.

The Kore platform also enables the analysis of performance and configuration data from client infrastructure and applications. This helps identify signature patterns that are early indicators of potential issues (such as race conditions) and allows for preemptive action to be taken. The self-learning nature of the system ensures that the accuracy of the predictive analytics and the associated preemptive capabilities keep improving over time, leading to a progressively optimized operational environment.

As automation takes an increasingly important role in the services it provides to its customers, Virtusa has begun offering its services through outcome-based contracts with year-on-year cost savings built into them. This allows customers to both progressively increase the automation within their IT operations over time, while reaping the financial benefits as assured in the contract. Unit-based pricing across discreet service elements – such as trouble tickets serviced – further allows customers to benefit from reduced units consumed through increased automation.

As organizations face significant challenges in scaling and managing their IT infrastructure while effectively reducing costs, they are increasingly looking at managed services providers to manage their day-to-day IT operations. Virtusa offers end-to-end managed services through its Kore Managed IT solutions platform that helps enterprises meet their business objectives and drive down infrastructure cost over a period of time.

Challenges and Opportunities

There are a few areas that Virtusa can work on to further improve its offerings:

- **Changing end-user device landscape:** Virtusa has a robust portfolio for end-user service desk management and overall end-user services. With the workspace environment changing rapidly and the inclusion of mobile applications and adoption of BYOD or CYOD within enterprise environments, it is recommended that Virtusa continues to invest in digital transformation initiatives. Specifically, the emphasis should be on customer experience management and workspace transformation.
- **Hybrid Cloud Operations:** Virtusa has been working on cloud integration and automation for hybrid cloud environments for some time now. However, the company needs to accelerate its pace of innovation for hybrid cloud management, specifically in context of emerging demand for M2M interaction management within IoT clouds. There is opportunity for industry-specific clouds as well as specialized Big Data Analytics as Services globally. Placing emphasis on and prioritizing investments in these areas will be beneficial for the company.

Conclusion

IDC recommends a four-step process for enterprises attempting to move up the service management maturity ladder, with each step building upon the foundations laid in the step before:

Step 1 – Environmental Assessment: A detailed assessment of the entire operating environment – applications, infrastructure, tools and processes – will help to identify not just the current stage of IT services management maturity, but also the most critical, complex and time-consuming activities that need to be prioritized for attention and quick benefits.

Step 2 – Standardization: Once the assessment is completed, work can begin on the streamlining, standardization and rationalization of tasks, activities and processes, which forms the foundation of improved operational efficiency within the IT organization. The IT Infrastructure Library (ITIL) provides a fantastic reference for best practices that enterprises can employ as they go about standardizing their IT environment.

Step 3 – Automation: Standardization sets the stage for automation, which can begin with the automation of discreet tasks and activities through simple scripts and standalone tools, and subsequently be gradually expanded through greater integration between the tools and increased orchestration ability. As enterprise IT operations start to get automated, the IT department can start building out an IT services catalog towards the goal of delivery of elements of IT as services.

Step 4 – Optimization: A common mistake that enterprise IT teams make is to treat automation as a static state and an end in itself, instead of leveraging automation as a means to achieve business objectives that continually change. Optimization involves constantly reviewing and updating work flows, task automation and self-service capabilities in order to deliver IT as a service fully equipped to deliver desired business outcomes.

We are at the cusp of a new era in IT operations management led by an emphasis on agile, automation and analytics. Businesses that are looking at enabling digital transformation and building a competitive edge in the market have to think differently. Given its focus on infusing these specific attributes within enterprise infrastructure management, Virtusa is well-paced to help companies that are looking to enhance their operational environment.

A B O U T T H I S P U B L I C A T I O N

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Global Headquarters: 5 Speen Street Framingham, MA 01701 USA P.508.872.8200 F.508.935.4015 www.idc.com