

ITOA: The perfect poster child for transforming IT

In today's information age, analytics is one of the most talked about topics in IT. In fact, Gartner voted analytics as the leading technology accelerant for 2015¹. IT Operations Analytics (ITOA) in particular stands out with its ability to drive transformation in an organization. ITOA's impact is far-reaching from performance stability to preemptive monitoring, seamless product deliveries, and efficient customer service. Businesses are increasingly benefiting by making the move to proactive and predictive IT operations by leveraging predictive analytics to improve service levels and enhance user experience. As a result, IT operations is no longer a cost center, but is increasingly being perceived as a revenue generating area.

Here, we look at a few areas that ITOA can impact significantly.

- 1) **Automatic problem detection and remediation:** One of the biggest paradigm changes occurring in the ITOA world today is the shift from 'how do we fix this issue?' to 'how do we find out the issue even before it occurs and fix it?' The challenge with the reactive approach is that even with response times under seconds, there is still an outage and a corresponding financial, reputational, and customer impact. The predictive mode enables better risk management by analyzing current performance based on historical data and averting potential system failures.

Machine learning is helping ITOA take problem detection to another level. Firms such as Netflix have pioneered the machine learning model; Netflix applies self-learning in its streaming applications by automating Quality Control (QC)². A self-learning system is intelligent enough to chart your business graph and get your infrastructure to deliver by dynamically configuring rules and corresponding actions. Since it is hard to add anomaly detection and analytical algorithms for all scenario, it is extremely useful to have a system that learns from its own data.

- 2) **Application performance Management (APM):** ITOA solutions use predictive analytics to raise real-time alerts about Key Performance Indicators (KPI). Operation teams configure performance thresholds and alerts for proactive action are raised when these thresholds are breached. When the ecommerce provider Target's site went down on Cyber Monday, there was immediate business impact with the company's shares dipping by 1%. It is therefore important that on days when the traffic volumes are anticipated to be higher, performance monitoring thresholds are dynamically defined, and events routed to data centers in alternate regions to stabilize traffic.

¹ Gartner Says Analytics is Top Technology Trend for 2015, October 2015, <http://www.evolver.com/blog/gartner-says-analytics-is-top-technology-trend-for-2015.html>, accessed February 2016

² Optimizing Content Quality Control at Netflix with Predictive Modeling, December 2015, <http://techblog.netflix.com/search/label/machine%20learning>, accessed February 2016

Analytics can help gain a comprehensive understanding of performance metrics in diverse environments, making it easier to analyze what-if scenarios and accordingly manage future capacity. The definition of uptime and downtime may be clear, but there are various performance levels in the middle, which are hard to quantify in the space of APM. This is exactly where analytics comes handy because it does not depend on just predefined rules and configurations, but considers a holistic view of the system before making recommendations.

- 3) Contextualization of operational data:** Data in isolation is of no meaning. However, viewed in combination with other units of data, patterns begin to emerge. Map the specific business context to this data pool, and it becomes easier to prioritize issues. Correlating data sets is an area where analytics can gather insights that are traditionally not apparent through manual analysis.

Consider a scenario where there are five outstanding tickets that an operations engineer has to address. The person would pick and choose which issue to address first based on criticality, peripheral systems that are impacted, performance lags, business impact, and several other parameters. If we extrapolate this scenario to a hundred or thousand issues, the power of analytics can be easily understood. Analytical models can assign weights to each issue by considering it in the larger context to prioritize issues accurately.

- 4) Service intelligence:** Industry leaders are exploring how to pass the ITOA benefits directly to the customer – the end-user as well as the operations engineer who uses these tools. IT service providers offer modules that can be plugged into a firm's environment to gain comprehensive end-user IT analytics. The components can be integrated seamlessly with a firm's ITIL (IT Infrastructure Library) processes and tools, ultimately delivering better IT Service Management (ITSM) to the customers.

IT operation engineers struggle with inundated service requests and tickets. ITOA makes it simpler with self-help bots that do not require any human intervention to resolve routine customer queries. As the solution reduces ticket volumes and improves overall SLAs, engineers will have the bandwidth to focus on tasks that need manual assistance. From a customer point of view, this ensures better service and quicker response with an open and interactive channel available 24x7 for queries.

- 5) Operational visibility and transparency:** ITOA introduces visibility into all system layers such as networks, applications, and servers. It takes the unstructured data and converts them into actionable insights by understanding topological relationships. Centralized dashboards enable transparency by providing insights on system behavior and resolution steps. Several ITOA providers are now focusing on developing dashboards that are self-reliant and not dependent on operations team to conduct additional data analysis.

The visibility is not just restricted to the technical infrastructure but also helps analyze business impact. For example, what is the dollar impact due to transaction failures? Which core business functionalities are impacted when a process goes down? How much business value does each region in a distributed system contribute? By providing answers to these questions, organizations are able to quantify the business impact and isolate problem areas. It is now easier to take real-time business decisions due to the availability of incisive information.

Out-of-the-box ideas will be the key to further transformation

The coming years are expected to have a dramatic impact on ITOA, with its boundaries being pushed to bring in bold innovation. Chaos engineering is one such example that not only delivers from a technical standpoint, but also adds immense business value with its proactive remediation approach. It takes regression testing to another level by purposefully injecting failures into a distributed production system and monitoring response and readiness. For example, Netflix's initiative in this space called Chaos Monkey involved launching simulated attacks to test the vulnerabilities in its IT ecosystem.

Industry experts believe that the focus is likely to shift from core operations to providing better service and enhancing security features in the future. Already, firms have successfully made the transition from mere automation to predictive analytics based business transformations. Now they are ramping up to non-linear changes leading to a further rise in out-of-the-box ideas that can further transform IT operations and propel business growth.