The 7-step approach to sustainable and mature ‘observability’

A guide for I&O leaders

There is a growing interest in organizations to relate technology events to business outcomes, be it impact correlation or a technology investment's influence on business outcomes. Is our current form of monitoring good enough to address this or is there something beyond we need to look at?

The paper decodes this question and provides Infrastructure and Operations (I&O) leaders guidance on the monitoring and observability strategies that would enable them transform their I&O organizations from support functions to strategic business partners.

Understanding the current I&O challenges

In the last decade, businesses have been rapidly adopting and investing more and more in emerging infrastructure, new technologies and business processes to drive digitization and innovation, reduce their time to market and create new ways of engaging with customers and partners. While the embracement of these new age solutions are happening, it is also irrefutable that legacy environment are counting co-exist.

This trend has resulted in organizations having a complex and constantly evolving IT environment.

The I&O teams managing these environments are now tasked to maintain a holistic view of the application and infrastructure technology, in a highly synchronized manner, treating the whole system as a single unit rather than as a stack of loosely related individual components.

Businesses are also now more focused on outcome based agreements that is driving the I&O leadership to be able to provide an end-to-end service-level agreement (SLAs). At the same time, they have a necessity to drive quality up and cost of operations down. In order to scale up to this demand, the operations teams need a comprehensive 360 degree view of their environment, greater and faster collaboration across silos by sharing real time information about performance and associated risks. They need a better understanding of the dependencies across application code, DevOps-driven tool chains, rapidly changing on-premises infrastructure, complex cloud services, and diverse mobile, web, and Internet of Things (IoT) end-user experiences and their impact to their core businesses. Traditional workflows, change control programs, monitoring techniques, and root cause analytics are slow and reactive to effectively manage today's rapidly changing environments.

Analyst Views

Top I&O Goals

- Improve quality
- Lower cost of 'Run' business
- Improve alignment with business goals

40% of CEOs see growth as No.1 business priority

21% of I&O leaders want greater quality at lower cost of 'Run' business to support the digital journey

Overcoming the challenges with 'observability'

I&O organizations have always utilized various monitoring processes to collect system data and report on the state of individual elements. However, monitoring alone is insufficient to address the challenges of complex modern environments. The current environment needs **monitoring** to be complemented by good **'observability'**, which is the ability to understand why a system behaves in a certain way.

We need solutions that are beyond simple monitoring. **Observability solutions** will help I&O organizations gain better and deeper insights across the full stack in real time, linking these insights to business outcomes, cost of services, and end-to-end development workflows.

The upcoming sections elaborate upon Wipro's approach, solution and guidance to rolling out observability concepts and solutions within an organization.

Application of observability

Let us examine the following scenario to understand this better.

The business operations team of a large retail company suddenly sees a decline in online sales. Concurrently, I&O teams see performance degradations on the application supporting the online portal. The database team has been working on database performance issues for the last 3 hours and have identified some long running queries as the cause. Coincidently, security operations has been on high alert due to an unprecedented stream of attacks on the environment.

Is it coincidence that sales is declining at the same time that a security attack is on?

Without applying observability, various operations teams, from business to IT to security, would be working in silos and wasting precious time before realizing that the individual issues were interconnected. The monitoring solution worked only because each team realized the stated changes in their respective elements through alerts. But was this sufficient to help the business?

The need in such situations is for a solution that can provide a more unified 360 degree relational view of the environment, applying artificial intelligence/machine learning (AI/ML) techniques to filter and correlate data across multiple services. This helps the I&O teams to quickly understand business and end-user impact. Observability platforms allow I&O teams to build and maintain comprehensive views of the full status and performance of entire services, from applications, on-premises infrastructure, cloud services, containers, to Kubernetes, etc.

In our scenario, a well designed observability solution would have helped the security team to correlate the impact of the ongoing security incidents with the decline in online sales within minutes.

Analyst Views

Top I&O Strategies

- Provision services not infrastructure
- Be more proactive and less reactive
- Design for API driven infrastructure

40% of I&O leaders plan to use AI/ML based solutions by 2020

The key capabilities to look for in an observability solution are:

- Unified view (Automated application discovery and service mapping)
- Full stack monitoring (Infrastructure to application to business processes)
- AI/ML driven event & service management (Aggregation, to security, suppression, correlation)
- Service experience monitoring and mapping
- Analytics & prediction
- Self-heal and self-service capable
- Ability to process user feedbacks [from Twitter, Google reviews etc.)
- Capability to be business aware

Building observability capability

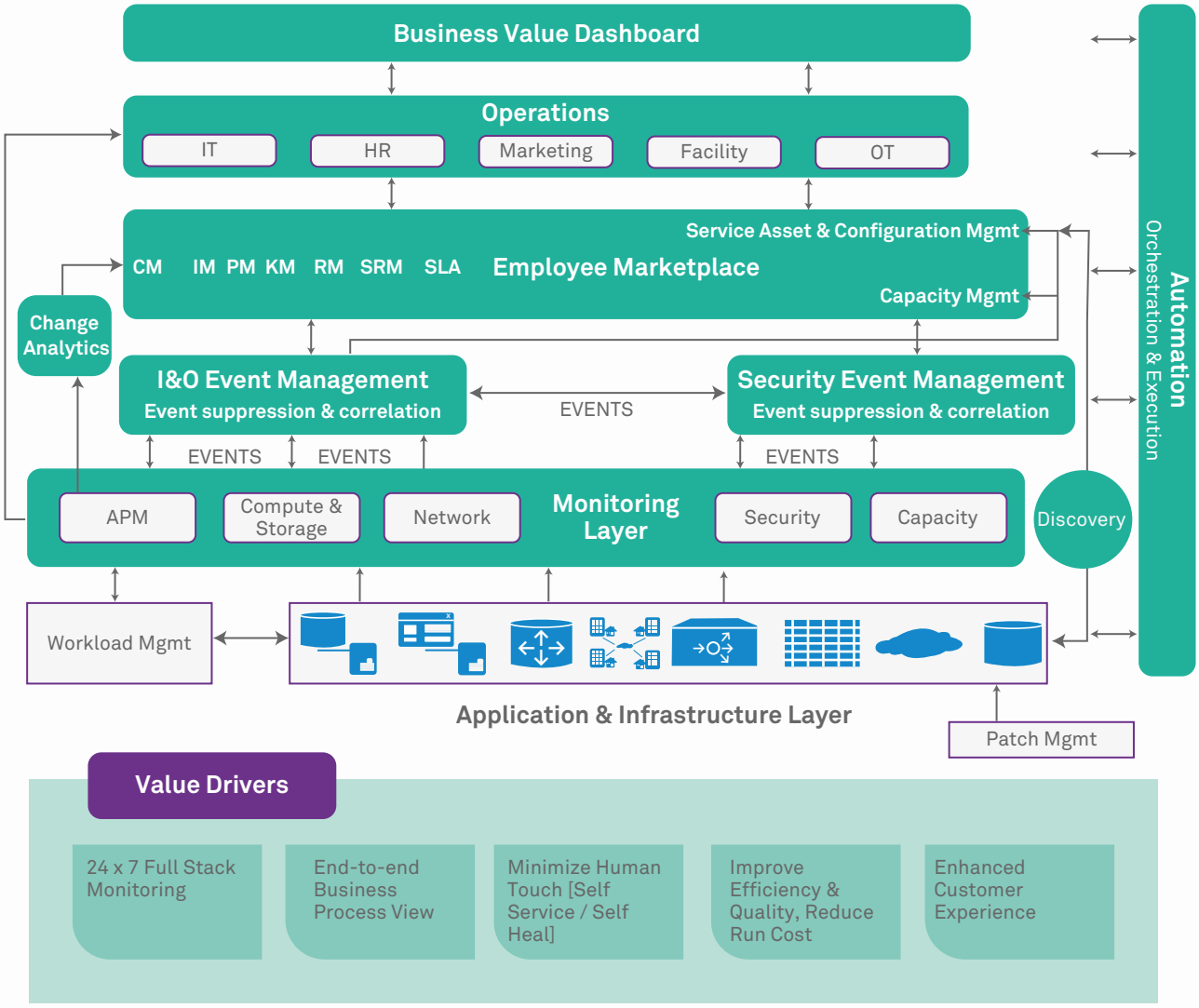

Figure 1 details guidance on building a sustainable and mature observability solution.

Stage 1 - Setting up the core monitoring solution that ensures state collection [Performance, health, operating state etc.]

Stage 2 - AI/ML event management [Impact correlation]

Stage 3 - Full stack discovery and service mapping [Could be AI driven]. Consumption into event management

Stage 4 - Automated incident creation [Ticket reduction, configuration data base bi-directional synchronization]

Stage 5 - Capacity management [Could be AI driven]

Stage 6 - Change analytics [Unauthorized change detection, incident to change correlation etc.]

Stage 7 - Business Value Dashboard [360 degree view of enterprise, advanced analytics & prediction]

Automation - This would be a parallel stream and start right from stage 1 all the way up to stage 7

Figure 1: The 7-step approach to a sustainable and mature solution

The twin pillars of value realization and sustainability

While implementing observability, it is important to understand the value the solution is required to drive:

- 360-degree view of enterprise (Service to infrastructure view)
- Incident ticket reduction, automated proactive problem management, automated diagnostic information capture
- Change risk view, change to incident correlation, improved mean time to detect possible cause
- Single pane of view, persona based views, advanced analytics (Predictive)
- Release validations, configuration drift control, environmental inconsistencies identification
- Self-service, self recovery – Robotic Process Automation to Run Book Automation
- Ability to measure business SLA (Business outcome and efficiency measurement)

The maturity and success of the observability model is completely reliant on ensuring that the observability process is part of the 'Continuous Improvement Process' of the enterprise. I&O leaders need to align and agree to the maturity model, set up maturity achievement goals to establish a roadmap for increasing levels of maturity and ensure complete buy-in of service partners.

The future of observability maturity

While the concept of observability is not new, Artificial Intelligence and Machine Learning have given it a new dimension and made observability more realistic and viable with the promise of good return on investments.

Organizations, however, should be cognizant of their own capabilities and limitations and adopt relevant solutions that can be easily implemented while deciding on the application of AI/ML concepts. Since value realization and sustainability are the two foundational pillars ensuring good ROI, I&O leaders should make certain that these are well laid down by observability solution owners or partners implementing it.

The future of observability maturity is going to be on the analysis front with 'Prescriptive Analytics' gaining interest and momentum. Application Performance Monitoring products will emerge as the most preferred to enable a fully mature observability solution.

About the author

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