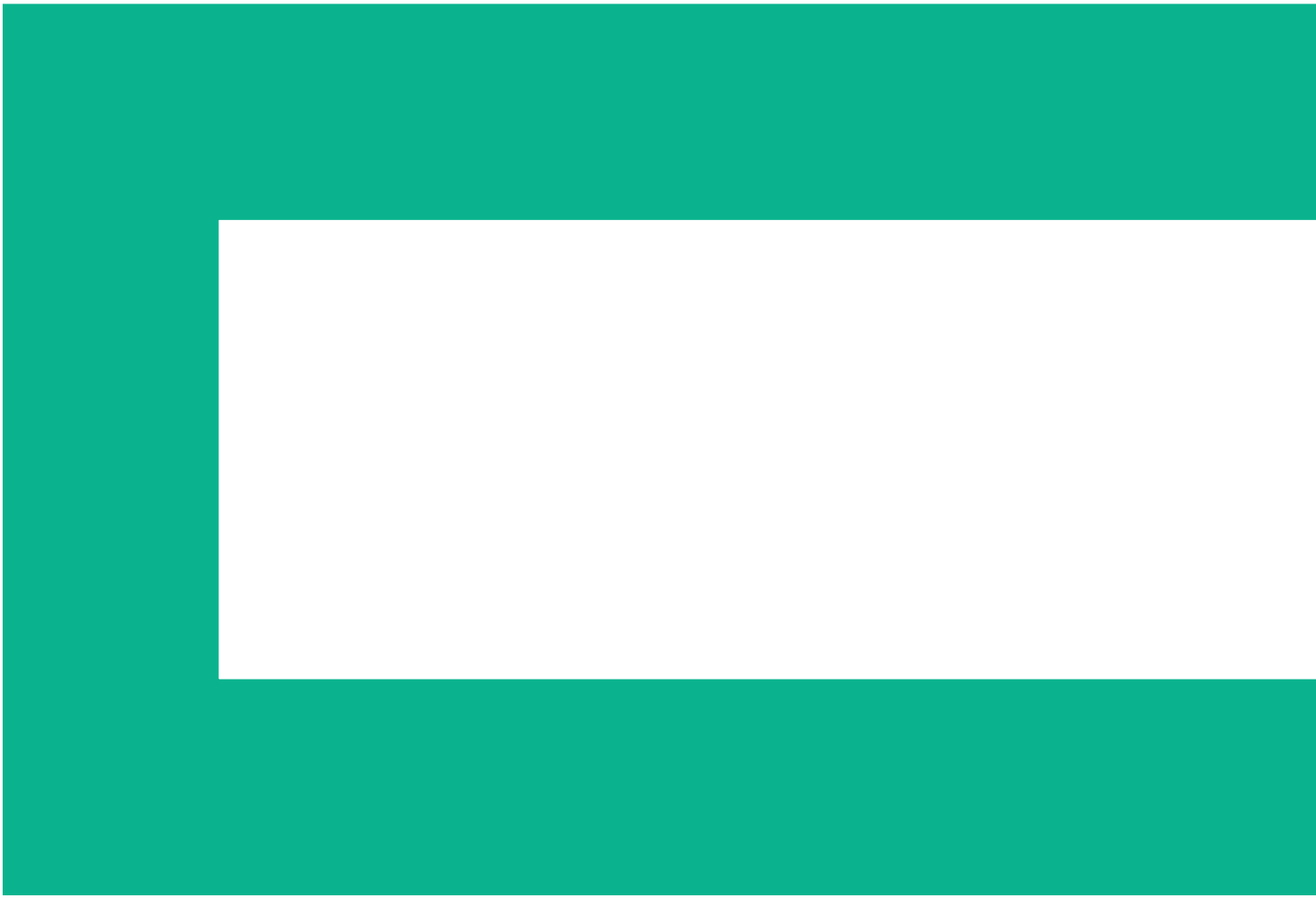
Hewlett Packard Enterprise

Business white paper

Deliver better services

A journey to predictive service operations



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Introduction

Why take the journey?

Any journey, whether business or personal, starts with a destination in mind. The emergence of cloud has made predictive service operations across hybrid services infrastructures a prime destination for IT executives. When everything-as-a-service comes together with the tremendous pace of change we are now experiencing, IT Operations teams can no longer afford to remain reactive. Too many resources are occupied by keeping the lights on, and the IT organizations that can propel themselves toward not only being proactive, but actually becoming predictive and getting ahead of the curve, will be the ones to gain the upper hand. They will be the ones who have optimized and streamlined their business service management capabilities to free up resources toward investment in supporting innovation and business growth.

The primary objectives of this paper are to provide an understanding of IT operations management at various maturity stages and then define strategies to evolve your capabilities by taking a journey to mature to subsequent levels and drive increased value to the business.

Predictive service operations

Simply put, predictive service operations help companies anticipate infrastructure and application demands—and resolve IT problems—before they occur. Corporations at this maturity level continually monitor the IT environment, within the context of application and business services, for availability and performance and align the IT infrastructure with business imperatives. Predictive operations management is a holistic, service-centric approach to help achieve entirely new levels of IT availability, reliability, and performance, while finding the most cost-effective opportunities for attaining long-term value.

The challenging road ahead

The complexity of today's IT landscape poses tremendous challenges to IT operations teams. While everyone's objective is to improve service delivery, the reality is that at many companies, the current IT operations model, supporting tools, management framework, and associated processes are often distributed among several siloed teams. Mergers and acquisitions often result in autonomous business units with disparate teams, and managing business services across hybrid environments (physical and virtual, cloud and traditional IT) complicates matters even worse. So how can IT extricate itself?

The key to this question lies in adopting two guiding principles:

- The journey will be holistic in approach. Strategies must include technology, organizational, and process-driven initiatives that are aligned with the business goals of the organization.
- The journey must be maturity-driven. One must understand where they are, what characterizes the next stage, and what they need to do to acquire these characteristics.

Hewlett Packard Enterprise Software has created a holistic Business Service Management (BSM) maturity model to assess the current state of a corporation's operational management maturity and provide guidance on how to move to the next level.

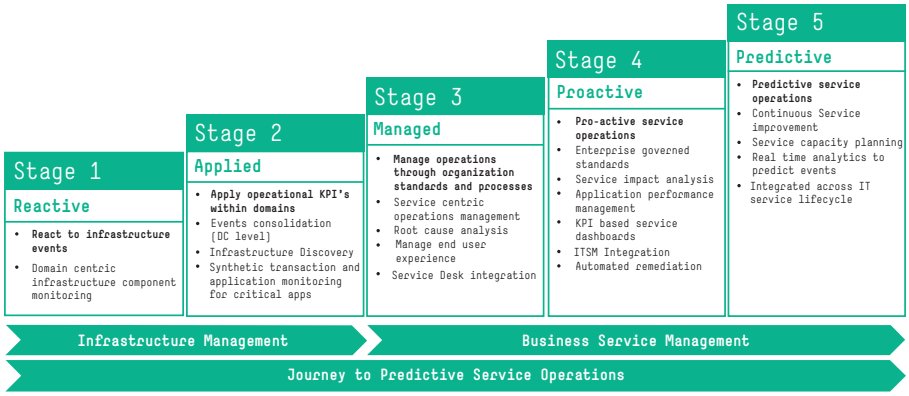

Figure 1. Business Service Management (BSM) maturity model

However, it is not sufficient to simply define a maturity model. For the model to be actionable, it needs to include the set of disciplines and capabilities that characterizes each stage. Maturing your organization will involve increasing the depth and breadth of certain capabilities while adding new ones as you progress from stage to stage.

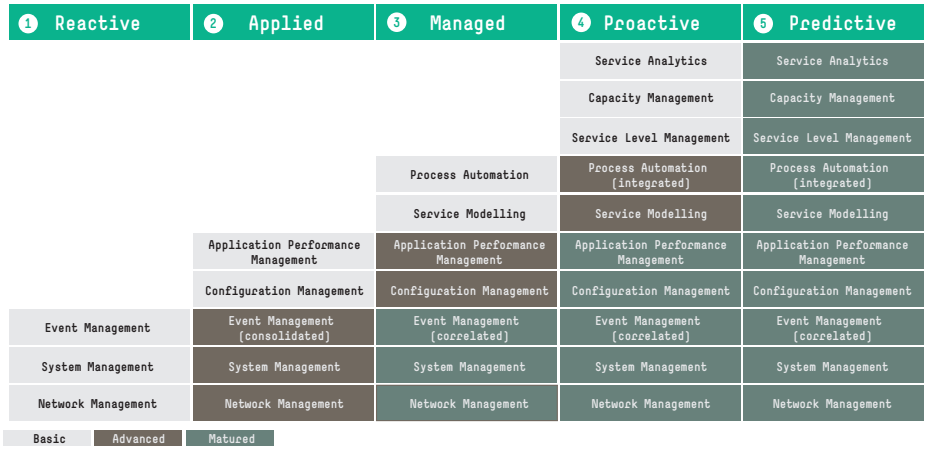

Figure 2. BSM disciplines

You may find that your organization has some of these disciplines in one maturity level while others are at another. This is quite common and natural, as the implementation cost and effort vary between disciplines as will their priorities.

You should use the model to:

- Assess your organization's current state
- Determine the initiatives and strategies that your organization needs to take to evolve to the next maturity level
- Evaluate the incremental value of moving to the next maturity level

But bear in mind that the model is a map for your journey, not a mandate. In other words, the optimal stage varies between organizations. It may not be necessary for your organization to be at stage 5. It will all depend on what makes sense for you.

Reactive stage

This first stage of maturity is characterized by a focus on reactive monitoring of infrastructure, usually within a single department/team and seldom across corporate organizations or business units.

The primary driver for this stage is gaining insight into the availability of elements within an individual infrastructure domain (e.g. Windows servers, storage, and network devices) for the purpose of outage resolution. Monitoring-tool implementations are technology-focused and deliver quick value to the domain experts. Operational management standards typically do not uniformly exist across teams, and different domain experts use their own preferred tools, whether purchased, developed in-house or open source. Costs incurred are mainly license and support, with the latter being high in ongoing maintenance in the case of homegrown, custom tools. The value at this maturity level is often difficult to attain as expert teams are focused on daily resolution of outages, typically through 'meet me' conference bridges at the time of an outage.

While this stage may be appropriate for small organizations or departments, it is far too basic for any IT organization of significant size. Measuring the business value is rarely possible due to multiple, disconnected monitoring consoles, disjointed ad-hoc processes and total lack of any management and governance structures. The basic event management capability present at this stage does not provide any ability to intelligently prioritize events based on the impact to the business or the users. Events cannot be associated to applications or business services, and it is common for users to report incidents before IT is aware of them. Those events that are raised by the monitoring tools require manual processing.

Transition from reactive to applied maturity
To evolve to an applied maturity stage, the organization must have the will to take the necessary steps, the vision of what is to be attained, and the management support to fund the efforts and lead the initial transformation step. The objective in moving to the next maturity level is to apply what has worked within smaller corporate organizations (departments, for instance) to the needs across IT teams to consolidate event management.

The initiatives required to move to the next level of BSM maturity include:

- Initiate an assessment of the tools, processes, and roles in use across the all relevant teams to understand current state and define the requirements for a consolidated monitoring and event management solution set.
- Define the organizational models (supplier and supporter, consumer, and governing body) that will take the monitoring and event management initiative to the next level and across business organizations. At this point, one key is to identify an executive sponsor who has sufficient power to drive organizational change.
- Identify the key applications in the organization and rank them according to a medal standard (gold, silver, bronze) based on business criticality. This standard establishes the priorities for monitoring critical applications.
- Initiate discovery of infrastructure configuration items (CIs) to ensure that the organization understands what resides in the datacenter and how they relate to one another.

Applied stage

While this stage of BSM maturity continues to focus on the technologies in use, it also begins a focus on organizational and process changes needed to improve attained value. Customers at this maturity level focus on the consolidation of disparate tools into a unified monitoring platform. This consolidation will reduce the total cost of ownership (TCO) and set the basis for resource centralization.

The infrastructure and event management consolidation at this stage will reduce the high number of events from the various monitoring tools by eliminating redundant infrastructure alerts and event storms. The infrastructure is discovered automatically through a discovery tool, and components are related to one another into topology views through a configuration management system (CMS). The migration to a central event console across business organizations provides better correlation leading to faster event resolution and thus reducing mean time to repair.

Depth and breadth across infrastructure monitoring continues to evolve as new event management capabilities are introduced and operational KPIs start to be applied to monitor health and eventually performance. The transition from a disjointed into a coordinated mode of operation requires organizational change. To ensure that the consolidation is successful, senior management support is critical. The plan of action should be driven by the outcomes of the assessment of current tools, processes, and roles, and should aim to drive as much standardization as possible.

Another key monitoring capability introduced in this stage is the monitoring of critical applications through simulation of business transactions and alerting on any application outages. This introduces the first, yet rudimentary, concepts of services, and its success can be further built upon to change the organizational thinking from technology- to service-centric, which will be key in getting to the next level of maturity.

Transition from applied to managed maturity
While the previous stage transition was more focused on tooling, the next stage brings a heavier emphasis on process, as well as continuing to move up the stack from infrastructure monitoring and event management into service management. Monitoring begins to address services, not just infrastructure, and it is here that we can begin to truly talk about business service management.

Some of the strategies required to continue the evolution include:

- Develop a service-oriented strategy, inclusive of a services taxonomy, to expand the discrete monitoring into a services-based solution with the ultimate result being better correlation of infrastructure availability to the services that are provided.
- Extend the reach into application teams and evaluate the event management stream across business units to determine where consolidation is needed. To transition to a service-based monitoring platform, the evaluation needs to also look at processes and organizational changes needed to attain a managed, value-driven solution.
- Assemble a cross-organizational team or governance office composed of executive sponsor, business unit leaders, technology architects, and business owners. This committee will be the drivers of change that needs to occur to ensure that technology, process, and organizational change align to improve capabilities and drive value.
- Develop a strategic plan for the integration of monitoring and event management into the wider IT Service Management (ITSM) framework, e.g. Configuration and Incident Management.
- Widen and deepen application monitoring capabilities across the various business units as a standard.

Managed stage

This stage marks the beginning of true IT service operations management or, in HPE Software terms, BSM. The emphasis during this phase is to build on the infrastructure and event management technologies of the previous stages and link them to the applications and business services. This services-based approach is crucial to mature monitoring from a technology-based platform to a value-based solution. The consolidation of monitoring and event management solutions continues in this stage with deeper integration of technologies and processes across teams.

As a part of this cross-business organization initiative, the event management consoles of past stages have consolidated into an integrated solution used by all teams—an Operations Bridge. It brings together the selected technologies to better filter events, inclusive of availability and performance metrics, as well as reporting current and historical business service health.

This stage also expands the discovery and mapping capabilities, linking infrastructure to application topology to create business service models. This leads to the CMS enabling the monitoring platform to correlate events based these service models. This topology-based event correlation dramatically reduces the resolution time for application outages and many of the performance issues that occur.

Driven by the services-based approach to modeling is the automation of service level monitoring. The key is to establish a services-based impact for all applications to ensure that those most critical to the business are the focus. Service levels should be agreed to with the business, and continuously monitored so that it is possible at the end of each review cycle to identify actions to resolve recurring outages.

IT Operations becomes more efficient both in terms of cost needed to manage services as well as its ability to more rapidly resolve outages and contain their impact. Furthermore, the organization can now manage at the business service level. For example:

- Prioritize issue resolution by service impact
- Begin to set service level objectives for end-user response times
- Set and manage SLAs for applications and services
- Monitor and track performance, not just availability

A key role is played by executive management in championing a service-oriented, value-driven culture by establishing standards across multiple teams, and beginning to govern the use of those standards to ensure consistency and drive value measurement and realization. With this change in IT operational support culture, the focus can shift to extending capabilities that have not been commoditized, and expanding into new capabilities related to application performance monitoring, capacity management, and eventually capacity planning.

Transition from managed to proactive maturity

The transition into the proactive maturity stage continues the development of business service management aspects of IT operational support. Standards across the enterprise are developed and implemented to bring consistency to the service levels provided by the applications and supporting infrastructure services.

Before embarking on maturing to a proactive enterprise-wide standard solution, the buy-in and participation of enterprise-wide executives and supporting business unit teams are critical. The strategies and initiatives needed to get to the proactive stage include:

- Expanding the discovery, mapping, and modeling of business services to include performance-based monitoring beyond the business-critical applications. Having performance-related data through the application lifecycle is key to proactive monitoring.
- Develop the standards for technologies based on the experience from the managed maturity stage. The goal is to achieve a dependable, consistent, and extensible platform for required management reporting.
- Develop enterprise-wide standards for service delivery, including a framework for defining, tracking, and managing service level agreements.
- Discover and implement process work flows to expand monitoring and event management integrated with automation for event analysis and auto-remediation of issues.

- Fully integrate the monitoring and event management solution into the service management framework extending further across the service lifecycle, e.g. application development.
- Determine the appropriate solution for capacity management that will enhance the ability to assess capacity and model the consolidation of infrastructure services and applications for availability and performance.
- Define a business management framework around the metrics and KPIs collected by the monitoring platform so that executives can translate the data into business-oriented reporting

This stage adds the requirement that the value of the solution platform is continuously tracked and reported.

Proactive stage

This is the fourth stage on the BSM maturity ladder where organizations continue the transformation into a true customer-centric business service management operational support organization. The span of influence now includes line-of-business stakeholders, and enterprise-wide considerations are prevalent. Needless to say, deep application monitoring, business service performance measurement, and reporting are key in this stage.

There is a focus to drive standards for management solutions and processes across the enterprise. Governance becomes vital in driving adoption and managing the service delivery framework to drive business value. Acceptable business service levels and impact of service failure are determined, and common remedial actions are identified. These common actions, or operational run books, are automated to speed the resolution of future events.

This quantifies the outcome of IT operations in business value terms as operational and business KPIs are integrated, measured, and reported, and triage occurs based on business priorities to optimize service delivery. Established standardized business and IT service management processes along with a strong governance model ensure consistency and uniformity throughout the enterprise.

With the heavy lifting of monitoring being streamlined, automated, and optimized, resources now become available to improve service availability, end-user service quality, and experience with capabilities such as:

- Full end-to-end ITSM integrations
- Full application lifecycle to provide enriched data for deep-dive root cause analysis and closed feedback loop into application development
- IT operations balanced scorecard

Capacity management reporting is prevalent at this stage to provide metrics on data center capacity and support improved utilization of assets. The analysis and reporting of historical trends through the capacity management system is critical to proactively anticipating when issues will occur or when the IT environment needs to change.

Transition from proactive to predictive

At this stage a services-based supporting model exists where typically a central, corporate-wide team provides IT operational monitoring and event management services directly to or jointly with the lines of business. To mature to this stage, the following initiatives are required:

- Assess the need to move to the enterprise services model with the business units being supported. The mandate may come from C-level executives due to past operational issues affecting business performance. In this case, determine how services are to be provided and what technologies, processes, and organizational changes are needed.
- Evaluate capacity planning products to select a solution that integrates with the current enterprise platform and delivers the capability to develop predictive models for service outages and performance impacts to automate and optimize on-demand business capacity.
- Establish a continuous service improvement program for all major customer-facing, revenue-producing, or operationally critical applications. Use the monitoring platform to provide feedback to the business on operational efficiency changes and application architecture strategies inclusive of recommendations for change.

Predictive stage

Having introduced all of the disciplines by this stage, the objective is continuous improvement around each of the disciplines as the technologies, processes, and organizations have evolved through all of the previous stages. The need to integrate monitoring across the IT business service lifecycle has become a culture of the IT operations organization, with a central organization driving continuous improvement into the enterprise, measuring and reporting service levels and values at the business organizations' executive level.

Capacity planning, for instance, allows the continuous improvement of taking operational performance data, applying capacity planning models to that data, and deriving resulting demand and performance scenarios of the IT environments. Operations analytics and reporting are keys to driving the performance models needed for effective capacity planning. With the capacity planning data, the IT operations management organization can project demand on the data center and provide recommendations to ensure acceptable service levels.

You need to transition from doing things well to doing them better by constantly refining how you define and measure value and success.

This is particularly important in today's world where IT operations is becoming more and more integrated with other major disciplines such as application development (DevOps) and IT security (SecOps). Until this stage, the focus was almost exclusively internal to IT operations. Now you need to extend the view into these adjacent domains to drive operational excellence across all of IT, not just operations. For example:

- Establishing a unified platform that can manage both IT and security events to extend event consolidation, correlation, prioritization, and isolation into the security realm, and provide single pane of glass across IT operations and security
- Provide performance-related data that is exchanged among the operations, software development, and testing teams to improve application performance and predict when outages or performance issues might occur
- Combine service level management and capacity management to dynamically provision more capacity using cloud technologies when service levels approach at-risk levels

The combination of mature disciplines, a service-centric culture, active participation in the value delivery chain, and a focus on continuous improvement will lead to predictive business service operations.

This stage is often characterized as well by a central services operations organization that provides availability and performance management of business services, applications, and infrastructure. This enterprise group could also establish monitoring and event management standards inclusive of reporting and capacity planning. Some IT operations systems management organizations provide central services to the business in a services-based mode.

Continuing transformational strategies and initiatives

Continuous business service improvement should be instilled in the IT operations management culture. By creating such a culture, this value will be impressed upon other groups that the IT operations team works with and trickles through the entire value delivery chain. Continue to look for additional ways to break down silos and integrate into the business services lifecycle. Continue improvement around operational analytics capabilities as this space matures, by tying into new data sources as they become available to increase predictive capabilities.

Summary

The goal of the journey to predictive service operations is to increase the proficiency of IT operations and translate its outputs into measurable and meaningful benefits to the business by:

- Consolidating and improving the current monitoring and event management solutions to provide a better view of IT operational availability and performance
- Optimizing the products, processes and organizations to better resolve operational issues in shorter time
- Managing costs and driving value of the operational management solutions by doing more with the same resources
- Maturing from reactive to a more proactive and predictive state that anticipates issues before they occur and resolves them before they adversely impact the business

As is the case with any journey, you should review the maturity stages as a destination, and determine where your organization should be. Then, work within your business unit and corporate management team to develop a strategic plan to improve your current capabilities, establishing milestones and metrics along the way. Each stage in the plan should be short enough for your organization to execute while constantly showing value. The journey to predictive service operations will provide increasing value to your IT operations and to your corporation's business, and will enable you to articulate value while controlling and providing services at a competitive cost.

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4AA4-2656ENN, November 2015, Rev. 1