

Predictive service operations:

How to improve IT operations management to respond decisively to the current economic crisis



Table of contents

- The need for transformation: IT operations today** 3
- Workflow in the reactive operations team** 3
- Transform IT with HP predictive service operations** 4
 - Health monitoring 5
 - Incident and problem management 5
 - Change management. 6
 - Automated release management 7
 - Bringing it all together—unified data 7
- Making the move from reactive to proactive** 8
 - Reactive stage 9
 - Control stage 9
 - Manage stage. 9
 - Proactive stage 9
 - Predictive stage 9
- Predictive service operations solutions** 10
 - HP business service management 10
 - HP business service automation 10
 - HP IT service management 11
- Is it time for your operations organization to move to predictive service operations?** 11

As businesses struggle to cope with today's economic crisis, IT operations teams are faced with challenges as daunting as any they have ever confronted. Businesses will inevitably cut IT funding—but they will still expect operations to deliver innovative business applications, pursue new technology initiatives, and upgrade existing business systems. This paper explains how IT operations organizations can meet these challenges by replacing current reactive processes with a predictive, preventative, productive approach that unifies health monitoring, incident and problem management, change management, and release management to drive efficiencies.

HP customer spotlight

- Shortened mean time to repair (MTTR) by 22 percent, reduced the number of outages per quarter by 50 percent, and increased end-user productivity by 60 percent (financial services provider)
- Automatically detected 95 percent of network events, reducing international IT costs by 30 percent in the process (communications provider)
- Increased the number of changes moving into production by 40 percent and at the same time cut the emergency change rate by 10 percent (global manufacturer)
- Improved provisioning by 92 percent, patching by 99 percent, and application deployment by 99 percent (global data service firm)
- Reduced time required to deploy a business service by 320 man hours (telecommunications provider)

IT operations teams are no strangers to hard times and tight budgets. When the technology bubble burst in 2001 and the market plunged, businesses slashed IT budgets, and IT responded with outsourcing, consolidation, and workforce reduction. Ultimately, these measures helped businesses survive the downturn and set the stage for the IT innovation that would drive the recovery.

Now, business is faced with another down cycle, and IT organizations can expect to see budget cuts. But IT can't allow belt-tightening to slow down the deployment of mission-critical business applications. Cutting operational spend across the board is also not the answer. In the past, when budgets were tight, IT dramatically squeezed maintenance activities wherever they could. Today, with IT so deeply embedded in every critical business process, this approach puts the business at grave risk.

For IT operations, the key lies in a new approach that makes it possible to operate within strict budget constraints without putting business outcomes at risk—an approach called “predictive service operations.” Predictive service operations transforms IT operations from a reactive cycle to a predictive process. It enables teams to work together across all operations areas to prioritize and isolate events before they impact the business, analyze the impact of changes to prevent them from disrupting services, automate change deployments to help ensure consistent auditable processes are followed, and manage IT-enabled business services.

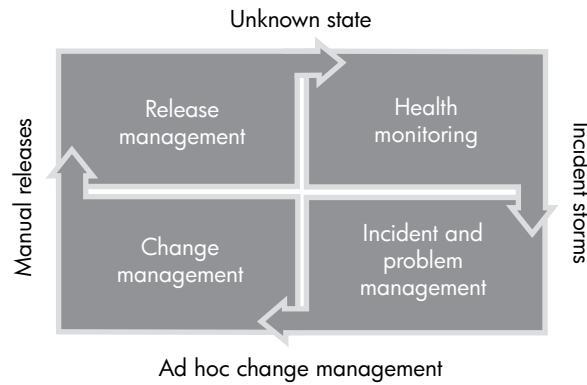
The need for transformation: IT operations today

As it exists today, the typical IT operations organization isn't well suited to cope with today's challenges. Most operations teams spend a majority of their time and budget on maintaining the environment rather than on innovation or on expanding service offerings. This is in part a result of cost cutting in previous economic down cycles. Many businesses responded by cutting spending on innovation and reducing maintenance activities where they could. This put operations teams in reactive mode; with limited resources, they had to concentrate on coping with a rising volume of service requests, events, and changes, and they couldn't get ahead of demand. The result was service disruptions, unplanned downtime, and cost overruns.

Workflow in the reactive operations team

One side effect of reactive operations is that functions are performed in silos. IT operations breaks down into four primary functions: health monitoring, incident and problem management, change management, and release management. These functions align with key processes within the ITIL Service Operations and Service Transition phases and with similar best-practice frameworks, and they represent the day-to-day activities that all operations organizations must manage. Most of these organizations have invested in management tools and process training, but the investments have been made in silos, with each

Figure 1. The transition points between functional areas are zones of potential problems for IT operations



functional team attempting to be a standalone center of excellence. As a result, the benefits are contained in the silos. Automation doesn't extend across the workflow, and data isn't shared. And because of that, the transitions from one functional area to the next are potential trouble points.

Determining the cause, impact, and priority of events uncovered during health monitoring is a challenge for many organizations. According to the 2007 IDC survey "Business Service Management: Survey Shows Rising Customer Adoption and Increasing Maturity," over 38 percent of respondents spend 30 percent or more of the incident resolution process on problem isolation.

This causes poorly diagnosed and unqualified events to be sent to the service desk for incident and problem management. With so many events to manage, coordinating response teams and avoiding duplicate efforts is extremely difficult. More than 55 percent of companies surveyed by IDC report that four or more staff members become involved before the cause of a business-critical problem is identified.

In addition, the large number of incidents and requests coming in to the service desk often result in an ad hoc approach to change management. The IDC survey indicated that 37 percent of IT organizations handle more than 500 changes per week, and that the number is expected to increase by at least 10 percent in the coming year. Ad hoc change management leads to poor planning, poor risk assessment, and a lack of stakeholder involvement in the approval process.

When changes are deployed, they are often deployed manually or with only partial automation, and they create the risk of unplanned downtime. In fact, 34 percent of the respondents to the IDC survey said that

25 percent or more of their application or service downtime was the result of unsuccessful changes and configurations. And because manual releases and deployments result in an unknown state of the IT environment, operations teams can't accurately gauge the business impacts, which can include:

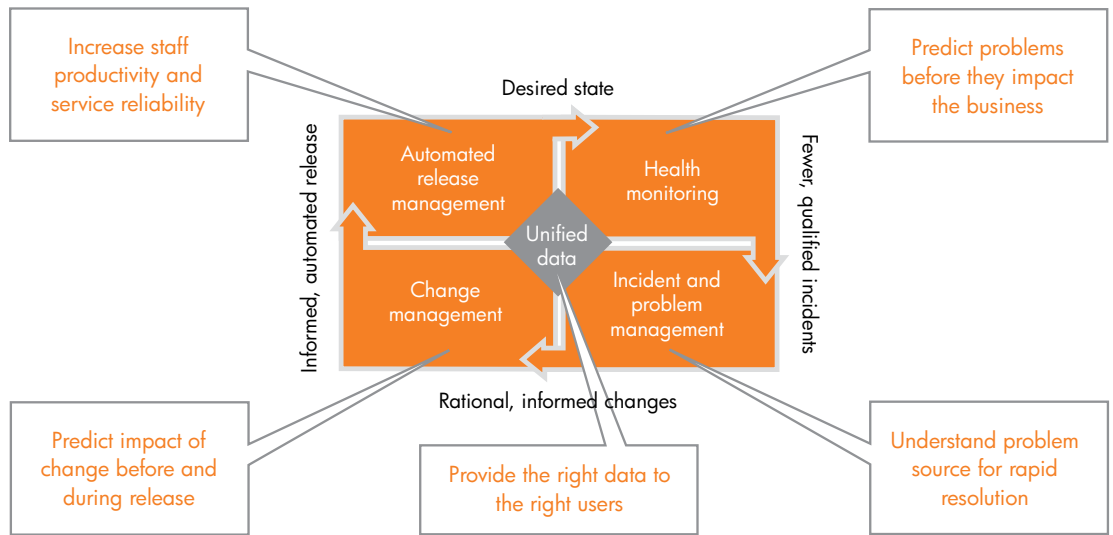
- IT cost overruns
- Lost end-user productivity
- Negative revenue and brand impact
- Penalties for missed service level agreements
- Inability to report on or comply with industry and government requirements

Transform IT with HP predictive service operations

To meet today's extreme challenges, IT operations organizations need to evolve from their reactive state by adopting a predictive service operations approach. They need rigorous application of standardized best practices so that they can predict business outcomes. They need wide-spread adoption of infrastructure automation to reduce costs. And they need to make and prioritize decisions with business services in mind to reduce risk and improve availability. All this is accomplished through a predictive approach to managing IT services.

Industry best practices such as ITIL provide a fundamental framework for success, but more immediate engagement and automation are still needed. To become truly effective in managing today's complex IT environments, organizations must transform the way they manage the core functions of health monitoring, incident and problem management, change management, and release management.

Figure 2. Predictive service operations is a holistic approach that benefits every function and functional area.



HP customer spotlight

Using HP health monitoring solutions, a publishing firm reduced MTTR by 50 percent, the average number of faults per application by 25 percent, and the number of escalated faults by 50 percent.

HP predictive service operations is an approach for helping IT operations organizations move from reactive to predictive service delivery. It treats IT operations both holistically and by function, with the goal of leveraging the strength of the whole organization, across functions, to predictably deliver the quality and cost of services expected by the business. The approach focuses on the core operations functions to help IT organizations:

- Proactively identify, isolate, and prioritize events before they impact the business
- Predict the impact of changes on infrastructure, services, and staff during planning and execution
- Increase the productivity of the IT staff through automation of processes and tasks and through information sharing

Adoption of this predictive service operations approach provides guidance to IT organizations in creating centers of excellence within the core functions, and at the same time contributes to the maturation of all operations functions. This holistic approach drives improvements in costs, quality, and effectiveness that are transparent to the business.

Health monitoring

The primary goal of health monitoring is to identify and isolate problems before they impact the business, ideally before an actual outage occurs. HP solutions help accomplish this goal in three ways.

First, it provides truly proactive management capabilities from issue detection through remediation. It enables operations teams to isolate and address

events before they impact business services, end-users, and customers. It lets them monitor entire services—from the business process level down through the network, servers, and storage—improving correlation and providing needed insight. And it raises awareness to changing business conditions before IT alarms typically would have been raised.

Second, it allows IT teams to manage entire distributed business services, across both physical and virtual environments, and across all elements and applications.

Third, it provides a complete view of all issues, alarms, events, and impacts relating to a service. When an event storm occurs, the root cause is quickly identified and prioritized so that end-users rarely notice a problem with key business services. This complete oversight means that fewer issues are sent to the service desk and that those incidents that are forwarded are pre-qualified and prioritized—allowing the response teams to focus on quickly restoring services and avoiding lengthy diagnosis.

Incident and problem management

With pre-qualified and prioritized incidents arriving at the service desk, the response team can focus all its efforts on problem resolution. Pre-qualified incidents also help drive improved process automation, ensuring that incidents are routed to the right teams and prioritized appropriately. This level of automation helps avoid cross-functional finger-pointing and helps each team focus on maximizing the availability and performance of its portion of the business services.

HP customer spotlight

Using HP incident and problem management solutions, one financial services firm broke even on its investment in eight months and achieved an ROI of 456 percent, and another found that its response teams could handle two to four times as many users per month.

Best-practice automation for incident and problem management helps drive productivity across IT operations. The HP solution provides industry-standard ITIL process models and workflows that drive rapid time to value. Process automation and standardization not only drive efficiency improvements but also improve the quality of data for continual service improvement and process reporting.

In addition to automating processes, HP solutions help operations automate routine tasks—driving further efficiencies and improving control of core processes. By automating the routine, human error can be factored out, and results become more predictable and measurable. Having higher-quality response-team metrics makes assigning staff resources to services more predictable. Based on historical information, HP solutions provide the capability to perform what-if scenarios based on service value, assigned staff, and desired service levels. Using this information, IT staff deployments can be optimized to meet the priorities agreed to by the business and IT, and staff resources can be shifted from maintenance to business-critical initiatives.

With better control over inbound incidents, the IT operations staff can be more responsive to business requests. Additionally, the urgency of having to deal with an overwhelming number of issues is reduced, and IT can make more informed and rational recommendations for change based on data-driven criteria.

Change management

The predictive service operations approach to change management helps ensure that processes are consistently followed, that decisions about risk and timing are data-driven, and that all stakeholders have been provided with the information they need to make solid decisions without having to spend an inordinate amount of time in change advisory board (CAB) meetings. In short, the HP solution includes credible, reliable change control that follows defined processes while ensuring that industry and government regulatory compliance requirements are satisfied.

As it does for incident and problem management, HP predictive service operations provides best practices for implementing effective change management that make sure the right processes are followed, the right teams are included in planning, and the right stakeholders are involved in approvals. These processes provide a coordinated approach for managing services from request through delivery.

One of the major challenges IT organizations have with change management is getting appropriate buy-in or business participation in the CAB. Business stakeholders often avoid CAB meetings because they are IT focused, complex, and lengthy. Without business involvement, IT is forced to make decisions without the proper visibility into critical business timelines. This can make planned outages more disruptive than they should be.



HP customer spotlight

Using HP change management solutions, a health insurance company reduced CAB meeting time by 75 percent while increasing CAB effectiveness.

HP predictive service operations helps break down the barriers to a successfully functioning CAB by eliminating the need for many face-to-face meetings. Instead, it provides the right people with the right information at the time they need to make appropriate decisions about upcoming changes. This “virtual CAB” approach eliminates long meetings and calls and allows CAB participants to rely on shared data to accurately classify the risk and impact of proposed changes. Additionally, a forward calendar of changes makes it possible to easily assess business-significant blackout periods, key resource schedules, and other time-based factors.

With the HP predictive approach, the impact of proposed and scheduled changes can be easily identified while highlighting any unintended consequences to other important services. This combination of real-time visibility into change planning and process automation helps ensure that regulatory requirements are met and that when needed, audit reports can be easily generated. When the time comes to ~~finally~~ deploy a change, the release process can be executed reliably and with confidence.

HP customer spotlight

Using HP automated release solutions, a financial service firm reduced the time required to add a new database cluster from eight days to 1.5 hours and improved its server-to-admin ratio from 50:1 to 120:1.

Automated release management

By automating the release of both common and complex tasks, operations teams can achieve new levels of efficiency and productivity. HP solutions for data center and client automation help IT operations teams manage distributed environments with consistency and centralized control. The result is consistency in delivery through documented, repeatable processes that are tunable for continual improvement. Documented processes also help ensure

that roll-backs can be implemented if needed and support compliance reporting requirements.

Automation has been identified as one of the most effective ways to address the increasing pace of change. In a 2008 IDC survey entitled “Datacenter Automation: Accelerating Market Maturity Through Investment in IT,” 86 percent of respondents agreed or strongly agreed that automation is important for reliable and cost-effective change and release management.

HP continues to provide new levels of automation, including complete network lifecycle management for monitoring, advanced diagnosis, and automated resolution of performance degradations and faults. Automation allows IT teams to be more productive by carrying out routine tasks while avoiding manual errors. Automation also makes sure that processes are followed and that when changes are made, the results will be the desired state for business services and their supporting infrastructure.

Bringing it all together—unified data

Moving IT organizations from reactive to predictive service operations requires a sharing of knowledge across functions, and coherent data to drive effective process automation. IT must have a unified view of service information to help ensure that each function is responding to demand with the same set of core priorities. Sharing information breaks down these silos and makes sure that there is a common visibility into changes, incident records, asset histories, service reliability, service levels, and the cost of the services provided.

Figure 3. The HP maturity model provides a roadmap for moving from reactive to predictive.

	1 REACTIVE	2 CONTROL	3 MANAGE	4 PROACTIVE	5 PREDICTIVE
Health	Consolidate domain management, network, OS, servers, and storage	End-user experience End-to-end transaction	Problem isolation and diagnostics	Service-level management: health	Business and transaction management
Incident and problem		Consolidate service desk for incident and problem management	Knowledge management Problem isolation and diagnostics	Service-level management: Response time Run-book automation	Continual service improvement
Change	Configuration management		Change process automation Service catalog	CAB decision support	Continual service improvement Implement on-time decision support
Automated release		Automated release: network Coordinated workflow automation	Automated release: server and storage Automated release: client automation		Implement on-time decision support
Unified data	Capture/discover domain-specific data Asset tracking	Contact and software compliance	Consolidate domain management, network, OS, servers, and storage	Service model in CMDB	

HP customer spotlight

Using HP automated discovery, a pharmaceutical firm reduced the required level of effort for change management and application mapping for its Siebel consolidation by 90 percent.

HP predictive service operations provides a complete view across IT, making information available when and where it is needed and in a context that is appropriate for each user. The goal of this shared information is to keep teams and tools synchronized so that all IT functions can be more productive.

In contrast to manual spreadsheet tracking, automated discovery keeps the information current to enable the key processes in health monitoring, incident and problem management, change management, and automated release. Without real-time updates on infrastructure and service topology, it is impossible to reliably manage the impact of changes and the related risks. Similarly, without an automatically discovered service mapping of applications to infrastructure, proactive problem isolation and prioritization cannot be achieved. With HP automated discovery, many applications are discoverable without customization, and others, once mapped, are maintained automatically.

HP automated discovery shares the same DNA as the integrated configuration management database (CMDB) defined in ITIL, which does not assume that all data resides in a single repository, but instead recognizes the reality that multiple data repositories form a configuration management system as set forth in ITIL.

Making the move from reactive to proactive

For many organizations this move will take time and effort. But the question is not when to start, but where. IT organizations must assess their current capabilities across operations and plan for maturing their organization in a way that best meets the ongoing needs of the business in both good and bad economic times. HP predictive service operations provides such an approach.

The move to predictive service operations can be accomplished in any number of ways. Some organizations will choose to create centers of excellence around particular IT operations functions, while others will adopt a methodical, unified approach of improving the entire operations group from one stage to the next. However, the end result—the truly predictive operations environment—does require a holistic approach; none of the individual functions can be left behind.

To help customers plan for their transition to predictive service operations, HP provides a maturity model that identifies five common stages: reactive, control, manage, proactive, and predictive.

Reactive stage

Reactive organizations are those that are still working with siloed IT functions, pockets of automation, and disparate processes. The first step to move from “reactive” to “control” is to get a consolidated view of the infrastructure, its health, configuration, and the related assets. Common problems at this stage may include decentralized IT services; a focus on quick fixes and a lack of information; the need to respond to repetitive end-user requests and react to the same problems over and over; and limited ability to locate and track assets and their usage.

Control stage

The control stage often involves consolidation of processes and tools to drive efficiencies. This stage includes monitoring the health of business services from the perspective of the end user; consolidating the service desk to maximize the benefit of incident and problem management best practices across the enterprise; automating releases for network elements and coordinating workflow automation; cross-domain discovery; and software license and asset contract management.

Manage stage

In the manage stage, IT organizations have control of the fundamentals and are able to actively manage the environment to rapidly respond to service requests, disruptions, and required changes. This stage includes effective problem isolation and diagnosis; end-user **self service** capabilities through the service catalog; knowledge sharing through the use of integrated knowledge management; change process automation; automated release for servers, **storage** and clients; and dependency mapping and consolidated topology.

At this stage, IT operations teams are able to deliver standardized services reliably and within the cost guidelines of the business.

Proactive stage

The proactive stage is characterized by a focus on managing service levels jointly defined by the business and IT. To do this effectively, IT must understand the priorities and costs of the services provided and be able to communicate its understanding of these priorities to the business teams in a meaningful way. In this stage, service expectations have been defined across the IT organization so that each function understands its contribution to the business. Finally, additional automation is employed to further drive process consistency and efficiency.

Predictive stage

The predictive stage is characterized by the IT operations organization’s ability to predictably manage the IT environment, meeting the service availability, reliability, and cost needs of the business. At this stage the correct balance between strategic innovation and maintenance activities has been fully achieved. IT is able to proactively identify and respond to changing business conditions and to act as a trusted advisor for the business. Continual service improvement across IT services is attained in this stage because the IT organization has all the proper metrics required to evaluate the trade-offs related to service delivery. And lastly, implementation-time decision support provides real-time visibility into the IT environment and services, allowing change managers and practitioners to predict the impact of schedule and scope changes, making deployments consistent and cost-effective while providing stable updates to the existing environment.

As organizations move up through the maturity model from reactive to predictive, they gain both IT and business benefits. IT benefits include increased service availability and performance, reduced change-related risk, and improved staff productivity. Business benefits



include improved end-user productivity, lower costs of service, higher-quality, more stable service delivery, and improved responsiveness and innovation from IT.

This maturity model, derived from HP customer experience, provides a guideline, but is not a lock-step formula. Different organizations will find it practical to implement predictive capabilities in whatever order best matches their unique business requirements.

Predictive service operations solutions

The HP predictive service operations is supported by HP solutions that work together to help operations executives deliver business value and reduce risk across the operations workflow.

HP business service management

HP business service management solutions help keep services up and running, and through automation they provide a consistent and efficient way to handle incidents and to monitor and report service-level achievement. They let IT operations see business services from the top down, the way business users see them. They also provide the bottom-up infrastructure view—the performance and availability of networks, systems, storage, and software—needed by specialists. Then HP software combines these two perspectives so operations staff can understand the business impact of infrastructure or application problems. Restoration efforts can then be focused where there is the most business need.

When service impairment is detected—often before users experience problems—infrastructure-wide views allow operations staff to quickly identify

the source of the problem. Automated procedures enable generalists to perform basic troubleshooting and restoration steps. When handoffs are required, they go to the right specialist team with the right information the first time. Specialist tools—based on common information and providing a common view—permit specialists to come up to speed quickly and to zero in on problems.

HP business service automation

HP business service automation solutions provide a set of integrated tools to automate change and configuration management across the environment—user desktops, network devices, servers, and storage. High levels of automated change management are the only way to deal efficiently and reliably with the numbers and variety of devices prevalent in today's IT infrastructures. HP business service automation allows IT to establish standard configurations, deploy them quickly, verify their implementation, and continually monitor their state. Inventory information is continually collected, so IT knows what is in the environment, can identify exceptions to policies, and can quickly assess the impact of planned changes.

Since operations processes span team silos, HP business services automation uses workflow technology to orchestrate not only changes, but service management processes like problem and incident management as well as routine maintenance tasks across the data center, the network operations center, and application support teams. ITIL processes can be implemented, managed, and documented.

HP IT service management

HP solutions for IT service management enable IT teams to consolidate service desks, implement self-service catalogs, continuously improve services, manage project portfolios and finances, consolidate event management, and control change, configuration, and release management to deliver value to the business at low cost and risk.

They enable operations organizations to proactively monitor service levels and report performance. They allow IT teams to maintain an automated IT service desk to speed resolution when users experience problems or require new services. A service catalog allows users to request the IT assets they need and initiate the acquisition process. Self-serve facilities let them access information and find solutions to common problems. And automation speeds things up for business users and increases staff efficiency, driving down cost and increasing consistency and repeatability.

Is it time for your operations organization to move to predictive service operations?

As your business prepares to weather the current economic downcycle, your IT operations organization can be a key contributor to survival and recovery. But if your team still operates in reactive mode, then its ability to contribute is limited. The more progressive your operations capabilities are in terms of the maturity model, the greater your team's ability help the business contain costs without putting business goals at risk.

HP predictive service operations can give your IT operations managers the tools, the services, and the approach they need to move from reactive to predictive by pragmatically improving key functions that drive service quality, reduce the risk of change, and support regulatory requirements, all the while maintaining costs at levels agreed on with the business.

To learn more about how HP software and services can help you move from reactive to predictive service operations, contact your HP representative today or visit us online at www.hp.com/go/btosoftware.

This is an HP Indigo print.

Technology for better business outcomes

To learn more, visit: www.hp.com/go/btosoftware.

©2008 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice. The only warranties for HP products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. HP shall not be liable for technical or editorial errors or omissions contained herein. Oracle is a registered U.S. trademark of Oracle Corporation, Redwood City, California.

4AA0-xxxxENW, November 2008

