Infrastructure Performance Management Empowers You and Your Company

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You've probably heard much lately about Information Technology Service Management (ITSM)—and you may be wondering what it means for you as an IT professional. ITSM is a standard approach for managing IT infrastructure to deliver IT services that satisfy business needs. This service-centric approach contrasts to traditional technology-centric approaches that do not explicitly couple technology management with business needs. The subset of ITSM fundamentals that apply to operations quality is called Infrastructure Performance Management (IPM).

Implemented well, IPM frees you from constant firefighting and can transform your role from tactical first responder to strategic business enabler. Applying good IPM technology and processes can deliver a number of benefits to your career as well as to your organization.

For large enterprises, successful IPM implementation generally frees up from one to four IT staffers who can then be re-deployed to new projects. Not only does IPM improve productivity, it also allows employees to graduate from mundane and repetitive tasks to more interesting and strategic new projects.

In addition, good IPM practices improve by almost 30 percent the likelihood that performance problems will be discovered by management systems rather than end users—and good IPM practices produce 80 percent better mean time to repair (MTTR) results. Finally, companies with good IPM practices spend 16 percent less than their counterparts on network management visibility hardware and software.

This report introduces IPM, offers tips for successful IPM implementation, and explores how IPM can benefit your enterprise as well as your career.

Building IPM on an ITIL Foundation

Seen as a catalyst for business growth, IPM is an increasingly popular means to align IT infrastructure with business goals. IPM is a strategic business-oriented activity that can transform management's view of IT as a mysterious world peopled by "gnomes" who work in windowless silos and have little connection with the business. For network operations managers wishing to expand their horizons, IPM opens opportunities for integral involvement in strategic business initiatives.

> **Infrastructure Performance Management Benefits**
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> - Improves the likelihood that performance problems will be discovered by management systems rather than end users by almost 30 percent
>
> - Improves mean time to repair (MTTR) results by 80 percent
>
> - Saves 16 percent on network management visibility hardware and software purchases

IPM is coming your way. Among the initial implementers are: large multi-nationals, enterprises that have grown through merger and acquisition, IT service and outsourcing firms, "pure play" IT companies, government agencies and service providers. These enterprises have much to gain by aligning their IT infrastructure with the goals of the business.

Infrastructure Performance Management monitors for variables that cross fixed thresholds or deviate from dynamically defined normal behavior, enabling action to prevent degradation that could adversely affect users or business processes. Beyond measuring utilization for CPUs, memory, storage, ports, LAN/WAN segments, etc., performance management includes many additional key performance indicators such as connect time, latency, broadcast/multicast, errors per second, discarded frames per second, and more.

IPM is also about implementing best practices in four fundamental IT process areas— incident management, availability management, capacity management and service level management.

If you are familiar with the Information Technology Infrastructure Library (ITIL), you may recognize that these process areas align with the ITIL service delivery frameworks. In total ITIL encompasses more than 25 process areas, although few organizations adopt all 25. Note that although IPM aligns with ITIL frameworks, ITIL is only one of many possible paths to IPM adoption.

Applying IPM processes to your infrastructure's performance can be extremely rewarding. Regardless of where your organization is in deploying technology or rolling out new services, your infrastructure can benefit from proper infrastructure performance management.

Good IPM not only ensures that your services meet your business needs, but also serves as the proverbial "canary in the coal mine" to proactively point to needed changes. For example, you will know in advance of problems when server capacity, router memory, circuit bandwidth, etc., need upgrading. This information enables you to upgrade capacity proactively rather than in hurried response to user complaints.

Fundamental IPM Building Blocks

IPM comprises four fundamental processes that build upon one another. Incident management comprises the foundation building block, with availability management above it, then capacity management, and service level management positioned as the most sophisticated "capstone" building block. Here is what these building blocks include in a data networking context.
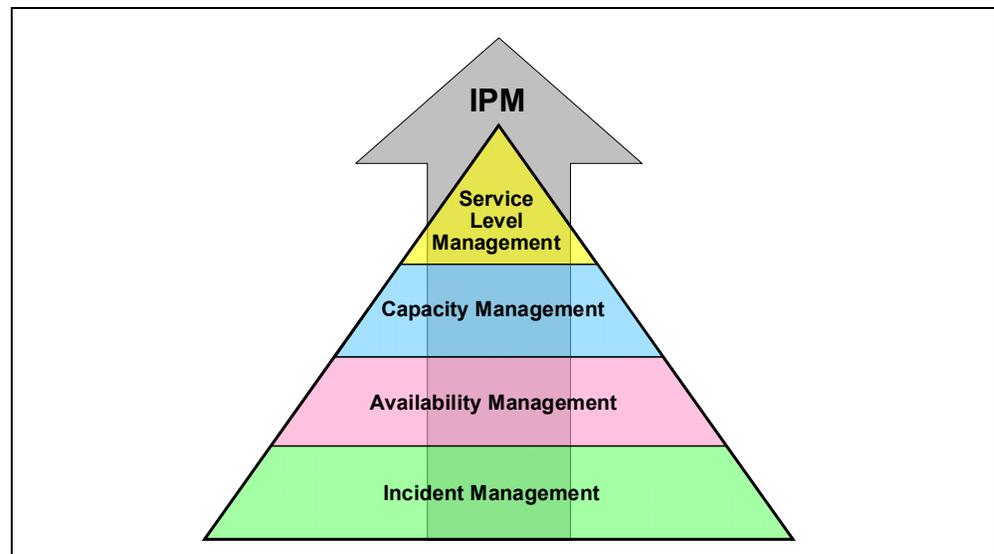

Figure 1 – IPM Building Blocks

Incident management generally involves network operations center and service desk staff, often jointly using a trouble ticket system. Incidents start with good instrumentation followed by processing of events such as SNMP feeds, probe reports, pings, and traps. The systems that support incident management turn events into actionable alarms with good diagnostic capability. The goal of incident management is to restore service operation as quickly as possible, thus minimizing business disruption.

Availability management involves defining and measuring availability, and using historic data to determine availability trends. Availability measurements are converted into reports that convey information about network infrastructure health. An example of the type of output this process produces is the percent of the time a resource operated without any hard faults (e.g., downtime) incidents reported.

Capacity management matches network resources to business demands. The process focuses on using historical utilization data to project when demand will exceed capacity and require infrastructure element reconfiguration or upgrading. . Costs can be brought into line with business needs by decommissioning under-utilized and supplementing over-utilized resources. Capacity management enables organizations to create "what if" scenarios to determine what is needed to meet such anticipated business needs as mergers and acquisitions, consolidations, and globalization.

Service level management involves identifying and continually monitoring and reviewing services compared to agreed-upon service targets. Service levels are tailored to meet business needs. Service level management also involves benchmarking and assessing the effect of change upon service quality and the ability to meet the targets. It also involves determining whether agreed-upon service levels are delivered when and where specified, and coordinating with incident management, availability management, and capacity management to ensure that the required service levels are achieved

Graduating from Reactive to Proactive Mode

Implementing a complete set of IPM best practices and processes elevates an organization from reactive diagnosis into the realm of proactive intervention. Incident management tools support problem triage and fault identification, but without the added value that availability, capacity and service level management provide, incident management is restricted to reactive diagnosis.

The ongoing measurement, trend analysis, and resource planning that result from availability and capacity management enable you to proactively detect and correct problems before they affect IT service users and customers.

Needed - a Few Good (Automated) Tools

There are several key prerequisites for successful IPM implementation. These include a rich collection of data in an easy-to-search database, the ability to establish and monitor fixed and dynamic thresholds, out-of-the-box reporting on standard and vendor-specific custom MIBs (management information bases), and good comparative analysis capabilities. For IPM to deliver on the promise of liberating you from chronic firefighting and transform your role from first responder to business enabler, you will need an integrated toolset and the ability to automate all of the capabilities listed above.

Lack of tools is a major impediment to implementing best practices. In a recent NetForecast best practices benchmarking survey of 329 enterprises [1], lack of tools was cited as the biggest obstacle to improving the performance of networked applications. Fifty-two percent of those surveyed mentioned lack of tools as an impediment to implementing best practices, followed closely by 50 percent who cited lack of sufficient

manpower. Not only are tools essential, they must be integrated and automated to correct for manpower limitations.

It is much easier to achieve an integrated toolset that supports automation when you standardize on a limited number of tools vendors rather than deploy many tools from many vendors. The NetForecast survey shows that proper tools are the biggest predictor of good performance, and enterprises lacking proper tools are at best just getting by.

In fact, the positive influence proper tools have on performance outshines the influence of all other things one can do to improve performance by a more than 2:1!

What IPM Can Do for Your Enterprise

Applying IPM best practices yields demonstrably positive results. Among the improvements you can expect are:

- More problem discovery by management systems versus user complaints

- Better mean time to repair (MTTR) problems

- Improved user productivity

- Improved IT staff productivity

- Resource shifting to more strategic IT initiatives, helping fuel business innovation and growth

- Lower overall investment in tools

NetForecast's recent best practices benchmarking survey illustrates just how dramatically best practices influence outcomes [1]. As Figure 2 shows, enterprises with the best IPM practices discover performance problems using management systems versus user complaints 28 percent more often than enterprises with the worst IPM practices.
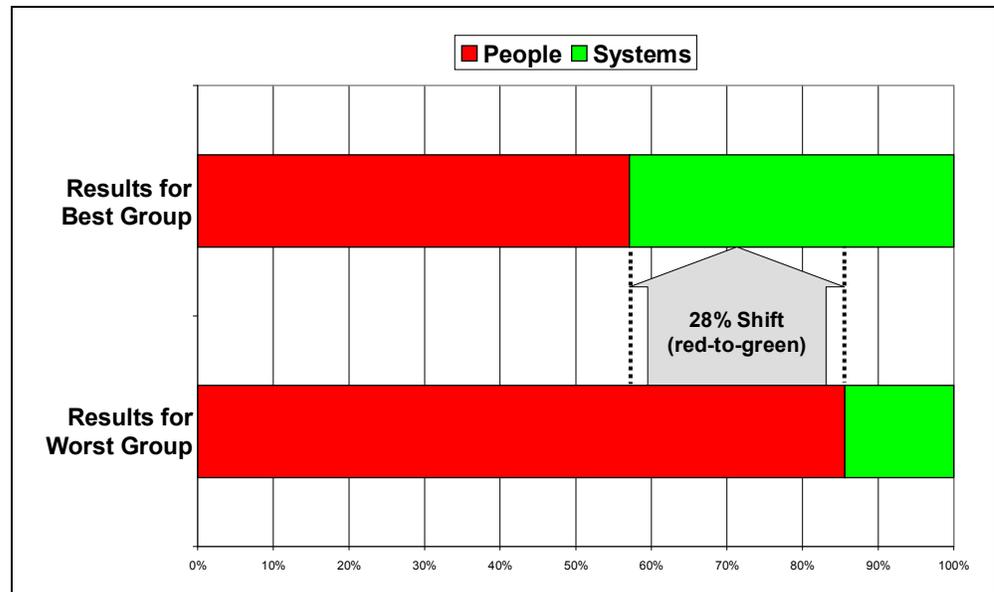

Figure 2 – Who Discovers a Performance Problem?

Figure 3 shows that enterprises with the best IPM practices experience 80 percent better results for mean time to repair (MTTR) problems than those whose practices rank among worst.

Reducing time to repair network problems through IPM best practices reduces network down time, which directly improves user productivity. Also, cost savings from streamlining IPM-related network operations allows your enterprise to shift resources to more strategic IT initiatives to help fuel business innovation and growth.
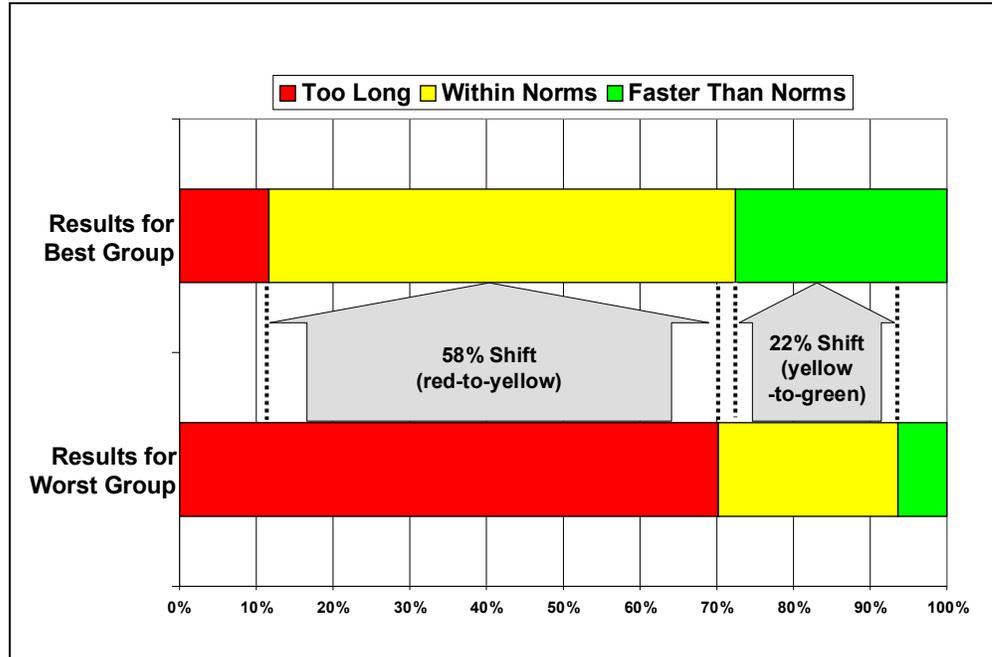

Figure 3 – Best Practices Shorten Times to Repair Problems

Contrary to conventional wisdom, enterprises that provide best-in-class performance actually spend less on management tools. An Aberdeen Group survey of more than 200 enterprises using network monitoring, analytics, and simulation technologies [2] found that best-in-class enterprises spend 16 percent less than their counterparts on network management visibility hardware and software.

Based on our research, we conclude that significant savings result from having the right tools that provide actionable information in a seamless way. Infrastructure managers no longer need to monitor multiple screens from multiple vendors and struggle to understand what it all means. Having fewer more meaningful information sources not only costs less in tools, it also improves operator efficiency.

What IPM Can Do for You and Your Career

Done right, IPM can improve your work life quality and boost your career. It can shorten your time spent in reactive mode, thus freeing you to concentrate on more proactive and strategic work—and it can strengthen information quality and align it with the business to give you a stronger, more confident voice within your enterprise.

Freedom from Reactive Mode

IPM best practices and tools free you and your staff from much of the daily drudgery and stress of reactive fire fighting. Research by IDC [3] shows that for network professionals like you, a comprehensive set of automated network management tools frees up a great deal of time otherwise spent reacting to network problems.

We analyzed the IDC study results to quantify staff time savings from network management productivity gains. Drawing from many data sources we found a general

consensus that large organizations employ about one IT staff member for every 64 users. This includes all IT functions, of which the network group is but a part.

Based on our analysis of IDC's study, better automated tools free up staff at rates shown in Figure 4. The left line on each horizontal bar shows the equivalent of a half-time employee, and the right line shows a full-time equivalent.

Figure 4 is a conservative projection of existing staff freed up for new projects by automated IPM tools. The model assures that a person is significantly relieved of previous fire-fighting tasks in order to qualify as free to take on new assignments. The range of available staff is governed by an enterprise's size (as measured by the number of IT users). For example, if your network organization supports 10,000 users, we estimate that automated IPM will free up approximately three half-time employees, or 1 full-time employee.

You can benefit from the freed-up time to volunteer for a new assignment or provide insights into how the infrastructure should be re-engineered for the future rather than reporting on past performance.
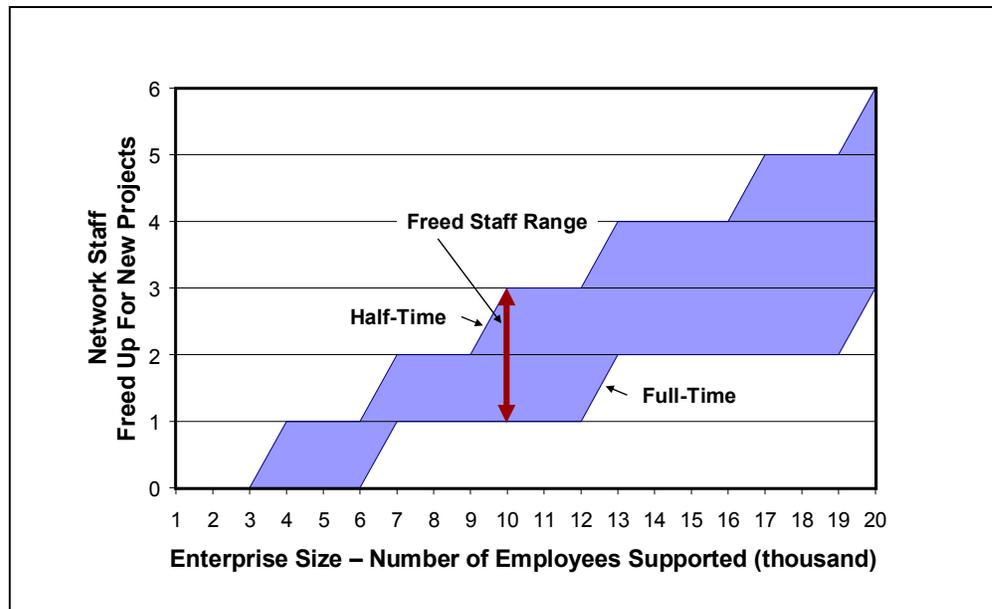

Figure 4 – Ability to Take On New Projects

More Interesting and Strategic Projects

The combination of ITSM and IPM can boost your career by lifting you from tactical "gnome mode" and empowering your involvement in strategic corporate planning and initiatives. ITSM elevates the conversation from "what happened last week" to "where is the business going and what must IT do to support it?" IPM provides you with the right information and confidence in that information. This, in turn, enables you to identify areas that should be improved to support business initiatives, and helps you better align your IT infrastructure with business needs.

The Ability to Set Service Level Objectives

Ultimately ITSM helps you design and support Service Level Objectives (SLOs) that align with the business. SLOs help demonstrate the value of IT to the business and provide meaningful information to meet key targets. They clearly define the level of services expected and help you ensure targets are met within expected standards and budgeted costs.

The Importance of Tools

Before you can realize the promise of ITSM, it is vital to deploy an integrated and automated tool platform. As Figure 5 shows, not only will this immediately help free up time spent fighting fires, it will provide new and better information that can empower you to engage with your management in new ways—and ultimately to become involved in more interesting and strategic assignments because you will have . . . more time.
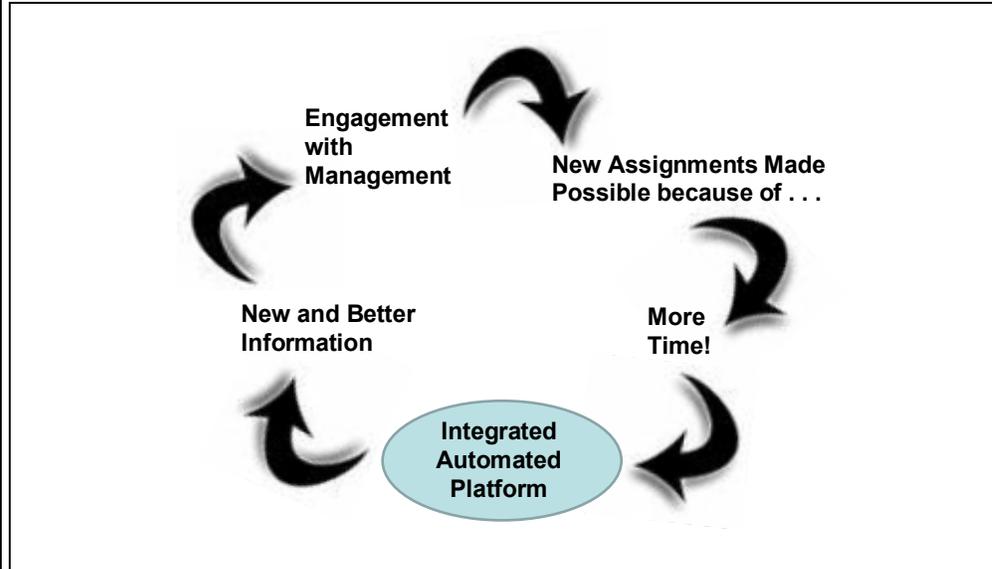

Figure 5 – Role of an Integrated and Automated Tool Platform

Conclusions

NetForecast recommends that network professionals learn about and implement IPM best practices. There is tremendous value in moving towards a single comprehensive and automated management platform for your IT infrastructure. Not only will this be good for your enterprise, it can transform your role from tactical first responder to strategic business enabler and lead to more interesting and rewarding career opportunities.

References

[1] "Application Performance Management: Best Practices Do Work," Peter Sevcik and Rebecca Wetzel, BCR, May 2007

[2] "The Real Value of Network Visibility," Aberdeen Group, December 2007

[3] "Achieving Business Value and Gaining ROI with CA's EITM Software for Optimizing IT Infrastructure," Tim Grieser and Randy Perry, IDC, April 2007

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