



Proactive IT Triage™

***Automation of ITSM-Based Problem
Management***

866 526 6700

www.eginnovations.com



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Executive Summary

Today's n-tier infrastructures make significant demands on the problem management process. Isolation of performance problems in these environments is difficult at best, and traditional monitoring tools are not equipped to deal with the multiple dependencies and complexities they present.

Even effective problem management processes may not be sufficient without improved tools. eG Innovations has developed a new monitoring paradigm that leverages a patented correlation technology that can provide a high level of automation to the Problem Management process, via a unique Proactive IT TriageSM approach.

Through simple integration with existing trouble-ticketing systems, the eG Suite can be easily and rapidly integrated into any environment; whether it is ITSM compliant or not. In fact, the implementation of eG Innovations for Problem Management can greatly accelerate the implementation of other ITSM processes through:

- more effective and rapid data gathering for each critical IT service supported by the Service Desk
- improved capacity planning information and,
- more effective Service Level Management by clearly associating specific measurements and tests to underpinning SLA/SLO objectives.

This results in significant reductions in problem isolation time, greater IT alignment with the business, more effective communication with the Service Desk, and improved organizational learning. The result is rapid cost reduction, greater availability, and more effective IT service planning.

Perhaps the most compelling reason customers leverage eG is the speed in which they can implement the solution and obtain value. For most companies, eG is implemented and operational in days --- not weeks or months --- this time-to-value, along with eG's patented dataflow and dependency correlation, provides an extremely compelling value proposition.

Overview

The purpose of this paper is to illustrate how the eG Suite from eG Innovations can be implemented in a customer environment that is --- or wants to be --- ITSM compliant.

“The increased complexity and distribution of the IT environment has made the efficient management of the IT infrastructure and its services almost impossible without the aid of specialized tools... To achieve true business and IT alignment, IT must change its focus from traditional systems management towards an end-to-end service model.”

– Pink Elephant

The eG Suite represents a new monitoring paradigm specifically tailored to the needs of today’s n-tier infrastructures. Through a patented dataflow and applications dependency technology, the eG Suite provides automation of the Problem Management process and enables rapid movement to proactive management.

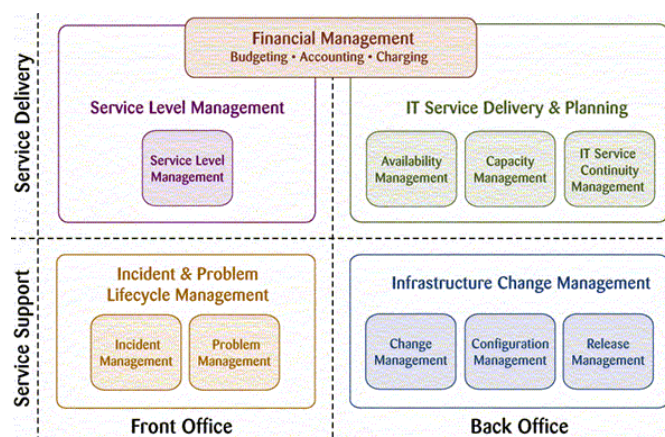
This paper will outline how the eG Suite addresses this for companies compliant with, or considering, the ITSM best practice standard.

The IT Service Management Model

The IT Delivery and Support Model illustrates the ten core IT Service Management processes. The model is divided into four quadrants. The bottom half of the model represents the five IT Support processes, whereas the top half of the model represents the five IT Delivery processes. The model is also divided into front office for customer facing processes, and back office for non-customer facing processes.

The IT Support processes include Incident, Problem, Change, Configuration, and Release Management. These processes primarily are involved in the direct support of IT services.

The IT Delivery processes include Availability, Capacity, IT Service Continuity, Financial, and Service Level Management. The IT Delivery processes are primarily involved with the tactical planning for the delivery of IT services, as well as managing the customer relationship.



Within the IT Delivery and Support Model the Problem Management process finds the root causes of a problem or potential problem, and effects the permanent removal of the error

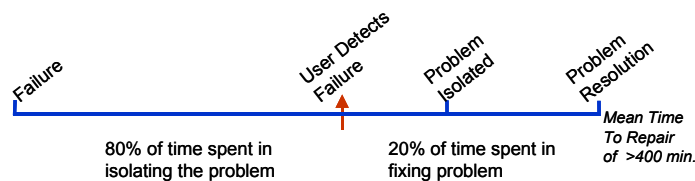
from the infrastructure. Proactive Problem Management performs trend analysis in an attempt to identify failure trends within the IT infrastructure, thus providing an opportunity to avoid problems *before they impact the business*.

The Problem Management process helps reduce the overall number of incidents that occur within the IT infrastructure, providing the basis for continuous improvement. Probably the benefit that is most readily recognized by the end user is the overall improvement in the number of times an incident is resolved on the first call because of the availability of a knowledge base containing incident resolution and work-around data.

Additionally, Problem Management:

- Is a source of RFCs to the Change Management Process.
- Provides analyzed information about failure data as it impacts Availability and Capacity requirements.
- Helps the Service Level Management process through trend analysis in the identification of potential breaches to Service Level Agreements, or SLAs.

Perhaps most importantly, because of the increased complexity of 'n-tier' IT infrastructures:

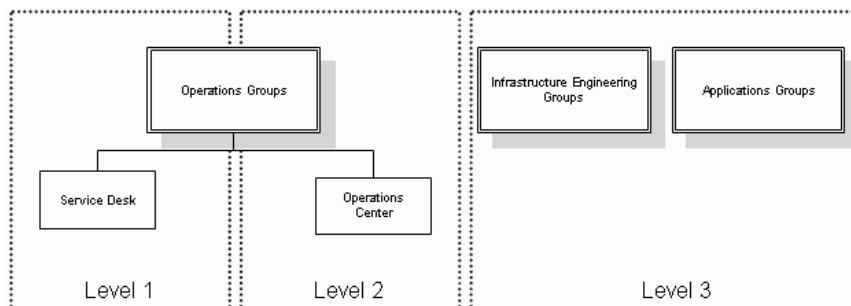


*"... in current IT-Infrastructures it takes almost **eight hours to determine the cause** of a problem, but only requires **eight minutes to fix the problem** once the cause is determined..." - Gartner*

Since problem isolation often takes Tier 2 and Tier 3 resources, automation of Problem Management offers a significant opportunity for cost savings, increased utilization of Tier 2 and Tier 3 support resources, and improvements in end-user service quality.

Common Problem Management Practices

Most IT organizations have a tiered support model as depicted below:



The Service Desk function is responsible for the primary components of the Incident Management process, and acts as the single point of contact between the end user of IT

services, and the IT organization. Level 1 support makes the first attempt to resolve the service issue reported by the end user. For Level 1 support to achieve a high rate of success in resolving issues, ITSM best practice requires that they match incidents to known errors in the Problem Management database.

Any issues that Level 1 cannot resolve get escalated to Level 2, who are the principal owners of the Problem Management process and perform troubleshooting of incidents to determine root cause. Level 2 is also responsible for proactively managing the infrastructure, to prevent problems before they occur.

Level 3 support is typically responsible for the planning and design of the IT infrastructure. These resources are the last escalation group, and are subject matter experts.

When problems occur within complex n-tier infrastructures, Level 1 and Level 2 support often engage multiple subject matter experts in an attempt to 'triage' the problem and quickly isolate the root cause.

For highly critical services, escalation may include communication with end-user departments, business units, etc., who may even have an availability manager assigned as a liaison to the Service Desk.

The following section will illustrate how an organization can implement the eG Suite relative to the ITSM best practice standard, and outline the significant benefits that Proactive IT Triage™ can obtain.

Traditional Monitoring Approaches

"Today's Web application infrastructures are very complex and interdependent. They typically include hundreds or even thousands of different resources and services (server platforms, network devices, storage subsystems, presentation services, application middleware, database services, etc.) that must work together in balance to deliver business application services to end-users. Most organizations lack the end-to-end instrumentation necessary to get a complete view of the health of these hundreds to thousands of resources and services. Certainly, very few have the visibility they need to identify the specific resources that contribute to application service level problems.

Despite the breadth and depth of specialized skills and tools in IT, the application infrastructure is a system of many complex resource dependencies that, unless viewed as a complete system, is difficult to understand. Yet typically, several different infrastructure monitoring products are used to check the status of servers, network, storage resources and software services, each with its own interface, and each storing monitoring data in its own proprietary database. Some organizations have invested in custom integration projects to provide a more complete system view, but this is hard to do and creates ongoing maintenance work. The result is a layer of management complexity on top of already-complex application infrastructures.

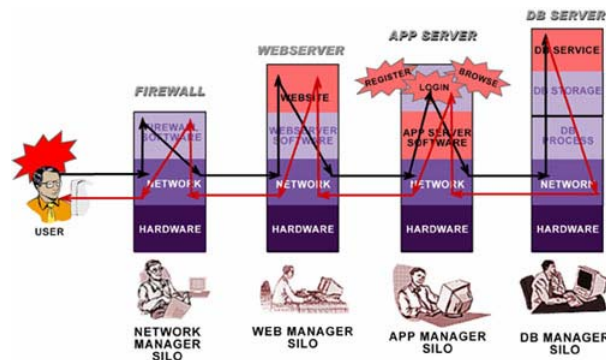
When service level problems arise, organizations perform an initial triage to determine what components are the likely culprits and then send in the specialists to diagnose those areas. Unless a problem is isolated within a specific resource or tier, the different staff members print reports, view various monitoring tools, dump log files, get in a room, compare notes and develop a hypothesis as to what the problem is, as well as a recommended solution (Figure 1). Even with all this effort and expertise, the staff team does not always know exactly how the recommended solution will impact application performance, or how it will impact other interdependent applications and resources, or if it will create some other problem, but they do have a sense that it will push things in the right direction."

- APM Advisors: Application Infrastructure Management, *New Ways for New Times*

The recent evolution of IT infrastructures towards 'n-tier' poses key monitoring and management challenges:

- Over 73% of failures in IT infrastructures are attributed to application software and servers. Hence, there is growing need for monitoring application software.
- While the use of multi-tier architectures helps with respect to infrastructure scalability, it also poses interesting challenges. Since the end-to-end service involves multiple dependent applications and network elements, a failure in one application (e.g., database) affects all the other applications involved in the service. Consequently, problem identification and correction is a huge challenge. Monitoring applications and networks as independent silos is no longer sufficient for problem diagnosis in IT infrastructures.
- Owing to the complexity of IT infrastructures, it is no longer reasonable to expect that a single operator can be proficient in all the diverse infrastructure technologies. Infrastructure teams often have domain experts (e.g., Oracle DBA, WebLogic admin, etc.) and application developers who take responsibility for the deployment, while another team of operators is responsible for the day-to-day operation of the service. The service operators have to deal with monitoring tools that require a great deal of expertise to operate and often struggle to determine which domain expert/developer to call on to resolve a problem.

The eG Suite provides a comprehensive solution that enables IT infrastructures to address the above challenges:



- Integrated multi-tier monitoring: Taking a holistic approach, the eG Suite allows IT operators to track the quality of the business services and relate this to critical network, system, and application performance. Pre-defined models for over fifty popular software applications ensure that service operators can start managing their infrastructure, without needing to acquire a great deal of expertise.
- Focus on the cause rather than effects: eG's patented automatic triage capability makes problem diagnosis very simple. Considering inter-application and network interdependencies, eG is able to automatically differentiate between the cause and effect of problems, so service operators can focus on the cause, rather than being distracted by the effects.
- Clear problem demarcation: eG's layer model representation for different applications and network devices enables clear demarcation of the problem (i.e. whether network, server, or application) with minimal effort. This capability eliminates finger pointing across domains.

Unlike other correlation solutions that are network only, eG's correlation engine correlates across the network, system and application tiers. Correlation is performed in two phases, understanding the intra-application and inter-application dependencies. Furthermore, unlike existing solutions that require elaborate and time-consuming correlation rules to be developed, eG's correlation engine works out-of-the-box, without requiring extensive consulting and customization. This powerful capability ensures that administrators can get eG's correlation capability running in a few hours, rather than in a few months.

Implementing the eG Suite in an ITSM-Based Environment

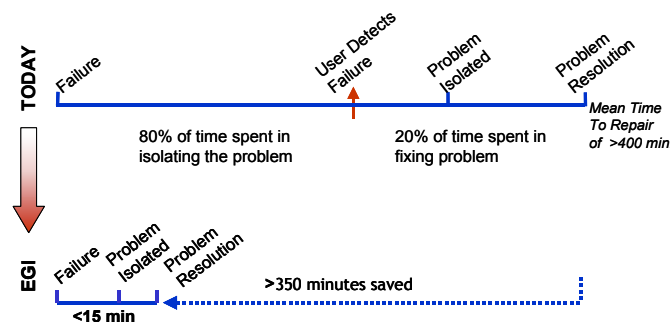
The Office of Government Commerce (OGC) publishes two books that outline functional tool requirements covering the core processes listed in the Service Support and Service Delivery sets. Since there is no itSMF or OGC official certification of tool sets, eG Innovations does not currently represent the eG Suite as 'ITSM compliant', however the eG Suite was designed from the ground up to address today's IT service management challenges.


Service Level Agreements must be based on what can be measured. The eG Suite takes real time measurements at every layer of every component in each critical IT service, learns the norms of all collected measurements, and alerts appropriate personnel when deviations from normal occur. eG will help identify the critical measurements and tests needed to assure a stable operating environment for virtually any complex IT infrastructure.

eG's ability to rapidly create business service views of the IT infrastructure enable customers to obtain a service management orientation for SLM, capacity and availability management. In fact, when integrated into the QA environment eG can provide benefits to release and configuration management as well, since during the QA testing eG will automatically isolate which layer of which component is the source of an error. However, while the eG Suite provides significant benefits to the Capacity Planning, Availability, Service Level Management and other ITIL/ITSM processes, the core process that eG Innovations automates is Problem Management.

Practical Applications of eG Innovations in ITSM-compliant Environments

By providing a high level of automation for the ITSM Problem Management process, eG will dramatically reduce the time to isolate problems as depicted below.





There are several other key advantages that the introduction of the eG Suite will have on any ITSM-compliant environment:

- Improved alignment of IT with the business
- More effective communication between Tiered support groups, and between IT and user departments
- Rapid problem isolation for any IT service
- Improved organizational learning
- Improved Implementation of other ITSM processes

Improved Business Alignment

While the eG Suite can be implemented to monitor specific servers and IT services (such as Citrix), most clients will rapidly find that creating personalized monitoring views of critical business services is extremely easy with the eG Suite.

Once these views are created, all correlation and alarms, reporting, trending, and notifications are associated with this view. Customers can have any number of views, and shared components can be associated with multiple views.

This allows the monitoring environment to align itself to each business user and service --- a fundamental objective of ITSM.

Better Communications with Tiered Support and Users

The personalized eG monitors can be provided to any part of the organization that needs to know the current status of the IT infrastructure associated with their specific service(s). These metrics are part of the agreed upon Service Level Agreements/Operating Level Agreements with the user community. This essentially 'gets everyone working off the same page', and can foster continuous improvement since the eG interface associates specific tests and measurements with service performance.


Typically, Critical Alerts automatically generate a ticket with the Service Desk for immediate resolution and/or assignment. Minor alerts, which provide for proactive problem avoidance, can be viewed in real time and the Problem Management group (typically Tier 2) can assign the appropriate subject matter expert(s) and/or make recommendations for improvement, which may result in an RFC or other action. Supporting information (such as trend reports, etc.) can be provided to clarify the need for the RFC.

Rapid Problem Isolation for any IT service

eG Innovations takes real time measurements at every layer of the infrastructure – network, system, and application. In addition, through an Integration Console, customers can create new measurements and tests for virtually any IT service regardless of device type, application or need. This provides an intelligent monitoring environment for the entire organization.

Improved Organizational Learning

Most clients will quickly take advantage of the Knowledge Base functionality that eG provides. By having the problem management group and/or subject matter experts incorporate fixes and instructions into the Knowledge Base, Tier 1 resources become much more efficient very rapidly.



In addition, the intuitive user interface that eG provides allows both Level 1 and departmental personnel to easily understand the critical infrastructure components that make up their IT services. This improves communication with the Service Desk.

Improved Implementation of Other ITSM Processes

Since the eG Suite very rapidly allows customers to create specific monitoring views of each service supported by the Service Desk, customers wanting to implement ITSM best practices can benefit greatly by quickly obtaining measurement and trending data for each service.

Additionally, the automated adaptive thresholding capability of the eG Suite allows customers to quickly establish current baselines of performance. These baselines include all measurements associated with a service (network, system and application) and can provide a foundation for stabilization of the IT infrastructure and continuous improvement.

Finally, since the eG interface is based on measurements and tests --- the key element of any effective Service Level Agreement --- it provides a basis for effective communication about Service Level Management with users. Users and IT staff can work off the same set of metrics for analyzing actual performance against acceptable baselines.

eG Innovations and our Authorized Partners can help customers quickly automate the problem management process and integrate the eG Suite into any environment; whether you are on the road to ITSM or already there.