

eG Innovations: A Collaborative Approach to Managing Multi-Tiered Business Services

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Executive Overview

There is a lot of buzz going on in the marketplace today about technology complexity and high IT costs. IT organizations are supporting a cumulative burden that includes legacy applications, web ecosystems, governance/compliance requirements, and ever-increasing business demands, and this support doesn't come cheap. At the same time, CIOs are finding that supporting technology never becomes easier. Instead, it is increasingly complex, and the challenge becomes finding ways to manage this complexity while containing cost and improving services.

In today's aggressive business environment, companies are making the assumption that IT can support high performance business services—in fact they are betting their revenues on IT. As EBusiness generates an increasingly large percentage of the revenue pie, the risks of service degradation and downtime become increasingly costly. Recent EMA research found, for example, that for a customer-facing stock trading site, poor performance could translate into potential losses in the millions of dollars per hour, as customers give up on the site and turn to other providers. So, while complexity has become the norm, insuring availability and performance has become increasingly critical.

These factors combine to produce an almost overwhelming support challenge. As technology complexity escalates, so do staffing requirements. Tiered applications run over multiple components, each of which requires specific expertise and a dedicated support team. Further, for the application to perform, the technology components have to be able to interoperate seamlessly. These cross-tier dependencies mean that it's not enough for the database, the web server, or the load balancer to be running—their touch points must be working as well (see **Figure 1**). It thus becomes increasingly difficult to determine the true root cause of an IT service/application problem. Is it the network? A server? A database? And despite the proliferation of application management tools in the marketplace today, most are designed to support technology silos, not business services.

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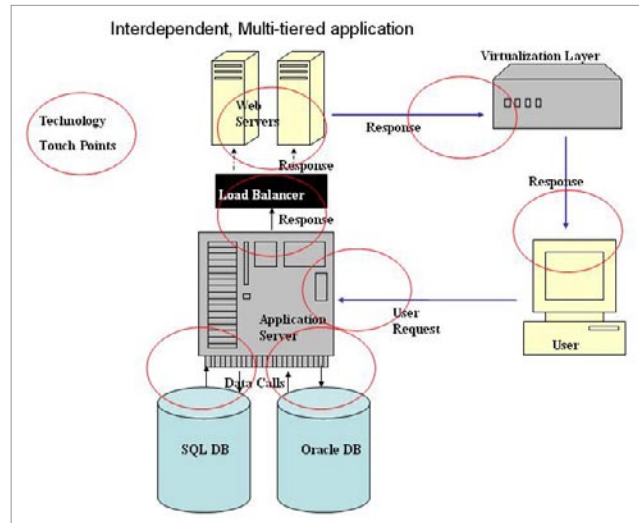


Figure 1: Multi-tier applications with dependencies or “touch points”
Managing tiered applications goes beyond simply managing databases, web servers or virtual servers. Visibility to the touch points between the tiers is essential when performing problem triage and root cause analysis.



Figure 2: Fragmented Management Tools Market
IT organizations can use as many as 25 different products in an attempt to manage their various infrastructure and service delivery resources.

Figure 2 shows the results of recent EMA research in which IT organizations were asked to list all of the management products they were using. Complexity is driving companies to seek solutions, but it's clear that there is no single “magic bullet” that can provide a simple answer.

The IT Infrastructure Library (ITIL) best practice library introduced concepts that promote the cross-silo collaboration necessary to effectively manage complex, tiered business applications. However, ITIL's focus is on a process-based approach, not specifically on automa-

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tion. In addition, many of today's management solutions were developed before ITIL was widely adopted and were specifically designed to manage devices, not cross-technology business services. Solving problems that occur within these complex, multi-technology business services requires enormous manpower, because most IT organizations still solve the most difficult problems with people and their expertise, not with automation. The support challenge is a major factor in escalating costs.

This paper focuses on a product that offers an alternative. The eG Enterprise Suite from eG Innovations was introduced in 2001, and already has customers of all sizes in 13 countries, spanning a wide range of industries. It was designed specifically to address the service monitoring and IT infrastructure triage challenges associated with monitoring tiered, heterogeneous application deployments. It also can reduce the support requirements for managing these services by automating and simplifying much of the data gathering and monitoring process.

This paper includes two case studies. One describes the experience of a government agency that was struggling with intermittent outages in a Citrix environment. These outages were impacting employee access to critical business applications. Not only did eG Innovations help this agency solve the problem, but it also introduced a new support paradigm. Since all technology groups could see the performance of their own tiers in relation to other tiers and to the business service, the Citrix support team was able to pinpoint a problem that was actually in the network domain.

The second case study describes a worldwide financial firm's effort to ensure optimum performance of critical applications used by online banking customers. This firm was able to empower Level 1 support teams to improve problem triage success rates from solving 15%-20% of application problems to solving approximately 50%. Further, eG Innovations became a trusted source for "real" application performance data across diverse technology teams and a basis for proactively, versus reactively, addressing technology problems.

As ITIL states, it is no longer possible to cost-effectively support today's complex applications with siloed support teams. eG Innovations captures and automates this concept by providing a way to bring collaborative team

support to IT via technology. It does this by combining broad visibility to applications and technologies with visibility to the touch points between them. When multiple technology teams have access to a single view of the application ecosystem, IT organizations can finally begin reaping the rewards promised by ITIL and other best practice frameworks.

Case Study 1: Unhappy Customers, No Solution in Sight

Because of the multiple technologies and management tools in use at most enterprises today, every IT team has experienced a common scenario. Users report a performance problem, but point management products all report normal measurements. This was the case at a large government agency running a critical telecommuting application over a Citrix infrastructure.

Users complained that they were "having trouble with Citrix." Screens would "freeze" intermittently and users experienced lengthy delays while trying to do their work. Since all management tools reported normal, the Citrix team was being blamed for the problem, and bore the brunt of the finger pointing that typically occurs for such unexplainable problems. The team replaced hardware, updated operating systems, patched server-side and client-side software, but nothing they did solved the problem.

Other teams were convinced that "their" technology was performing well. The server team reported that utilization was well within optimal limits, and the database team saw only normal responses on the database side. Citrix sessions were well balanced across the server farm, application utilization and traffic seemed normal and there were no unexplained user disconnects—but the problem persisted.

After grappling with this problem for months, the organization brought eG Innovations in-house for an evaluation. With all other options exhausted, the Citrix team turned to the eG solution, which presented them with a correlated, integrated view of the telecommuting application. eG Innovations "saw" the multiple technologies making up the application in context, and the team was able to compare the performance of their eight Citrix servers with one another. They quickly spotted an anomaly; while it was true that users were balanced

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In lieu of products that can solve these hard, intermittent problems, technology teams tend to point fingers at other teams. In this case, the organization wasted significant time and money replacing hardware and software that were not the problem. Being able to go directly to the root of the problem, instead of wasting time with finger pointing and trial-and-error replacement, can significantly reduce staff time and operational budget required to solve such problems.

evenly across servers, six of the servers were performing optimally while two showed an unusual number of network re-transmissions. When the Citrix team referred the problem to the network team, they diagnosed a problem with the network configuration in the two faulty servers.

This illustrates a “trickle across” approach to application support that is not possible with traditional, device-oriented products. Providing a way for a Citrix team to go beyond their technology expertise to find a network problem is unusual, and, when other support teams heard about this capability, they wanted access to eG Innovations as well.

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The eG Innovations Difference

One of the reasons why ITIL has been so widely adopted is that it provides a common language across IT, so that while a Windows administrator, and a UNIX administrator, and a web server administrator will all have their own terminology for the specific areas they cover, all can agree on the definition of a problem, an incident, or a configuration item.

eG Innovations can build on this common language by providing a common business service view, in effect a “trusted source” of infrastructure information that promotes collaboration among teams. As one technology team finds that eG Enterprise provides a reliable way to determine the “real” source of infrastructure problems, others turn to eG Enterprise to help them solve their own technical issues as well.

The eG Enterprise Suite provides a broad view of the entire IT ecosystem and incorporates patented root cause analysis techniques that supplement the technical knowledge of any one support team. It is designed to be used in conjunction with, not as a replacement for, products that provide granular, in-depth perspective on databases, networks and applications. While it’s likely that each group will still have its own tools for technology-specific administration tasks, eG Innovations offers a single, web-based IT service perspective useful across support teams. As such, when adopted by a single technology support group, it tends to “trickle” across the organization as technology teams perceive it as a trusted single source for business service performance data.

From the technology perspective, eG Enterprise Suite has multiple features that promote this kind of collaborative management among domain and silo support teams. These features and benefits are summarized below.

- *Wide breadth of coverage across tiers and platforms:* To effectively manage applications, today’s products have to combine a top-down, transaction level approach with a bottom-up, device level approach. Few products were specifically designed from scratch to do this, and eG Enterprise is one that was. eG Enterprise captures and correlates a complete, multi-dimensional business service view. This approach promotes quick diagnosis and smooth hand-offs during the problem resolution and remediation cycle.

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- *Deep visibility to specific technology with single agent technology:* eG Enterprise’s universal agent provides a high level “pane of glass” view, enabling multiple applications executing on the same host to be managed using single agent architecture. eG Innovations has developed agent models for more than 80 standard technology verticals and databases (see **Figure 3**). From this perspective, Oracle, Microsoft Exchange and Citrix administrators, for example, can all see the technology they support in context with applications and technology supported by other teams. This helps shift the focus of troubleshooting efforts from finger pointing to collaboration.
- Moreover, the same single agent technology can manage multiple operating systems (e.g., Windows, Unix, Linux), network devices and servers. Agent licensing is based on IP addresses monitored—not tied to hardware capabilities—so single as well as multiple CPU configurations are all covered by a single agent license. These efficiencies combine to greatly reduce license fees and total cost of ownership, and simplify configuration, deployment and provisioning processes significantly.



Figure 3: eG Enterprise Single Agent Technology
A single agent architecture monitors service, application, server and network status and performance via a centralized management console. This accelerates and simplifies root cause analysis for help desk staff and individual support teams.

- *Patented Root Cause Diagnostics:* eG Innovations’ patented “expert” level correlation and root cause analytics provide a high degree of built-in intelligence. This helps shift the resource intensive troubleshooting process from people to technology, with the potential to dramatically reduce Mean Time to Repair (MTTR). This “expert

system” approach also empowers less skilled Level 1 support staff to be more effective in problem triage, freeing up personnel with deeper skills for business-enhancing projects instead of firefighting and routine support tasks.

- *Supplements tools already in-house, and leverages metrics from such tools:* EMA research indicates that the average IT organization already has at least five enterprise management products in place. Each collects metrics that are valuable to specific technology. eG Innovations consumes and aggregates these metrics along with those collected by its own agents to maximize the value of all of the products within the enterprise.
- *Automatic baselining:* The eG Enterprise Suite baselines all of the metrics it collects, and baselines take into account the normal time-of-day and day-of-week performance variations. Given that complex environments can employ millions of different thresholds, the eG approach essentially eliminates the prohibitively time-consuming process of continuously setting and adjusting thresholds on a manual basis.
- *Effectively manages SOA deployments:* Because of the fact that SOA services are abstracted from their underlying infrastructure, not hard-wired as traditional multi-tiered applications are, SOA services present specific management challenges. Traditional products with a technology-focused, bottom-up application perspective fall short because they lack a top-down, business-based view of the SOA service. To adequately manage such deployments requires deep technology perspective, the ability to track and understand transactions, and built-in intelligence to combine both top-down and bottom-up information into a holistic, multi-dimensional transaction model. eG Innovations solution readily adapts to such a model.
- *Topology graph and layer model representations:* These are key for eG Innovations’ auto correlation technology, and are also important for service desk staff, who typically have little or no visibility into data flows or components of a business service. These views can help them to pinpoint problems by seeing problem components at a glance.

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- The product includes best practice models for over 80 multi-tier components, and each pre-built model provides an intuitive interface that can be used by IT staff at all levels to perform more detailed, technology focused troubleshooting. **Figure 4** shows the topology graph and layer views with the Oracle database indicated as the problem area. The screen display shows eG Enterprise's depiction of the components of the Oracle database. The view clearly shows the table (ORDERS) and the problem layer (TABLESPACES), giving even less skilled technologists a clear perspective on where the problem lies.

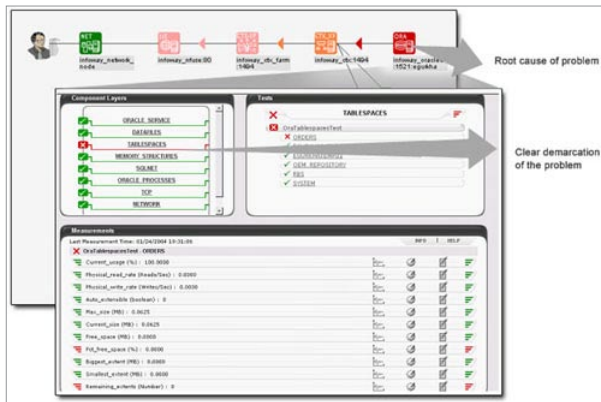


Figure 4: eG Enterprise Topology Graph and Layer Modeling
The topology graph shows interdependencies among service components, and identifies that the root cause of a problem lies in an Oracle database. Clicking on the red icon drills down to reveal that the cause of the Oracle problem is in the tablespaces layer.

Case Study 2: Moving Towards Proactive Management by Empowering the Service Desk

Tom White is the vice president of infrastructure management for an international financial services corporation. He and his team are responsible for ensuring availability and performance for the company's business critical, customer-facing financial services and online banking transactions. These business services are a first priority for his company, as they are critical to end-user satisfaction, and therefore to customer retention.

Tom's group has reaped significant benefits from its eG Enterprise investment, and Tom sums up his experience with the product in a nutshell. "People should pay attention to this product. It has helped me to understand what

end-to-end business service monitoring is all about. Not many vendors do it well, and we have evaluated multiple products from large vendors that didn't do what we expected. We've seen other companies end up buying products that provide little value. eG Innovations is doing what other tools vendors should be doing, and it's worth evaluating the product to get an education about how business service management should be done."

Tom's team originally evaluated eG Enterprise as a way to gather metrics for capacity management. Although there were multiple point products in place, they needed a better grasp on capacity trends, not just as they related to application performance, but also for longer term planning and budgeting. Their initial requirement was to collect capacity data on their Internet banking platforms, including information on all tiers and on the connections through those tiers to the host back end.

After evaluating multiple products, Tom's team chose eG Enterprise for several key reasons. One was ease of deployment. The solution requires a single agent for all platforms, not specific agents for each separate technology. This makes it simple to deploy and maintain. They liked the fact that they could deploy a single product that gave them capacity and utilization metrics on multiple platforms and technologies.

Another was that the breadth of the metrics provided was far richer than competing products. Although some of the other products they evaluated had more depth at the application tier, for example, they didn't address the web tier or specific vendor products, such as BEA or WebSphere. From Tom's perspective, eG Enterprise's cross-platform breadth was "impressive."

Once Tom's organizations made the decision to purchase, the product was delivering value within one week. As eG Enterprise discovered applications and devices, Tom's group used this data to create transaction models for two key transactions: customer account access and account history transactions. By the end of the week, they had working models of two key applications.

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eG Enterprise automatically calculated baselines and internal thresholds that established “normal” utilization and behavior. This gave the capacity management team almost immediate visibility into the impact of customer demand on the IT ecosystem. Once eG Enterprise had been collecting metrics for several weeks, the team was able to see trends based on time of day and day of week, enabling week-to-week comparisons and performance trending over time.

While eG Enterprise provided quick time to value for the capacity management team, other teams quickly saw the kinds of information the team was getting and requested access for their own work. In particular, the manager of the service center team deployed eG Enterprise to his own team.

The role of the service center was to do Level 1 performance and availability monitoring, and triage problems as they occurred. Their responsibility was to determine probable cause, then refer the trouble ticket to the appropriate support specialist team for resolution. Their success was defined by their ability to pinpoint the problem, then route it to the correct Level 3 or 4 support team for resolution.

They relied on several products to do this, including synthetic transaction monitors and point solutions with red light/green light views of system health. Because they lacked detailed visibility into the transactions they supported, the team’s success rate was approximately 15%-20%. They couldn’t identify 80% or more of the problems they encountered, and frequently had to escalate to Level 3 and 4 teams for troubleshooting and support. As a result, Level 3 and 4 teams were stressed and “burned out,” and service center staff were frustrated by their inability to improve their success rate.

eG Enterprise gave the service center, in Tom’s words, a “quick way to get a deeper holistic view of all components in the business service and to present the in-

In our industry, there are multiple products in the marketplace that over-promise and under-deliver. Clearly, eG Enterprise does the opposite, and has proven its capabilities in high-demand, customer-critical environments.

formation in such a way that it alerts centrally to the service center group.” The eG Enterprise perspective to transactions and infrastructure empowered the service center to raise their triage success rate to 50%. This has eliminated much of the support burden of the Level 3 and 4 teams, and has also improved the job satisfaction of the service center staff.

An unexpected additional benefit is that eG Enterprise is now being used as a training tool for new IT employees. The infrastructure models provide a high level business service view that enables new support personnel to quickly grasp the composition of the business services they are supporting, because they are clearly depicted in their management tool.

A final benefit is that eG Enterprise has moved Tom’s team towards proactive problem management, a major goal of best practice frameworks. Due to eG Enterprise’s sensitivity to deviations from trends, technicians are finding that they can often spot problems before they become full-fledged outages. In Tom’s words, “Our other products don’t see these problems, but eG Enterprise does. We are now starting to be more proactive by looking at problems with less immediate impact, but that may become major problems if left unsolved.”

EMA’s Perspective

EMA research has found that the average MTTR for routine service/availability problems is approximately 24 hours from start to finish. This is 24 hours of high-cost, “technology expert” budget required to diagnose and resolve the problem, then validate that the fix worked. This has created two major difficulties. The first one is that only about 10% of the problems occurring in the typical IT infrastructure are solved. The remaining 90% can’t be identified, so they continue to plague the enterprise over time. The second difficulty is in cost. The cost of supporting IT—maintaining a simple status quo—has now hit 60-80% of IT budget. This is impacting not just budgets, but also the ability of IT organizations to meet the needs of the business.

Obviously, products that solve one or both of these problems provide high potential ROI, and eG Enterprise appears to be such a product. Customer stories are always compelling, and the stories detailed in this paper are particularly effective because they convey the significant value that eG Innovations brings to enterprise IT. In

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our industry, there are multiple products in the marketplace that over-promise and under-deliver. Clearly, eG Enterprise does the opposite, and has proven its capabilities in high-demand, customer-critical environments.

Typically, the purchase of management products is driven by siloed technology groups seeking better ways to manage their own technology. The case studies outlined in this paper show that even when this is the case, other technology teams are eager to embrace a product if it provides demonstrable value to them. The eG Enterprise Suite appears to have effectively bridged the “silo” gap by combining breadth, depth and ease of deployment, a combination that is relatively rare in today’s enterprise management solutions. As the government agency example shows, eG Enterprise was brought in to resolve a Citrix issue, but as individual support groups saw the benefits of the product, they adopted it as well.

One caveat is that eG Innovations is not designed to replace existing management products, but to supplement them. That being said, this is a product that can clearly yield significant value to multiple support teams, while helping IT organizations move from a reactive to a solidly proactive support paradigm.

Companies evaluating application management solutions should definitely include eG Enterprise on the short list. To reiterate Tom White’s quote, “eG Innovations is doing what other tools vendors should be doing, and it’s worth evaluating the product to get an education about how business service management should be done.”

About eG Innovations

eG Innovations, Inc. (www.eginnovations.com) is a global provider of IT infrastructure performance monitoring and triage solutions. The company’s patented technologies provide proactive monitoring of every layer of every tier in the infrastructure, thereby enabling rapid diagnosis and recovery in enterprise and service provider networks. By ensuring high availability and optimum performance of mission-critical business services, eG Innovations’ solutions help enhance customers’ competitive positioning, lower operational costs and optimize the performance of their infrastructures.

The company has customers in 13 countries, including organizations of all sizes in government, banking/finance, telecom, healthcare, manufacturing and service industries.

About Enterprise Management Associates, Inc.

Enterprise Management Associates is an advisory and research firm providing market insight to solution providers and technology guidance to Fortune 1000 companies. The EMA team is composed of industry respected analysts who deliver strategic awareness about computing and communications infrastructure. Coupling this team of experts with an ever-expanding knowledge repository gives EMA clients an unparalleled advantage against their competition. The firm has published hundreds of articles and books on technology management topics and is frequently requested to share their observations at management forums worldwide.

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