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Mind the Gap

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There can be no doubt that the development, testing, deployment, and support of new applications in today's competitive marketplace can be a stressful and unpredictable exercise. Gartner Inc. research cites the total cost of ownership of software systems as being two to five times the acquisition cost.

Gartner has also estimated that as much as 40 per cent of a development team's working time is dominated by the support of applications that are already deployed in production. Supporting applications means solving application problems. And, as the experience of many developers suggests, at certain stages of the application lifecycle, resolving application problems can escalate to consume as much as 100 per cent of the development team's time.

It is somewhat surprising that finding a more effective way to optimise application problem resolution across the lifecycle has not been a higher priority on the agenda of IT Directors. However, leading companies are beginning to realise that implementing effective problem resolution processes at different stages of the application lifecycle can have a dramatic impact on productivity.

Herding cats

The whole application lifecycle process – which involves teams, often under disparate management, using different tools and with the ultimate goal of a smooth transition into the production environment – can place immense pressure on individuals and processes. Ultimately, its successful implementation can have huge commercial ramifications on the business itself.

Today, new pressures are compounding the issue. The need to develop increasingly complex applications, combined with the trend towards distributed development and off-shoring, has added the additional strain of coping with geographically remote team members. Commercial pressures mean that the speed with which new applications can be delivered is paramount and any hold ups can negatively impact a company's bottom line. In short, in many organisations, application lifecycle management is in danger of running out of pedal power unless organisations take action to improve its efficient running.

Communication, or rather the lack thereof, is at the heart of the problem and an issue that has long dogged the process has been the differences, the cultural, and organisational divides, between the different departments involved in the application lifecycle – Development, QA/Test, and Operations. As the application moves through its lifecycle, a smooth transition between these organisations is often far from guaranteed.

The testing/development gap

The gap first appears when an application moves from the development into the testing environment. If a problem is encountered in QA, in the unique functional or performance testing environment, a great deal of time and effort is involved in documenting the problem so that it can then be sent back to the developer, who will try and reproduce the problem to pinpoint the root cause in order to fix it. This is frequently a manual exercise, which can leave room for miscommunication and error, as well as being highly time intensive. It's no surprise then to learn that Gartner also estimates that 80 per cent of applications are either not tested or tested manually before being delivered to production, leaving the quality of such software open to speculation.

The production/development gap

When the application finally goes into production and the operations team picks up the support mantle, the inability to quickly resolve application problems has the potential to actually lose the business money and jeopardise customer relationships, as application downtime impacts not only the IT support team, but also employees and customers. Whilst developers are not involved in the front lines of the support operation, independent research carried out last year on behalf of Identify amongst 479 enterprises, discovered that an average of seven people were routinely involved in fixing application problems in a process where the problem was recreated an average of six times. Not surprisingly then, supporting production applications accounted for an average of 39 per cent of developers' time, taking them away from their core task of developing new software.

Gartner estimates that 40 per cent of all unplanned downtime is due to application problems – a statistic that puts into stark relief the need for a better problem management process to tackle the issue of application support.

Troubleshooting – The Great Resource Drain

As any software veteran knows, the challenge is that the symptoms of a software problem rarely reflect the root cause. Finding the glitch is not easy when you don't know where to start looking. A single business transaction may kick off a sequence of complex processes, each of which may involve events that happen on any one of dozens of potential servers. The root cause of the problem could be a software issue, a hardware fault, a configuration issue, or even an end-user's mistake. The abovementioned Identify-commissioned research found that 75 per cent of the application problem resolution cycle time is attributed to determining the root cause of the problem.

Research conducted by FTP in January 2005, which surveyed IT personnel including operational staff, systems administrators, and corporate developers revealed that one fifth of respondents admitted that they relied mainly on 'manual' approaches such as eyeballing system logs or constructing spreadsheets. A similar number claimed to rely mostly on home-grown tools, such as internally written scripts for tracking down problems with distributed applications.

The availability of new technologies that serve to automate the process of application problem resolution and capture a real-time log of user actions, system events, performance metrics, configuration data, and code execution flow – and consequently eliminate the potential for miscommunication and time wasted in problem reproduction – can help to bring about a more efficient working culture in this area.

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Customer experience

Great difficulties can be experienced in the deployment phase of the application lifecycle – when the operational and development teams must work together to iron out any teething problems prior to rollout. The challenges faced by the well-known international cosmetics company, Mary Kay, in deploying a new enterprise-wide application graphically illustrates the point.

The application concerned was a massive supply chain management system, the largest IT project in the company's history, which integrated four different software solutions, 250 different integration points, 100 servers and involved a team of individuals who had been working on the development over a period of 2.5 years. The deployment was to take place across six distribution centres and manufacturing plants, all located hundreds of miles from the development group in Austin, Texas.

To aid deployment, 25 consultants had been retained by the company to provide 24x7 support over a period of two months. To support the deployment of the application, Mary Kay used AppSight Black Box software from Identify Software. AppSight monitors application execution and captures a synchronised, real-time log of user actions, system events, performance metrics, configuration data, and code execution flow – much like the 'black box' flight recorder on an aircraft captures a real-time record of a flight.

The AppSight Black Box log can be replayed and analysed to quickly pinpoint the root cause of all kinds of application problems, whether related to performance, configuration issues, user mistakes, or code errors. With the help of AppSight, the Mary Kay team were able to complete the deployment far ahead of schedule.

"AppSight helped us get to our problems in minutes versus hours, so we could pinpoint root causes and resolve them in 15 to 30 minutes, time after time," says Donna Reineck, IST supply chain architect. "We were ecstatic"

Time for a change

The characteristics that make today's enterprise applications so powerful and productive when processes run smoothly, render them nearly inscrutable when things go wrong. While the software development process has undergone multiple paradigm shifts in the past few decades, the software support process continues to rely on the same manual, labour intensive, iterative approach.

Clearly the issue of application problem resolution is one that needs to feature more highly on the radar screen of IT directors, since it has the potential not only to increase productivity of the IT department and deliver higher quality software in a timely manner, but also to provide better customer service and satisfaction.