

# The business case for monitoring your IT



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# 1 Introduction

**Technology systems are critical to any organisation's success. However, the question of understanding IT system performance and its contribution to meeting corporate objectives is being neglected.**

**In our engagements with CIOs, we find they are being forced to assume considerable risk to keep their operations competitive. Savvy IT directors that build bespoke IT platforms will no doubt negotiate or carve out system testing from vendors and ISVs beyond the immediate demands of the original implementation. But what happens afterwards?**

**Many firms struggle to gain effective on-going insights into the effectiveness of their technology investments. The priority of most CIOs is to bring new initiatives into daily operations, however many don't go far beyond vendors' assessments at installation, still less relate them to business targets.**

**When systems are outsourced or moved to the cloud how do you measure that you are getting the service you require, and the service you are paying for?**

**Because of these different operational and commercial realities, IT departments lack the ability to look forward strategically and don't embed monitoring tools within their operations to identify potential problems or warn of future capacity issues. Beyond the usual service level agreements and maintenance, annual or other long-term system health checks are often not even considered. In a project-oriented world – you only get project-driven budgets – monitoring runs across different systems.**

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## The scope of this white paper

This white paper argues that any organisation making substantial IT investment should be monitoring its technology systems to achieve strategic insight into what they deliver and can provide going forward. This is one of the practical foundations for helping UK businesses enhance their technology performance, meet corporate objectives and reduce overall exposure to risk. However, we believe this core requirement is being lost between different demands: among them, today's 24x7 service expectations, severe cost constraints, resource-heavy best practice models, and the burden of industry regulation.

This paper assumes the following key definitions in making its argument:

### PERFORMANCE

The way or the efficiency with which an IT system operates or fulfills its intended purpose.

### MONITORING

Establishing a device or arrangement for observing, detecting and recording the operation of the IT system or related components to determine if they are operating as required.

### ASSESSMENT

The process of appraising and evaluating IT systems against the organisation's corporate or business objectives.



## 2 Why Monitor?

**CIOs are under massive daily pressure to keep services going. They invariably have to maintain 24x7 IT services to drive growth, keep customers satisfied or defend market share. With their C-level colleagues, they know they will have to continue to invest in technology systems in order to achieve these objectives.**

**Senior executives often make the assumption that the risk they assume can be broadly measured in terms of critical outcomes such as sales growth, cheaper transactions or improved productivity. However, despite the scale or cost of their technology investments, many CIOs – consumed by workloads or overly trusting of technology vendors' promises – seem reluctant or even unaware of the need to provide effective and regular insight into the performance of their IT landscape. They also seem unwilling to relate this expenditure back to the organisation's overall performance and plan for changing customer or system needs over the hardware/software life cycle.**

### Where is the evidence?

It's surprising that so few organisations generate statistics to measure the expensive technology systems they have deployed. Despite IT typically being one of their biggest investments, C-level executives expect to keep systems going without having to question much beyond vendors' claims. However, this trust in suppliers and a general focus on immediate workloads means they are failing to build true system monitoring and capacity planning capabilities into or around these investments.

Company boards have little idea of how their IT assets contribute to the organisation's bottom line. However, by deploying ever more complex computing environments, CIOs are actually *increasing* the overall risk to their business by failing to look ahead to potential system issues. Without monitoring, your systems could be limping along with only a single power supply, a single link to data storage and a single connection to the network. With no capacity planning data you could be heading towards a shortage of resources or an unnecessary panic purchase of hardware.

This lack of foresight goes against a board's general duty of scrutiny. The former OGC (now Buying Solutions) defines corporate governance – and the information demands that it imposes – in these terms:

“... maintaining a sound system of internal control by which the directors and officers of an organisation ensure that effective management systems, including financial monitoring and control systems, have been put in place to protect assets, earnings capacity and the reputation of the organisation.”

## Rethinking IT processes

Seasoned IT professionals fondly recall the discipline of the mainframe era. Computing resources were assigned by the IT team according to central capacity. The rise of distributed computing models never saw the same central controls. In the 21st century, the shift to core information delivery at the individual level is becoming the norm through browsers and mobile devices. Service management models like ITIL were developed in the 1990s to help larger organisations re-align and refine processes with technology resources as distributed environments became commonplace.

However, IT industry professionals flatly disbelieve that such resource-heavy IT maturity models have practical use in a world of Government cutbacks or volatile trading conditions. Writing in *Computer Weekly*, IT consultant Steve Burrows considered the appropriate size of an IT organisation for a viable ITIL framework to be at least 30 staff. Many large firms, never mind smaller ones, will rule out adopting such heavy-duty maturity models on that basis alone.

**Increased automation in monitoring and managing can enable support teams to handle more systems, more complexity and more technologies without increasing head count.**

These different IT industry trends militate against setting up assessment to understand IT's contribution to the organisation's performance. They are accentuated by the 'consumerisation' of IT. Why should a company bother with complex tools to examine the floods of data in their organisation when a clever programmer could build a 'quick fix' enquiry application to run on an iPad or a Smartphone? There is a lack of demand from C-level (even some CIOs) to monitor their systems and deliver statistics that could benchmark their IT system's performance – and how it could be fine tuned to support the business' future growth plans more cost effectively.

Britain's continuing economic uncertainty renders IT assessment especially difficult. Private firms have made sweeping cost reductions beyond their annual cost-cuts. As the government demands front-loaded spending reductions, public sector IT directors must find further cost savings from the financial year 2011-2012. Notions of IT monitoring for forward planning are believed to be irrelevant given this unprecedented backdrop; they are overshadowed by repeated re-budgeting based on reduced headcount and fewer locations – and in the public sector, enforced sharing of resources with partners to keep operations going.

Increased automation in monitoring and managing can enable support teams to handle more systems, more complexity and more technologies without increasing head count. These are real cost benefits that need to be considered.

Industry regulation could be a positive influence towards companies achieving a sensible overview of IT operations. When a financial regulator or governmental agency demands data or records, business and suppliers will clearly maintain network and transactional metrics to help achieve compliance. However, such compliance tactics are frequently about avoiding fines or legal sanctions rather than a drive for best practice.

## IT - internal issues

Others think the IT department's internal issues hinder performance assessment. IT project management teams inevitably have different priorities to those of their support colleagues. With pressure to hit go-live deadlines, maintenance and monitoring are not included in the project's initial scope. System monitoring and deriving meaningful metrics from it seems too time-consuming or resource-heavy. **As an IT consultant working in financial, third sector and SMB sectors put it:**

"Anything standards, regulatory and compliance orientated tends to get measured because it needs to be, followed by measuring sales efficacy and cashflow. Once all this is in place and you're doing your day-to-day business there's precious little time left for companies to measure the value of their IT. Even large ones may not measure it explicitly or implement some cumbersome bespoke software that nobody uses or takes any notice of. This is peculiar since most businesses could not function without IT."



## Time for a health check?

CIOs lack the hard evidence to show how their technology systems are performing or the health of their investments going forward. Like the stressed executive that never went for a health check with their GP before their heart murmur, the CIO has no early warning of capacity or provisioning issues or system outages as systems degrade or fail. How can CIOs check that their technology systems are in a healthy state? How can they see the warning signs without impeding their daily operations?

## 3 The response: corporate monitoring strategies

**What IT monitoring strategies can be adopted if system checks are seen as part of routine maintenance, if they are done at all? In this section, this paper surveys pragmatic approaches, open source utilities and platform-based monitoring tools. It will then look to alternative options and future developments.**

**Leading technology vendors have developed monitoring systems, prominent among them CA Technologies Infrastructure Management, HP OpenView and IBM Tivoli. However these are enterprise and government-scale platforms that demand sustained allocation of in-house resources to manage them. Smaller firms have to blend vendor offerings with their own in-house developed software. However, many vendors' services in these circumstances are loss leaders designed to protect the relationship from competitors or lay the ground for the next sale.**

## Difficulties with holistic IT evaluation

The IT function may struggle to make progress towards holistic checks because of the way staff resources and computing assets are structured or divided up. These might include particular types:

- **Small firms: IT function is shared by non-expert owner-managers and administrators**
- **IT resources grouped by technology stack e.g. server team, storage team and application support team**
- **Multi-tasking administrator needing broad and deep technical expertise, but struggling to achieve both**
- **Outsourced operations: service expectations defined by specific service layer not overall performance**

In these circumstances and with daily problem-solving tasks, it's no surprise that IT staff are focused on specific areas and immediate performance issues related to that particular area; they have little system insight. It's also scarcely surprising that some IT consultants believe that serious IT performance issues, process breakdowns and system outages can be disastrous in organisations with as few as 200 users or a 20-server infrastructure.

## Open source for monitoring?

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Some businesses will seek to gain system overview by developing their own monitoring scripts and blend them with proprietary tools. There is increasing use of open source monitoring tools, such as Nagios, Spiceworks and OpenNMS. The Nagios product in particular works with a variety of operating systems and network devices. However, could the resources that the IT team expends understanding and maintaining open source systems be spent more productively elsewhere? The limitation on IT teams are time and talent, so that free utilities could also become a drain on resources. In other words it's a false economy. Instead of the CIO's staff trying to develop their monitoring tools for free, shouldn't they be making a better business case? Or hiring someone that specialises in all this?

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## Outsourcing: time to make the case

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These difficulties are being compounded by today's extended supply chains. With so many aspects of supply now outsourced, responsibilities are divided (or duplicated). Focused on meeting minimum contractual obligations rather than outright customer satisfaction, outsourced IT suppliers need to work harder to communicate their performance and added value they bring. This goes beyond basic service level agreements (SLAs) to communicating how these assets contribute to successful customer outcomes. An in-house IT manager, for example, will require help with a complex SAP system from the vendor, in-house SAP teams and outsourced or managed service providers. If the IT manager decides to outsource aspects of the business or particular processes, shouldn't their chosen supplier provide monitoring as best practice and not simply to demonstrate compliance within SLAs?

## The Cloud - new assessment possibilities

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The rise of cloud computing has spurred interest in monitoring. With more services provided on a 'pay-as-you-go' basis by outsourcers and cloud specialists, companies are looking at disaggregating large costs such as utilities, IT and office space. This will help the organisation develop more accurate cost-based monitoring needed for effective charging of customers or cross charging of resources deployed. Despite the promise of metered usage and metrics with cloud models, there are still a number of issues surrounding the quality and reliability of data generated from technology infrastructures. This is in part down to difficulties in defining expectations around unproven cloud pricing models.

## A new approach - service level monitoring

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IT is a key factor in the risk that businesses take on but there are very few common approaches to monitoring technology platforms and relating them to the organisations' objectives. Many IT teams fall back on reporting based on *internally-focused* data such as system availability figures or server utilisation rates in a bid to keep questioning directors off their back. With limited inspiration detectable among IT departments, a new approach is needed.

**...understand customers' minimum requirements for satisfaction and start to relate how their technology assets support them – now and for the future.**

Analysts and IT consultancies are now arguing regularly that as corporate IT is now so complicated, businesses need to go back to basics when assessing performance. They need to understand their customer's *minimum requirements* for satisfaction and start to relate how their technology assets support them – now and for the future.

This demands that the IT function looks again at establishing service levels: the metrics that meet those basic requirements – known as service level management (SLM). Experts emphasise that these KPIs must be *externally focused* and business-oriented. This helps the organisation set expectations with customers and it also starts the process of IT becoming aligned with expectations of internal customers or colleagues. The end user experience (EUE) is the critical metric that needs to be recorded and correlated with the underlying component metrics.

Such approaches sound ambitious in today's 24x7 commercial environments but two points need to be made immediately. First, those organisations that start to monitor the performance of service levels across different divisions or departments will start to evaluate their service quality more quickly and effectively than before. This will also provide firmer foundations for seeing if the organisation is genuinely meeting customers needs and how innovations can be made. As the saying goes, you can't work out where you're going until you work where you are now.

Second, no organisation can hope to suddenly assess service levels in real depth across their entire operations. Analysis has to be done in realistic stages, beginning with individual departments or service areas, reviewing the methodologies and gradually widening the remit.

If there is confusion over which service levels to address, the responsibility is on the IT function to work with the board or C-level executives to identify the critical service levels they have to understand for the business and the processes that underpin them. The CIO cannot expect component-level metrics to be suitable for board-level decision-making.

This SLM thinking demands that IT challenges senior colleagues to define what their customers expectations actually are in the first place. Ideally it means too that different departments will have to document customer service targets and metrics that IT measurements will have to be related to. The CIOs colleagues may say that they are too busy, customers too demanding and colleagues too unhelpful to set this process up or make it work. However, the CIO knows that if customer demand from particular departments on the corporate IT system exceeds capacity, the service levels surrounding those departments need re-thinking and IT resources recalibrating if IT is to continue to run smoothly over time.

Although this ongoing engagement with the board could be a demanding undertaking, the IT director that gains agreement on the principle of measuring system performance against customer expectations has taken a decisive step towards understanding the contribution of IT to the business. Moreover, by adopting SLM practices, the CIO can determine how those assets can be operated or redeployed more effectively to meet changing corporate targets.

**...the provider is helping NHS IT managers correlate data from both infrastructure and the applications to understand the organisation's performance issues more effectively.**



## 4 The case for cross-platform multi-tiered monitoring

Once the CIO begins to work with key operational areas to identify customer requirements, critical processes and the core IT supporting them, the onus is on the IT function to re-engineer processes and required IT assets. As mentioned, this means moving beyond component-focused assessments to business objective based ones. To deliver service level management, there is an urgent need for genuine platform-based monitoring that delivers a reliable and detailed understanding of the IT landscape. At this point, the C-level will have the capability to start containing business risk, simplify capacity planning and boost overall productivity.

Many board executives are too busy to take a close interest in IT systems. They expect the CIO to deliver a workable IT platform and manage its complexity and suppliers accordingly. Given this understandable level of involvement and the excessive resources needed for IT maturity models, IT industry observers believe that organisations need simple-to-use tools that enable them to conduct cross-platform system monitoring and generate useful performance data.

### Relating system health to corporate objectives

There is growing awareness of the capabilities of database management tools, for example, that can contribute to service level management. These vendors' products allow data on system performance and service levels to be collected and used in analysis that is more meaningful to an organisation. If C-level executives can ensure that this data collection process is carried out as part of a wider practical assessment of their core business objectives, then the organisation can establish a practical and repeatable assessment model for its technology assets. Moreover, it can identify delivery of required service levels and the way they support core business processes.

At the IT department's technical operations level, corporate users can gain powerful alternative insights into systems infrastructures – without excessive drain on resources. Some monitoring specialists are starting to make progress in delivering IT assessment services based on monitoring at multiple levels of the infrastructure and application stack. In a recent example, an IT services company provided trouble-shooting services across different NHS organisations' patient management systems (PMS). The service provider was able to use monitoring tools to support the complex heterogeneous environment. Allied to its expert monitoring knowledge, the provider is helping NHS IT managers correlate data from both infrastructure and the applications to understand the organisation's performance issues more effectively.

This ability to capture and relate data at different levels gives IT an overview of performance in the way that a large company would use an enterprise-level tool such as OpenView or Tivoli. Similarly, UK retail chains are starting to monitor ERP platforms, applications and infrastructure concurrently to better understand the database reporting difficulties that threaten to disrupt their daily reporting and supply chain operations.

Some observers believe that these products can be adapted by infrastructure-focused IT consultancies to provide platform-based monitoring across combinations of AIX, HP UX, Linux and Solaris environments as well as VMware and Windows server environments. Often corporate IT systems are composed of many different operating systems, so it is an obvious advantage if the CIO can unify the monitoring of performance across all environments. If the external monitoring specialist can aggregate all these metrics from complex server estate and infrastructures, then the customer IT function will have taken another step towards determining service levels that relate to the business's commercial needs.

## Service level metrics for system assessment

A number of technology providers are regularly using service level management (SLM) tools at corporate users sites to capture some key service level metrics, examine historical data and plan different scenarios. The difference is that the blended data sets are externally focused, with performance statistics that are tied to relevant corporate objectives for the business.

SLM tools will be key to assisting management information in innumerable areas including:

- **Response times of critical applications to assess against actual user experience**
- **System capacity based current or projected concurrent users**
- **Accurate statistics on the recurring problems that are causing service issues**
- **Application availability statistics within service hours/SLAs**
- **Underlying infrastructure availability supporting the application availability**
- **What level of time have the systems been exposed to a level of risk due to component failure**

Although the idea of setting service level agreements (SLA) is not new, the speed and flexibility of analysis using better tools is making service level assessment and capacity planning much more realistic. As one systems consultant experienced in monitoring explains: "We can run "what if" analyses for setting more realistic SLAs based on a corporate user's historical records."

**...they provide the CIO with critical business metrics; the ability to warn of potential risks to the business and a statistical proof for taking proactive measures to avoid them.**

## Benefits

The benefits for corporate users of real time multi operating system (OS) and multi application tier assessments are far reaching, including:

- **More effective risk management - for public organisations and enterprises**
- **Extending the useful life of existing IT investments**
- **Repurposing and optimising existing investments**
- **Better management of existing and future IT investments**
- **Resource-light assessments of current utilisation**
- **Better identification and mapping of system rationalisation, consolidation and virtualisation**
- **Simpler management of multiple vendors**
- **Enabling smaller support teams to manage a greater number of systems.**
- **Improving the quality of communication between business users and IT support departments**

## Bringing together infrastructure and financial metrics

The business case for CIOs to develop cross-platform monitoring that will avoid 'finger in the air' guesswork or wasting valuable resources is emerging. Some organisations will aim to align commercial objectives and finance department metrics with their IT infrastructure monitoring. Others may not have the time, staff resources or methodologies to bring into their assessments these metrics until later stages in their growth or if they want to analyse a particular vendor's product or a department's support from the IT function.

IT consultants constantly find there is an innate fear of under-provisioning at every layer of IT management – a sort of 'no-one got fired for over-specifying the IT system'. However, this is leading to massive under-utilisations of expensive equipment and increasing pressure on over-extended IT staff down the line to manage them all. IT staff are being forced to size with poor data, which is something that can be rectified by capturing important metrics before the sizing decision is due.

Whatever analytical framework is adopted, taking practical steps towards system monitoring for service levels, and in turn, customer expectations, will help time-poor CIOs to identify potential longer-term issues. But this should not be confused with organising a faster response mechanism to system outages or other incidents; effective monitoring is most valuable in ensuring that technology assets are supporting successful operations and warning of future issues.

Analytical approaches enable an organisation to identify system improvements, repeat the assessments and develop a feedback loop to ensure such improvements are made and linked to continual improvement of IT operations. Above all, they provide the CIO with critical business metrics; the ability to warn of potential risks to the business and a statistical proof for taking proactive measures to avoid them.

## 5 Conclusion: practical monitoring & capacity planning

**In this paper, Centiq has shown that regular system monitoring – beyond the biggest vendors’ enterprise-scale monitoring platforms and ‘free’ vendor support at system implementation – is essential to safeguard system performance and identify problems. A new generation of IT service providers can help organisations confirm customer requirements, identify the minimum service levels that fulfill them and identify and improve underlying processes.**

This approach will enable an organisation’s board and CIO to plan and take effective steps to deal with conditions that could cause service affecting issues, or authorise growth plans without identifying adequate computing capacity during the corporate planning stage. This forward planning approach will ensure better containment of risk as organisations constantly update their technology systems. Genuine engagement between IT and other key business functions will force a rethink of how the organisation deploys technology and how it can be optimised as commercial priorities change. The severe cuts forced on public sector organisations by the coalition government suggest that there needs to be a strategic assessment of IT investments made and their re-engineering and optimisation for better public services at greatly reduced cost.

Organisations need to look more closely at tools that assess system workloads over their lifecycle. They should work with expert IT consultancies to build ‘resource-light’ practical assessment frameworks.

These models will not absorb excessive C-level and departmental resources and these frameworks will tend to combine the best elements of:

- **System and network monitoring products that are appropriate to their business**
- **Best practices or monitoring guides from IT maturity models and ITIL recommendations**
- **Corporate governance and financial metrics**

This type of considered approach will avoid the cost and time commitments demanded of in-house IT resources by the biggest vendors’ monitoring products. It will also make capacity planning and buying new resources more predictable and more closely related to the organisation’s current and future objectives. Over time, this approach will lead to CIOs being able to retire outdated processes and applications and rationalise associated databases and storage infrastructures.

More than anything, organisations that adopt this thinking will benefit from longer computing hardware and software buying cycles and reduced demands on support teams. They will have much better insight into system issues and reduced reliance on emergency technology purchases to address system outages.



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## Five key questions for the CIO

Centiq believes that if C-level executives are to contain risk and maximize the return from ongoing technology investments they need to be able to answer the following five questions:

- 1. Does your business have documented customer service expectations and minimum service levels that support them?**
- 2. Do your CIO and other C-level executives have regular meetings to review customer satisfaction levels, processes and technology assets?**
- 3. Does your IT organisation have a robust and repeatable framework for monitoring and assessment of technology systems performance in support of commercial targets?**
- 4. Can your outsourced IT provider or other solution provider deliver performance metrics that show the contribution of their systems to your business?**
- 5. Does your IT department have monitoring tools in place that can provide externally-oriented, business-focused multiple-level metrics that help the board assess the health of technology assets and provide early warning of potential issues associated with them?**

**More than anything, organisations that adopt this thinking will benefit from longer computing hardware and software buying cycles and reduced demands on support teams.**

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