white paper

Availability Monitoring

Eliminating Unplanned Downtime and Building a Path to Profit for IBM System i Managers

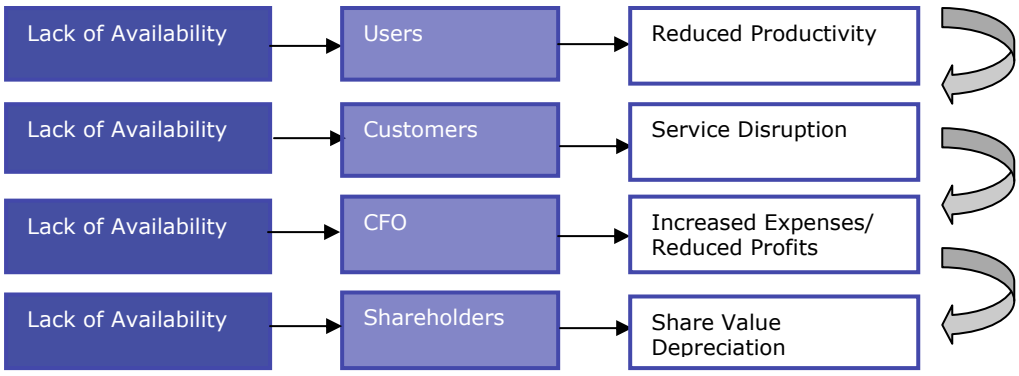
CCSS
Monitoring your system

Availability Monitoring – Building a Path to Profit

Is a lack of availability costing your business thousands or even hundreds of thousands of dollars? Assessing the true financial impact of unplanned downtime may surprise you. Placing a dollar amount on this issue is often the first step and biggest motivator to meeting your ongoing availability requirements. So how do you arrive at the magic number for your particular business and build a path to profit?

Defining the Problem

It's helpful to acknowledge that a 'lack of availability' means different things to different groups. It may be that the system i (iSeries) network is available as far as the IT department is concerned, after all, the system is up and running, but to a group of users who can't access their applications because a TCP port is no longer listening, or indeed, if poor response time is causing them problems, the systems are effectively unavailable to PC users and preventing them from carrying out their work. Similarly, if a company turns to a FM organisation for an agreed level of service that falls short in delivery, heavy financial penalties could be imposed due to the lack of availability. Customer expectations could be compromised, accounts lost and revenue slippage could begin an ugly path of descent faster than you can say diminishing brand value and falling share prices. In short, the availability issue affects everyone in your organisation and inherently carries an associated cost.



Calculating the Cost

Depending on the nature and scale of your business, pinning your lack of availability down to a dollar figure can be carried out by attributing the financial fallout experienced by some or all of the following factors:

- Cost of unproductive workforce
- Cost of lost revenues
- Financial penalties for downtime
- Idle operational costs
- Diminished customer loyalty/Dissatisfied users
- Weakened brand reputation

- Damaged competitive differentiation
- Additional expense to restore lost customer/shareholder confidence and media perception
- Unforeseen expenditure in restoring availability/data/communications
- Falling share value

Case Study

To take a specific example, Company X is a large retail chain with annual revenues of $4billion and 20,000 employees. Last year they encountered a serious 4hr unplanned downtime event during their busiest period that impacted profits considerably and rendered half the workforce idle. The consequence of a lack of availability was far-reaching with the company now spending more on marketing loyalty programmes to win back consumer confidence and regain their market share. A detailed look at the figures reveals the *immediate* financial impact of a lack of availability over the 4 hour period (not including subsequent costs for idle operational status, restoring availability and increase in future marketing expenditure).

Immediate Impact	Immediate Cost
Unproductive workforce	$ 300,000
Lost revenues	$ 6,153,848
TOTAL	**$ 6,453,848**

If retail Company X was a bank that lost a network of ATMs as a result, how many times would their customers have to experience this inconvenience before switching their account? If Company X was a FM organisation, how could they justify costing their customer over six million dollars in lost revenues and unproductive staff time? The implications for any company are more than they can afford to lose. So how do you protect profits and safeguard against a lack of availability?

The Common Goal

The increasingly complex environments required by today's larger organisations seek to protect their availability with specific solutions. Most common are software based solutions that switch to secondary servers in the event of either planned or unplanned outages. 'Global Mirroring' is an alternative to these software based solutions that utilises disk unit replication as the basis of a hardware switch. Regardless of the method used, each serve the ultimate goal of protecting a continuous high availability status without loss or degradation of data. For smaller organisations, the need for a specific HA solution may not be justified but the desire for a highly available environment still exists. Understanding the system and finding a way to manage it given the particular demands of your environment is the foundation to reducing incidence of unplanned downtime. It is this foundation that will help your organisation build a path to profit, regardless of its scale, revenue, existing solutions implemented and ongoing demands.

Achieving Availability from the Inside Out

Applications, sub systems, jobs and communications all play a part in the availability issue. As individual components they each have a task to perform and contribution to make to the overall operation of your organisation. As a tight-knit collective, it's not surprising that a problem for one can soon spread knock-on consequences to others. Mapping your environment and identifying areas where availability issues *could* surface can assist in effectively implementing protective and preventative measures. This type of pre-emptive approach can dramatically reduce the time taken to resolve problems before they take hold or start to impact other system elements or users.

The table below gives examples of the types of areas that left unchecked, could lead to serious availability issues.

Area	Problem	Result
Objects		
e.g. Journal Status	Journal receiver is inactive	▪ Performance degrades and entries are not processed in good time ▪ The system falls over, HA switch occurs and large amounts of transactions are lost to users
Communications		
e.g. TCP Port Status	TCP Port is inactive	▪ Application generated messages sit in queues unanswered ▪ Critical levels of unanswered messages are breached and the application is in danger of falling over
Jobs		
e.g. Subsystem Status	Scheduler subsystem is inactive	▪ Important jobs are not being scheduled to run e.g. Payroll ▪ Employees are not paid on time

If these problems align with the definitions of a lack of availability for your users, customers or colleagues, it's time to take action.

Any potential solution to the availability issue requires the flexibility to monitor a variety of critical jobs, communications, subsystems and objects and support the premise of high availability at the component and system level. With this real-time information, isolated problems can be identified, escalated and resolved quickly. By implementing a proactive approach such as this, downtime that is unforeseen can be

dramatically reduced, saving your organisation substantially on the revenue lost to a lack of availability.

Monitoring Availability on System i

Long heralded as one of the most robust platforms on the market, IBM's System i (iSeries) servers are a natural choice for organisations where availability is a priority. The task facing IT managers today includes extending the reliability of the iSeries out to dependant applications and optimally managing the overall network that their users and customers depend upon. Where resource is always finite to tackle such a mission, the ability to automate becomes essential to smooth operations, let alone situations that are unforeseen.

The challenge becomes knowing what to monitor. As managers of the network you'll be aware of any historical incidences of downtime and the point at which a problem became a crisis. This incredibly valuable knowledge will go a long way to making sure history doesn't repeat itself. Anticipating new areas of vulnerability can begin with a backwards process and many questions. By working through the chains of dependence from users to the system, likely hotspots that require extra vigilance at all times can be identified.

Whist there are many solutions available to IT Managers that address the issue of availability, targeting the right solution must take into account the overall approach to systems management, the need for a multi-tasking solution and constraints dictated by resource - be they human or financial. By attacking the problem from the inside out, managers can benefit from greater efficiency in their daily operations tasks. Solutions that combine the strength of automation and the visibility of real-time monitoring with a pro-active approach to systems management can expect to resolve the issues of availability directly and prevent future revenue leakage as a result of lost availability.

Availability Solutions – Checklist your Requirements

After calculating the price paid for a lack of availability in your organisation and agreeing on a unified definition of what the term means for all groups affected, you'll need to hunt for a solution that fits with your requirements. Consider the full range of monitoring that could benefit your network by identifying the areas that traditionally bridge availability on the system and availability to your users – these include critical jobs, objects and communications elements. If any of these elements ran into problems that were unmonitored and unnoticed, what would be the impact on your availability status? Use the table below as a guideline to determine potential areas of availability vulnerability on your own network.

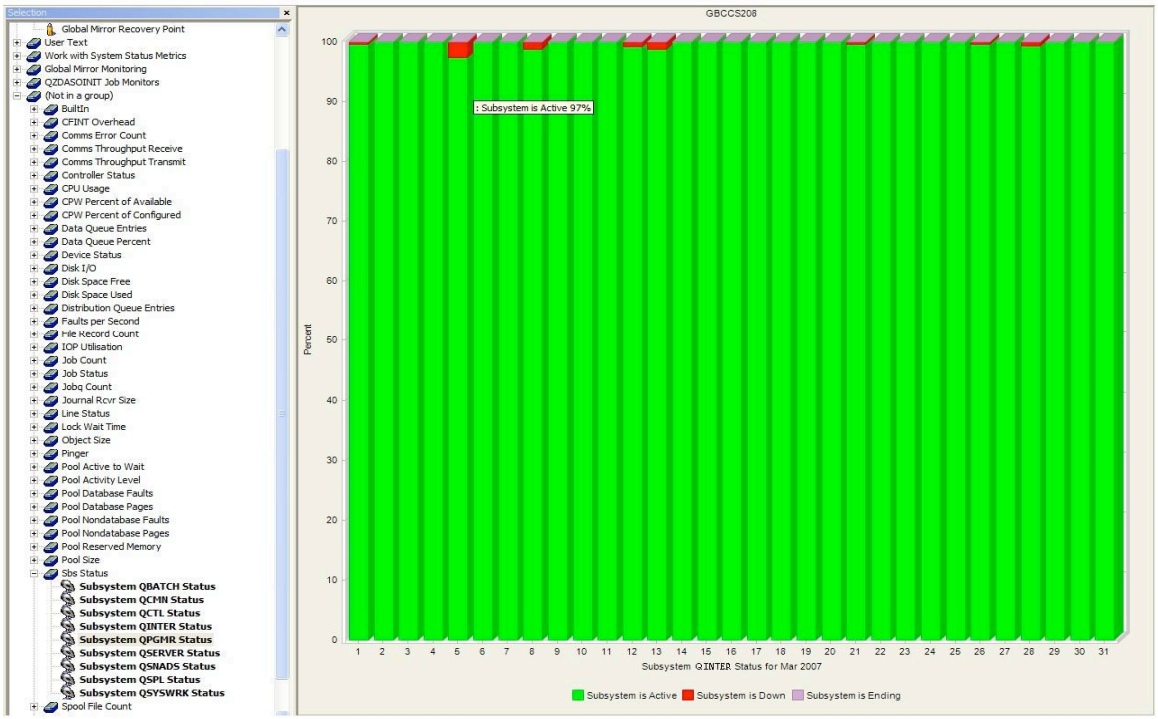
Availability Monitoring Checklist for your System i Network:

Objects	Communications Status	Job Status
▪ Journal Status	▪ Controller Status	▪ Job Queue Status
▪ Output Queue Status	▪ Device Status	▪ Job Status
	▪ Distribution Queue Status	▪ Subsystem Status
	▪ Line Status	
	▪ Network Interface Status	
	▪ Network Server Status	
	▪ TCP Port Status	

How 'Available' was the System?

The types of questions posed to IT Managers such as, 'How Available Are our Systems?' can be answered easily now without any requirement for in depth technical knowledge. The company that is managing their availability in this way benefits from a quantifiable answer that is understood by all – they can produce graphic representations that are appreciated by colleagues, non-technical users, management teams and customers alike. In the case of FM companies or those with internal Service Level Agreements that dictate resource accountability (financially or otherwise), this becomes a proof positive report on the availability issue. If this graphical element is important for your organisation, add it to your requirements checklist when shopping for the right solution.

The Screenshot below is an example of the visibility that can be achieved with products available on the market today. Below: the availability status for a defined subsystem (QINTER) which was available for 97% of the time on 5th March.



The Long Arm of Availability

As a lack of availability is a non-tangible result rather than a single problematic element, consideration should be given to the types of situations that trigger the lack of availability status. Any one of the problems below could result in a lack of availability. Would you know about them immediately or only after availability was compromised?

- Your Pager device status is not active – High CPU message is left unanswered
- Your colleague has held a job queue but forgotten to release it - End of day is not being run
- Your colleague has submitted a job to run in the wrong subsystem or under the wrong profile – Users are unable to connect to the associated application
- A Journal has failed – It begins to grow rapidly, taking up large volumes of space on the system
- Pager line status is not active – You are unable to page support staff regarding an out of hours critical situation
- Audit control system values are changed, inadvertently switching off audit monitors – Data is unavailable to the auditors and their work is held up by the delay
- A TCP Port is no longer in a listening state – Sales orders are not processed as no data transfers can take place

If your organisation has already paid a heavy price for a lack of availability, or you're determined to protect the system i network from future threats, contact the systems management experts, CCSS, to discuss how we can assist you in building a path to profit.

About CCSS

CCSS develops, supports and markets IBM System i performance monitoring and reporting, message management and remote management solutions. An Advanced IBM Business Partner, CCSS develops powerful solutions to support some of the world's most demanding System i environments across many industries including insurance, banking, pharmaceutical and manufacturing. All CCSS solutions are IBM ServerProven and qualify for IBM's ServerProven rebate program.

Existing customers that rely on CCSS's feature-rich solutions include leading organisations such as Volvo, Mattel, Newell-Rubbermaid, The Royal Bank of Scotland, Siemens Medical, RWE npower and Waterstone's.

CCSS is headquartered in Gillingham, Kent, UK with key regional headquarters in Raleigh, North Carolina, USA; Bonn, Germany and Makati City, Philippines together with a global agent network spanning Portugal, Brazil, the Netherlands and Sweden.

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