

Disaster Recovery and Virtualisation

A White Paper by

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Introduction

IT departments have become service providers. As service providers it is normal to ask customers what they want, when they would like it, agree their request is reasonable and then deliver the service to their satisfaction. This is far removed from the days when IT said that you can have X and it'll take Y days to do it. So now the pressure is on. Internal customer expectations are high and IT resources have remained static or decreased. When it comes to a business interruption the internal (and external) customer expects solutions within hours not days. It used to be the norm to plan to have some systems back in the first 24 Hours, more after 48 hours and the rest after 5 days. Now the expectation is that everything should be back within 8 – 24 Hours. Is this achievable at a reasonable cost? This article explores how adopting a virtualisation strategy is enabling faster recovery times and what impact its implementation might have on the organisation.

Reality Check

In a recent survey by IDC they described the adoption of virtualisation as “explosive”. They estimate that 52% of servers bought in 2008 will be virtualised and that 54% of those who are not yet using virtualisation will do so in the next 18 months. But what is life like for those who have not yet made the decision to virtualise? Some or all of these characteristics may apply:

- There are too many servers for the IT staff to recover in 24 hours
- Different individuals look after different systems and inconsistencies in server configuration are common.
- Backups are done once a day so in the event that a system needs to be “recovered” the Recovery Point Objective (RPO) is the previous day’s backup.
- The computer room is getting full and / or the air conditioning system is working at near full capacity.
- The Business Impact Analysis determined which applications and processes are the most critical. This has enabled the prioritisation of recovery actions. Typically foreseeing the recovery of most systems over 1-5 days.
- Where they exist, testing of recovery plans is not performed as often as it should be. According to the Business Continuity Institute over 50% of recovery plans are untested. Is this a form of denial? “it won’t happen to us”

Growing Expectations

Perhaps it’s because we live in an age of instant communications that there appears to be more “disasters” that cause interruptions to businesses or perhaps there really are more. Either way both customers and employees are increasingly expecting that organisations can:

- recover from a business interruption within 24 hours.
- ensure no data loss or corruption.
- continue to provide the same level of service as prior to the incident.



Enter Virtualisation

Although virtualisation has been around for over 4 years it is only in the last year that its adoption has hit mainstream. A complementary technology, Storage Area Networks, has evolved at the same time and often a decision to use virtualisation can drive the need to revisit the storage architecture. Both technologies together increase server and storage utilisation and enable elegant backup and recovery solutions. From a disaster recovery point of view, organisations that have implemented a virtualisation solution can expect:

- to recover all servers in the optimum sequence within 24 hours
- to recover the desktop environment within hours
- no loss of data, depending on the storage solution implemented.
- to be able to test recovery without affecting the production environment
- to reduce energy consumption and increase safety margins in the computer room air conditioning (CRAC) equipment.

These benefits assume good management of the IT environment and good DR planning. The virtualisation software enables fast server setup, but success is dependent on having up-to-date configurations, thought-out programmed sequence of recovery, compatible systems and more. (See challenges below)

Decisions Decisions

So if virtualisation answers all the problems, why isn't everybody doing it already? Well there are costs associated with it and potential re-architecting required. Change means risk and this needs to be understood and dealt with appropriately. The decision to virtualise cannot be taken independent of other architectural / management issues. Whatever the driving force behind the move towards virtualisation the decision process will include the following considerations:

- When to virtualise? Are you due to refresh the hardware?
- Which virtualisation software? VMware, Xen, or Hyper-V?
- Which virtualisation hardware?
- How much hardware do you put in the recovery site?
- What SAN and is it compatible with the virtualisation platform?
- What backup software and is it compatible with the virtualisation solution?
- Which servers should / can be virtualised?
- Which servers require a physical environment and are there any issues mixing physical and virtual?
- Do you do it yourself or outsource? Training costs. Staff retention.
- Do you perform incremental backups or mirror? What's your Recovery Point Objective (RPO), Recovery Time Objective (RTO)?

Challenges

Once the decision to virtualise is taken then more challenges emerge that can impact IT philosophy and governance fundamentally if all the benefits of virtualisation are to be realised. Strict processes and procedures will need to be implemented to address:

- Standardising Server templates. Setting the rules.
- Which operating systems are allowed on which virtual machines.
- Change management. Keeping your recovery plan in synch with production.
- Critical patch deployment during an incident.
- Testing the recovery plan.

If you are engaging third parties and/or a remote DR site, as part of your recovery plan then you should consider:

- Recovery servers proximity to the recovery centre and production (May impact data replication choices)
- Telecommunications links: Bandwidth, redundancy and resiliency.
- If you are using third party's hardware ensure compatibility.
- Is there sufficient hardware to host all applications?
- Support for your virtualisation environment. Ensure no dependency on single individuals.

So if the consequence of downtime is substantial (Gartner estimate this to be between €14,500 and €6.5 million / hour, depending on the size of the company) and the Recovery Time Objective is consequently short, and you'd like to get most applications up and running quickly, then virtualisation is a potential solution. But you would miss opportunities to reduce risk in other areas if you only considered using virtualisation in your DR plan. Virtualisation is a strategic decision and should be taken with the whole IT picture in mind. The benefits are significant, the costs are not insignificant and the risks are outweighed by the opportunities virtualisation enables.

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