



White Paper

Why Are My Backups Still Killing Me?

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A White Paper

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I Let's agree to make 2009 the year we stop having to ask this question! If we accomplish nothing else this year, we'll probably chalk it up as a win.

So why are backups still a problem? I think the problem stems fundamentally from the need of IT folks to continually re-invent the wheel. For some reason, we operate under the misconception that our IT shop is so totally unique that an already tried and true solution just won't work. How in the world can that be?

If you look at most shops today you'll find a moderate number of servers, perhaps 50-100 (or less depending on your virtualization success) and a moderate amount (by today's standards) of data, perhaps 10-50TB, mostly Windows, some flavors of Unix, running databases like Oracle or SQL, email servers like MS Exchange, a couple of file servers and perhaps some homegrown applications. Oh, and a smattering of infrastructure things like DNS, Active Directory and domain servers. All connected by GigE networks, sharing storage in a SAN. You get the picture.

Does this sound like your shop? Close enough? OK. Thousands of folks have solved this problem to a greater or lesser extent in a hundred different ways. Each way being somewhat unique (though there are only so many technologies and technology permutations available), but each attempt taking far longer than it should have.

Hundreds of enlightened folks have solved this problem by installing an appliance. Nothing unique: each appliance looks essentially the same: there is a backup server, some disk, some tape and some software (common in the thousands of solutions too). One fundamental difference though: the appliance vendor put all the hard stuff together before it ever arrived in the data center, ensured that it all functioned together and performed as designed and that the customer was ready to implement. The big difference: the solution was completely implemented in a week or less. In all cases.

How can this be? Most enterprise backup solutions take months to implement and even then many systems aren't participating or key aspects of system restore or disaster recovery haven't even been tested. Why? Months are spent re-inventing the wheel, that's why! Most IT folks will

implement one or two enterprise wide backup solutions in their career. The Appliance vendor does this for a living, perhaps having implemented thousands of such solutions. Who has a better chance of getting it done correctly in your shop? That was a rhetorical question.

Backup Solution Time-Line

All solutions have a similar set of steps required to implement:

1. Define specific business problem to solve. In the case of backup this is pretty simple: provide a reliable copy of all mission critical data available for restore in the event of data loss. This should include the loss of a single file or directory up to a complete data center catastrophe.
2. Define Recovery Time and Recovery Point objectives per data class.
3. Analyze existing technology offerings from a variety of vendors to determine which lend themselves to solving the requirements listed in steps 1 and 2.
4. Optional: Test some of these technologies in your shop.
5. Design a solution using the technology analyzed in Step 3 and 4.
6. Execute RFI, RFQ, RFP to solicit vendor input on price, etc.
7. Evaluate the responses.
8. Choose a solution or the parts of the solution.
9. Order the parts.
10. Wait for the parts.
11. Assemble the parts.
12. Configure the parts with an eye toward solving problems from Step 1 and 2.
13. Place the tested and configured solution in the IT infrastructure.
14. Install client and agent software on all participating systems.
15. Verify backups.
16. Test restores.
17. Done.

Steps 3 through 12 are where the wheel re-invention takes place. These activities have been done to death. Nothing your folks are going to do in these steps will be unique. And they will consume months of time in the best case and yield a result already arrived at hundreds of times. Oh, and by the way, repeating these steps didn't contribute at all to furthering the objectives set forth in Steps 1 and 2.

How does buying an appliance help? Let's use the following table to show how much time is spent on each step and to highlight how the appliance vendor can short circuit the timing.

Step	Your IT Folks	Elapsed Time	Your Appliance Vendor	Elapsed Time
Step 1 – Determine Objectives	Assemble stake holders in the organization to determine goals of new backup solution	1 Week	Has done this many times and can facilitate discussions. Knows what questions to ask and how to get meaningful responses.	1 Week
Step 2 – Determine RPO, RTO per data class	Classify all the data in the environment and work with stake holders to determined what each recovery point and time objective should be.	2 Weeks	Templates based on industry standards can be applied by the appliance facilitator to determine best practices per data class. Gain consensus.	2 Days
Step 3 – Analyze Technology	Read product literature, white papers. Discuss options with vendors and other IT shops that have implemented solutions of this nature. Determine how each technology applies to RP and RT objectives determined in Step 1 and 2. Determine which technologies require testing and may be applicable. Determine evaluation criteria for those requiring more analysis.	How long? Very difficult to determine. In many cases, shops get bogged down right here as they really have no idea the impact technology can have, positively or negatively, on the RP and RT objectives. They simply do not have enough experience using the various technologies to know how well they might fit. 4 Weeks or longer.	Knows all the applicable technologies and can easily match them with the RP and RT objectives already established. Technology is treated as an arrow in the solution quiver. Has a selection of preferred, tested technologies to draw from.	1 Day
Step 4 – Test Technologies	Work with vendor to obtain hardware or software for test. Develop testing methodology with an eye toward solving a specific problem. Install and configure the HW or SW. Test and evaluate the results and decide if the HW or SW is applicable.	Again, a good place to get bogged down. Frankly, testing hardware and software can be fun and many IT folks enjoy it! It's one of the few times where playing is encouraged. However, it doesn't improve the company's bottom lines. Unless of course technology evaluation is their business... 2 Weeks or longer.	Already tested. They know what works.	0 Days
Step 5 – Design a Solution	Determine which technologies should be used and design a complete solution based on these technologies. For instance: Determine interface types between the devices, the OS required, interconnect to the network and the SAN. Integration into the overall site infrastructure.	1 Week	Based on RT and RP objectives and other information gathered during the pre-sale effort and by using best practices knowledge and "arrows in the quiver" in a pre-determined way, solution design is very quick. Experience counts!	1 Day
Step 6 – Determine Pricing	Get pricing information for each of the chosen components. In some cases, you might decide	1 Week	Develop a solution proposal.	1 Day

Step	Your IT Folks	Elapsed Time	Your Appliance Vendor	Elapsed Time
	to bid these out to various vendors to get the best pricing. Weigh this pricing information against the project's budget.			
Step 7 – Evaluate Pricing Responses	Decide which vendors are the winners in the pricing wars. This can have an impact on the design so there is a possibility that a loop back to Step 5 is required. For instance the cost of the disk part of the solution is too high and thus more tape will be employed.	1 Week		0 Days
Step 8 – Choose/Finalize the Solution	Probably involves presenting to management	1 Week	Appliance vendor has pricing on the solution and is ready to present it to you.	1 Day
Step 9 – Order the parts	Cut purchase orders to a number of different vendors.	1 Week	You cut just one purchase order to just one vendor for the entire solution. Once the appliance vendor has the order, they will begin to put your solution together.	1 Day
Step 10 – Wait for the parts		Up to four weeks	Often the appliance vendor has your appliance ready to ship.	Less than four weeks
Step 11 – Assemble the parts	Unpack, rack, power, install, configure, etc., all the parts. Contact the various vendors when problems arise during integration of components from many different vendors. Weigh through the finger pointing inherent in implementations of this type.	2 – 4 Weeks	There are no integration problems or issues. The appliance is a fully integrated, scalable solution. It arrives ready to plug in to the network.	1 Day*
Step 12 – Configure the parts	Determine how the various components of the solution, such as disk and tape, hang together. Configure the software to use these resources appropriately with an eye toward solving RP and RT objectives. Test the configuration. Tweak as necessary.	1 – 2 Weeks	There are no integration problems or issues. The appliance is a fully integrated, scalable solution. It arrives ready to plug in to the network.	1 Day*
Step 13 – Install the solution	It's been tested and works as designed. Now integrate it into the IT infrastructure.	1 Day	There are no integration problems or issues. The appliance is a fully integrated, scalable solution. It arrives ready to plug in to the network.	1 Day* *Steps 11-13 are accomplished in a single day.
Step 14 – Install Client and Agent Software	Push to all systems or install individually. Test	Time depends on number of hands and	Same steps as without the appliance, but much more	1 – 3 Days

Step	Your IT Folks	Elapsed Time	Your Appliance Vendor	Elapsed Time
and set up automated tasks	the installation by performing a backup and restore.	number of systems. 1 – 2 Weeks or longer	experience shortens the time.	Longer for large environments. Might require multiple trips.
Step 15 – Verify backups	As clients are added to the backup infrastructure, ensure that scheduled backups are completing in a timely fashion and that they are correct and resolve errors.	1 – 2 Weeks to wring out all the kinks	Basically the same, but deep knowledge and experience shortens the time	1 – 3 days and coincident with ongoing installation tasks.
Step 16 – Test Restores	Usually restores are tested when a restore is needed. This is probably not a good idea. Ideally, complicated restores are tested and re-tested to ensure they can be done in a timely manner. In some cases, a restore test will indicate a loop back to Step 5 and in even more extreme cases back to Step 3 – We don't have the right technology to meet the RT or RP objective! This is not a good thing.	1 – 2 Weeks, if done at all!	Experience with different types of restores and deep knowledge and experience generally makes this step easy. An appliance vendor has seen most of the restore scenarios. Since the appliance approach shortened the overall time so dramatically, more time can be spent here. Here is where the real savings are gained: knowing you can restore your data is priceless!	1 Week
Bottom Line	IT Shop	24 Weeks on the low end 30 Weeks on the high end	Appliance Vendor	8 Weeks. And in many cases this can be shorter with a willing customer bent on solving the problem quicker.

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