QUEST SOFTWARE®

10 Things DBAs Probably Don't Know LiteSpeed Can Do

written by
Brent Ozar,
SQL Server DBA

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World Headquarters
5 Polaris Way
Aliso Viejo, CA 92656
www.quest.com
e-mail: info@quest.com
U.S. and Canada: 949.754.8000

Please refer to our Web site for regional and international office information.

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INTRODUCTION

Quest LiteSpeed™ for SQL Server is pigeonholed as just a backup compression product: a simple one-trick pony that gets installed, gets the job done, and then gets ignored. As long as the backups run and the restores succeed, database administrators (DBAs) think they're getting their money's worth out of the product.

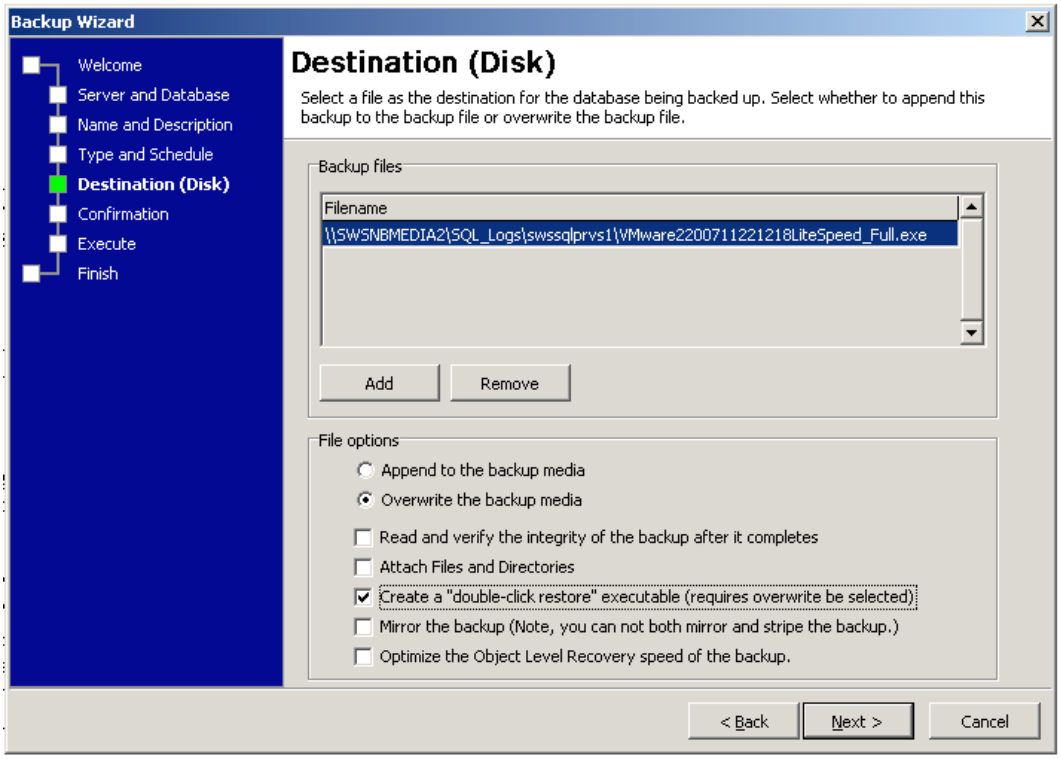
But using LiteSpeed for just those two functions is only scratching the surface. LiteSpeed provides useful tools to help DBAs perform more backups quickly with fewer resources than they'd need with native backups or other products.

Let's cover 10 more things that LiteSpeed empowers database administrators to do.

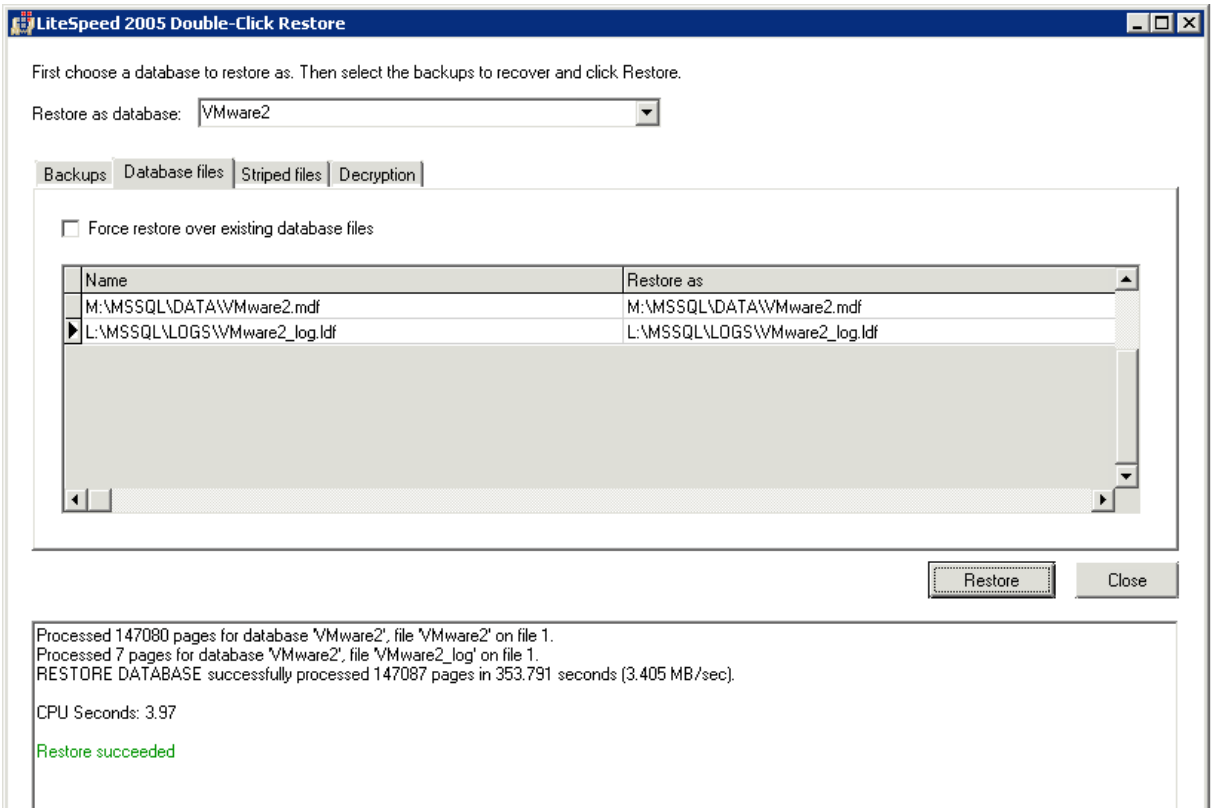
1. CREATE SELF-EXTRACTING DATABASE BACKUPS

LiteSpeed can create self-extracting database backups: a compressed backup inside an EXE file. No software, backup agent, licensing and DBA knowledge is required to restore the database. These EXE files can be given to external clients, auditors or other divisions of the company that may not be using backup compression software.

Creating these backups is as simple as checking a box during the backup process:



When you double-click on the EXE file, the program asks which SQL Server to use as a restore target and where the files should be extracted. LiteSpeed even attaches the database to eliminate as much manual work as possible (see image below).



This isn't the answer for day-to-day backups, since the EXE doesn't include up-to-the-minute transaction logs. Instead, it's a new tool for you to do some oft-requested tasks with very little effort.

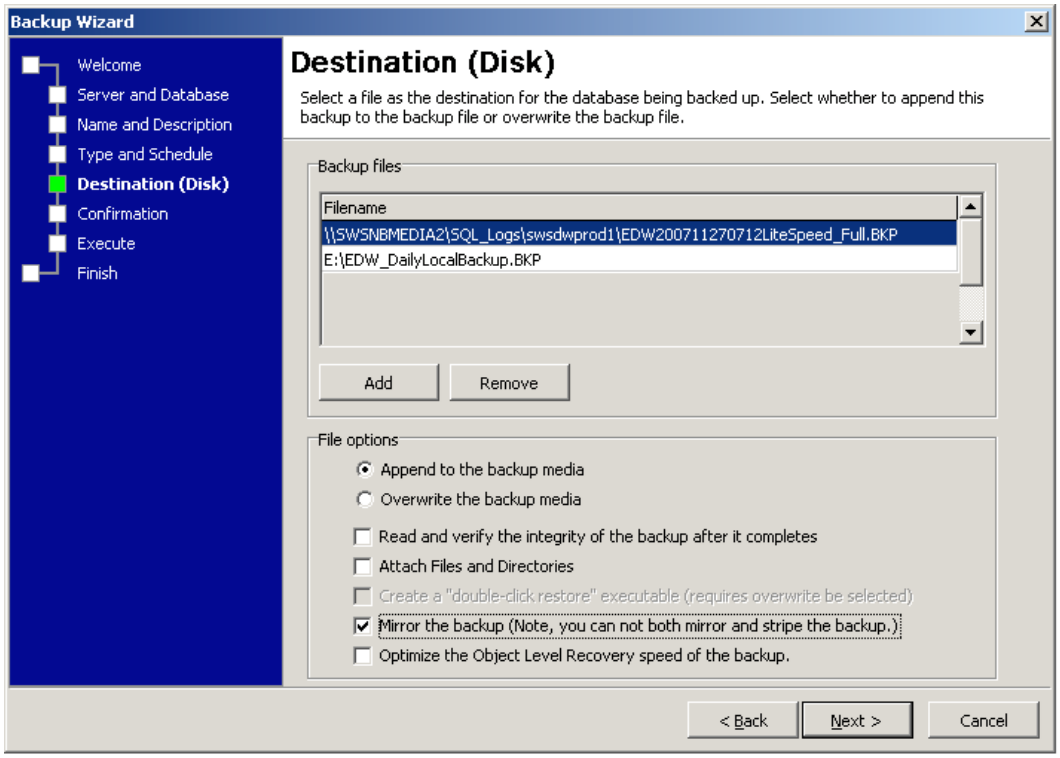
Senior DBAs can use this feature to empower developers that like to run test labs or run SQL Servers on their local workstations. You can create a SQL agent job that backs up the development or QA database server with double-click restores, use a network share as the backup target, and set up permissions to run the job themselves on demand.

When you want to refresh your local copy of the database, you can run the job, wait for it to finish, and then run the Double-Click Restore EXE. You don't have to keep up with the right version of LiteSpeed on your workstations or license LiteSpeed to do the restores.

Another use of this feature is exporting database backups for compliance auditors. These auditors often don't understand backup compression products and often they don't understand SQL Server at all. Therefore, they need to get the data with a minimum amount of instruction. With LiteSpeed Double-Click-Restore backups, exporting databases for auditors is as easy as backing up the database and giving them the EXE.

2. Write Backups to Two Destinations Simultaneously

For true mission-critical databases, a plan B isn't always enough. Sometimes a plan C is needed. During the backup process, LiteSpeed can write the backup files to two locations simultaneously. For the ultimate in restore flexibility, you can write one backup to a local disk on the database server, and the other backup to a network share. It's all as easy as checking a box during the backup setup (see image below).



The local copy comes in handy if data is corrupted or a table is accidentally deleted. You can restore from the local disk copy and get the fastest restore speed possible, while avoiding network traffic.

On the other hand, the remote copy is a lifesaver when the database server experiences a serious hardware problem and the local disk is inaccessible. A new database server can be brought online from the network share. In addition, the network share copy can be copied to a tape without impacting performance on the database server.

3. RUN BACKUPS WITH LESS END-USER IMPACT

You probably hate to hear end-users complain that “My queries run so much slower during a backup.”

The LiteSpeed engine uses step-down technology to automatically lower its overhead during periods of heavy SQL Server use. End-user activity can continue during a backup window without downtime. When the SQL load returns to a lower level, LiteSpeed will step its processing back up and use more of the server’s power to close out the backups.

You can use this feature to run database maintenance, re-indexing, or statistic update jobs at the same time the backups are running. It’s a good idea to avoid doing maintenance on the same database that’s being backed up. However, when other databases are being backed up, you can sneak in other maintenance work without paying too much of a performance penalty.

4. CSI:DBA - Read Transaction Log Backups

On television, crime scene investigators pull up historical data with just a few key presses. They jump back in time looking for the bad guy, and zoom in to precise detail to find the exact evidence they need.

With LiteSpeed Enterprise, you can perform your own investigations, albeit without the huge plasma monitors and rock soundtracks. You can answer questions such as:

"Why did last night's ETL process get errors inserting records?"

Application programmers don't always capture complete error information, and they need help finding out why their applications aren't working the way they expect. Plus, sporadic errors can be tough to reproduce, and programmers complain that they can't predict an error.

LiteSpeed's ability to read transaction log backups gives you the power to go back in time, look at the exact query that was issued, and do a better job of troubleshooting why the error is happening.

"Why was the server dead-slow between 3 and 4 p.m.?"

You can't be everywhere at once, but end users want you to always be in close proximity to the database server at the moment it slows down. By the time you find out there's a problem, the problematic queries are over, and the server is responding normally again.

With LiteSpeed Enterprise, you can review the transaction logs from the affected period and look for queries that caused the slowdown.

"Who erased the customer table?"

Federal regulations aside, you can rarely call in crime scene investigators when data turns up missing. Instead, you can open LiteSpeed, examine the recent transaction logs, and find the guilty culprit.

That brings us to the next powerful feature of LiteSpeed.

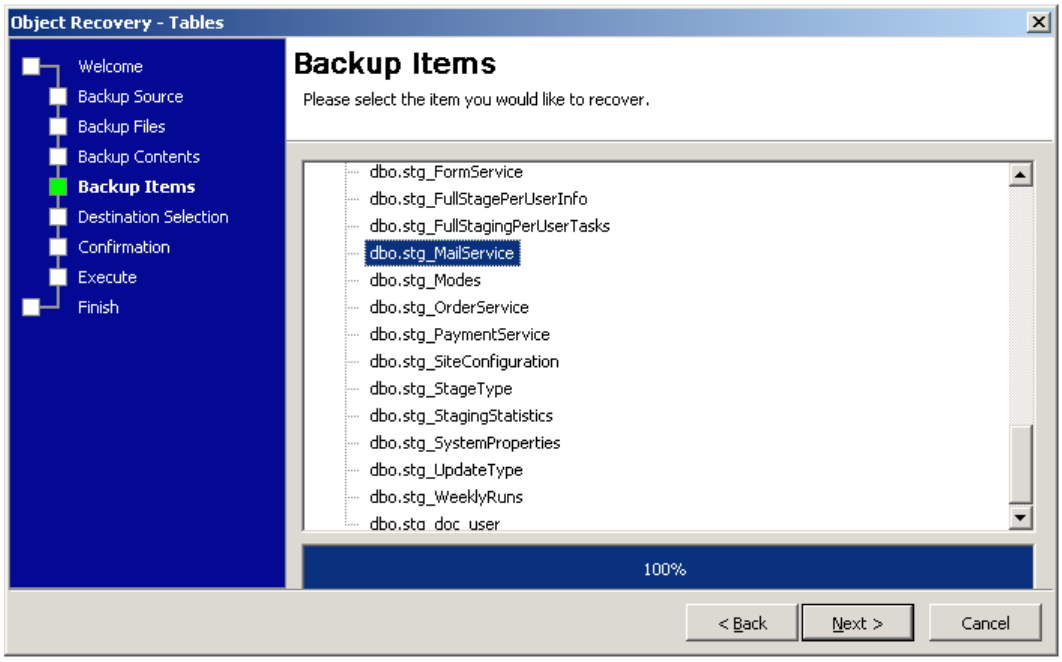
5. RESTORE INDIVIDUAL OBJECTS

The most common restore request isn't for restoring entire databases, but single objects and tables. Without LiteSpeed, you have to restore the entire database, and then pluck out the individual objects you need.

Restoring an entire database isn't always practical:

- It requires a lot of disk space
- It incurs a lot of I/O for the restore
- It takes time to restore the whole database, then export the relevant objects

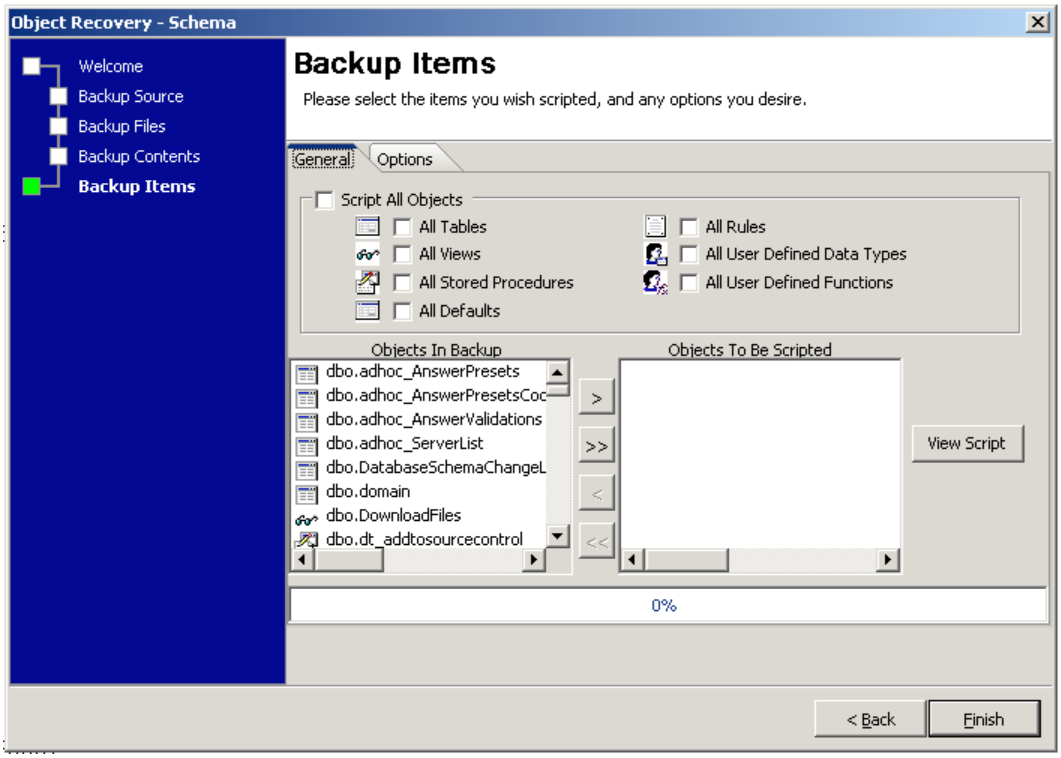
LiteSpeed recovers objects and tables from not only LiteSpeed backup files, but also native SQL Server backups. You can simply point at the backup file and pick the object you want to recover. Specify the target database and the new target object name, and LiteSpeed handles the rest (see image below).



6. Restore Empty Schemas

Developers like to get a complete copy of the production database, but you can't always just hand over last night's backup file. The database may be too large to fit on the developer's lab server, like in the case of data warehouses. At other times, the data may be too sensitive, such as credit card information or HIPAA-type data. Also, the company's security team may not want the production database in the hands of others.

LiteSpeed solves this problem by using database backups to generate a complete script for the database—tables, stored procedures, triggers, and more can all be scripted straight from the backup file:



This comes in especially handy when combined with LiteSpeed's individual object restore power. You can use LiteSpeed to first generate the entire database schema script, and then restore individual configuration tables out of the backup. Thus, you can give developers a light version of last night's production database.

7. IDENTIFY SCHEMA CHANGES BETWEEN SERVERS AND OVER TIME

One of the frustrating things about being a development DBA is wondering why a piece of code works one day, and stops working the next.

But LiteSpeed reduces this frustration. It can take a backup file and generate a complete schema for that database, including tables, views, stored procedures, constraints, triggers and more. Take LiteSpeed's script of yesterday's backup compared to the day before, and you can verify that no changes were made—or pinpoint exactly what changed.

This is also a valuable tool when comparing production, QA and development servers. Rather than buying multiple pieces of software, simply compare the backup scripts from LiteSpeed, and identify where schemas differ between the servers.

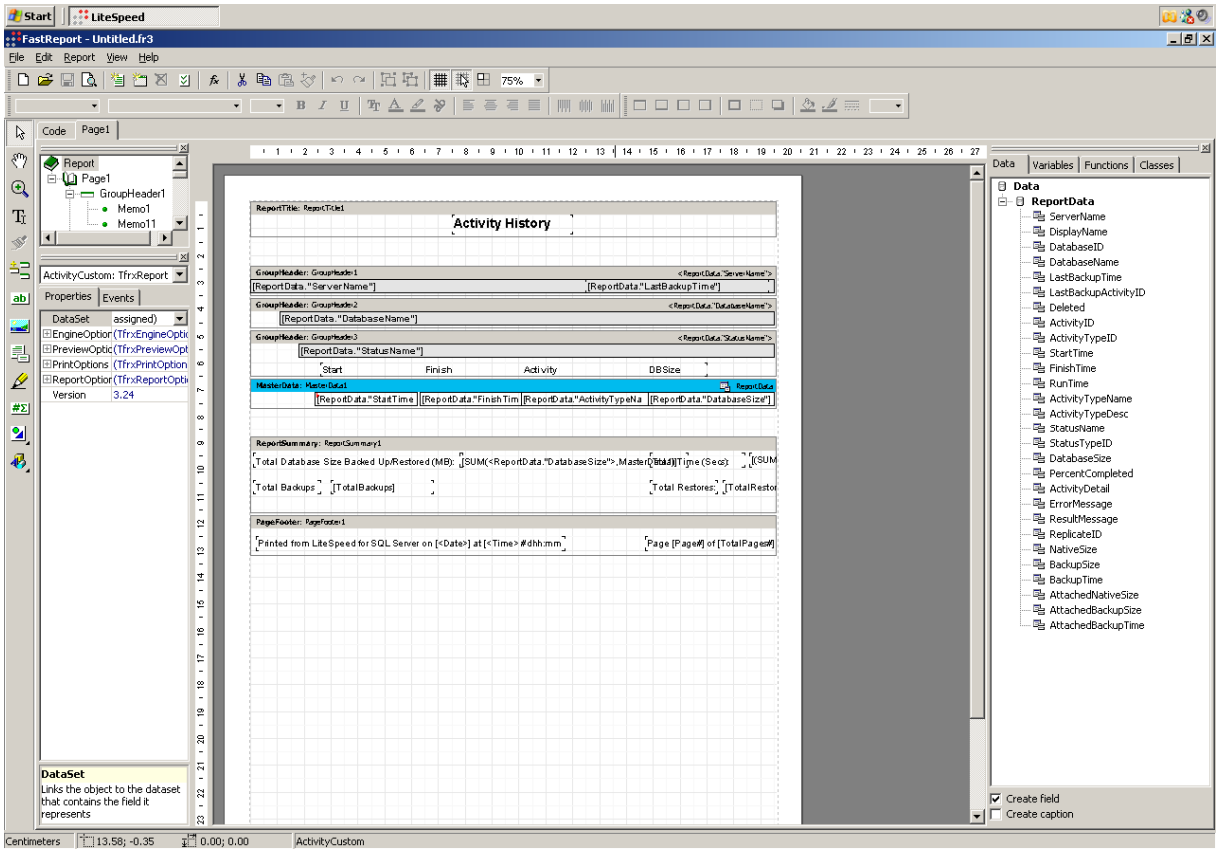
8. Report on Service Level Agreements

At annual review time, you need as much evidence as possible that you're doing a good job, safeguarding the company's data, and recovering from emergencies successfully. You need to prove that the tools you chose were the right tools to do the job, and that these tools are paying off.

If you had a lot of time on your hands, you could document every time you were asked to do a restore, document how long it took, and whether or not it was successful. The problem is that you don't have that kind of time.

LiteSpeed automates this process by tracking restore requests and including a set of predefined SLA reports. With just few clicks of the mouse, you can create job success/failure rate reports, back up summaries, and differentiate between full and transaction log backup success rates, quickly identifying problematic servers or jobs.

The product even includes a report designer, so if you have just a little extra time on your hands, you can customize the existing reports to fit your corporate standards. Or, just shoehorn the data to fit into those tiny text areas in annual performance reviews (see image below)



9. MANAGE BOTH NATIVE AND LITESPEED BACKUPS

In small companies with one or two DBAs, you need to make things as simple as possible. When you leave for vacation, you have to train non-DBAs how to manage the backup and restore process, and the fewer products to manage, the better. Shops may not always license LiteSpeed on every database server, which means some servers will be doing LiteSpeed backups, and some won't.

One of the great things about the LiteSpeed console is that it can manage both LiteSpeed clients and plain SQL Servers without a backup compression agent. If you train a non-DBA how to do a restore with LiteSpeed, they will be able to manage every database server in the house. And frankly, SQL Server's restore process isn't always simple—it's easier to train people on LiteSpeed's console than to work with SQL Server Management Studio.

10. SLEEP BETTER AT NIGHT

Quest's years of experience in the industry mean that the LiteSpeed product works reliably with a minimum of management overhead. The backups work, and you can count on LiteSpeed at restore time when it matters most.

CONCLUSION

You can set up LiteSpeed and forget about it until restore time, but then you are missing out on the 10 advanced features discussed in this paper. When evaluating backup software, don't forget to dig deeper into these hidden powers that help you do your jobs faster, easier, and with more new capabilities that native backups just don't offer.

For more information about LiteSpeed, visit www.quest.com/litespeed-for-sql-server/.

ABOUT THE AUTHOR

Brent Ozar, a Quest customer and a member of Quest's Association of SQL Server Experts, is a SQL Server DBA based in the Miami Beach area with Southern Wine & Spirits. He has a decade of broad IT experience, performing systems administration and project management before moving into database administration. In his current role, Brent specializes in database performance tuning, SANs and data warehousing. Brent has written several technical articles and blogs prolifically. He is also an experienced trainer. Contact Brent via www.brentozar.com.