



Future-Proof YOUR SQL DATABASE PERFORMANCE IN 2018



By now, it's a cliché to say technology is changing rapidly and has impacted nearly every way a business operates. As an SQL Database Administrator, you know that as much as anyone – if not more.

It seems like you are managing more databases every day – and an increasing number of them are classified as mission critical. You are in reactive mode, constantly putting out fires. Each day is a constant race to isolate and fix issues – you'd love to find ways to find, resolve, and even prevent issues in a way that doesn't require you to work late into the night and spend weekends in the office.

Sounds simple enough, right? OK, maybe not, and making sure that your team can count on you may sometimes seem like a steep mountain to climb.

With more data, hybrid environments, and bigger analytics challenges every day, it is becoming critical to future-proof your database performance to ensure you can safely and reliably keep pace with your company's growth ambitions.

Let's take a closer look at future-proofing, the benefits of using smart database monitoring interfaces, and how you can be more efficient while keeping pace with the ever-changing demands of technology.

IN THIS GUIDE, YOU'LL FIND:

- 1 |** What Does it Mean to Future-Proof?
- 2 |** Evaluate Your Systems and Applications
- 3 |** Prepare for SQL Server Database Trends
- 4 |** Identify Key Security Risks
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Spotlight Cloud

WHAT DOES IT MEAN TO FUTURE-PROOF?

**THE NOTION OF FUTURE-PROOFING MEANS SOMETHING
DIFFERENT NOW THAN IT DID IN THE PAST. Why?**

Because future-proofing used to only mean taking steps to prevent a system or piece of technology from becoming obsolete before you got your full return on investment. Even the most useful technology becomes obsolete because of technological innovations – you could probably name off plenty of applications and tools that have come and gone.

This interpretation of future-proofing is a largely defensive strategy. In today's world, being ahead of the game enables us to disrupt the markets in which we play. It allows us to go on the offensive. Not doing so can make us irrelevant awfully fast! Future-proofing in this context is a never-ending process that requires you to have a strategy in place to adapt and thrive in a rapidly changing world of database technology. It's crucial to protect today's IT investment while preparing for the future.

IT'S ALL ABOUT THE DATA

There are many disruptive forces at play: digital transformation, big data, analytics, machine learning, IoT, automation, and personalization to mention a few. At the core of each of these trends is *data*. Each of the hundreds of millions of connected devices that come online each month consume or create data, causing our definition of "big data" to get bigger each day. Our ability to store, process, and analyze exponentially growing repositories of diverse data types from multiple sources in real time will define our ability to thrive.

The reliability, availability, and performance of databases is now at the core to an organization's future. With how much DBAs must manage and how fast these changes are coming, this can seem like a daunting challenge. But not to worry – help is at hand!

EVALUATE YOUR SYSTEMS AND APPLICATIONS

Today's DBAs are well aware of the "database sprawl" phenomenon. This concept is especially true of platforms such as SQL Server (and more recently MySQL) in displaying similar symptoms. Platforms like Oracle tend to underpin big, complex systems so there are less of them. The ubiquitous nature of SQL Server makes it universally applicable from the smallest to largest projects. As a result, databases spring up all over the enterprise across a broad range of teams and functions.

The first step on your future-proofing journey is to get a handle on precisely what is out there and evaluate if it is up for the job:

RELIABILITY

What kind of uptime does the system deliver? What is the average resolution time? Does this meet your users SLA?

FLEXIBILITY

What is the average resource utilization today? Are users seeing consistent performance across the range of workload conditions over time? Does the platform/system have the capacity to deal with anticipated expansion in terms of data volume and/or compute required to drive the analytics required?

COST

Are we operating within our budgetary SLA for this tier? Do we have under utilization of resources allocated to this database and could these be reallocated elsewhere? Is this instance a candidate for consolidation or should we even consider a migration to an open source platform? How can I reliably compare my proposed changes to the current setup to test whether my assumptions are correct?

EXTENSIBILITY

Does the platform support a sufficient breath of data types to handle all our requirements? Should we blend with or even migrate to a NoSQL platform? Do my future compute/storage needs require you to consider deploying to the cloud or a "stretch" capability to tap into cloud resource when required?



An important point to remember is that future-proofing doesn't put good money after bad. It does mean, however, that you're always maximizing your flexibility as technology evolves and getting the most out of your existing equipment and resources. Change is inevitable, and your company has a choice in how they prepare for it.



PREPARE FOR SQL SERVER DATABASE TRENDS

2018 promises to bring a variety of new trends regarding protecting SQL Server Databases, including:

- **New security features.** In the wake of recent high-profile ransomware attacks, including those involving Equifax and Uber, security has become a priority. You need to balance the need to continually update your systems to keep up with secretly threats, while ensuring your ever-changing environment is not impacting business users.
- **Artificial intelligence-infused databases.** How will DBA's handle the incorporation of AI and machine learning libraries into SQL server?
- **Continued cloud growth.** Perhaps the biggest trend impacting DBA's is the movement of workloads to the cloud. DBAs who've been reluctant to embrace this trend are finding fewer barriers and reasons for not adopting cloud-based systems. An estimated 50% of IT spending in 2018 will be in cloud-based investments. The number is expected to rise to 60-70% by 2020.





These trends indicate some of the challenges in future-proofing your SQL environment in 2018. Chances are your company is looking to leverage cloud-based workloads, but expects you to meet your SLA's because....well...you always meet your SLA's.

THE CLOUD AND THE ROLE OF DBAS

Which Cloud? IaaS or DBaaS? Which databases to migrate? etc... There's no doubt that switching to cloud-based services will modify the DBA's traditional system. Yet, with a bit of automation and tooling, you will still be able to meet your SLA's, while controlling costs.

DBA's looking to future-proof their environment, will do so by understanding cloud services and its features, optimizing the design, implementation, and monitoring of new databases.

Even more, you'll focus less on tasks related only to hardware and software stacks and more on tasks related to capacity planning, in which you'll need to know when to provision more servers and when to retire them.

As you adjust to the cloud, configure databases specific to your organization and then begin to monitor performance. You'll become better and more efficient at your job as you start to rely on easy-to-use interfaces rather than database monitoring services that require a lot of formal training.





Here are some other findings that indicate your role as a DBA will continue to evolve as you switch to more cloud-based services:

The amount of structured data under management continues to grow at a fast rate. This requires DBAs to manage more database instances and a larger variety of database management systems. Adding to the complexity is the amount of this data that will be hosted in the cloud. Much of this data will be hosted in the cloud. In other words, the move to the cloud is much more than a trivial or marginal element of their data management. Prepare for this growth and find processes that help you monitor data on a large scale.

Most companies that move to the cloud do so for increased flexibility and lower costs. Prepare to adjust your monitoring and management processes, but be ready to have more budget and time for other company projects.

As mentioned previously, database management tools have reduced the time many DBAs invest in routine operations, which allows them to expand their roles in other areas. While database performance continues to be the highest priority for DBAs, this could allow you to look for new software, train staff, or continue professional development.

The proliferation of IoT enabled devices is compounding the amount of data companies need to track. This often means that DBAs will manage more databases and a wider range of database management systems. Cloud-based and mobile monitoring make this expansion of work manageable (and allow you to leave the office!).

DBAs have an expanded role in many business settings and are looked to for advice and guidance in developing overall data management infrastructure – including when and how to move data to the cloud. Voice your research on switching to the cloud, an ideal timeline to make the switch, and the service you suggest implementing.



IDENTIFY KEY SECURITY RISKS

Gone are the days when securing your company's data belonged to just the "security" team. All of IT is part of the security team now, and your role as DBA means you're in charge of implementing and maintaining the best security practices. (No pressure.)

Review your systems and identify if they are vulnerable in any of the following ways:

OUTDATED OR BROKEN DATABASES

Missing any database update or security patch could make your systems vulnerable to crashing by malware or worms such as the SQL Server Slammer. As a database admin, make sure that installing updates is your top priority

EXCESSIVE PRIVILEGES

Assign the appropriate employee privileges associated with each team member's job responsibilities. Separate administrator roles from others that may need access to servers to prevent against internal mistakes or malicious attacks. And of course, ensure the database permissions are immediately updated for terminated employees or a coworker that changes roles within the organization. Regularly audit your list of team members with access to servers along with their permissions.

ROUTINELY UPDATE KEYS

Use proper key management and update public keys as appropriate. If you feel like a key has been compromised, change it and inform members of your organization, preferably over a secure channel. Never ever store encryption keys on company disk drives, as that opens your data to even more attacks. And of course, your private key should only be known by you and shouldn't be shared with anyone.



PROTECT AGAINST DATA LEAKS

Incorporate the highest level of security to all communication channels and data processing. All databases should be properly encrypted (either SSL- or TLS-encrypted) to protect against Internet-based threats or data leaks.

FUTURE-PROOF WITH SPOTLIGHT CLOUD

Future-proofing your database requires you to prepare for technological changes, protect against security risks, and begin moving your systems to the cloud. And that's where Spotlight Cloud comes into play.

What does Spotlight Cloud offer? As Quest's newest database monitoring service, it offers some ideal features for your business:

MOBILE MONITORING

Spotlight Cloud services give the user the capability to monitor servers on the web and a mobile device. SQL performance diagnostics are available for iPhone and Android devices and allow you to monitor key indicators relating to your system, including memory, disk storage, performance health, background processes, etc.

HEALTH CHECK

The Health Check feature provides an instant server health status of your servers based on a variety of metrics. Quickly refer to the status of your servers and resolve identified issues.



CAPACITY

A disk space capacity overview is available for each of the monitored servers.

COLLECTIVE IQ

Monitor the collective data from Spotlight Cloud users through the following metrics: server types, SQL Server versions, virtual and non-virtual servers, and details on the percentage of users with a specific number of connections.

WAITOPEDIA

Easily reference a comprehensive resource for information on SQL Server waits.

DOCUMENTATION

Receive instructions to configure settings across multiple devices along with an FAQ sheet regarding data handling and security information.

SUPPORT

Get in touch with our Spotlight Cloud team directly to quickly address feedback, comments, questions, and issues.



But Spotlight Cloud's foundational features through Spotlight Essentials make your role as a DBA even easier:

HEATMAP

The heatmap allows you to assess the severity of an issue by color. Spotlight Cloud takes it a step further by distributing server connections in a way that makes it obvious which servers need the most attention, stat. The heatmap also displays a list of alarms that help you quickly understand which are the most urgent issues.

HOMEPAGE

With the Spotlight Home Page, you'll get a unique view of system activity while making it easy to identify problem areas. Updates are given in real time so you see how quickly information is moving through the system.

ALARMS

An alarm alerts you whenever a collected value moves outside its normal range. The alarm returns to normal when the severity has subsided. You can configure the most critical alarms for your organization to remain in view until they are acknowledged. There are hundreds of data points that Spotlight Cloud collects along with various drill-downs that you're led to when alarms occur on different metrics.

EMAIL NOTIFICATIONS

You can manage critical alerts for your SQL server environment through email notifications. You have control because you can configure the alarm's action to specify the conditions for which the alarm activates. When the alarm occurs, you'll have the ability to send an email notification.

Spotlight Cloud protects your data by ensuring only the owner and authenticated organization members can view uploaded data. Our Diagnostic Server connects to an internal server for monitoring purposes, and only the Diagnostic Server connects to the Spotlight Cloud. Finally, only filtered monitoring data gets uploaded to the cloud.



OTHER ADVANTAGES OF USING SPOTLIGHT CLOUD ON SQL SERVERS

We know that SQL server administration is just one of the several roles that today's DBA manages. Even if you're a new DBA or a non-DBA, Spotlight Cloud makes life easier for you by providing all performance indicators in one place with a guided interface. By putting your server status errors into context, you don't have to attempt to interpret, monitor, or patch an ocean of raw data. And again, Spotlight Cloud will notify you with real-time alerts when problems arise so you can quickly sign in and resolve, anywhere, anytime.

GET STARTED WITH SPOTLIGHT CLOUD

As a Spotlight Cloud user, you have access to Quest's software teams who also manage Spotlight Essentials and Foglight. Quest aims to help customers solve complex issues with simple solutions and deliver technology that drives efficiency and effectiveness.

Ready to get started?

Start a free Spotlight Cloud trial today. Monitoring is as easy as: Sign up. Sign in. Resolve.

