

THE MOST COMMON DATABASE ISSUES AND HOW TO PREVENT THEM FROM HAPPENING

Data is the lifeblood of a business today. No matter how much content your company manages, or what format that information takes, you must be vigilant about ensuring storage, access and analysis all move forward unimpeded.

Keeping databases operating at peak efficiency is not automatic, and there are plenty of pitfalls that can weaken the performance of your resources. It's important that you and your partner organizations identify issues early, take decisive action and resolve them completely, with proactive and forward-looking solutions.

TOP TYPES OF DATABASE ISSUES

Database problems take numerous forms and occur for a variety of reasons. The following five are some of the most common and therefore troublesome issues that confront organizations of all kinds. Building your awareness of these faults is the first step in resolving them.



1. Absent or misconfigured database maintenance

One of the most common causes of issues in the database space is a lack of standardized maintenance across all SQL servers. When important parts of the database maintenance process are applied unevenly, or missed altogether, problems can occur. Elements of database maintenance that you should make sure are in place and consistent include:

- **Backups:** Having backups is critical for the health and performance of your database. If these strategies aren't strong and flexible, a system failure could cause long-lasting damage. Such a failure could be the result of an outside attack, a simple hardware failure or anything in between.
- **Index and statistics maintenance:** Lack of attention or consistency in this area could lead to issues with the query optimizer. In turn, database response times may suffer.
- **History and text log file maintenance:** Failure to deal with history and text logs means they may keep backing up over time, causing worsened system performance and bottlenecks.



2. Misconfigured tempdb

Potential problems involving tempdb configuration come from a lack of adherence to [Microsoft best practices](#). It's important to configure the tempdb on the fastest drive available. Furthermore, when configuring Microsoft SQL Server, it's helpful to increase the number of data files within tempdb, therefore creating more bandwidth and reducing contention.

More potential contention may lead the system to become temporarily unresponsive. These performance hits add up over time. Managing tempdb carefully matters, as long-term lack of attention can lead to system outages or unnecessary filling up of disk storage.



3. Missing indexes

When searching for reasons why database performance is suffering, you may discover that there are missing indexes; these can dramatically inhibit the performance of your databases as a whole. The best way to deal with this issue is not a one-off procedure but rather a consistent process of index audits. This will ensure that when there are new indexes present they will be captured, and any indexes that aren't being used will be identified.

4. Misconfigured fill factor based on instance or database function

If pages within SQL databases are filling to a non-optimized amount, performance could be suffering. The default fill factor for Microsoft SQL Server is to fill every data page to 100%. While that is the factory setting, it might not be the right approach, depending on how you're using your database. Data warehousing (meaning storing sequential loads) calls for one set of best practices, while online transactional processing (OLTP) calls for different settings.

- We recommend using a **80% fill factor as the default for OLTP**, in line with industry practices. From there, you can adjust your usage to get ideal performance for your chosen database usage.
- You should make sure you are evaluating the intended use of each database, and check to verify you are using configurations that fit those purposes. Sometimes, staying with default settings can be more of a hindrance than a help.

5. Missed steps during a cloud migration or upgrade



Moving databases to the cloud is a common course of action among organizations today, as is general consolidation of data storage resources. Done right, these processes can deliver cost savings relative to hosting and managing infrastructure on-premise. With that said, there are a few steps in a cloud migration where unintended issues can creep in.

1. During the planning stages, your company should make sure to use a Database Migration Assistant (DMA) tool. Failure to use this solution could lead to a migration without a clear roadmap. If there are any coding changes needed to keep the resources operating without performance loss, the DMA will detect them.
2. Cloud infrastructure estimation tools represent another important part of the planning for a database move or consolidation. Moving into the cloud without an estimate can mean ending up with surprises regarding the size and scope of the necessary cloud investment. Using an estimation tool can reveal whether your move is best suited to an infrastructure-as-a-service (IaaS) or platform-as-a-service (PaaS) deployment, or whether it makes the most sense to stay on-premise.

TAKING TIME TO FOCUS ON HIGH-QUALITY DATABASE MAINTENANCE

If these problems, or similar performance issues, sound familiar to you, your company can benefit from taking a closer look at database tuning and upkeep. Of course, not every business has room in its budget to have a database administrator on staff at all times — there simply may not be enough work to keep a DBA, but the databases would still benefit from the attention of a subject matter expert.

This is where a third-party intervention can help, with expert contractors on call to analyze the health and performance of your databases, isolate and identify issues such as those described above, and design and deploy solutions. You don't have to be an enterprise-scale business to receive enterprise-quality database maintenance.

This process of improving your approach to database management can begin with a one-hour consultation with an expert DBA. **Solvaria's** team combines best practices with the intuitive problem-solving that comes from long industry experience.

If the issues affecting your databases resemble those described in this document, or if your IT performance is being held back by another database problem not mentioned above, set up a call with our experts to discuss the problem in depth — and get started on a solution.