

Top Trends in Database Management

Dissecting the Latest Industry Offerings to Benefit Your Organization



ABSTRACT:

Trends come and go, but some new ideas in database management are not simply flavor-of-the-month fads. Many have staying power and the potential to transform organizations. What are the current trends in database management and how can you take best advantage of them to benefit your organization?

By Patrick Gates
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Trends often are ethereal fads without substance or staying power. Just ask any pop star or restaurateur. The flavor of the month? Today's wildly popular salted caramel ice cream may be tomorrow's fill-in-the-blank, but good ol' reliable vanilla never goes out of style.

When it comes to managing your company's data, you can't be cavalier and follow just any old trend or personal taste. You have to examine each emerging technology concept and determine its potential value for your organization. Reliable is good, but looking at other options and appropriately integrating a select trend into your database management operation may ultimately translate into a competitive advantage.

What are the top trends database managers are watching and why have they grabbed their attention?

Databases that Bridge SQL/NoSQL

The latest trend in database products involves ones that don't embrace one, single database structure. Whether applications or tools, database products that allow users to bridge what was once the Great Divide between SQL and NoSQL are growing in popularity, because they may give users the best of both.

Although the prevailing theory a few years ago was that SQL was on the way out, it is still used in enterprises alongside NoSQL databases. There are now products that allow users to access a NoSQL database in the same way as a relational database, for example. A good example of one such hybrid is FoundationDB, which has a new technology that uses a version of ACID called YesACID.

Alex Williams, writing on Tech Crunch, observed:

FoundationDB's technology represents a new category of databases that are more than just pure SQL or NoSQL technology. They have qualities that make them usable for Internet-scale applications or for small teams that need the reliability that comes with ACID. FoundationDB points to a change that we can expect to see in the database market as more customers look for the reliability of SQL but also the scaling that comes with distributed technologies.

Databases in the Cloud Platform as a Service

Developers continue to push their enterprises to the cloud. This trend is fast becoming mainstream and an integral part of the technology portfolios of many organizations, which find that migrating to the cloud helps them provide services more cheaply, more rapidly, and in a greener way. These advantages are not trivial.



Organizations must consider the trade-offs associated with public, private, or other types of cloud service infrastructures in combination with their existing, older applications and infrastructures. Some observers contend all these disparate resources must eventually be migrated to the cloud. Databases in particular have a home in the cloud, experts say.

Michael Coté, an analyst at 451 Research, told WIRED, "That's where DBAs have a stronghold and, if they get cloud religion soon enough, they can set themselves up nicely."

There are new and interesting approaches to the issue, including Heroku and PostgreSQL. Platform as a service, which allows enterprises to develop cloud-based applications or services without requiring a specific platform on which to run them, is another flexible option for moving to the cloud because it allows users to retain data and applications as needed. Another approach to consider is setting up a collection of database resources in a special-purpose private cloud.

Ultimately, many options are available from cloud service providers. Moving to the cloud doesn't mean changing organizational priorities, but finding products and services that help your group meet them.

Bruno Terkaly and Ricardo Villalobos, writing on Windows Azure Insider, list some of these:

When migrating your database from an on-premises solution to a public cloud, there are several aspects to consider. One important factor is performance, which takes into account CPU utilization, disk I/O, memory constraints, and network throughput and latency. Compliance and security are also extremely important, especially when it comes to customer data - specifically the location, transfer, and handling of data. There are significant liabilities with respect to medical history, test and laboratory results, and insurance information, to name just a few.

Automating Management (Or Attempting To)

Another percolating trend is automating database management. There are all sorts of tricks and tools under this banner. These techniques and tools purport to simplify maintenance, patching, provisioning, updates, and upgrades, and even project work-flow.

Although designed to streamline operations, automation may be a short-lived trend, for as Coté observes, database management frequently needs human intervention:

DBAs actually have a wealth of knowledge and it'd be painful for developers to have to rediscover and learn all of that. People are always trying to codify best practices, and it doesn't always work out well. DBAs definitely need to learn new technologies and be less gruff about helping developers out.



Increased Focus on Security

There is one trend that database managers cannot ignore: data security. This is nothing new, but, as clearly demonstrated by the latest rash of retail database breaches among United States-based organizations, database professionals must work diligently with their IT security colleagues to ensure all enterprise data remains secure. No longer can any organization think it is immune. Governments, nonprofits, educational institutions, retailers, Fortune 500 firms, mom-and-pop operations ... all have been hacked. All are equally vulnerable if they have and store data. And all do.



As Fishnet Security notes:

Databases are where companies store their most confidential information -- from corporate financial data and employee records to Social Security numbers, credit card numbers, and medical information. Databases also often are used as a back-end for applications. While most businesses place a high value on network security and other security measures, database security often is neglected. As a result, databases are particularly vulnerable to fraudulent activity, which can damage companies' reputations and can destroy customer confidence. It's essential that database administrators have the right information and a solid strategy to properly secure their databases and to protect their most important data.

Hackers aren't the only security risk. Database administrators also need to work with the security team to eliminate other potential internal weaknesses that make data vulnerable. These could include issues related to network privileges, even hardware or software mis-configurations that could be misused, resulting in data leaks.

How to Implement These Trends Within Your Organization

A common thread runs through these trends: wringing the most possible use from your organization's data and hardware resources. You don't have to rush to undertake a project based on any one of these trends. If anything, each tool or process should dovetail in some meaningful way with your existing operations. If you want to enhance security and move to the cloud, for example, can these initiatives coexist?

An important current underlying these trends is to show C-level managers with complete certainty that database managers are doing more high-level data analysis than scut work. This may be difficult to initially establish, but quantitative and periodic reporting with solid improvement metrics can help bolster your case.

How can you effectively implement these trends within your organization? There are several options available, including hiring more staff or training existing employees. Another option may be strategic outsourcing with a database management services partner such as Datavail.

When it comes to new projects or the involvement of external consulting, database managers may face obstacles when they look for support and buy-in from executives or upper-level management. These obstacles can easily be eliminated: Have a definitive plan with goals you can clearly articulate, and thoroughly address potential pain points such as costs or security issues. Be certain to state potential outcomes for the project, perhaps moving a key project forward or freeing staff to work on a newly approved Big Data initiative.

Datavail can play an important role in helping organizations achieve their IT and database management goals by providing remote database management through either a managed services or staff augmentation approach. You may want assistance with backups or other low-level routine tasks -- Datavail's database experts have plenty of experience with those. You may want help transitioning to or bridging new technologies, such as MongoDB. Our services are tailored to each customer's specific, unique needs with the flexibility, reliability, security, and performance your company demands.

Strategic outsourcing enables you and your key staff to take on new Big Data projects and use your talents and skills to their fullest potential.

With new technologies and tools being introduced as traditional challenges persist, the contemporary database administrator may find his or her attention pulled seemingly randomly across a range of tasks. Delegating is not always a solution considered by database administrators, but strategically outsourcing low-level tasks is a viable option that lets them focus on high-level, value-driven tasks and discard passing technology fads.



The approach Datavail takes is unique. We get to know your organization, your operating environment, and its processes to better understand the challenges and problems you are facing. Our experts ask the right questions, discovering the factors at the heart of the issues you face. Then, we present a solution tailored specifically to your operation.

To learn more about our database managed services, call Datavail toll-free at (866) 828-7843. Prefer to chat online? We have experts available 24x7x365 to answer your questions on our chat line at www.datavail.com.

BIOGRAPHY

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Patrick's background includes 15 years' experience specializing in database architecture, DBA, performance tuning, and managing the infrastructure for enterprise database operations of over 300 databases, including several ranging from 10 gigabytes (TB) to 80 terabytes (TB). Patrick designed and developed comprehensive database administration solutions for high performance, reliability and integrity, including backup and recovery, fault-tolerant connectivity, operations and performance monitoring, reporting, automated storage management, BCDR, SOX compliance, and Co-Sourcing. Patrick's hobbies include skiing, crossfit, hockey, and playing with the kids.

ABOUT DATAVAIL

Datavail Corporation is one of the largest providers of remote database administration (DBA) services in North America, offering database design and architecture, administration and 24x7 support. The company specializes in Oracle, Oracle E-Business Suite, Microsoft SQL Server, MySQL, MongoDB, DB2 and SharePoint, and provides flexible on-site/off-site, onshore/offshore service delivery options to meet each customer's unique business needs.

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