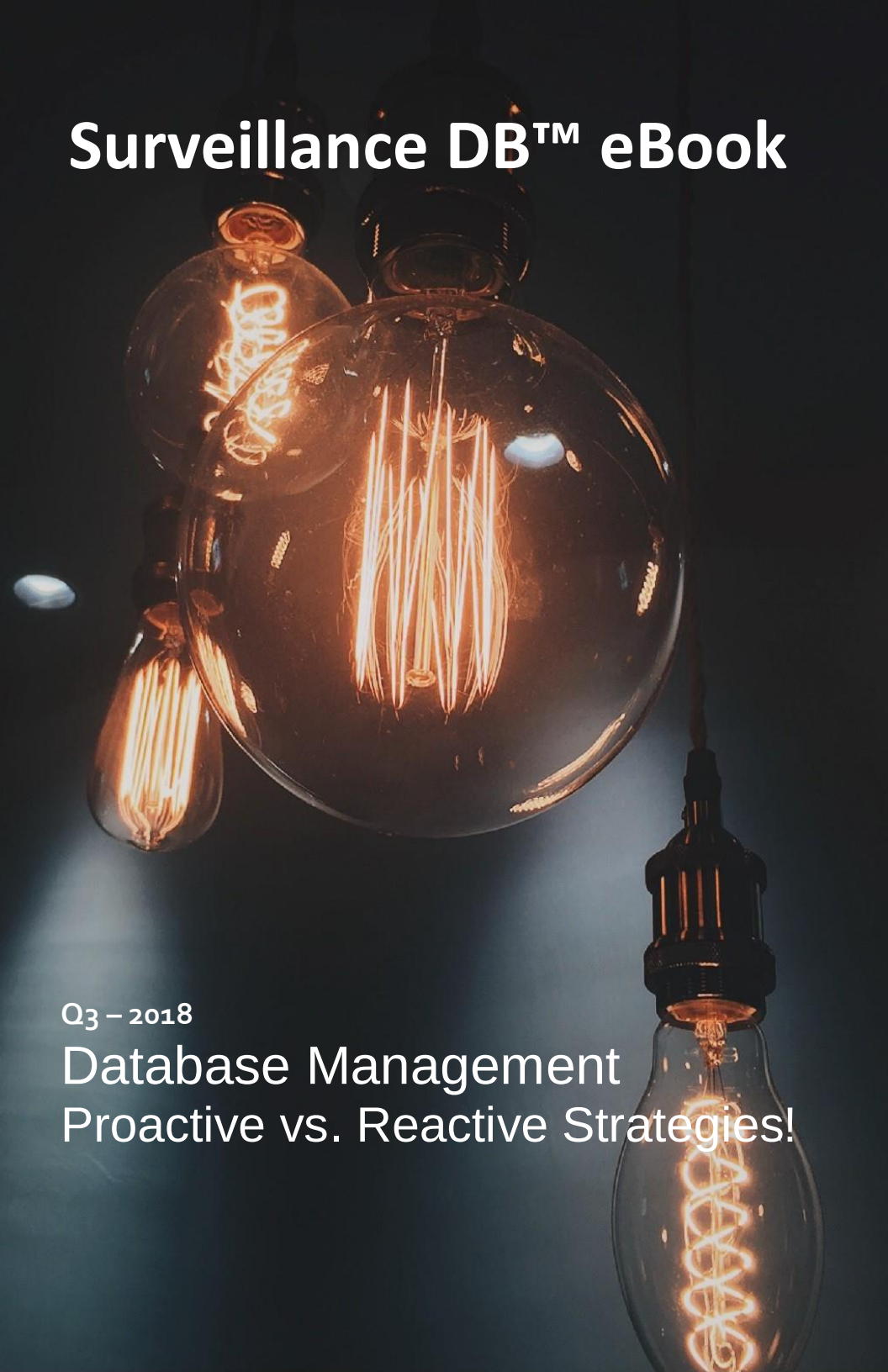
Surveillance DB™ eBook



Q3 – 2018

Database Management

Proactive vs. Reactive Strategies!

Overview

Welcome! Thank you for your interest in our eBook's. This is 3 in a series of 5 eBook's. Our first eBook focused on '**What Is Surveillance Database Monitoring?'** The latest edition was on **'The Cost of System Downtime.'** In this 3rd edition, we will be focusing on 'Proactive versus Reactive Database Management Strategies'.

This eBook is for any IT professional responsible for the operation, oversight of databases, operating systems and IT departments found within – big or small - corporate data centers.

Taking a Reactive Approach

In my early years of employment, I found myself in the elevator with the CEO of the organization. I respected the man greatly and not wanting to stand and stare at the closed doors or the floor numbers flipping by. I figured I would ask him a question that would help propel me up the managerial ranks. I asked. With all the things you have to manage daily, how do you know which item should be addressed first? He replied, "Think of it as a bunch of pokers in a burning pit of fire. Whatever poker is burning the hottest and brightest is the one you should address first".

The advice he gave, served me well. I learned that I could be calm when in crisis mode. I had the ability to determine the root cause, solve problems or find new ways to solve the problem and act quickly.

Being reactive also had its faults. As a department that was under staffed and underfunded, my direct manager often committed me to support new application databases (when all I could focus on was the current problem I was working on) and tasked me to address any requests and problems that arose that day. I was definitely in react mode and going from one fire to the next. All too often, my work load seemed to get extended into the weekend. In fact, it was during those weekends where I would review database characteristics, statistics, log files, address errors and make sure all databases were performing at peak efficiency.

Years later, I came to realize that the CEO's approach was purely reactive. But I also learned that sometimes things go off the rails. And, in these situations being reactive is a necessity.

An example of a situation where being reactive becomes a necessity are outside cyber-attacks or issues that may occur with customers. Let's say that you don't have automated tools to inform you of a database issue. Your experience may direct you to manually check resource limits or quotas to ensure smooth operation of any given database.

Reactive database administration could be a vital part of your team's business operations and daily tasks so that you can continue operating at maximum capacity. However, I always thought there has got to be a better way to get ahead of the curve.

What I wish the CEO would have said to me was, "You should concentrate on understanding all the issues at hand, prioritize them, plan your strategy to resolve and execute that plan".

Take the Proactive Approach

In edition #2 of our eBooks – The cost of system downtime - we talked about the management of critical IT services and IT systems. We also highlighted the development of IT Application Portfolio Management (APM) plans and managing the Mean Time to Recovery of Operations (MTTRO) as well as building out Business Continuity and Disaster Recovery (BC/DR) scenarios. These and other strategies mitigate risk and are put into place by organizations as the cornerstone of a 'proactive' approach to running IT operations for the sole purpose of addressing any expected difficulties before they happen. Mission critical application databases often require constant monitoring.

A reliable software tool, focused on monitoring them and delivering complete visibility, sending alerts of potential issues, pinpointing problem areas quickly … including diagnostics and reports enhances a DBA's effectiveness and ability to proactively maintain system efficiency, 24x7x365.

Considering my last job and being in react mode all the time. I longed for the day that the company I worked for, proactively invested in both skilled resources and performance monitoring software. I can honestly attest, that preventing issues from happening in the first place or from ever happening in the future is, by far, more desirable than being reactive.

Investing in the appropriate number of resources is key to being prepared for any database incident that may take place. However, attempting to determine the optimal number of Database Administrators (DBA's) required to maintain operational efficiency and management of a company's mission critical and non-critical databases can be difficult. The task can be easily accomplished if an APM is already in place. If no APM is in place CIO's and department leads, should weigh the Total Cost of Ownership (TCO) of adding additional resources against acquiring performance monitoring software to determine the actual cost benefit of one versus the other.

A comparison can be very insightful. A typical and logical conclusion stemming for a TCO and cost benefit analysis is that software can oversee many more databases, than a fully loaded IT department can, while simultaneously augmenting proactive strategies that have already been implemented. Not only will your DBAs be more effective, it will increase the likelihood of achieving your SSA (Service Level Agreement).

Active performance monitoring software can be viewed as both a strategic and tactical proactive approach to risk mitigation. Even though it requires oversight by professionally trained skilled DBA's it will ensure the stability and health of databases, while delivering a stable foundation to internal clients and external customers wanting - needing – access to peak performing ERP ecosystems. But, most important, plays a pivotal role within APM, BC/DR, MTTO, IT Governance and Risk Mitigation Plans.

How Surveillance Proactively Resolves Real World Problems

Client Profile: A leading US healthcare provider serving its members since 1998 by providing personalized health care from our large provider network of doctors, dentists, nurses and hospitals.

Challenge: In a number of their critical application systems, performance issues arise which require in-depth investigation and diagnosis to obtain root cause information, and the DBA group did not have any tools in place for SAP Sybase or MS SQL Server to aid in this investigation, limiting the effectiveness if the groups to resolve issues.

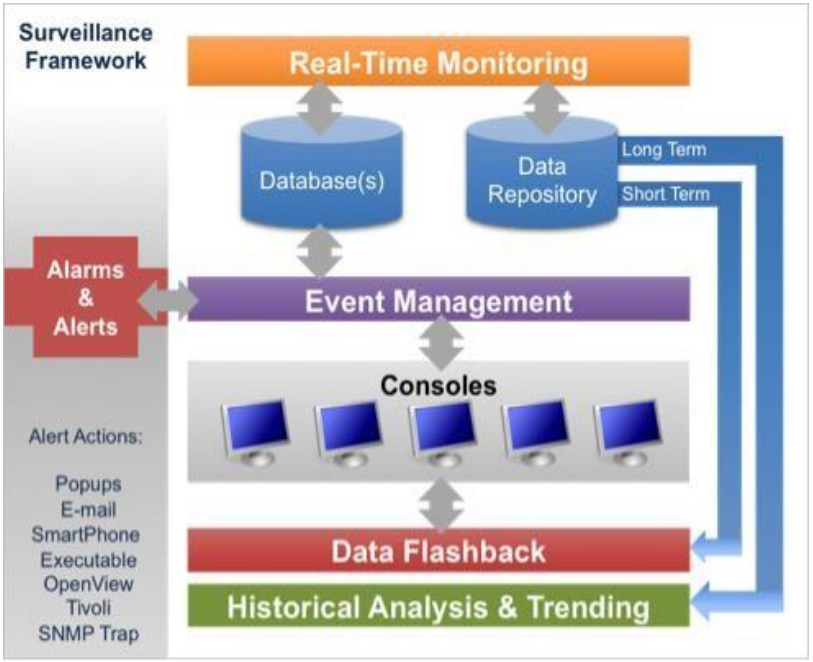
Objective: The client's singular objective is to proactively gathering information on the database(s) environment for trending, reporting and alerting purposes replacing a large number of homegrown scripts. The DBA group selected Bradmark's **Surveillance DB** to automatically capture, report and alert o performance on these high value systems.

Approach: Surveillance was installed on one production environment that will monitor all production and non-production targets. The environment is built on an existing server for the management interface and repository. Surveillance collection agents were installed on the monitored targets as required.

As a result:

1. Reduced wait time from critical applications
2. Faster problem resolution
3. Minimized capital investment requirements for the project and reduce overall TCO.

Real-Time Monitoring



The purpose is to monitor database activities in real-time and to deliver performance statistics to the Surveillance GUI, as shown below in the Global View snapshot. The Global View displays exactly what is currently happening and collected in the database and O/S without writing scripts.

Bradmark's Surveillance goes further than most by allowing drill downs for more detailed information to quickly troubleshoot issues. And further still through an extensive set of pre-defined windows that display real-time information for up to 2500 detailed performance metrics such as session/process activity, locks, batch contention, file I/O, and much more.

Analytics

Arthur Conan Doyle, Author of Sherlock Holmes said it best. "It is a capital mistake to theorize before one has data."

Surveillance's framework establishes a data repository to facilitate and allow DBA professionals to analyze events that happened in the past.

Although real-time monitoring is good, no organization has the resources or funding to have a Full Time Employee (FTE) watch real-time screens 24 hours a day. Event Management was developed for this very reason. Through Event Management, the system monitors itself, while DBAs attend to other pressing issues. The system polls for information and about the well-being of the database (referred to as Collections), through the use of pre-defined thresholds, the Event Manager determines if the system is functioning properly, or exceeded the normal threshold bands, at which time an Alert is sent to the DBA. Once a Collection is taken, the results of the Collection are placed in a historical Repository for future use and reference.

Repository data is best used to determine trends that are occurring in the environment, or where the peaks and valleys are within the daily workload. It is also used for preventive maintenance, as in the case of tables that are filling up, resulting in a demand for more disc storage; or determining applications that are causing inordinate CPU utilization, disc I/O or excessive resource usage and should perhaps be reviewed for performance improvement. It can also be used to simulate past events, and determine incidences that occurred before the DBA had an opportunity to study them in real-time.

On the reporting side collected data can be used for decision support. Surveillance makes reporting easy. The toolset comes with a Report Viewer allowing operational and department managers as well as DBA's to select from an extensive set of pre-defined reports for each of the Surveillance Modules and brings those reports directly to your screen, or as output to HTML, PDF, XML, MS Word formats.

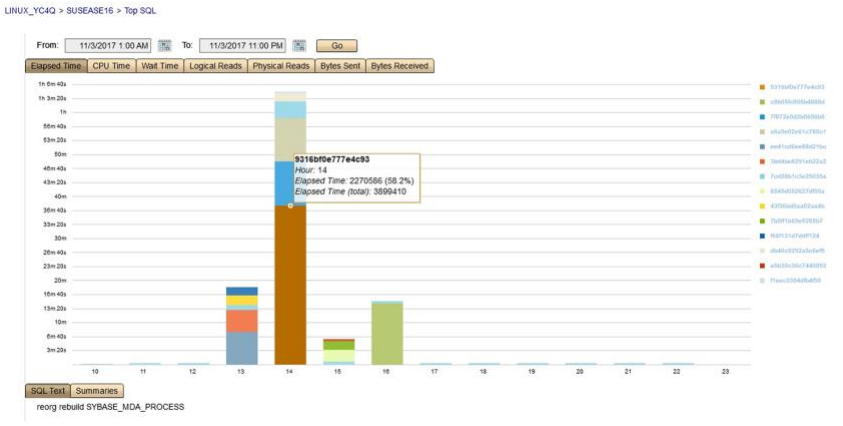
Flashback

As is often the case, a DBA is not always available when an incident occurs. That's why it's important to have a repository of past events. Through the use of this repository, the DBA can flashback to a period of time, where the database was not performing properly and study it as though it was in real-time. This is an effective way of studying issues that otherwise would have been missed. This is called simulated real-time, and it is most useful in discovering incidences that would have required a DBA to be watching the screen at the time the incident occurred.

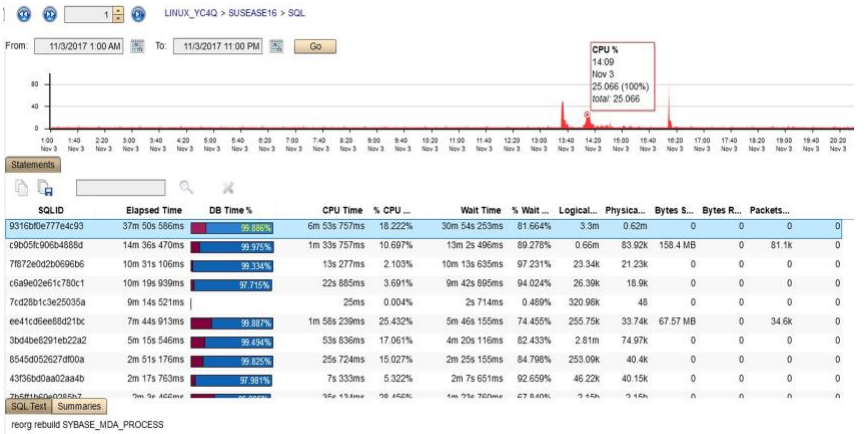
SQL Time Slicing

Whether through real-time monitoring or through the use of Flashback, tracking down and identifying poorly written or time-consuming SQL statements that result in poor performance is extremely important. That's what SQL Time Slicing was designed to do. SQL Time Slicing allows IT professionals to quickly address specific database performance issues that may have occurred and more.

In the graphic below we are showing an example of SQL activity during a specific time of day (hour), and how Surveillance quickly tracks down the culprit.



Clicking on the area that has more activity between 14:00 and 15:00 reveals the SQL that is responsible. In this instance, an online reorg rebuild occurrence was impacted.





Additional benefits of Surveillance DB - SQL Time Slicing feature:

- Compare impact changes of end-of-the-week, and end-of-the-month jobs or tasks
- Compare increases or decreases of EOW, EOM jobs
- Find crucial trends or sudden changes
- Evaluate the impact of query runs
- Help development teams and application builders check the impact of query changes

Alerts



Finally, the Alerter Agent is responsible for evaluating events, determining the appropriate actions, and monitoring the status of the actions. After defining how alerts will be sent, Surveillance uses its extensive alerting and alarming facility to notify one or multiple technical professionals when a rule has been activated or an incident occurs.

What to expect by using Surveillance's Event Management

- Easy setup of rule-based events and actions when thresholds are breached
- Quick notification to IT staff of potential problems before conditions become critical
- Generate various alert types including:
  - Pop-Ups, Email, Paging, External commands or scripts, SNMP traps and forwarding
  - Integrate seamlessly with HP OpenView and Tivoli

Conclusion

Google and Facebook have set the bar on what is an acceptable response time for an application. Today, if an application is not responding to a user in 3 seconds, it is problem. It is not enough today to have the database be up, it also needs the right tools in place to oversee potential performance issues before they happen.

The database is the heart of any application, and that means that if DBAs are going to have to manage SAP Sybase, SQL Server or Oracle, they need to agree with management on what is going to be the focus of the effort and what is the acceptable response time that they are going to aim for, and how are they going to approach it so that there is less firefighting and more upfront investment in thinking about what needs to be done proactively.

Is reactive data management in control of your daily IT operations and maintenance?

Kindly share your experience with us!

Check out these additional resources here:

- ✓ Surveillance Monitoring Overview
- ✓ Surveillance Product Demo Request
- ✓ Readiness Assessment Services
- ✓ Secrets to Monitoring SQL Server Availability Groups (AG)
- ✓ The Cost of System Downtime – Issue #2

Join us and stay connected!

I also invite you to contact us directly to schedule a "***no obligation***" product demonstration.

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About the Author



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A 31-year IT sales professional at MB Foster and Associates, Chris has built long standing, sustainable relationships by helping resolve customer challenges of all sizes, environments and architectures delivering server performance monitoring and event management products via Bradmark's Surveillance DB.



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