



Microsoft SQL Server Management

The Microsoft SQL Server is a scalable and reliable database solution that provides the data management and analysis agility for your organization to adapt quickly to derive a competitive advantage in a fast-changing environment. With the TELEHOUSE Management Framework, TELEHOUSE provides the highest level of support and management to ensure the availability and performance of your SQL Server.

Correlation Engine Technology

TELEHOUSE's correlation engine technology includes APIs for reading alerts and messages from a variety of tools. The correlation engine filters, correlates, validates, and auto-resolves routine alerts, allowing our analysts to focus on complex and proactive analysis of prescreened, validated events. On average, 98% of incoming alerts and messages are automatically resolved by the correlation engine. By capturing and prioritizing the relevant data, the correlation engine enables exceptionally efficient incident management that improves your system performance.

Expert Analysts

Dedicated Microsoft SQL experts ensure high performance and availability of your SQL server environment. Support analysts are available 24x7 to respond to system events and for direct customer support through phone or email. With over eight years of focused experience in managed services and thousands of applications under management, TELEHOUSE successfully manages complex environments.

ITIL Best Practices

TELEHOUSE employs the IT Infrastructure Library (ITIL) Service Delivery and Service Support processes of Incident, Problem, Configuration, Change, Release, Service Level, Availability and Capacity Management. These standardized ITIL processes define our services and ensure consistent and measurable performance. TELEHOUSE's Management Action Plans (MAPs) are incident management best practices, which correspond to every event type that is monitored.

Managed Components

1) SQL Server Availability:

TELEHOUSE will monitor and verify that the application is running and functional. Critical system processes will also be monitored to ensure they are running within established parameters. Server restarts will be completed in the event of a system crash, panic, or halt, and the acceptance of client connections will be verified.

2) Database Instance Monitoring:

TELEHOUSE will monitor each separate instance of your SQL Database for availability.

3) Configuration Change Monitoring:

TELEHOUSE will monitor configuration files looking for changes to occur. Notifications occur when changes are made within the Configuration files, to ensure that unauthorized changes are not being made to the system.

4) Server Log File Monitoring:

TELEHOUSE will monitor application logs looking for specific keywords and phrases indicating critical issues to investigate. Additional keywords can be added at any time and keywords that are determined to be ineffective can be removed. For SQL Server, the keyword search is based on the words 'Deadlock' and 'Error'.

5) Cluster Management:

TELEHOUSE will monitor for node changes to ensure the database successfully changes state and is working properly in the event of a failover incident. Once stability has been achieved, analysts will troubleshoot the root cause of the event, make necessary changes to prevent future occurrences and restore the database to normal functions within the change management program.

Managed Components for MS SQL Server

- SQL Server Availability
- Database Instance Monitoring
- Configuration Change Monitoring
- Server Log File Monitoring
- Cluster Management
- Replication Management
- Database Parameter Tuning
- Storage Allocation Management
- Performance Management and Statistical Tracking
- Backup Monitoring and Verification

TELEHOUSE Management Framework Value

- Leverage TELEHOUSE's best-of-breed monitoring technologies and proven implementation processes to provide rapid and effective management.
- Gain visibility into your IT environment by viewing ticket, performance, and trend details through the customer portal.
- Rely on expert analysts, ITIL best practices and Management Action Plans (MAPs) to improve the stability and availability of your environment.

For more information visit
www.TELEHOUSE.com



Event Types Monitored

- Deadlock detected
- File number limit warning / error
- Lock limit warning / error
- Log error / warning / info
- Archiver stopped
- Cursor limit warning
- Internal error
- Process or Session limit warning
- Process count mismatch
- Startup / shutdown failed
- Instance unavailable database instance
- Offline tablespace
- Tablespace assignment
- Broken job
- Invalid object
- Configuration parameter change

Performance Statistics Collected

- Hit ratios
- Page I/O
- Memory pages
- Memory usage
- Activity
- Locking
- Connections

6) Replication Management:

Whether the SQL Server is running on Microsoft Cluster Service (MSCS) environment or as a standalone database, TELEHOUSE will monitor the successful transfer of data to the replication database.

7) Database Parameter Tuning:

TELEHOUSE analysts proactively work to ensure optimal performance and availability of the SQL Server database through regularly scheduled checks of critical database components such as locks, buffer cache hit ratios, CPU usage, memory usage, and sorts.

8) Storage Allocation Management:

Each database in the instance is monitored to ensure that it is able to extend as needed for normal growth within its allocated space limits. If sufficient free space is not available for future growth, the TELEHOUSE analyst immediately logs onto the system and allocates additional space.

9) Performance Management and Statistical Tracking:

TELEHOUSE will identify, troubleshoot and resolve performance issues while key system statistics are collected and warehoused on a historical basis.

Backup Monitoring and Verification:

TELEHOUSE will monitor the operation of backup processes and notify the customer, or third party backup vendor, if any failure occurs. TELEHOUSE will, on a quarterly basis, verify the proper operation of the backup processes. This verification can include a test for the recovery of data, if a test server is provided by the customer.

Example Event Resolution

The following example demonstrates the Silver, Gold, and Platinum service responses for a common Microsoft SQL Server event:

Storage Allocation Warning - Transaction Log Full.

TELEHOUSE Silver

For TELEHOUSE Silver services, the customer will receive notification of validated events. A TELEHOUSE Analyst will consult the

Management Action Plan for this event. The MAP dictates that the analyst will perform the following:

- Open Enterprise Manager and check the space of the Transaction Log for the database in question
- Escalate the information regarding the instance status to the customer contact

On average, the initial response time is less than five minutes.

TELEHOUSE Gold

For TELEHOUSE Gold services, a Primary Analyst is assigned to every account and understands the configuration of the environment. Rather than escalating directly to the customer, the same SQL Server event is now escalated to a Primary Analyst. The Primary Analyst consults their predefined set of troubleshooting and resolution steps in the Management Action Plan. For the same SQL Server event, the Primary Analyst will perform the following troubleshooting and resolution steps:

- Open Enterprise Manager and check the space of the Transaction Log for the database in question
- Verify that the log file is full, and increase the size of the log as necessary
- Another option that the Primary Analyst considers is truncating the log (The action taken depends on the customer's requirements.)

In addition, the Primary Analyst will watch for a trend of these types of issues to proactively advise the customer of configuration changes to stabilize the environment.

TELEHOUSE Platinum

For TELEHOUSE Platinum services, the Primary Analyst will also understand the architecture of the environment and databases in the SQL Server environment. With this more in-depth understanding of your environment, the Primary Analyst can perform many proactive tasks such as SQL Server patch maintenance and installation, understand the applications to be deployed with SQL Server, perform changes to optimize the SQL



TELEHOUSE Silver, Gold, Platinum Support Overview	Silver	Gold	Platinum
→ 24x7 Support Center coverage	✓	✓	✓
→ Event correlation and validation with correlation engine technology	✓	✓	✓
→ Centris portal (system health, ticket reports, performance reports)	✓	✓	✓
→ Ticket tracking, communication, notification and escalation management	✓	✓	✓
→ Management Action Plans with validation and notification steps	✓	✓	✓
→ Incident management (detection, classification, notification, recording, and closure)	✓	✓	✓
→ Project management for installation	✓	✓	✓
→ SQL Server log file parsing using specific keywords	✓	✓	✓
→ Validation of SQL Server response to requests	✓	✓	✓
→ Memory usage monitoring for each SQL Server process	✓	✓	✓
→ Provide SQL Server services performance graphs	✓	✓	✓
→ Scheduled jobs status monitoring	✓	✓	✓
→ Monitor cluster availability, processes, and engine log monitoring	✓	✓	✓
→ In replicated environments, monitor replication transactions	✓	✓	✓
→ Management Action Plans with validation, troubleshooting, resolution and escalation steps		✓	✓
→ Incident resolution based on MAP procedures (restarts of processes, services, servers, etc.)		✓	✓
→ Primary Analyst assigned to every account for incident investigation, diagnosis, and control		✓	✓
→ Proactive problem identification		✓	✓
→ Configuration identification, status, verification and audit		✓	✓
→ Availability, response time, trend, and performance reporting and analysis		✓	✓
→ Analyze repetitive critical SQL Server diagnostic log file errors and suggest corrective action		✓	✓
→ Database size and log filespace monitoring and resolution		✓	✓
→ Request throughput and response time monitoring		✓	✓
→ SQL Server resource availability and utilization monitoring (such as active user connections)		✓	✓
→ Review cluster alert patterns and make recommendations to prevent recurring issues			✓
→ Project management resource assigned for installation and ongoing account maintenance			✓
→ Complete problem management with incident root cause analysis, when appropriate			✓
→ Enterprise account management with complete understanding of architecture			✓
→ Change management coordination, review, risk assessment and justification*			✓
→ Release management planning, deployment and acceptance*			✓
→ Monitor ticket activity (24 hour report) and work to reduce false positive and non-critical items			✓
→ Streamline resolution procedures to reduce resolution times of tickets			✓
→ Configuration management (identification, planning, control and optimization)			✓
→ Perform changes to optimize SQL Server			✓
→ Install and apply fixes to security vulnerabilities according to industry standards			✓
→ Database user account management			✓
→ Critical database component monitoring (locks, deadlock conditions, buffer cache hit ratio)			✓
→ Database consistency check performance monitoring and reporting			✓
→ Resize and rebuild database files and indexes**			✓
→ Monitor and verify that backup processes are functioning properly			✓
→ Review cluster alert patterns and make changes to resolve recurring issues			✓

*TELEHOUSE provides change management for all objects that are contracted under the Platinum support option. This includes both TELEHOUSE and customer initiated changes. For objects not under TELEHOUSE management, such as custom code or content, TELEHOUSE will perform the change control activities and documentation steps normally associated with change management only if the Enterprise Change Management option is purchased separately. For further details, please refer to the Change Management Technical Specification.



Support Options Summary TELEHOUSE Silver

Infrastructure and Application Monitoring

- Customer Portal Access*
- Project Management*
- Incident Management (Validation, Notification, and Escalation)
- Reporting

TELEHOUSE Gold

Infrastructure and Application Resolution

- All the features of Silver, plus
- Incident Resolution
- Proactive Problem Identification
- Configuration Identification
- Reporting and Analysis

TELEHOUSE Platinum

Infrastructure & Application Management. All the features of Gold, plus

- Problem Management (Error Control, Root Cause Analysis)
- Change Management
- Configuration Management
- Release Management
- Reporting and Proactive Services (Performance Tuning, Customized Services)

* Please see the Consulting Services technical specification for details.

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Server configuration files, install and apply fixes to security vulnerabilities to adhere to high security standards, analyze and provide feedback on disaster recovery plan for the database, check critical database components (locks, buffer cache hit ratios, CPU usage, memory usage, and sorts), and run database consistency checks.

Consulting Services for Silver, Gold and Platinum

TELEHOUSE will perform the following activities as part of its engagement service:

- Audit and document site requirements
- Establish and maintain Virtual Private Network (VPN) connectivity
- Deploy client-agent management tools
- Configure the customer portal for customers to view performance trends and analysis

These services are detailed in the technical specification for TELEHOUSE Consulting Services.

Version and Patch Support Policy:

TELEHOUSE supports vendor-supported software versions defined as those versions that are under maintenance and being patched by the vendor.

Customers must have maintenance agreements in-place and systems should be patched to within six months of the vendor's most recent available patches.

Exceptions to this, as well as overall supported applications, will only be considered on a special approval basis and will require an engineering review and contract addendum.