Sun Solaris Operating System Management

Sun Solaris is an operating environment that delivers the security, manageability and performance that IT professionals need to increase service levels and decrease costs and risks. With the TELEHOUSE Management Framework, TELEHOUSE provides the highest level of support and management to ensure the availability and performance of your Solaris operating environment.

Managed Components for Solaris

- Solaris Server Availability
- Solaris Log File Monitoring
- Solaris Cluster Services
- Solaris Patch Management
- Storage Allocation
- Disk Subsystem Availability
- Performance Management and Statistical Tracking
- Server Hardware

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

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 pre-screened, 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 Solaris experts ensure high performance and availability of your Solaris environment. Support analysts are available 24x7 to respond to system events and for direct customer support through phone or email. With over a decade 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) Solaris Server Availability:

TELEHOUSE will monitor and verify that the application components are 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) 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. The following is a partial list of keywords used for monitoring Solaris log files:

3) Cluster Services:

Solaris servers running in a VCS clustered environment will be monitored for all of the same events as non-clustered servers. In addition, clustered servers will be monitored for failover, node down, group down, and group owner changes in the case of a failover event. Database connectivity for both nodes can also be monitored through TELEHOUSE's database monitoring offering.

4) Solaris Patch Management:

TELEHOUSE will, on a periodic basis, review installed patches vs. the latest available from Sun and make recommendations for upgrades. Depending on the solution sold, TELEHOUSE will schedule with the customer and install the appropriate patch-sets.

TELEHOUSE AMERICA

Performance Statistics Collected

- CPU Utilization
- Memory Page Requests
- CPU Load Average
- Disk I/O
- Free Memory
- Disk Utilization
- Others on request

Event Types Monitored

- Communications Failure
- Disk Performance Problems
- System Performance Problems
- File System Availability
- File System Capacity
- Inetd Unavailable
- Memory Performance Problem
- Processor Performance Problem
- Sendmail Unavailable
- Server Unavailable
- SSHD Unavailable
- Syslogd Unavailable
- Cluster Service Availability
- Cluster Applications Availability
- Critical Cluster Processes
- Cluster Failover
- Cluster Heartbeat
- Cluster Log Monitoring

5) Storage Allocation Monitoring and Management:

TELEHOUSE will monitor and manage storage for all disk volumes.

6) Disk Subsystem Availability:

TELEHOUSE will monitor and alert of critical issues with underlying physical or logical disk volumes.

7) 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.

8) Server Hardware:

Server generated SNMP traps are used to indicate events that are important to the health and operation of each supported server. These events are device availability, CPU and memory utilization and bandwidth utilization through interface performance charts. Additionally, the use of MIB II support, interface and IP-level visibility is supported as defined by RFC 1213. Customers can view all vital information pertaining to the health and status of their servers in the customer portal.

Example Event Resolution

The following example demonstrates the Platinum, Gold, and Platinum service responses for a common Solaris event: **File System Reaching Capacity**.

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:

1) Log on to the server to check the validity of the alert by running df -k command

2) Check which particular file system is filling up by running df -k and du -ks * commands

3) Find any log files or core dumps that may have created this problem

4) Inform the customer of all details and suggest files to be deleted

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 Solaris event is now escalated to a Primary Analyst. The Support Analyst consults their predefined set of troubleshooting and resolution steps in the Management Action Plan. For the same Solaris event, the Primary Analyst will perform the following troubleshooting and resolution steps:

1) Log on to the server to check the validity of the alert by running df -k command

2) Check which particular file system is filling up by running df -k and du -ks * commands

3) Find any log files or core dumps that may have created this problem

4) Log on to the server and back up the core or log files to tape or disk for future reference

5) Log in as a 'superuser' and delete the unwanted files

In addition, the Primary Analyst will also 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. With this more in- depth understanding of your environment, the Primary Analyst can perform many proactive tasks such as perform Solaris patch maintenance and installation, install latest anti-virus data files, perform changes to optimize Solaris, install and apply fixes to security vulnerabilities according to industry standards, and provide root cause analysis of cluster failover events when necessary.

TELEHOUSE Silver, Gold, Platinum Support Overview	Silver	Gold	Platinum
→ 24x7 Support Center coverage	✓	✓	✓
→ Event correlation and validation with Correlation engine technology	✓	✓	✓
→ Customer 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	✓	✓	✓
→ Solaris log file parsing using specific keywords	✓	✓	✓
→ Validation of Solaris server response to requests	✓	✓	✓
→ Memory usage monitoring	✓	✓	✓
→ Provide Solaris services performance graphs	✓	✓	✓
→ Monitor all logical partitions free space availability	✓	✓	✓
→ Monitor cluster availability and response at hardware and software layers	✓	✓	✓
→ 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		✓	✓
→ Patch reporting and analysis		✓	✓
→ Analyze repetitive critical Solaris log file errors and suggest corrective action		✓	✓
→ Analyze space utilization of logical partitions to identify trends to proactively avert problems		✓	✓
→ Suggest changes to optimize Solaris		✓	✓
→ Analyze core dumps and forward the information to the specific vendor		✓	✓
→ 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)			✓
→ Solaris patch maintenance and installation			✓
→ Perform changes to optimize Solaris			✓
→ Install and apply fixes to security vulnerabilities according to industry standards			✓
→ Install latest anti-virus data files (any applicable software fees to be paid by customer)			✓

* May require custom scripting. Upon customer request and approval of additional fees, if applicable, TELEHOUSE will develop custom scripts to enable additional services.

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 Engagement Services technical specification for details.

For more information visit
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Engagement 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 Engagement 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.

Certified to ISO/IEC27001:2005
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