

## Cloud Environments and Virtualization

Organizations are adopting virtualization and cloud computing for a variety of reasons, including: more cost-effective hardware utilization, reduced power consumption, simpler disaster recovery, and faster, more flexible provisioning. While this trend holds great promise, it also leaves many IT organizations scrambling to ensure – and document – that end users continue to receive the expected levels of service from critical applications once they have “gone virtual” or “moved into the cloud.”

Longitude Cloud Edition gives you the visibility you need to monitor and assess the performance of anything from a single physical or virtual entity, to a multi-tiered application or business service that spans physical, virtual and cloud environments. It provides this single pane of glass by integrating three key monitoring perspectives:

- End user experience
- Key performance & infrastructure metrics
- Service levels

### End User Experience

Virtualization and cloud computing have changed the longstanding monitoring paradigm of using resource utilization to gauge application performance. With the dynamic mapping of workloads among underlying physical resources, the most reliable way to measure application performance is to assess responsiveness from the perspective of your end users. Longitude enables you to emulate the experience of an end user by recording web transactions of interest, and then replaying them synthetically to assess the availability and response of the application, as well as the content of the site.

Longitude’s End User Experience monitoring can be configured in a matter of minutes. Begin by recording a Web transaction, click by click, that you want to test on a recurring basis. Specify how frequently you want the transaction to run. Longitude will initiate the synthetic transaction as scheduled, record response time for reporting purposes, and generate events and notification when problems are detected.

### Key Performance & Infrastructure Metrics

If the end user’s experience indicates a problem, the next step is to drill into the virtual environment and physical infrastructure to pinpoint the likely root cause. Longitude provides out-of-the-box monitoring for Windows, Red Hat, SUSE, Solaris, HP-UX, AIX, and VMware. Longitude proactively monitors key performance metrics to diagnose issues and reveal underlying causes. Longitude also provides pre-configured, on-demand reports and graphs of key performance metrics to help you understand developing trends and ensure maximum availability.

Longitude also checks the availability and responsiveness of the infrastructure components that support your critical applications, such as:

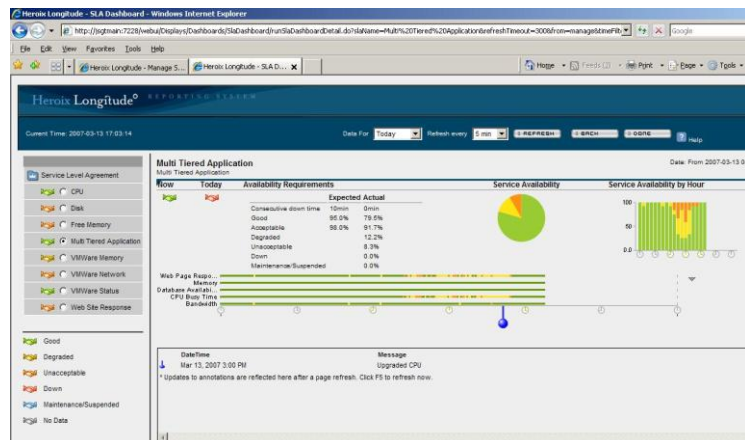
- DNS resolution
- File existence & content
- FTP connection
- HTTP connection & content
- NNTP accessibility
- Ping (with different criticality levels)
- Port accessibility
- Process existence
- Script execution
- Service existence

- SMTP connection
- SQL connection, query
- SSH/Rexec connection
- Telnet connection
- Windows Share existence
- WMI connection

## Service Levels

Longitude's Service Level Agreements (SLAs) integrate the end user experience and performance & infrastructure metrics, to give you holistic view of how your critical applications are functioning across physical, virtual, and cloud environments. A Longitude SLA groups together all the disparate components that work together to support multi-tiered applications that underlie critical business processes, and monitors for degradations in performance or availability of the service as a whole.

For example, suppose a mission critical application depends on a web server in the cloud, a virtualized application server, back end database housed on a non-virtualized server, and network connectivity. Longitude enables you to define a service level agreement that represents the convergence of all these underlying operational components plus the response experienced by the end user.



If any single component is down or operating out of acceptable tolerance, it is reflected in the status of the overall SLA. Longitude can then report and alert – in real time or historically – exactly what was out of compliance, for how long, and how severely. This helps you provide better service in several ways:

1. Eliminate finger pointing and cut resolution time – Longitude incorporates all of the components that support the business service and shows you exactly what is causing the problem.
2. Prevent problems and eliminate firefighting – by allowing you to specify degraded as well as unacceptable levels of performance for each component, Longitude can alert you before end users are affected, and even take corrective action if desired.
3. Make IT staff better at what they do - by allowing IT staff to drill down into underlying issues, Longitude puts actionable information into the right hands.
4. Create more meaningful management reports – Longitude allows you to annotate SLAs with information about outages and remedies taken to resolve issues.



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