Case Study:

Analyzing Case of High CPU Utilization

Application Status Monitoring

Active Service Graph helps monitor the status of running applications by color-coding each process according to the runtime.

(Blue: Less than 1 sec , Purple: 1~3 sec, Orange: 3~8 sec, Red : More than 8 sec)

When a performance bottleneck occurs due to internal or external resource problem, received service request are not processed right away; as response time is delayed, its status turn into Purple, then Orange then finally Red color. Incoming requests are placed in queue, piling up as a result. Using Active Service Graph allows administrator to see the detailed information about the running application service such as Client IP of users, application name, Application CPU utilization, etc...

Key Message :

1. Normally, CPU Utilization rate is around 50%, but randomly it reached 100%, resulting in delay in service time and system down. Cause is difficult to discover without further analysis.
2. Random surge in CPU utilization can be often attributed to poorly designed application logic. In order to identify and resolve such application performance problem, administrator must identify which applications are using up CPU resource and analyze parameter value of those application services by performing code-level analysis in order to find the cause of performance problem.

Background

"T" Company has developed a billing system which handles online payment transaction for customers' monthly service fee. This billing system processes 200 TPS during peak hours of operation and is accessed by up to 900 concurrent users in a given day.

Normally, CPU utilization is approximately 50%, but recently the CPU utilization started climbing to 100%, followed by delay in service response time and frequent system downtime. Sudden surges in CPU utilization seem to be happening at random, and it does not correlate to amount of incoming service request.

Looking for Cause of High CPU Usage

To identify the cause of this performance problem, JENNIFER was installed and application services were monitored. When CPU Utilization increased, the delay in application service response time was observed. After careful analysis of individual application services transaction, administrator noticed that only some of applications were using up unusually high amount of CPU resource.

After further analysis, the cause of high CPU utilization was determined unnecessarily many loop commands in application code which used up CPU resource.

Addendum

JENNIFER Review Downloads:
http://www.jennifersoft.com/docs/apm-jennifer-installation-file-download.html

JENNIFER Introduction Downloads:
http://www.jennifersoft.com/docs/apm-jennifer-documents.html