

Tools for Measuring System and Application Performance



- **Introduction**
- **GlancePlus**
 - Introduction
 - Glance Motif
 - Glance Character Mode
 - Glance Command-line
- **Xverbosegc**
- **HPjmeter and –Xeprof**
- **Other Tools**
- **gdb**

Learning objectives

- By the end of this session you will be able to:
 - Use the system tools for monitoring operating system performance
 - Use the Java specific tools for tuning and troubleshooting performance in Java programs
 - Gather the appropriate information for the labs to use in additional problem diagnosis

Top Troubleshooting Tools

- **Glance/gpm**
 - Overall view of system performance
- **Xverbosegc** output
 - Java Heap performance
- **Xeprof option and HPjmeter**
 - What an application is doing as its executing
 - Java monitor metrics in JDK 1.3.1
- **Java stack traces**
 - What application is doing at a single moment

Top Troubleshooting Tools

- Prospect
 - Sampling based profiling – attach/detach
- gdb
 - Outstanding for finding C Heap memory leaks
 - -Xnocatch coupled with “kill -10 <pid>” for core
- Instrumented libpthreads
 - Profiling pthread mutex activity
- netstat and ndd
 - Monitor and tune networking

Top Troubleshooting Tools

- tusc
 - System call activity
 - Reveals what application is doing as it's executing
- swapinfo
 - System swap utilization
- Unsupported kernel tools
 - cyclemeter

Measurement

- What are we trying to measure?
- How do we go about measuring?
- What information is collected?
- How is the data collected?

System Resources

- CPU
- Memory
 - Physical
 - Virtual
- Disk
 - Movement of data: Memory <-> Disk

System Resources

- CPU - Memory - Disk
 - Kernel resources
 - Network

Types of Measurements

- Type of metric collectors
 - Hardware
 - Software
 - **Periodic sampling**
 - 10ms timeslice on 750 MHz is 7+ million instructions
 - **Event-driven sampling**
 - **Counters**

HP-UX Kernel Instrumentation

- System call
- Context switch
- Virtual Memory
- I/O events

HP-UX Kernel Instrumentation

Kernel Instrumentation Trace Buffers

↓
midaemon

↓
Shared Memory

HP-UX Kernel Instrumentation

Kernel Instrumentation Trace Buffers

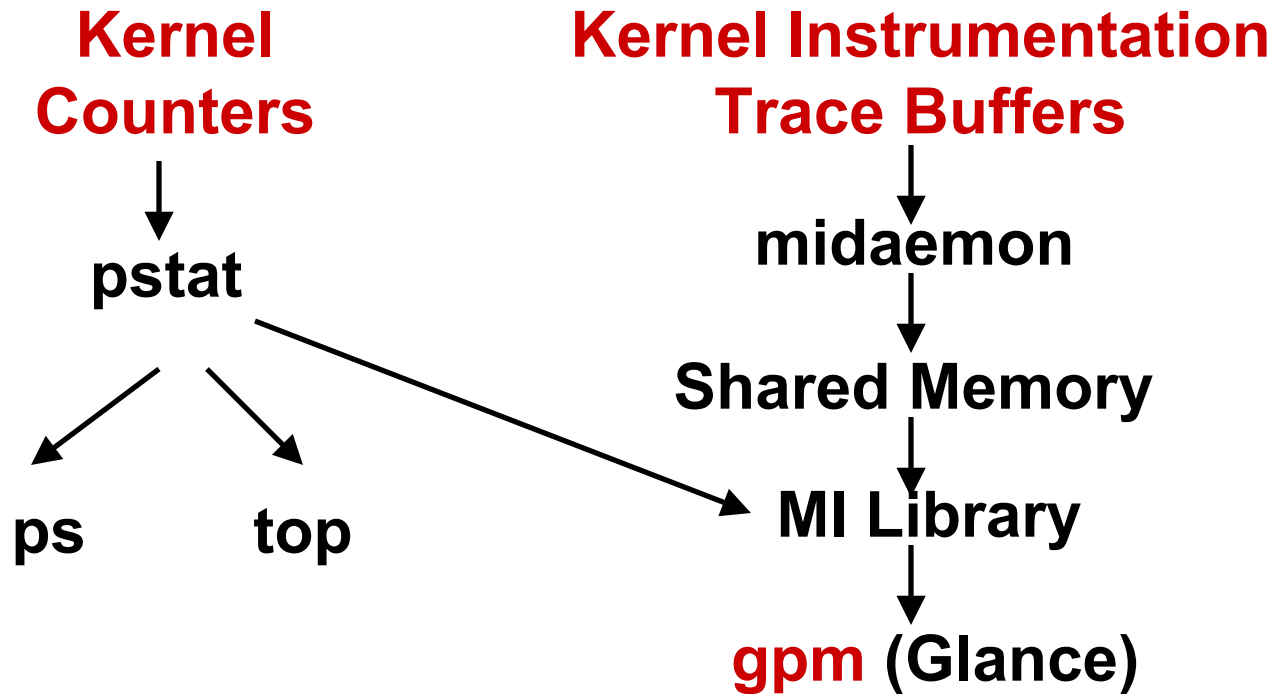
midaemon

Shared Memory

MI Library

gpm (Glance)

HP-UX Kernel Instrumentation



Tools Sections

- GlancePlus
- Xverbosegc
 - Understanding the Output By Generating Graphs
- HPjmeter
 - Understanding Your Java Application's Performance
- The Other Tools
 - Java Stack Traces
 - Prospect
 - Instrumented pthreads
 - netstat
 - tusc
 - swapinfo
 - JProbe