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viztop –Intuitive Visualization of Remote Real-Time Monitoring of Linux Processes

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We introduce here our prototype system for intuitive visualization of remote monitoring of the dynamic of processes in a running Linux operating system, in real-time. Such a system provides for overcoming the limitations of the text-based process monitoring commands or tools available in current Linux distributions. Thus, it can display, from anywhere in the Internet, via a web browser, the processes that exist at any given time in the running operating system using a graph of interconnected nodes (both processes and threads). Visual cues are used for representing different information about processes and threads, such as shapes, colors, size, text, lines, etc. These cues allow a large amount of information to be shown to the user, in a much easier way to understand when compared to classic text based tools from Linux (ps, top, etc.). As processes are created, terminated, or they change state, the nodes in the process graph are added, removed, or change shape, color, size, line type, and so on. There is a strong correlation between the visual elements and the characteristics of the monitored processes. The relations between processes are also shown. This system can be used as a tool that provides both the big picture with regard to resources'usage in a computer system and offers plenty of details to be used for improving system administration. It can be also a valuable educational tool for students, helping them to understand the dynamics of processes in operating systems.

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