Simplify Resources® vs. Citrix PS4

A Comparison of triCerat's Simplify Resources and the Citrix CPU Utilization Management feature

Q: What does Citrix Presentation Server 4.0 do for CPU usage?
A: Citrix describes the feature in an FAQ: CTX106021. The implementation provides a CPU per user quota implementation. Essentially, the admin can indirectly apply a minimum and maximum CPU guarantee per user.

Q: How does this help?
A: This methodology provides benefit in some situations, but is of limited help. It allows a control over CPU cycle usage by a rogue or power user. All applications in the user session are equally treated.

Q: How is this different from what Simplify Resources does?
A: Simplify Resources is a superior solution because it uses two different techniques to control CPU use. Additionally, it treats individual applications, not just user sessions.

Q: What are the two techniques?
A: triCerat uses CPU priority controls and a CPU Clamping control.

Q: What is CPU priority control?
A: The best approach to improving overall system performance is always to use CPU priority first. By using priority, triCerat ensures that users receive the responsiveness to keyboard and mouse actions that impact user productivity the most.

Q: Does this lower CPU usage?
A: CPU usage is not usually reduced through this method. The order of processing is altered to provide benefit. Through experience, most administrators try to keep their Terminal Servers running below an average CPU utilization - often 50-60%. This is because their experience has shown that beyond this point, system stability and user complaints about performance increase. Priority management, by itself, allows an administrator to run a stable and responsive Terminal Server at higher CPU utilization than without the technique.

Q: But doesn't Citrix have a CPU priority control as part of the new feature?
A: Sort of. Citrix has had support for a crude form of priority control via the published application. This has been around a while but is not used much because it is not dynamic - a single priority controls the application at all times. With the Citrix 4.0 CPU controls enabled, some dynamic priority control is added, however this raises nearly all process priorities to the "above normal" range which eliminates thread-critical priority boosting, harming the performance of certain threads when they need it the most (this is one of the reasons most administrators disable the Citrix 4.0 CPU feature). triCerat's patented priority control provides the benefit of dynamic control; priority is applied only when it is appropriate based on the current system real-time status. And it does this without clamping down on thread-critical priority boosting.

Q: But isn't clamping better?
A: Priority is preferred over clamping because for most applications, the CPU cycles need to be executed eventually. Reducing CPU usage on those applications reduces the productivity of the user using that application.

Q: So why does Simplify Resources have clamping?
A: There are a few applications that need clamping on a shared server. The best example is the legacy 16-bit applications. These applications waste CPU cycles unnecessarily; consuming 100% of a CPU doing nothing more than polling the keyboard in case the user may have typed a keystroke. The CPU usage by these applications can be reduced, eliminating CPU Cycles that do not need to be executed eventually, without affecting productivity of the user.

Q: How far can they be reduced?
A: Using SuperMax, triCerat's brand name for the clamping, we have lowered 16-bit applications to as little as 4% without impacting users.

Q: Are there other applications that need SuperMax?
A: There are some other applications where SuperMax is appropriate. These tend to be large applications, such as a CAD program, that probably shouldn't be on a shared server at all. Also there are applications that are deemed less than mission critical (such as a web browser). Reducing actual CPU usage on these applications does reduce productivity of those applications, but to the benefit of enough other users to make it worth-while.

Q: How does treating individual applications rather than user sessions help?
A: Sessions often are using more than one application at a time. While CPU reduction might be appropriate for a 16-bit legacy app, it shouldn't be applied to word processing or email. Such a technique would lower user productivity rather than raise it.

Q: What happens when an application has a bug and "goes rogue"?
A: Sometimes this will happen to an application. With the Citrix User-Session CPU control, the impact would be limited to affecting only that user, but the user session would effectively be jammed. Simplify Resources, on the other hand, treats the individual application. Such a suddenly rogue application is detected by a component called the System Stability Monitor. This monitor will automatically detect and control the application - allowing the user to take action themselves without having to get an administrator involved.

Q: Can I apply controls to users or groups?
A: With Citrix 4.0 you can only apply controls to users. Simplify Resources allows any combination of Domain, System, User, and Application control.

Q: What about controlling system services?
A: The new Citrix feature does not support this. Our customers often find it beneficial to control background services - such as printing - using the priority controls.

Q: If I already have Citrix 4.0 and want Simplify Resources, what do I do?
A: It is unwise to have two independent packages controlling CPU. You should disable the Citrix CPU Utilization, which is a single checkbox in Citrix's management console.

Simplify Suite® v4

The most powerful and comprehensive package of integrated server management tools available for reducing the cost and complexity of administering and supporting your Terminal Server-based infrastructure. Simplify Suite v4 has been re-engineered from the ground up. It incorporates triCerat's Zero Day® Technology, a software framework that extends and enhances Windows 2000 and 2003 Server operating systems, boosting Terminal Server performance, reliability and security.

10320 Little Patuxent Parkway, Suite 200, Columbia, Maryland 21044   **www.tricerat.com**