



ThreadManager™

- ✓ 270% performance gains
- ✓ App tuning in minutes, not weeks
- ✓ No hardware changes
- ✓ No code changes
- ✓ Linux, Windows, Unix
- ✓ All programming languages

 **PONTUS VISION**
By PONTUS NETWORKS

PontusVision ThreadManager™ improves system performance by up to 270% without any changes to hardware or software. This patent pending technology simulates application behavior in any hardware platform, and provides optimised ways to pin software threads to hardware cores. The simulation results can be applied to any modern operating system, any modern multi-CPU server architecture, and any computer language.



HOW

PontusVision ThreadManager™ works in three steps:

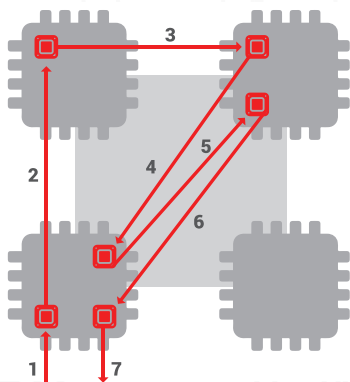
- 1 Choose a target hardware platform
- 2 Define the data relationship and performance characteristics of the software components
- 3 Run the simulation

Any server can be modelled, allowing users to run simulations without having the target hardware available.

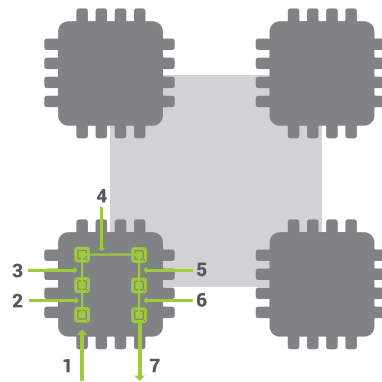
WHAT

Modern operating systems (OSs) are not very good at managing threads for performance. OSs are typically configured to balance the load across various CPUs rather than to focus on application performance. When dealing with latency-sensitive applications, balancing the load across various CPUs causes the latency to increase significantly.

As an example, in a Four-CPU machine where the OS just distributes the red threads across CPUs, the cost of moving data between the threads can be several times greater than in the system with the green threads. For many applications, constraining the threads to a single CPU can significantly increase performance, but only as long as the CPU doesn't get overloaded.



1. Data arrives in the network card
2. Interrupt is triggered
3. Data is copied to reading thread
4. Data is copied to parsing thread
5. Data is copied sending thread
6. Interrupt is triggered
7. Data leaves the network card



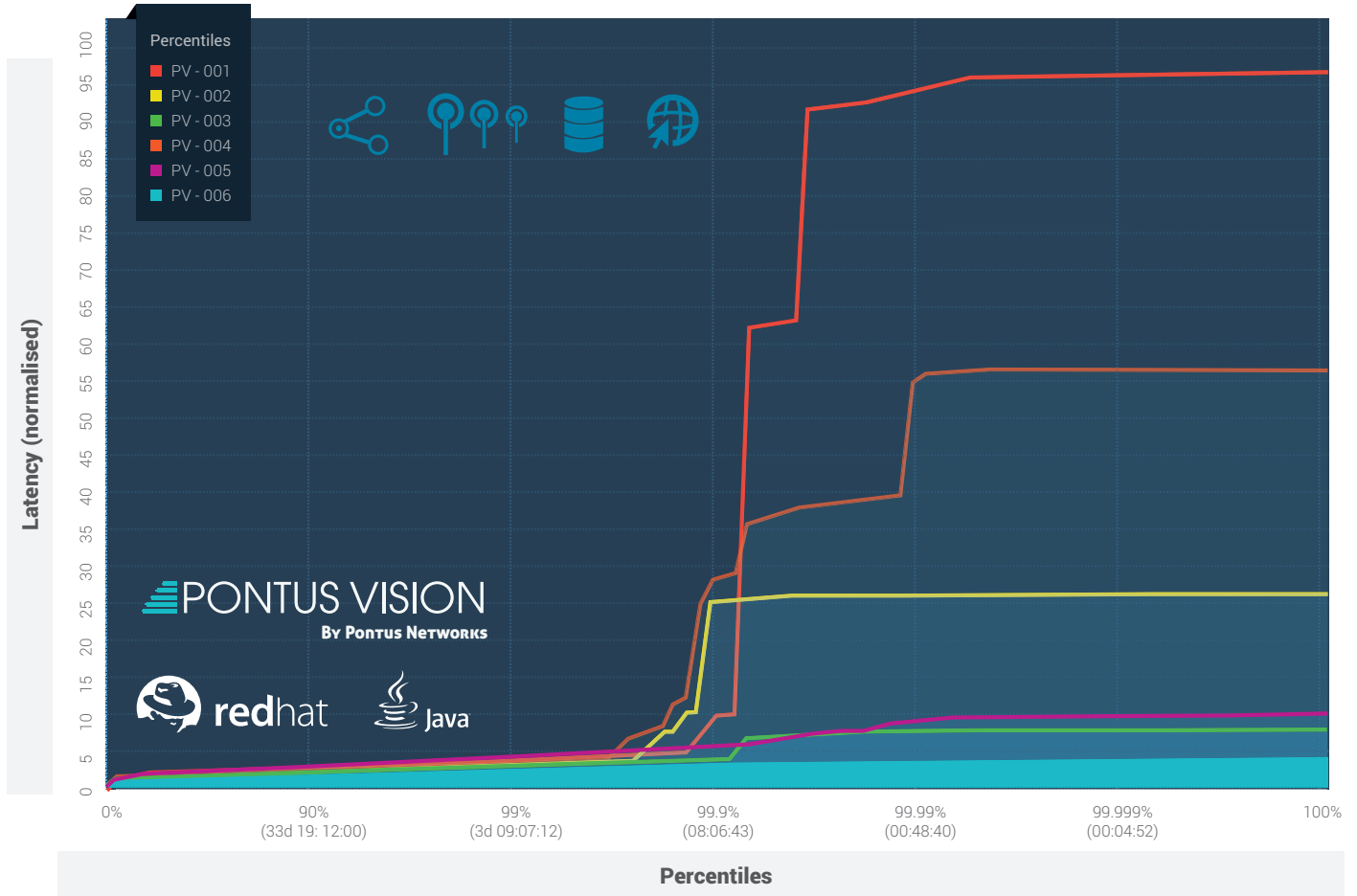
That's where the power of the PontusVision ThreadManager™ helps. PontusVision ThreadManager™ patent pending technology allows users to quickly come up with optimal thread allocation strategies within seconds. This saves weeks or months of test cycles to empirically try different thread allocation combinations.

WHY

PontusVision ThreadManager™ improved a Tier 1 investment bank's Foreign Exchange (FX) spot pricing system performance by 270%. The graph below shows the latency of the system (the lower the line, the better the performance). It shows the impact of different operating systems, Java virtual machines, and the impact of PontusVision ThreadManager™ on the system.

The 270% performance improvement can be seen by taking the difference between the peak values for the red and yellow lines. The only difference between these lines was the use of PontusVision ThreadManager™ results on the system.

Percentiles end to end latency



Test Cases	redhat	Java	PONTUS VISION
■ PV - 001	RHEL	Oracle Hotspot	None
■ PV - 002	RHEL	Oracle Hotspot	PontusVision
■ PV - 003	RHEL	Azul Zing	PontusVision
■ PV - 004	MRG	Oracle Hotspot	None
■ PV - 005	MRG	Azul Zing	None
■ PV - 006	MRG	Azul Zing	PontusVision

Reduced latency by
270%

Reduced latency by
56%



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 **PONTUS VISION**
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