



NetProtect Reduces Infrastructure Costs by 60% Using AMD EPYC™ Processors

Supermicro A+ servers give NetProtect the headroom to deliver new services to a wide range of customers



INDUSTRY

Internet Security

CHALLENGES

- Reduce Costs
- Maintain Customer SLAs
- Ensure Future Growth at Minimal Cost

NetProtect is a global leader in internet protection. With a sophisticated yet simple array of consumer and business solutions, NetProtect delivers secure, open access to files, websites, software, and media through a secure VPN. With an array of products to help businesses protect their valuable assets, NetProtect faced a growing challenge that necessitated the forethought of looking at a new generation of server solutions for their infrastructure.

Challenges

NetProtect delivers a wide range of products that ensure network security, from the edge to the data center. As their business grew, keeping up with committed Service Level Agreements (SLAs) to their customers became a challenge. Their costs were spiraling out of control as they added more servers which were housed in various co-location facilities that charged NetProtect monthly, based on the housed number of rack units. As more servers were added to support customers, their marginal costs skyrocketed. The NetProtect IT team realized that their previous generation of servers would greatly benefit being replaced worldwide, to both meet their SLAs to an increasing number of customers and also to reduce costs. NetProtect decided that increasing the density of work per rack unit (RU) was of primary importance and thus decided to search for an alternative to the incumbent CPU provider.

NETPROTECT

Considerations

When NetProtect decided that a server refresh was needed, several benchmarks had to be met to proceed. These included:

- Reduced operating expenses
- Payback of investment in 18 months
- Ease of migration of applications

Reduced operating expenses - Once NetProtect was able to determine the required number of servers to meet their SLAs based on future customer projections, they could easily model the costs that the co-location company would be charging. After implementation, NetProtect was able to reduce the number of RU's by 54% and their co-location expenses by 60%, while increasing the performance by up to 65%.

Payback of investment in 18 months - From a business and financial standpoint, NetProtect decided that an upfront investment in new servers would need to be recouped through increased efficiency in about 18 months. Based on the solution that NetProtect picked and implemented, and from then statistics from actual use, the payback period in certain geographies was determined to be about 9 months, 50% less than originally modeled.

Ease of migration of applications - When investigating moving to a new infrastructure, a main concern is always how easy it is to move applications. Even when instruction sets are stated to be compatible, developers and IT professionals are always wary until the actual deployment at scale occurs to determine that their applications will run completely unmodified. Investment protection involving many years of application development is a high priority for software vendors moving to a new platform.

SOLUTION

[Supermicro's A+ Ultra servers](#)
with AMD processors

Solution

In order to maintain their SLAs for increased customer demand and with a reduced footprint, NetProtect decided to team with Supermicro and Advanced Micro Devices (AMD) and standardize on the [Supermicro's A+ Ultra servers](#). AMD processors have been making tremendous inroads at a variety of data centers (on-prem, co-location, and cloud) based on their advanced technologies and lower cost, and in all metrics, compared to the competition. In a wide range of benchmarks, AMD CPUs outperform similar priced CPUs from Intel. For NetProtect, the most important benefit gain from the Supermicro AMD system is the core performance, leading to considerably higher bandwidth on a relative basis. This allows for greater bandwidth throughput per equivalent core for data transmitted through the server.

Supermicro A+ Ultra systems are designed to deliver the highest performance, flexibility, scalability, and serviceability to demanding IT environments. NetProtect found during testing that the bandwidth throughput per core in the Supermicro A+ Ultra far exceeded that which could be obtained using an Intel system. An area that NetProtect investigated and then validated in real-world usage was how many

Virtual Machines (VMs) and thus throughput per virtual machine could be assigned to a single machine without hitting a performance bottleneck with the CPUs. The result was that the Supermicro A+ Ultra was much more efficient at encryption than Intel CPUs were, allowing for more VMs per CPU, reducing the number of cores required and thus hardware investment (due to fewer cores/CPU's being required).

“NetProtect works with over a million users to deliver secure VPN services. As our business grew, we realized that a new generation of powerful servers were needed. We worked closely with Supermicro and AMD to implement an optimized solution. Our results demonstrate that we increased performance and decreased costs when we deployed this new infrastructure”

–Jacob Wall, Vice President of Technical Operations, NetProtect

The specific server chosen by NetProtect is the A+ Server 1023US-TR4. This 1U server contains two AMD EPYC 7352 CPUs (24 cores each). A total of 256 GB of DDR4 memory and two 1.92 TB NVMe storage were configured for each system. Each system provides dual 25 Gigabit network cards that allow for the headroom of bandwidth growth, creating an extremely fast system that can easily be part of a high performance, high throughput cluster.

Once NetProtect brought the new Supermicro servers on-line, they were able to benchmark the performance of the new servers vs. the older models. In the figure below, which is a snapshot of performance over a period of a few weeks, the transition to the new systems was easily observed. When the new Supermicro servers were installed and assigned workloads, the CPU usage (in terms of percent) remained fairly consistent (or went down by a little), while the number of sessions (4 core VMs) hosted went up significantly within the agreed-upon SLAs.

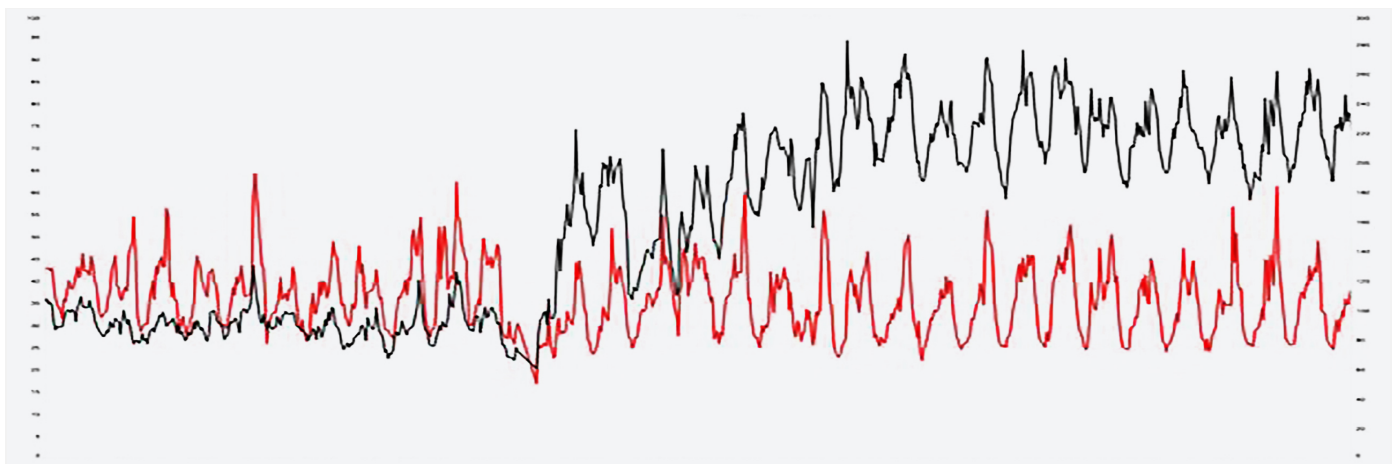


Figure 1: Increase in sessions with no increase in CPU utilization

BENEFITS

- Reduced their datacenter footprint by 54%
- Support 65% more traffic on 15% fewer cores

Benefits

- NetProtect found through real-world deployments that Supermicro A+ Ultra systems were extremely efficient at processing their VPN workloads, leading to a reduction in the number of cores needed for a given SLA.
- Full binary compatibility from their previous generation of servers protects their software development investments and intellectual property.
- A reduced number of servers means a reduced bill from their co-location facility. Lower CAPEX and OPEX were easily attributed to a new line of servers from Supermicro with AMD CPUs.

With the new Supermicro A+ Ultra servers, NetProtect was able to improve the user experience while simplifying its physical footprint. As a result of this, they were able to decrease their core count by about 15%, while increasing the traffic that each server could handle by 65%. Overall, this resulted in a 75% increase in performance on a relative basis. NetProtect found that due to load balancing and the tremendous performance of the AMD EPYC CPUs, that some locations were able to support 65% more traffic than previously seen.

SUPERMICRO

Supermicro is a global leader in high performance, green computing server technology and innovation. We provide our global customers with application-optimized servers and workstations customized with blade, storage, and GPU solutions. Our products offer proven reliability, superior design, and one of the industry's broadest array of product configurations, to fit all computational need.

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