

What You Will Find in This Paper

In customer surveys and interviews conducted by CloudLinux and cPanel, hosting providers emphasized that most shared hosting customers who upgrade to VPS would be better served by shared hosting plans with more resources instead. Such an alternative would provide growing users with the resources they need without the added burden of server management. Hosts using CloudLinux OS to offer such plans have seen increases in revenue and profit margin. We call these high-resource plans “**Elastic Sites with CloudLinux**,” or simply “**Elastic Sites**.”

This paper is accompanied by a white paper, “[VPS is a Fad. Elastic Sites is the Future](#)”, discussing in detail the argument for Elastic Sites, how Elastic Sites reduces churn and increases profit margins, and how hosts can market, price, and sell Elastic Sites.

This white paper is for CTOs and Sysadmins looking to understand the differences between Elastic Sites and VPS and how to set up Elastic Sites.

It explains:

- The basic concept of Elastic Sites
- How CloudLinux OS achieves resource limiting and security comparable with and, in some ways, superior to VPS
- How to set up Elastic Sites
- Sample Elastic Sites limits

CONCEPT

Customers Need More Resources, Not VPSs

CloudLinux provides resource limits and file system isolation on a shared hosting environment. Generally, shared hosting providers use this technology to limit user resources to levels below those provided to VPS plans. By creating plans with higher resource limits, a provider can provide VPS-level resources and security in a shared hosting environment. For many users, this is the optimal setup — high resources, no interference from other accounts, and high security, but without the responsibility of managing the server. We propose that hosts use CloudLinux OS to create high-resource Elastic Sites offerings. Being able to move up to more powerful shared hosting plans gives users a better upgrade path, decreases customer churn, and increases host profit margins. (More explanation of how Elastic Sites benefits customers and hosts is detailed in our accompanying white paper, [“VPS is a Fad. Elastic Sites is the Future”](#).)

FEATURE MATRIX

Virtualization Type	CloudLinux OS	VPS
Resource Limits	Limited using cgroups	Limited using cgroups or hypervisor technology
Security	Isolation from other accounts using namespaces, no root access	Isolation from other accounts (at hypervisor level for hypervisor VPSs, using namespaces for containers)
Level of User Access	End user access	Root access
Overhead	One instance of the OS, Apache, MySQL, other processes	Each VPS runs a separate instance of the OS, Apache, MySQL, other processes
Caching	Access to large, shared caches	Each VPS uses separate caches
PHP, Python, Ruby Versions	Multiple versions can be used simultaneously, Hardened PHP updates for older versions	Set up individually by user or host

How CloudLinux OS Features Work and How They Compare to VPS

Resource Limits

CloudLinux's Lightweight Virtual Environment (LVE) technology creates a single environment for each user on the server.

CloudLinux OS then uses cgroups to limit the amount RAM, CPU, IO, and processes available to each user. LVEs can be used to guarantee that no user will use too much of the server's resources and thus each user should have ample resources available to them. A customer in this environment does not have to upgrade to a VPS to get reliable service. Customers get what they pay for and pay for what they get.

Security

CloudLinux OS uses namespaces to create a caged file system (called CageFS) for each user. Users are limited to files within their own CageFS and cannot access or see files in other users' CageFSs. Users do not have root access and they either cannot access sensitive files or, when accessed, these files are sanitized to make sure no information is disclosed unnecessarily. In a VPS, having root actually access makes it easier for users to escape their containment than CloudLinux users in CageFS.

Less overhead

VPSs each run their own operating system as well as their own instance of Apache, MySQL, cron, and other software. Each VPS also needs its own copy of all required binaries and shared libraries. Because CloudLinux OS partitions users at the OS level, CloudLinux OS servers run only one instance of the OS, Apache, MySQL, cron, and other software and need only one copy of all binaries and shared libraries. This greatly cuts overhead — both in terms of space used for files and CPU and RAM used to run extra processes. Because of the shared environment, CloudLinux OS allows for more dense servers than VPS and CloudLinux OS users get more performance from their allocated resources.

More efficient caching

CloudLinux OS servers are able to make much more use of memory caches and disk caches. With VPSs, each VPS has only its own separate, smaller caches. With CloudLinux, because the server only runs one instance of Apache, MySQL, and other software, these processes can access larger, shared memory and disk caches, greatly increasing cache hit rates.

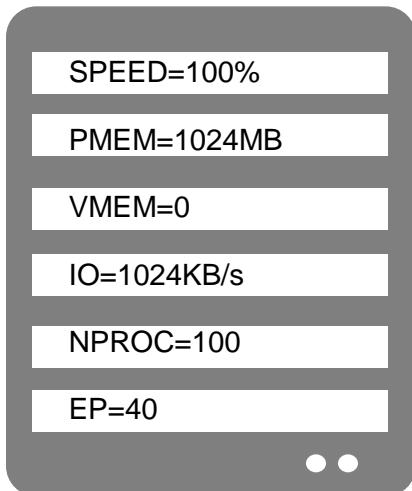
Multiple versions of PHP, Python, and Ruby

One reason shared hosting users have to move to a VPS is to get custom builds of PHP, Python, or Ruby. CloudLinux's PHP Selector, Python Selector, and Ruby Selector technology allow hosts to offer multiple versions and builds of PHP, Python, and Ruby, eliminating the need for VPSs for these users. CloudLinux even releases patched versions of older PHP builds such as PHP 5.2, 5.3, and 5.4 so users can continue to use them without worrying about exploits.

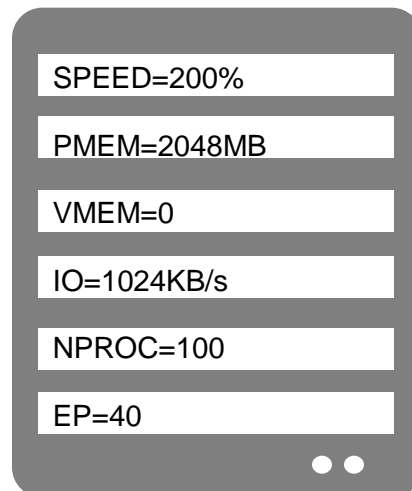
SAMPLE ELASTIC SITES LIMITS

Limits can be set per user or for the entire server.

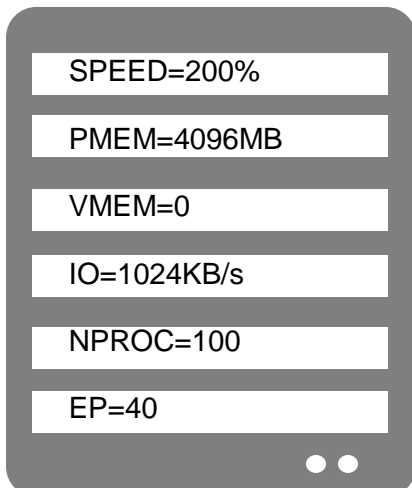
The following are a few sets of example Elastic Sites limits and their VPS equivalents:



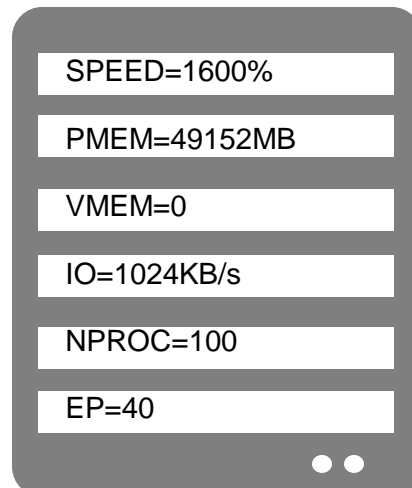
VPS with one core, 1GB RAM, 1MB IO, 100 processes, and 40 entry processes.



VPS with two cores, 2GB RAM, 1MB IO, 100 processes, and 40 entry processes.



VPS with two cores, 4GB RAM, 1MB IO, 100 processes, and 40 entry processes.



VPS with 16 cores, 48GB RAM, 1MB IO, 100 processes, and 40 entry processes.

CONFIGURATION STEPS

Elastic Sites limits are set the same way all CloudLinux OS limits are set. They can be configured using the LVE Manager plugin available for most popular control panels or the `lvectl` command from the command line.

CONCLUSION

Elastic Sites with CloudLinux OS offers all of the power and stability of a VPS, but with the efficiency and usability advantages of a shared hosting environment. Elastic Sites thus offers a better upgrade path for shared hosting users. Interviews with hosts currently offering Elastic Sites suggest upgrading users to Elastic Sites as opposed to VPS results in less tickets, less management issues, greater customer satisfaction, and greater profit margins.



See our white paper, “[VPS is a Fad. Elastic Sites is the Future.](#)”, for explanation. It discusses in detail the argument for Elastic Sites, how Elastic Sites reduces churn and increases profit margins, and how hosts can market, price, and sell Elastic Sites.

For more information on CloudLinux OS, visit CloudLinux.com.

For more information on Elastic Sites, visit ElasticSites.com.

OCTOBER 2016