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Maria Caraa which run (ugually 2) Throade U O O HUYO OOLOO, WHIIOH HUH (MOMAHY E/ HIII SAMSI

DID in acceptable in one threed on one care. If you try to do a maccine FILE III General Fulls III One un cau on one core, ir you ury to uo a massive

Anacha/NCINIV are multi-threeded and can appen multiple inctances of DUD ar Li Apache/Manax are mani-un caucu anu can open munipie matances or r m or

Cycologic of DUD systemation that brings multithreading to a single physicatorics — Swoole is a fir extension that billigs multilineading to a single bub instance,

Concurrency and Multithreading

- Each thread can carry out code on its own without respect to other threads, and up to the number of cores can be running independently at any given moment.
- ☐ CPUs have Cores, which run (usually 2) Threads.
- PHP in general runs in one thread on one core. If you try to do a massive amount of processing in a single PHP script it will all happen synchronously.
- Apache/NGINX are multi-threaded and can open multiple instances of PHP or utilize multiple FPM instances concurrently.
- Swoole is a PHP extension that brings multithreading to a single php instance, so a single PHP script can run code in multiple threads concurrently based on the architecture of the server.

AWS Example

Accelerated Computing Instances

Instance type	Default vCPUs	Default CPU cores	Default threads per core	Valid number of CPU cores	Valid number of threads per core
f1.2xlarge	8	4	2	1, 2, 3, 4	1, 2
f1.4xlarge	16	8	2	1, 2, 3, 4, 5, 6, 7, 8	1, 2
f1.16xlarge	64	32	2	2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32	1, 2
g3.4xlarge	16	8	2	1, 2, 3, 4, 5, 6, 7, 8	1, 2
g3.8xlarge	32	16	2	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16	1, 2
g3.16xlarge	64	32	2	2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32	1, 2
g3s.xlarge	4	2	2	1, 2	1, 2
p2.xlarge	4	2	2	1, 2	1, 2
p2.8xlarge	32	16	2	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16	1, 2
p2.16xlarge	64	32	2	2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32	1, 2
p3.2xlarge	8	4	2	1, 2, 3, 4	1, 2
p3.8xlarge	32	16	2	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16	1, 2
p3.16xlarge	64	32	2	2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32	1, 2
p3dn.24xlarge	96	48	2	4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48	1, 2