



INTISARI

Analisis Performa Swap zram dan Swap Disk terhadap Beban Kerja Container Image Build

Oleh

Alexius Adhitya Khrisnatama

Container image build adalah proses membuat *container image* yang berisi salinan sistem operasi dan aplikasi yang disusun dalam *layered filesystem*. Peningkatan kompleksitas dan frekuensi pengembangan *container image* dapat menyebabkan *container image build* melambat. Optimasi sumber daya menjadi solusi untuk mempercepat *container image build*, salah satunya memori *swap*. Memori *swap* berfungsi sebagai memori tambahan dengan menggunakan *disk* yang lambat atau memori terkompresi (*zram*) yang secara teori lebih cepat.

Penelitian ini menganalisis performa memori *swap zram* dan *swap disk* dengan pengujian performa. Pengujian performa menjalankan *container image build* sebanyak 3 kali di 4 kapasitas memori dan 4 parameter jumlah *build* paralel. Setiap *container image build* diatur untuk membuat 40 *container images*. Pengujian performa mencatat durasi *container image build*, jumlah *build* sukses, dan *metrics* performa sistem.

Hasil penelitian menunjukkan bahwa *container image build* berjalan lebih cepat sekitar 26 detik di memori *swap zram* daripada di memori *swap disk*. Keluaran *container image build* di memori *swap disk* lebih banyak sekitar 2,1 *images* daripada di memori *swap zram*. Kedua memori *swap* tidak memiliki perbedaan signifikan dalam utilisasi sumber daya sistem.

Kata kunci: *container image build*, kontainer, memori *swap disk*, memori *swap zram*, pengujian performa



ABSTRACT

The Performance Analysis of Swap zram and Swap Disk on Container Image Build Workload

By

Alexius Adhitya Khrisnatama

Container image build is the process to create a container image that consists of operating system and application copies in a layered file system. The increase in complexity and development frequency of container images can cause the container image build to slow down. Resource optimization becomes a solution to speed up the container image build, one of the targets is swap memory. Swap memory is used as an extra memory by using a disk which is slow or a compressed memory (zram) which is faster on paper.

This research is analyzing the performance of zram swap memory and disk swap memory with performance testing. The performance testing runs container image build 3 times in 4 different number of memory capacity and 4 parameters of number of parallel build. Each container image build is set to build 40 container images. The performance testing collects the container image build duration, number of successful build, and system performance metrics.

The result concludes that container image build runs 26 second faster on average in zram swap memory than in disk swap memory. Container image build in disk swap memory builds around 2,1 images more than in zram swap memory. Both swap memory are not different significantly in system resource utilization.

Keywords: container, container image build, disk swap memory, performance testing, zram swap memory