【译】替 swap 辩护：常见误解

这篇翻译自 Chris Down 的博客 In defence of swap: common misconceptions，下面是原文翻译。

这篇文章也有 日文 和 俄文 翻译。

太长不看：

1. 对正常功能的系统而言，有 swap 是相对挺重要的一部分。没有它的话很难做到合理的内存管理。
2. swap 的目的通常并不是用作紧急内存，它的目的在于让内存回收能更平等高效。 事实上把它当作

「紧急内存」来用通常是有害的。

3. 禁用 swap 在内存压力下并不能避免磁盘I/O造成的性能问题，这么做只是让磁盘I/O颠簸的范围从匿名页面转化到文件页面。这不仅更低效，因为系统能回收的页面的选择范围更有限了， 而且这还可能是最初导致内存压力的原因之一。
4. 内核 4.0 版本之前的交换进程（swapper）有一些问题，导致很多人对 swap 有负面印象， 因为它太急于（overeagerness）把页面交换出去。在 4.0 之后的内核上这种情况已经改善了很多。
5. 在 SSD 上，交换出匿名页面的开销和回收文件页面的开销基本上在性能/延迟方面没有区别。 在磁盘上，读取交换文件因为属于随机访问读取所以会更慢，于是较低的 `vm.swappiness` 设置可能比较合理（继续读下面关于 `vm.swappiness` 的描述）。

As part of my work improving kernel memory management and cgroup v2, I've been talking to a lot of engineers about attitudes towards memory management, especially around application behaviour under pressure and operating system heuristics used under the hood for memory management.

A repeated topic in these discussions has been swap. Swap is a hotly contested and poorly understood topic, even by those who have been

working with Linux for many years. Many see it as useless or actively harmful: a relic of a time where memory was scarce, and disks were a necessary evil to provide much-needed space for paging. This is a statement that I still see being batted around with relative frequency in recent years, and I've had many discussions with colleagues, friends, and industry peers to help them understand why swap is still a useful concept on modern computers with significantly more physical memory available than in the past.