【譯】替 swap 辯護：常見誤解

這篇翻譯自 Chris Down 的博客 In defence of swap: common misconceptions，下面是原文翻譯。

這篇文章也有 日文 和 俄文 翻譯。

太長不看：

1. 對正常功能的系統而言，有 swap 是相對挺重要的一部分。沒有它的話很難做到合理的內存管理。
2. swap 的目的通常並不是用作緊急內存，它的目的在於讓內存回收能更平等高效。 事實上把它當作

「緊急內存」來用通常是有害的。

3. 禁用 swap 在內存壓力下並不能避免磁盤I/O造成的性能問題，這麼做只是讓磁盤I/O顛簸的範圍從匿名頁面轉化到文件頁面。這不僅更低效，因爲系統能回收的頁面的選擇範圍更有限了， 而且這還可能是最初導致內存壓力的原因之一。
4. 內核 4.0 版本之前的交換進程（swapper）有一些問題，導致很多人對 swap 有負面印象， 因爲它太急於（overeagerness）把頁面交換出去。在 4.0 之後的內核上這種情況已經改善了很多。
5. 在 SSD 上，交換出匿名頁面的開銷和回收文件頁面的開銷基本上在性能/延遲方面沒有區別。 在磁盤上，讀取交換文件因爲屬於隨機訪問讀取所以會更慢，於是較低的 `vm.swappiness` 設置可能比較合理（繼續讀下面關於 `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.