OPTPOLINES - Formerly Relpolines, Lower Overhead To Retpolines For Spectre Mitigation

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It's been nearly one year to the day since the Spectre and Meltdown vulnerabilities were made public. While the security vulnerabilities were quickly buttoned up in the Linux space, kernel developers continue working to offset the performance overhead introduced by these mitigations. They made a lot of overhead reductions in 2018 while still there are some patch-sets pending still for bettering the experience. One of these patch-sets was known as "Relpolines" but now has been updated and morphed into what is being called Optpolines.

Relpolines were announced a few months ago by a VMware developer as having lower overhead than Retpolines -- the return trampolines introduced as part of the Spectre mitigations back in January. The dynamic indirect call promotion work by VMware has been working on pairing relative calls and trampolines to reduce the overall Retpoline overhead. VMware found with their original patches it could deliver a 10% performance improvement to the Nginx web server, +4% for Redis, and other minor performance improvements -- well, recovering previously lost performance.

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