As a leading provider of consumer-facing internet services, GMO Pepabo cannot afford downtime to its mission-critical workloads. To minimise OPEX costs, it needed a way to apply kernel updates without rebooting servers.

GMO Pepabo operates more than 80 physical servers running on Ubuntu, and in the past, the process of rebooting them to apply kernel security updates took approximately 32 hours per server. By implementing the Canonical Livepatch Service, GMO Pepabo has gained the ability to seamlessly perform kernel patching without server downtime, saving thousands of man hours each year.

**About GMO Pepabo**

- Japanese web hosting service company, founded in 2003 and headquartered in Tokyo
- Delivers consumer-targeted internet services, including domain registration, web hosting, ecommerce support and a customer to customer (C2C) marketplace for handmade products
- Part of the GMO Internet Group

**HIGHLIGHTS**

- GMO Pepabo chose Livepatch to eliminate the need to reboot servers when applying kernel security updates - saving 32 hours of work per server for each kernel update
- ESM will ensure continued security of Ubuntu 16.04 LTS servers until GMO Pepabo is ready to upgrade
- MicroK8s enables GMO Pepabo to run Kubernetes in their smallest data centres and servers

GMO Pepabo cuts OPEX costs with live kernel patching and saves 2,500 hours of manual work.
Challenge

Customers all over Japan – from bloggers, to online retailers, to buyers and sellers of handmade goods – rely on GMO Pepabo’s internet services. Accordingly, it is imperative that these services remain completely secure and available at all times.

At the heart of GMO Pepabo’s operations are 80 physical servers running on Ubuntu 16.04 LTS, which the company chose in 2016 as the ideal operating system to support its OpenStack strategy. With Ubuntu, GMO Pepabo benefits from regular, free security updates delivered by Canonical. These patches ensure that the enterprise’s systems are protected against potential vulnerabilities – however, applying critical kernel updates typically requires rebooting the servers.

Since service downtime is not an option for GMO Pepabo, it had to migrate workloads to other servers – often manually – each time it rebooted a machine for kernel security fixes. This process was immensely time-consuming for the company’s lean engineering team, and represented a significant operational expense.

Shinya Tsunematsu, Senior Engineering Lead of the Tech Division at GMO Pepabo, explains: “Manually migrating virtual machines, applying kernel updates, and rebooting took an average of 32 hours per server. Multiplied by 80 servers, that was more than 2,500 hours of work. And we would reboot each server at least once a year.”
Solution

It became clear to GMO Pepabo that to bring down OPEX it needed to simplify the kernel patching process and reduce the frequency of server reboots – and the Canonical Livepatch Service emerged as the ideal solution.

Delivered as part of the Ubuntu Advantage for Infrastructure commercial support package, Livepatch enables Ubuntu LTS users to automatically apply the latest kernel updates and security fixes without rebooting servers. Patching is completed in microseconds with no interruption to ongoing workloads.

"Livepatch is a perfect fit for our needs,” comments Shinya Tsunematsu. “There’s no other solution like it. Livepatch is also highly cost-effective.”
Results

With Livepatch, GMO Pepabo has been able to eliminate the need for server reboots in the majority of cases, since it can now seamlessly patch almost all critical server vulnerabilities. And given that each avoided reboot saves 32 hours of work, this is translating to a significant drop in OPEX.

For the server engineering team, these time savings are game-changing. In the past, manual workload migration and server reboots were among the team’s most time-consuming responsibilities. But now, they are free to focus on other, value-add activities.

Additionally, Livepatch is helping GMO Pepabo improve security even further. Since the majority of kernel security fixes can be applied to live servers, the company does not have to worry about finding a downtime window before patching. Instead, it can update servers as soon as fixes become available, minimising the timeframe in which systems are exposed.

“For end users, there has been no visible change to our services,” adds Shinya Tsunematsu. “But behind the scenes, it is now much easier for us to deliver the high levels of security and availability that our customers have come to expect.”

Building on the success of Livepatch, GMO Pepabo has plans to leverage additional Canonical products to further enhance its operations, starting with Extended Security Maintenance (ESM).

“We want to use the latest Ubuntu distribution,” says Shinya Tsunematsu. “But before we can upgrade to Ubuntu 18.04 LTS or 20.04, we first need to upgrade OpenStack. We don’t currently have the time or resources for the OpenStack upgrade, so ESM will keep us secure while we continue using Ubuntu 16.04 LTS.”

Ubuntu 16.04 LTS reaches the end of its five-year free support period in 2021. With ESM, however, GMO Pepabo will receive ongoing security updates until 2024 – giving it the breathing room to upgrade to a newer Ubuntu release at its own pace.

Finally, GMO Pepabo has just begun testing with MicroK8s. A lightweight, pure upstream version of Kubernetes, MicroK8s will enable the company to extend Kubernetes to its smallest data centres and servers. Shinya Tsunematsu concludes: “We hope to use MicroK8s for the services which aren’t already located on our existing Kubernetes clusters. To begin with, we want to try it with our online album service.”