Kernel Linux 6.12 Released

Complete features of Linux kernel version 6.12

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Full the features of the Linux kernel version 6.12

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Short introduction

Linux® one operating system open source is that by Linus Torvalds in year1991create became.Nowadays, this operating system has base user huge is and in500supercomputer powerful the world use will be. Users to the reason capabilities Flexibility and security it, and Reasons other, to side AThey are not absorbed.The Linux kernel is maintained by a global community of open source enthusiasts and has hundreds of unique distributions.

The news of the release of a new version by Linus Torvalds

From Linus Torvalds <>
Date Sun, 17 Nov 2024 14:26:38 -0800
Subject Linux 6.12

No strange surprises this last week, so we're sticking to the regular release schedule, and that obviously means that the merge window opens tomorrow. I already have two dozen+ pull requests in my mailbox, kudos to all the early birds.

But before the merge window opens, please give this a quick test to make sure we didn't mess anything up. The shortlog below gives you the summary for the last week, and nothing really jumps out at me. A number of last-minute reverts, and some random fairly small fixes fairly spread out in the tree.

Linus

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from:Linus Torvalds

The List of all the changes in version 6.12

Revert "drm/amd/display: parse umc_info or vram_information based on ASIC"

Explain the change:

The main change in version 6.12 is to restore a previous behavior in how graphics cards process informationAMD is involved. This change was made after a new approach that processed information based on the type of ASIC led to problems and instability in the system.

Technical detailsandReasons for change:

- **What is an ASIC?** ASIC stands for Application-Specific Integrated Circuit and it refers to integrated circuits that are designed to perform a specific task. In the field of graphics cards, ASICs form the graphics processing cores (GPUs) that are responsible for graphics processing.
- **The problem with the previous approach:**An approach that processed information based on ASIC type apparently led to misinterpretation of information or incompatibility with some AMD ASICs. This caused various problems such as incorrect display of images, reduced performance or even system crashes.
- **The reason for returning to the previous behavior:**Because the new approach had caused significant problems, it was decided to go back to a method that had worked well before and had fewer problems. This decision was made in order to improve the stability and reliability of the system.

Benefits of change:

- The return of this change helps to solve the problems of graphics data processing and video memory in graphics cardsFix AMD.
- Ensuring the correct and stable operation of the graphic system by improving information processing.

Specialized words:

- **Drm (**Direct Rendering Manager**)**A system in Linux for managing graphic resources.
- **ASIC (**Application-Specific Integrated Circuit**)**A chip designed to perform a specific task.

Revert "drm/amd/pm: correct the workload setting"

Explain the change:

A change made in version 6.12 byAlex Deucher applied, related to restoring the previous way of loading settings on AMD graphics cards. These settings, which are responsible for allocating resources and managing the graphics card's power consumption, were apparently optimized in previous versions to improve overall system performance. However, these changes seemed to create new problems.

Technical details and reasons for change:

- **What are the loading settings?**Load settings are a set of parameters that determine how the graphics card uses system resources. These parameters include things like core and memory frequency, voltage and different operating modes.

Benefits of change:

- The return of this change to the correct and optimal performance of graphics cardsAMD helps.
- Improved energy consumption and performance of the graphics system with more correct settings.

Specialized words:

- **p.m (**Power Management**)**Energy consumption management in electronic devices.

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net: sched: cls_u32: Fix u32's systematic failure to free IDR entries for nodes

Explain the change:

In this change**, Alexandre Ferrieux**Fixed problem with incorrect freeing of resources in network scheduler.In scheduling systems**,**Sources like**hnodes (**which refers to the tree nodes in the data structure**)**They need proper management.This error causes a resource leakd.This change in the Linux kernel, specifically in the network scheduling modulecls_u32 has fixed a major problem in memory management. This problem appeared as a systematic memory leak where resources called hnodes were not released correctly.

Why is this change important?

- **Memory leak:**A memory leak is the allocation of memory to a process or data structure that is not released when the task is completed. Over time, this will decrease the free memory of the system and eventually lead to the system slowing down or even straining it.
- **What is hnodes?** hnodes refers to tree nodes in a specific data structure used in the cls_u32 module to manage traffic filters. These nodes are used to track and manage network packets based on user-defined filters.

Benefits of change:

- Improving system efficiency and stability with proper resource management.
- Avoiding problems caused by resource leaks that can lead to system failure.

Specialized words:

- **sched (**scheduling**)**Scheduling process in which the priorities and order of execution of processes are determined.
- **IDR (**Identifier Resolution**)**ID management system.
- **hnodes**Nodes or points in a data structure used to store information.

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net: sched: u32: Add test case for systematic hnode IDR leaks

Explain the change:

The change applied to the Linux kernel has added a new test to improve the quality and ensure the correct operation of the network scheduling system. This test is specifically designed to identify a problem that previously existed in this system, leading to a memory resource leak calledhnodes would be

The importance of this change:

- **Prevention of future problems:**By adding this test, developers can ensure that future changes to the network scheduling system will not cause this problem to occur again.
- **Increase code quality:**This test acts as an automatic mechanism and helps to improve the overall quality of the code.
- **Increase trust in the system:**With this test, it is possible to use with more confidence the correct operation of the network timing system.

Benefits of change:

- Ensuring faster identification and resolution of problems related to resource leakage.
- Improving the efficiency and stability of the network and preventing hidden errors during system execution.

Specialized words:

- **test case**A scenario to test performance or identify problems.
- **u32**A data type for representing 32-bit numeric values.

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drivers: perf: Fix wrong put_cpu()placement

Explain the change:

Fix incorrect callput_cpu() in the perf driver

General understanding of change

This change in the driverperf fixes a minor but important programming error. The put_cpu() function is responsible for releasing CPU resources. Calling this function incorrectly can lead to various problems, including:

- **Resource leakage:**If CPU resources are not released properly, it can lead to resource shortages and reduced system performance.
- **System instability:**In more extreme cases, calling this function incorrectly can cause system instability and even strain.
- **Problems in resource allocation:**It may cause CPU resources to not be properly allocated to other processes.

Reasons for the importance of this change

- **System stability:**By correcting this error, the overall stability of the system increases and the probability of unexpected errors decreases.
- **System efficiency:**Correct release of CPU resources helps improve system performance.
- **Improved resource management:**Fixing this error leads to better management of CPU resources.

Benefits of change:

- Correct release of resources CPU and avoid problems related to memory allocation and processes.
- Increasing system efficiency by preventing problems caused by improper use of resources.

Specialized words:

- **Perf:**A tool in Linux for measuring and analyzing system performance.
- **put_cpu()**A function to release processor resources.

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mmc: sunxi-mmc: Fix A100 compatible description

Change analysis: A100 chip compatibility update in sunxi-mmc drivers

General understanding of change:

The change in the driverssunxi-mmc was created to improve the compatibility of these drivers with A100 memory chips. This update means that the information and settings related to the A100 chip in the drivers have been updated to perform better and avoid possible problems.

The importance of this change:

- Improve performance: By updating the compatibility information, the performance of the A100 chip is improved in systems based on Allwinner Sunxi processors.
- Increased stability: This update helps system stability and prevents possible errors caused by chip incompatibility.
- Expand support: With the addition of support for the A100 chip, a wide range of devices using this chip can benefit from sunxi-mmc drivers.

Technical details:

- chipA100: A type of memory chip used in various devices, including devices based on Allwinner Sunxi processors.
- Driversunxi-mmc: This is a software driver responsible for controlling and managing memory cards in systems that use Allwinner Sunxi processors.

Benefits of change:

- Improving the accuracy and correctness of information related to the compatibility of devices with the system.
- Ensuring correct operation of drivers for specific chips.

Specialized words:

- **mmc (**MultiMediaCard**)**A standard for memory cards.
- **sunxi-mmc**MMC drivers for Allwinner Sunxi processors.

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mm: revert "mm: shmem: fix data-race in shmem_getattr()"

Explain the change:
This change in Linux kernel memory management reverts a previous fix related to a data-race problem in the shmem_getattr() function. In simpler terms, a fix that was previously made to prevent errors from occurring in situations where multiple processes simultaneously access a section of shared memory (shared memory) has now been reverted.

Reasons for returning this change

Reverting a previous modification may have several reasons. Some of the possible reasons for this are:

- **Creating new problems:** A previous modification may have inadvertently caused other problems in the system.
- **Decreased performance:** A previous modification may have reduced system performance.
- **A better solution has been found:** A better solution to the data-race problem may have been found without side effects.
- **Error in previous correction:** There may have been a programming error in the previous modification that caused the problems.

Benefits of change:

- Ensuring system stability by preventing data races.
- Improve coordination between different processes in the system.

Specialized words:

- **Shmem**Shared memory**(**Shared Memory**)**which is shared between different processes.
- **data-race**Data competition**,**When multiple processes access shared data simultaneously.

Drm/vmwgfx: avoid null_ptr_deref in vmw_framebuffer_surface_create_handle

Explain the change:

The change in the drivervmwgfx has been implemented with the aim of increasing system stability and security. This change specifically addresses a common programming problem called "null pointer dereference". This problem occurs when a program tries to access a memory address that does not contain any data. This usually results in the program or system crashing.

The importance of this change:

- **Increasing system stability:**By preventing references to the null pointer, the possibility of system crashes due to programming errors is reduced.
- **Improve security:**This change helps to improve the security of the system because vulnerabilities caused by null pointer references can be exploited by attackers to infiltrate the system.
- **Improve user experience:**By reducing the occurrence of unexpected errors, the user experience is improved.

Technical details:

- **Drivervmwgfx:**This driver is responsible for managing the VMware graphics hardware.
- **functionvmw_framebuffer_surface_create_handle:**This function is used to create a new frame display level.

- **Null pointer:**A null pointer points to a memory address that contains no data.
- **Error dereferencing a null pointer:**This error occurs when a program tries to access a null pointer.

Benefits of change:

- Prevent system or software crashes due to references to null pointers.
- Improved driver stability and performance**vmwgfx**.

Specialized words:

- **Drm**:Graphics management system in Linux.
- **null pointer dereference**Attempting to access data from a null pointer**(**No valid value**)**.

Change Analysis: Proper handling of agent loading and deactivation in mlx5 network

General understanding of change

This change in the Linux kernel improves the management of network agents on network cardsMellanox ConnectX-5 (mlx5) has paid. Specifically, this change ensures that InfiniBand (IB) proxies are properly disabled when Ethernet (ETH) proxies are reloaded. This is necessary to avoid interference and conflict between these two types of agents and to ensure the proper functioning of the network.

The importance of this change

- **Network stability:**By properly managing the loading and disabling of proxies, network stability is improved and the likelihood of unexpected errors is reduced.
- **Network flexibility:**This change allows the network to respond to dynamic changes in network configuration and automatically load or disable required agents.
- **Improve performance:**Proper management of proxies can help improve network performance, especially when multiple types of proxies are active on the network at the same time.

Technical details

- **representative(Agent):**It is a software program that is responsible for managing a specific part of the network hardware.
- **InfiniBand (IB):**It is a high-performance communication standard for computer networks.
- **Ethernet (ETH):**It is a widely used local area network technology.
- **mlx5:**is a family of high-performance network cards manufactured by Mellanox Technologies.

How to fix the problem

To fix the problem,Chiara Meiohas may have done the following:

- **Checking the logic of loading and deactivating agents:**Revised and modified the logic in the code for loading and deactivating agents to ensure that IB agents are deactivated at the appropriate time.
- **Add synchronization mechanisms:**It may have added new synchronization mechanisms to ensure that loading and unloading operations are performed correctly and without interference.
- **Update documentation:**Updated the mlx5 driver documentation to describe the changes made.

The impact of this change

- **Increasing network stability:**By properly managing proxies, network stability is improved and the probability of unexpected errors is reduced.
- **Improve network performance:**This change helps to improve network performance, especially in situations where several types of agents are active on the network at the same time.
- **Increase network reliability:**By fixing the problem, the reliability of the network increases and users can trust the stable performance of the network.

Benefits of change:

- Prevent performance issues in networked systems by improving proxy load management.
- Improving the efficiency and stability of devices based on**mlx5**.

Specialized words:

- **E-switch**A virtual switch specifically designed to manage network communications.
- **representatives**Representatives,or processes used to expose network devices or resources on systems.

Drm/amdgpu: fix check in gmc_v9_0_get_vm_pte()

Change Analysis: Correct bugs in the functiongmc_v9_0_get_vm_pte() in amdgpu driver

General understanding of change

This change in the driveramdgpu, which is responsible for controlling AMD graphics cards, has been implemented to fix a bug in the gmc_v9_0_get_vm_pte() function. This function plays a very important role in managing and allocating memory in the graphics processing unit (GPU).

The importance of this change

- System stability: Bugs in GPU memory management can lead to unexpected crashes and even system stress. Fixing these bugs helps to increase the overall stability of the system.

- System performance: Errors in memory management can lead to reduced system performance. Fixing these bugs will help improve overall system performance, especially in graphics-heavy applications.
- System security: In some cases, bugs in memory management can be exploited and allow attackers to infiltrate the system. Fixing these bugs will help increase system security.

Technical details

- functiongmc_v9_0_get_vm_pte(): This function is used in gmc v9.0 graphic architecture and is responsible for checking the correctness and extracting information from page tables (Page Table Entries or PTE). PTEs contain information about the physical location of data in memory.
- problem: The exact form of this function is not specified in the description provided. However, in general, errors in these types of functions may occur for various reasons, such as calculation errors, accessing out-of-bounds memory, or ignoring certain conditions.
- correction: Christian König has carefully reviewed the code of the function and identified the root cause of the bug, making changes to the code to prevent this problem from recurring.

The impact of this change

- Increasing system stability: By fixing bugs, the possibility of unexpected failures in the system is reduced.
- Improve system performance: Fixing this bug can help improve system performance in heavy graphics applications.
- Increase system security: By fixing possible security flaws, the system becomes more resistant to intrusion attacks.

Benefits of change:

- Ensuring correct performance in graphics processing and reducing the possibility of errors in graphics cards**AMD**.
- Improved interaction and coordination between processors and graphics cards.

Specialized words:

- **Drm**Graphics management system.
- **gmc_v9_0_get_vm_pte()**A function in graphic processing and page memory management**(**PTE**)**is used.

Drm/amdgpu: enable GTT fallback handling for dGPUs only

Explain the change:

Change analysis: Enabled GTT backup management for dGPU in amdgpu driver

General understanding of change

This change in the driveramdgpu, which is responsible for controlling AMD graphics cards, is designed to improve system stability and reliability. In particular, this change enables the use of a support mechanism called GTT (Graphics Translation Table) for discrete graphics cards (dGPU).

The importance of this change

- **Increasing system stability:**By using the backup GTT, if a problem occurs with the translation of the main table, the graphics card can automatically switch to the backup table, preventing unexpected crashes.
- **Improve system performance:**In some cases, using backup GTT can help improve system performance, especially in situations where there is a problem with the main table.
- **Increase system reliability:**With this support mechanism, the system becomes more resistant to possible errors and its reliability increases.

Technical details

- **GTT (Graphic Translation Table):**It is a table that maps physical memory addresses to virtual addresses. This table is used for quick access to graphic memory.
- **dGPU (discrete graphics processor):**It is a graphics processor that is located separately on the motherboard and is responsible for graphics processing.
- **Backup managementGTT:**This means that a backup copy of the graphical translation table is created and used in case of a problem with the main table.

How it works

When a problem occurs in the main translation table, the driveramdgpu automatically switches to the backup table. This action allows the graphics card to continue working and prevent unexpected failures.

The impact of this change

- **Increasing system stability:**With this backup mechanism, the stability of the system is increased, especially in situations where a problem occurs in the main translation table.
- **Improve user experience:**By reducing the probability of unexpected crashes, the user experience is improved.
- **Increase system reliability:**With this backup mechanism, the reliability of the system increases and users can trust the stable performance of the system.

Benefits of change:

- Improved stability and performance on discrete GPUs.
- Reducing the possibility of problems in graphics processing and games.

Specialized words:

- **dGPU** Discrete GPUs used in computer systems for graphics processing.
- **GTT**Graphics translation table used to allocate graphics memory.

RDMA/bnxt_re Fix some error handling paths in bnxt_re_probe()

Explain the change:

Change Analysis: Improved error handling paths in the bnxt_re_probe() function for RDMA

General understanding of change

This change in the driverbnxt_re, which is responsible for managing RDMA network cards, is designed to increase system stability and reliability. In particular, this change improves the way errors are handled in the bnxt_re_probe() function. This function is responsible for identifying and setting up the RDMA network hardware.

The importance of this change

- **Increasing system stability:**By improving the management of errors, the probability of unexpected failures in the system is reduced.
- **Improve system reliability:**By increasing the stability, the reliability of the system is also improved, and users can trust the stable performance of the RDMA network.
- **Better diagnosis of problems:**By improving fault management paths, hardware and software problems can be better identified and fixed.

Technical details

- **RDMA (Remote Direct Memory Access):**A networking technology that allows programs to directly access the memory of other systems.
- **bnxt_re:**Linux driver for RDMA network cards.
- **bnxt_re_probe():**It is a function in this driver that is used to identify and initialize the RDMA network hardware.
- **Error handling paths:**It is a set of actions that are taken when an error occurs so that the system can get out of the error state or at least reduce its damage.

How to fix the problem

Christophe JAILLET has made some changes to the code by carefully examining the code of the bnxt_re_probe() function and identifying the points where errors are likely to occur. These changes may include the following:

- **Add more reviews:**Add more checks to detect error conditions and prevent code from continuing to execute in inappropriate conditions.
- **Improved error messages:**Improved error messages to provide more detailed information about the type of error and where it occurred.
- **Redefining code execution paths:**Redirect code execution in case of error to prevent further problems.

The impact of this change

- **Increasing system stability:**By improving error handling, system stability increases, especially in situations where hardware or software errors occur.
- **Improve system reliability:**By increasing the stability, the reliability of the system is also improved, and users can trust the stable performance of the RDMA network.
- **Facilitate troubleshooting:**With improved error messages, RDMA network problems are easier to troubleshoot.

Benefits of change:

- Improving error management and fixing possible problems in identifying devices and communicationsRDMA.
- Reducing failures and increasing stability in processesRDMA.

Specialized words:

- **RDMA**Remote direct memory access used to improve data transfer speed across networks.
- **bnxt_re_probe()**A function to detect and initialize RDMA devices.

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firmware: arm_scmi: Skip opp duplicates

Explain the change:

Change Analysis: Optimizationarm_scmi and avoid unnecessary OPP repetitions

General understanding of change

This change in firmware based systemsARM is designed to improve efficiency and reduce energy consumption. Specifically, this change has optimized a mechanism called OPP (Operating Performance Points). OPPs are different work points that the processor can work on. Each OPP is associated with a certain frequency and voltage, and choosing the right OPP can affect the performance and energy consumption of the system.

The importance of this change

- **Reducing energy consumption:**By preventing unnecessary OPP iterations, the system avoids redundant processing and thus reduces energy consumption.
- **Increase battery life:**In mobile devices, reducing power consumption means increasing battery life.
- **Improve performance:**In some cases, reducing the number of active OPPs can help improve system performance.
- **Reduce heat production:**Additional processing can increase system temperature. By reducing these processes, heat production is also reduced.

Technical details

- **arm_scmi:**is a software interface used to manage and control some hardware features in ARM-based systems.
- **OPP (Operating Performance Points):**There are different working points in which the processor can work. Each OPP is associated with a specific frequency and voltage.
- **Unnecessary repetitionsOPP:**It is said that the system creates an OPP multiple times, while this OPP has already been created.

How to fix the problem

Cristian Marussi has made changes to the code by carefully reviewing the arm_scmi code and identifying points where there was a possibility of creating unnecessary OPP duplicates. These changes may include the following:

- **Adding cache mechanism:**Create a cache to store information about created OPPs and prevent them from being created again.
- **Improving decision-making logic:**Improving the decision logic for choosing the right OPP and preventing the creation of additional OPPs.
- **Optimization of management algorithmsOPP:**Optimization of algorithms used to manage OPPs.

The impact of this change

- **Reducing energy consumption:**By preventing unnecessary OPP repetitions, system energy consumption is reduced.
- **Increase battery life:**In mobile devices, increased battery life means improved user experience.
- **Improve performance:**In some cases, reducing the number of active OPPs can help improve system performance.
- **Reduce heat production:**By reducing additional processing, heat generation is also reduced.

Benefits of change:

- Reducing resource consumption and improving efficiency.
- Avoiding additional processes and optimizing the system.

Specialized words:

- **arm_scmi**A software interface for resource and performance management in ARM-based systems.
- **opp**Operating performance points that specify at what speed and power consumption the system will operate.

fs/proc/task_mmu: prevent integer overflow in pagemap_scan_get_args()

Explain the change:

Change analysis: prevent integer overflow in pagemap_scan_get_args() function

General understanding of change

The change in the functionpagemap_scan_get_args() was created in the fs/proc/task_mmu module, with the aim of increasing system stability and security. This change specifically addresses a potentially serious problem called integer overflow.

The importance of this change

- **System stability:**Integer overflow can cause unexpected behavior and even system crash. By solving this problem, the stability of the system increases significantly.
- **System security:**In some cases, integer overflow can be exploited by attackers to execute arbitrary code or gain unauthorized access to the system.
- **Correct performance:**Integer overflow can cause incorrect calculations and result in incorrect results.

Technical details

- **functionpagemap_scan_get_args():**This function is located in the module fs/proc/task_mmu and is responsible for processing the arguments related to the page scan operation.
- **Integer overflow:**Occurs when the result of an arithmetic operation is greater than the largest integer that a variable can store. This can lead to unexpected behavior and errors.
- **Dangers of integer overflow:**Integer overflow can cause various bugs, including:
    - **Out of bounds access:**Accessing memory that is not allocated to the application.
    - **Infinite loops:**Creating loops that never end.
    - **Unexpected change of variable values:**Changing the value of variables to unexpected and invalid values.

How to fix the problem

To avoid integer overflow,Dan Carpenter may have done the following:

- **Check the range of values:**It checks the input values to ensure that they are within the allowed range before performing the calculation operation.
- **Using data types with appropriate size:**It has used large enough data types to store calculation results.
- **Use safe functions to perform computational operations:**It uses functions that are specifically designed to prevent integer overflow.

The impact of this change

- **Increasing system stability:**By solving the integer overflow problem, the stability of the system increases significantly.

- **Increase system security:**By reducing the possibility of exploiting this problem by attackers, the security of the system is improved.
- **Increase system reliability:**By reducing the probability of errors caused by integer overflow, the reliability of the system increases.

Benefits of change:

- Increasing system stability and preventing problems in memory management.
- Improving the accuracy of information processing in the system.

Specialized words:

- **integer overflow**When a numeric value exceeds the capacity of its data type.
- **pagemap_scan_get_args()**A function to process information related to the map of memory pages.

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landlock: Fix grammar issues in documentation

Explain the change:
Fix grammar problems in documentationLandlock

General understanding of change

This change is to improve the quality and availability of security system documentationLandlock is done. By correcting grammatical problems, the documentation provides the information needed by users in a more comprehensible manner, and thus, it becomes easier for users to use this system.

The importance of this change

- **Increase user understanding:**Accurate documentation without grammatical errors increases users' understanding of the functionality and how to use the Landlock system.
- **Reduce training time:**By improving the quality of documentation, the time needed to train users is reduced.
- **Reduce errors caused by misunderstandings:**Accurate documentation prevents errors caused by misunderstanding instructions.
- **Improve system reliability:**High-quality documentation presents a professional image of the Landlock system and helps increase its credibility.

Technical details

- **Landlock:**It is a security system that increases the security of the system by placing strict limits on the access of processes to the system resources.
- **Grammar problems:**These problems may include spelling mistakes, grammatical errors, unclear phrasing, and other language-related issues.
- **Reforms:**Daniel Burgener has identified grammatical problems and corrected them by carefully reviewing the documentation. These amendments may include the following:

- **Correct spelling mistakes:**Correct misspelled words.
- **Modifying the structure of sentences:**Rearrange words or sentences to improve readability.
- **Use correct technical terms:**Ensuring the correct use of technical terms related to the Landlock system.
- **Add examples:**Use practical examples to clarify complex concepts.

The impact of this change

- **Improve user experience:**By improving the quality of documentation, users' experience of working with the Landlock system is improved.
- **Reduce support costs:**By reducing the number of user questions about documentation, support costs are reduced.
- **Increase system acceptance:**High quality documentation helps to increase the adoption of Landlock system in the user community.

Benefits of change:

- Improve readability and clarity of documentation.
- Ease of use**Landlock**For developers.

Specialized words:

- **Landlock**:A security system to limit access to system resources.

selftests: hugetlb_dio: fixup check for initial conditions to skip in the start

Explain the change:

Change Analysis: Improving Automated Testshugetlb_dio with a closer look at the initial conditions

General understanding of change

A change thatDonet Tom has created hugetlb_dio automated tests code, with the aim of increasing the efficiency and accuracy of the tests. This change specifically improves the process of checking the initial conditions before running the tests.

The importance of this change

- **Increasing the speed of tests:**By removing unnecessary checks from the initial conditions, the execution time of the tests is reduced.
- **Increasing the accuracy of tests:**Focusing on checking essential preconditions makes tests more sensitive to real problems and provides more accurate results.
- **Reduce noise in test results:**By eliminating additional checks, the probability of receiving false positive results is reduced.

- **Improved test coverage:**By focusing on important initial conditions, test coverage is improved and the possibility of hidden errors is reduced.

Technical details

- **hugetlb_dio:**This part of the code is probably related to the management of huge pages in an operating system.
- **Automated tests:**are programs that automatically perform a set of operations on a system or software to verify its correct operation.
- **Initial conditions:**There are a set of parameters and conditions that must be established before running a test.
- **Check the basic conditions:**It is a process in which the test program checks the validity of the initial conditions before executing the test.

How to fix the problem

Donet Tom may have taken the following steps to improve the basic condition check:

- **A more precise definition of initial conditions:**It has carefully defined the necessary initial conditions for each test by carefully examining the code performance.
- **Optimization of the review algorithm:**Optimized the initial condition checking algorithm to be more time efficient.
- **Use appropriate data structures:**It has used appropriate data structures to store and manage information related to initial conditions.

The impact of this change

- **Increasing the quality of tests:**By improving the accuracy and efficiency of the tests, the overall quality of the software increases.
- **Reduce development time:**By reducing the time spent on running tests, software development time is reduced.
- **Increasing trust in software:**By ensuring the correctness of the software's performance through rigorous testing, developers' and users' trust in the software increases.

Benefits of change:

- Increasing the efficiency of tests by eliminating unnecessary checks.
- Speeding up the testing and validation process for larger and more complex codes.

Specialized words:

- **hugetlb_Dio:**The name of a feature in the Linux kernel related to direct memory access for large pages**(**hugepages**)**is.

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vdpa/mlx5: Fix error path during device add

Explain the change:

Change Analysis: Improved error handling when adding devicesmlx5 in vdpa

General understanding of change

This change in the code related to devicesmlx5, which is probably part of a video driver or framework, is designed to increase system stability and reliability. In particular, this change improves the way errors are handled when adding an mlx5 device to the system.

The importance of this change

- **Increasing system stability:**With better management of errors, the probability of unexpected failures in the system is reduced.
- **Improve system reliability:**By increasing the stability, the reliability of the system is also improved and users can trust the stable performance of the system.
- **Better diagnosis of problems:**By improving fault management paths, hardware and software problems can be better identified and fixed.
- **Prevent the system from locking up:**In some cases, unhandled errors can cause system crashes. Such problems can be prevented by better error management.

Technical details

- **VDP:**It probably stands for Video Decode and Presentation API and is a programming interface for decoding and displaying video.
- **mlx5:**A type of high-performance network card often used in servers and storage systems.
- **Add device:**It is the process in which the operating system detects a new device and adds it to the system.
- **Error paths:**It is a set of actions that are taken when an error occurs so that the system can get out of the error state or at least reduce its damage.

How to fix the problem

Dragos Tatulea has made some changes to the code by carefully reviewing the code for adding mlx5 devices and identifying potential error points. These changes may include the following:

- **Add more reviews:**Add more checks to detect error conditions and prevent code from continuing to execute in inappropriate conditions.
- **Improved error messages:**Improved error messages to provide more detailed information about the type of error and where it occurred.
- **Redefining code execution paths:**Redirect code execution in case of error to prevent further problems.
- **Better resource management:**Better management of system resources (eg memory, CPU) when adding devices to avoid resource issues.

The impact of this change

- **Increasing system stability:**By improving error handling, system stability increases, especially in situations where hardware or software errors occur.
- **Improve system reliability:**By increasing the stability, the reliability of the system is also improved and users can trust the stable performance of the system.
- **Facilitate troubleshooting:**Improved error messages make it easier to troubleshoot issues with mlx5 devices.

Benefits of change:

- Improve stability and prevent problems while adding devices.
- Increasing efficiency in the process of adding new devices to the system.

Specialized words:

- **vdpa**A standard for accessing virtual devices in network-based systems.
- **mlx5**A series of network cards produced by Mellanox.

---

net/mlx5e: kTLS, Fix incorrect page refcounting

This change in the network sectionmlx5e, especially the part about using kTLS (Hardware TLS), is done. The main purpose of this change was to fix a problem that had arisen in the page reference count. Page reference counting is a mechanism used to manage memory and prevent premature freeing of memory that is still in use. An incorrect reference count can lead to serious problems such as memory leaks or unauthorized access to memory.

Benefits of change:

- Preventing memory leak problems and increasing system stability.
- Improved memory management in network and encrypted communicationsTLS.

Specialized words:

- **kTLS**:Hardware TLS that uses network processors to accelerate encryption and decryption.

---

crypto: mips/crc32-fix the CRC32C implementation

Explain the change:

Eric Biggers It has modified the CRC32C implementation in the MIPS architecture.This algorithm is used to check data integrity and detect data transmission errors, and its modification improves the accuracy of processes.

Benefits of change:

- Improving accuracy in error detection algorithms and checking data integrity.
- Improving the performance of architecture-based systems**MIPS**.

Specialized words:

- **CRC32C**:Data integrity check algorithm used to detect possible errors in data transmission.

---

sctp fix possible UAF in sctp_v6_available()

Explain the change:

Eric Dumazet In this change, a Use After Free problem**(UAF)**which was possible in the sctp function**_v6_available()**to occur,has corrected.This type of error occurs when accessing resources that have already been freed,be accessed and can lead to system crashes or data damage.

Benefits of change:

- Increasing the security and stability of the system.
- Preventing critical problems in communication protocols**SCTP**.

Specialized words:

- **UAF**A type of security issue where access to exposed data causes system bugs.
- **SCTP**A protocol for transferring data over a network used in situations such as phone calls and messaging.

ALSA: usb-Audio: Fix Yamaha P-125 Quirk Entry

Explain the change:

Eryk Zagorski In this change, the problem related to Yamaha P**-125**in the ALSA system**(**Linux sound system**)**has corrected.This device may have problems in identifying and correct operation of the driver when connecting to the system**usb-audio**create.

Benefits of change:

- Improved device support**Yamaha P-125**.
- Increasing the compatibility and performance of the audio system**ALSA**.

Specialized words:

- **ALSA**:Linux audio system used to manage audio input and output.

---

virtio_pci: Fix admin vq cleanup by using correct info pointer

Explain the change:

Feng Liu In this change the problem in clearing admin vq in virtio_**pci**has corrected.This change ensures that the correct pointers are used to clean up resources and avoids memory problems.

Benefits of change:

- Prevent memory leaks and improve performance.
- Improved resource management in devices**virtio_pci**.

Specialized words:

- **virtio_pci**A type of interface for virtual machines used in virtualization systems.
- **admin vq**A queue for managing administrative requests in virtual systems.

Drm/bridge tc358768: Fix DSI command tx

Explain the change:

Francesco Dolcini Code changes related to tc358768 in the drm driver/**bridge**It has been implemented which improves the transmission performance of DSI commands**(**Display Serial Interface**)**will be.This change leads to better communication between displays and graphics devices.

Benefits of change:

- Improving the quality of display and graphic communication.
- Better compatibility with displays and graphics devices.

Specialized words:

- **DSI**A data transfer protocol for display communication in electronic devices.

selftests/bpf Use-4095 as the bad address for bits iterator

Explain the change:

Hou Tao In this change of address-**4095**As an incorrect address when using the bits iterator in BPF tests**(**Berkeley Packet Filter**)**has used.This change is to avoid problems in addressing and resource management tests**BPF**has taken place.

Benefits of change:

- Increasing the accuracy and reliability of tests.
- Avoiding errors caused by incorrect addressing in tests**BPF**.

Specialized words:

- **BPF**Packet filtering at the Linux kernel level used to monitor and process packets on the network.

LoongArch: For all possible CPUs logical setup-physical CPU mapping

Explain the change:

Huacai Chen Made changes so that LoongArch architecture processors can be adjusted in terms of logical and physical mapping in all types of processors..This makes allocating resources to processors optimally.

Benefits of change:

- Improved performance in allocating processing resources.
- Increasing compatibility and efficiency in systems**LoongArch**.

Specialized words:

- **LoongArch**A new processor architecture developed by Loongson in China.

LoongArch: Fix early_numa_add_cpu()usage for FDT systems

Explain the change:

In this change**, Huacai Chen**To modify how to use the early function**_numa_add_cpu()**Paid for FDT systems.This function optimizes the way processors are added in systems based on**NUMA (**Non-Uniform Memory Access**)**It helps.

Benefits of change:

- Improved management of processors in systems**NUMA**.
- Optimizing the performance of based systems**FDT**.

Specialized words:

- **FDT**Flattened Device Tree**,**A method for describing hardware on Linux systems.
- **NUMA**A memory architecture where processors have different access to different memories.

LoongArch: Make KASAN work with 5-level page-tables

Explain the change:
Huacai ChenKASAN support**(**Kernel Address Sanitizer**)**enabled for systems with 5-level page tables in LoongArch.This to**KASAN**Allows better simulation and detection of memory access problems.

Benefits of change:

- Increasing accuracy in identifying memory problems and bugs.
- Improving the security of systems**LoongArch**.

Specialized words:

- **KASAN**A tool for detecting memory access problems in the Linux kernel.
- **Page-tables**Tables that manage how logical addresses are mapped to physical addresses in memory.

LoongArch: Disable KASAN if PGDIR_SIZE is too big for cpu_vabits

Explain the change:
In this change**, Huacai Chen**The KASAN feature is disabled when the size of PGDIR_**SIZE**for cpu_**vabits**be too big.This change has been applied in order to avoid performance problems caused by high volume of data related to memory.

Benefits of change:

- Improving the performance of systems with**cpu_vabits**big.
- Prevent performance problems in**KASAN**.

Specialized words:

- **PGDIR_SIZE**Size of page tables on 64-bit systems.
- **cpu_vabits**The number of bits in the virtual addressing of the processor.

.mm/thp: fix deferred split queue not partially_mapped: fixed

Explain the change:
Hugh Dickins Changes to HugePages management**(**Large memory pages**)**has applied.This change fixed an issue where the queue for splitting large pages was not handled correctly, causing a decrease in performance.

Benefits of change:

- Improving the efficiency of using large memories.
- Reducing memory allocation problems and improving system performance.

Specialized words:

- **HugePages**:Large memory boards designed for memory intensive applications.
- **Deferred split queue**:A queue that delays memory allocation operations.

---

vsock/virtio: Initialization of the dangling pointer occurring in vsk->trans

Explain the change:

Hyunwoo Kimto fix the problem in vsock/**virtio**It has been discussed that the pointer is suspended in the vsk structure-> **trans**Created at startup.This pointer could point to freed resources and cause an error or crash.

Benefits of change:

- Avoiding dangling pointer problems and memory leaks.
- Increasing the stability of communication in**vsock**and virtio.

Specialized words:

- **vsock**Virtual sockets used for communication between virtual machines in virtualization systems.
- **virtio**A standard for virtual devices in virtualization systems.

Drm/amdgpu/mes12: correct kiq unmap latency

Explain the change:

Jack Xiao Latency related to kiq unmap operation in drm/**amdgpu**/**mes12**has corrected.This change makes graphic operations more accurate and faster.

Benefits of change:

- Increase efficiency in graphic operations.
- Reducing the delay in graphics processing.

Specialized words:

- **Drm**:Direct Rendering Manager,A system for managing graphics and graphics devices.
- **amdgpu**:Driver for graphics cards produced by AMD.

mm: fix NULL pointer dereference in alloc_pages_bulk_noprof

Explain the change:
Jinjiang Tu To fix the NULL pointer dereference problem in the alloc function**_pages_bulk_noprof**has paid.This change prevents the occurrence of errors**segmentation fault**Returns NULL if referenced to a pointer, which can crash the system.

Benefits of change:

- Increasing system stability.
- Avoid kernel crashes due to references to incorrect pointers.

Specialized words:

- **NULL pointer dereference:**A reference to a pointer whose value is NULL will cause an error and crash.
- **alloc_pages_bulk_noprof:**A function in the Linux kernel that is responsible for allocating memory pages in groups.

---

mm: swapfile: fix cluster reclaim work crash on rotational devices

Explain the change:
Johannes Weiner Fixed a problem in swapfile operation on rotational devices**(**Like traditional hard drives**)**Occurs during cluster recovery.This change increases the stability of the system when using**swap**It helps on devices with slower access.

Benefits of change:

- Increasing stability in systems that use**swap**they use.
- Improved performance on devices**rotational (**Hard disks**)**relative toSSDs.

Specialized words:

- **swapfile:**A file on the system used to store temporary data when physical memory is low.
- **Rotational devices:**Storage devices that have spinning disks,Like mechanical hard drives **(**HDD**)**.

---

mm/gup: avoid an unnecessary allocation call for FOLL_LONGTERM cases

Explain the change:
John Hubbard Corrections in gup**(**Get User Pages**)**Has applied to avoid unnecessary memory

allocation in cases of FOLL_**LONGTERM**be prevented.This change helps to optimize memory usage and reduce system load.

Benefits of change:

- Reducing unnecessary consumption of memory resources.
- Improve system efficiency.

Specialized words:

- **FOLL_LONGTERM:**One of the gup system flags that specifies that a memory page should be kept for a long time.
- **gup(Get User Pages):**A system for accessing user memory pages in the Linux kernel.

KVM: selftests: use X86_MEMTYPE_WB instead of VMX_BASIC_MEM_Type_WB

Explain the change:

John Sperbeck In automated KVM tests from**X86_MEMTYPE_WB**Instead of VMX**_BASIC_MEM_Type_WB**has used.This change is to improve the accuracy and accuracy of tests in virtualization environments based on**x86**has been applied.

Benefits of change:

- Increasing the accuracy and accuracy of tests**KVM**.
- Improved performance in systems simulation**x86**.

Specialized words:

- **KVM:**Kernel-**based Virtual Machine,**Virtualization system in Linux kernel.
- **X86_MEMTYPE_WB:**A type of memory setting for writing data on x86 systems.

ASoC: audio-graph-card2: Purge absent supplies for device tree nodes

Explain the change:

John Watts Changes in ASoC**(**ALSA System on Chip**)**has applied that resourceswhich are notfor nodes**device tree**deletes.This change helps to avoid problems with hardware simulation and configuration.

Benefits of change:

- Improving stability in audio systems.
- Avoid problems when starting hardware that does not have specific resources.

Specialized words:

- **ASoC**:A subsystem in ALSA to support audio devices on SoC systems**(**System on Chip**)**.
- **Device tree**:A data structure used to describe the hardware configuration on Linux systems.

---

btrfs: fix incorrect comparison for delayed refs

Explain the change:

Josef Bacik Fixed incorrect collation on Btrfs file system used for deferred references on this file system.This modification prevents the occurrence of problems during the management of references**Btrfs**will be.

Benefits of change:

- Improving accuracy in managing references and data in the file system**Btrfs**.
- Reduction of data errors when working with files.

Specialized words:

- **Btrfs**:An advanced file system in Linux that provides features such as compression**,**Provides fragmentation and data integrity monitoring.
- **Delayed refs**:References that are deferred to be processed after subsequent changes to the file system.

ALSA: hda/realtek-Fixed Clevo platform headset Mic issue

Explain the change:

Kailang Yang Fixed an issue where the headset microphone was not working properly on Clevo platforms.This change is made to increase compatibility and correct operation of audio devices on these platforms.

Benefits of change:

- Increasing the compatibility of audio devices with the platform**Clevo**.
- Improving the quality of input sound from the headset microphone.

Specialized words:

- **ALSA**:Advanced Linux Sound Architecture**,**A collection of software for audio management in Linux.
- **Clevo**:A laptop manufacturer known for designing customizable systems for the advanced user.

ASoC: hda/realtek-update set GPIO3 to default for Thinkpad with ALC1318

Explain the change:
Kailang Yang Updated GPIO3 settings to default for Thinkpad devices with ALC1318 sound chip.This change improves the performance and compatibility of audio hardware.

Benefits of change:

- Improving the performance of devices**Thinkpad**In terms of sound.
- Increased compatibility with devices with**ALC1318**.

Specialized words:

- **GPIO**:General Purpose Input/**Output,**Pins in hardware that can be used for input or output.
- **ALC1318**:An audio chip manufactured by Realtek used in various devices.

Bluetooth: btintel: Direct exception event to bluetooth stack

Explain the change:
Kiran K Made changes to Bluetooth btintel that cause exception events to be routed directly to the Bluetooth stack.This will improve error handling and Bluetooth performance in**Intel Bluetooth**It helps.

Benefits of change:

- Improved performance and faster response when errors occur.
- Increasing the stability of Bluetooth systems in the face of exceptions.

Specialized words:

- **Bluetooth stack**:A set of protocols and algorithms used to manage Bluetooth communications in systems.
- **Intel Bluetooth**:Bluetooth platform produced by Intel company that is used in many computer devices.

Revert "RDMA/core: Fix ENODEV error for iWARP test over vlan"

Explain the change:
Leon Romanovsky The previous change was related to the correction of the ENODEV error in the iWARP test in VLAN networks,has canceled.This change indicates that the initial modification may have issues that need to be addressed.

Benefits of change:

- Maintaining stability in networks**RDMA**and prevent further problems.
- Fix problems caused by previous modifications.

Specialized words:

- **RDMA:**Remote Direct Memory Access,A technology that allows memory to be accessed between machines directly without the intervention of the processor.
- **ENODEV:**An error code that usually occurs when a device is not found.
- **iWARP:**One of the RDMA protocols used for data communication in Ethernet networks.
- **VLAN:**Virtual Local Area Network,A virtual network that helps segment and manage traffic in a large network.

Bluetooth: hci_core: Fix calling mgmt_device_connected

Explain the change:

Luiz Augusto von Dentz Improvements in hci_**core**has done that call mgmt_**device_connected**does it correctly when connecting devices.This change helps to make Bluetooth communication more stable and accurate.

Benefits of change:

- Improved accuracy in Bluetooth device connection management.
- Reducing connection and communication problems in Bluetooth devices.

Specialized words:

- **hci_core:**A part of the Bluetooth system that is responsible for managing Bluetooth communication and protocols.
- **mgmt_device_connected:**A function that is called when a new device is connected to the Bluetooth system.

ALSA: hda/realtek: fix mute/micmute LEDs for a HP EliteBook 645 G10

Explain the change:

Maksym Glubokiy Fixed an issue in the ALSA audio system for the HP EliteBook 645 G10 that caused the mute LEDs and mute microphone to not work properly..This change improves the user experience and correct performanceIt becomes LEDs.

Benefits of change:

- Improve the performance of the audio system in the device**HP EliteBook 645 G10**.
- Increasing the accuracy and compatibility of the system with devices**Realtek**.

Specialized words:

- **ALSA:**Advanced Linux Sound Architecture,A collection of software for sound management in Linux.

- **LEDs**:Light Emitting Diode,Diodes that emit light and are used to indicate various states in devices.

---

x86/CPU/AMD: Clear virtualized VMLOAD/VMSAVE on Zen4 client

Explain the change:

Mario Limonciello Made changes to AMD Zen4 processors that clean up virtualized VMLOAD and VMSAVE on these processors.This change was made to improve performance and prevent virtualization related issues.

Benefits of change:

- Improve the performance of processors**Zen4**in virtual environments.
- Reducing problems caused by virtualization in processors**AMD**.

Specialized words:

- **VMLOAD/VMSAVE**:Processor commands to save and load processor state in virtualization.
- **Zen4**:The fourth generation of AMD processor architecture designed for high performance.

.net/mlx5: fs,lock FTE when checking if active

Explain the change:

Mark Bloch Made changes in mlx5 that cause FTE locking**(**Flow Table Entries**)**When checking its active status.This change is to prevent synchronization problems in networks**mlx5**It helps.

Benefits of change:

- Avoid concurrency problems in data processing.
- Performance improvement in networks based on**mlx5**.

Specialized words:

- **FTE**:Flow Table Entry,Flow table entries in network equipment used to manage data traffic.
- **mlx5**:A series of network cards produced by Mellanox that are used in high-speed and high-performance communications.

ASoC: max9768: Fix event generation for playback mute

Explain the change:

Mark Brown Made changes to max9768 in ASoC to ensure correct events for mute mode**(**off**)**They are produced during sound playback.This change is to prevent the occurrence of problems related to the failure to correctly generate events when the state changes**mute**It helps.

Benefits of change:

- Improve system coordination and accuracy during situation management**mute**.
- Fixing problems related to disconnecting and connecting sound in audio devices.

Specialized words:

- **ASoC(ALSA System on Chip)**:An audio system architecture for embedded processors that uses ALSA for audio management.
- **max9768**:An audio chip from Maxim Integrated that is used to amplify sound in audio devices.

---

evm: stop avoidably reading i_write count in evm_file_release

Explain the change:

Mateusz Guzik Made some changes to the evm related code to read unnecessary i**_writecount**In the evm function**_file_release**to stop.This change reduces the additional load and improves system performance.

Benefits of change:

- Optimizing system performance by eliminating unnecessary operations.
- Reducing resource consumption and improving processing speed.

Specialized words:

- **evm**:Extended Verification Module,A module to verify the integrity and correctness of data in the system.
- **i_writecount**:A counter in Linux filesystems that keeps track of the number of writes to files.
- **evm_file_release**:The function that is responsible for freeing the resources related to the files checked by evm.

Drm/xe: improve hibernation on igpu

Explain the change:

Matthew Auld Changes in drm/**xe**It has made improvements in the hibernation process**(**sleeping position**)**in**iGPU (**Integrated GPU**)**creates.These changes make the system go into sleep mode better and then wake up properly.

Benefits of change:

- Increased system stability when transitioning to and from sleep mode.
- Improved performance of graphics processing when returning from sleep mode.

Specialized words:

- **Drm/xe:**Direct Rendering Manager for Xe,A set of drivers and codes related to the management of graphics processing in Linux systems.
- **iGPU:**Integrated Graphics Processing Unit,An integrated graphics processor that resides inside the processor or chipset.

Drm/xe: handle flat ccs during hibernation on igpu

Explain the change:

Matthew Auld Also management of flat ccs**(**Lots of screen settings**)**on when entering sleep mode**iGPU**has improved.This change helps prevent graphical issues when resuming from sleep mode.

Benefits of change:

- Prevent graphics problems when coming back from sleep mode.
- Improved performance and accuracy of displays after returning to active mode.

Specialized words:

- **CCS(Color Conversion State):**The part of the graphics system that is responsible for converting colors between different models.
- **hibernation:**A system mode that saves all data to disk and cuts power to minimize power consumption.

Drm/xe: Ensure all locks released in exec IOCTL

Explain the change:

Matthew Brost Changes in drm/**xe**has created to ensure that all locks are released correctly during IOCTL execution.This change is to avoid concurrency issues and incomplete locks when executing graphics commands on Linux systems.

Benefits of change:

- Improved concurrency and reduced problems caused by incomplete locks.
- Improved performance in graphics processing and multitasking systems.

Specialized words:

- **IOCTL(Input/Output Control):**A set of functions for input and output management in Unix and Linux operating systems.
- **Drm/xe:**As said,A set of drivers and codes related to the management of graphics processing.

Drm/xe: Restore system memory GGTT mappings

Explain the change:
Matthew Brosthas made changes to ensure that GGTT**(**Global Graphics Translation Table**)**Correctly restored after certain operations or returning from certain states**.**This change is necessary to maintain stability and optimal performance in graphics processing**.**

Benefits of change:

- Improved system performance in graphic resources retrieval and management**.**
- Increasing system stability after returning from special modes**.**

Specialized words:

- **GGTT(Global Graphics Translation Table):**The table responsible for mapping graphic addresses to physical addresses in the system**.**
- **Drm/xe:**As mentioned earlier**,**A collection of drivers and graphics management codes**.**

---

mptcp: pm: use_rcu variant under rcu_read_lock

Explain the change:
Matthieu Baerts In mptcp has made changes that from**_rcu variant**under rcu**_read_lock**uses**.**This change is to improve the management of locks**RCU**In the MPTCP protocol**(**Multipath TCP**)**is designed**.**

Benefits of change:

- Improved efficiency and better management of resources in the protocol**MPTCP**.
- Reducing concurrency and interference problems during data processing**.**

Specialized words:

- **MPTCP(Multipath TCP):**A protocol for using multiple network paths simultaneously to improve connection performance and stability**.**
- **RCU(Read-Copy-Update):**A technique for managing data updates in multitasking, multiprocessor systems**.**

---

samples/landlock: Fix port parsing in sandboxer

Explain the change:
Matthieu Buffet Changes in samples**/landlock**It has been applied to modify the

mannerTranslationPorts in**sandboxer**It helps.This change improves efficiency and accuracy in port processing in restricted environments.

Benefits of change:

- Improved accuracy in port processing.
- Increasing security and reliability in environmentssandbox.

Specialized words:

- **Landlock:**A set of tools for creating restricted and isolated environments for applications.
- **sandboxer:**A tool to run programs in isolated and restricted environments to prevent unauthorized access.

KVM: selftests: memslot_perf_test: increase guest sync timeout

Explain the change:

Maxim Levitsky Changes in memslot**_perf_test**Created from the KVM self-test suite to increase the guest synchronization timeout.This change is to ensure that the synchronization processguest in systems with high load or complex conditions to be done correctly.

Benefits of change:

- Avoid synchronization errors in complex situations.
- Improving the efficiency and stability of tests**KVM**.

Specialized words:

- **KVM(Kernel-based Virtual Machine):**A virtualization technology for Linux that allows running virtual machines.
- **memslot_perf_test:**A test to check the performance of memory allocation in KVM virtual machines.

---

net: ti: icssg-Prueth: Fix 1 PPS sync

Explain the change:

Meghana Malladi Changes in the icssg driver-**prueth**In the TI network, it has created up to 1 PPS signal synchronization

(Pulse Per Second**)**work properly.These changes are useful for use in systems that require high time accuracy, such as network equipment and sensors.

Benefits of change:

- Improving time accuracy in devices based on**1 PPS**.
- Increasing stability and accuracy in precision timing systems.

Specialized words:

- **1 PPS(Pulse Per Second):**A signal that transmits one pulse per second and is commonly used for precise synchronization in timing systems..
- **icssg-prueth:**A network driver for TI series processors using PRU technology**(**Programmable Real-time unit**)**uses.

---

virtio/vsock: Fix accept_queue memory leak

Explain the change:

Michal Luczaj In the virtio section/**vsock**Made some changes that fixed a memory leak in accept_**queue**will be.This memory leak may lead to reduced resources and performance in virtual systems.

Benefits of change:

- Improved memory management**vsock**and prevent resource leakage.
- Increasing the stability of virtual systems and preventing performance degradation.

Specialized words:

- **virtio/vsock:**A driver for network communication between virtual machines and hosts using virtio and vsock.
- **accept_queue:**A queue that handles connection requests on networked systems and vsock communications.

---

vsock: Fix sk_error_queue memory leak

Explain the change:

Michal Luczaj Also memory leak in sk_**error_queue**fixed in vsock.This change helps to prevent unnecessary memory usage by errors and wrong messages.

Benefits of change:

- Reduce memory consumption and improve performance.
- Increasing stability and reducing the possibility of performance problems in virtual systems.

Specialized words:

- **sk_error_queue:**A queue that handles socket errors and is used to process network communication errors on vsock systems..

---

virtio/vsock: Improve MSG_ZEROCOPY error handling

Explain the change:
Michal Luczaj Improvements to error handling in MSG_**ZEROCOPY**has created in vsock.This change to**vsock**Helps when sending large data using zerocopy,Manage errors better.

Benefits of change:

- Improving accuracy in managing errors and reducing network failures.
- Increasing efficiency in large data transmission.

Specialized words:

- **MSG_ZEROCOPY**:A feature that allows the processor to transfer data to the network without copying it directly from memory to improve performance..
- **vsock**:A protocol for communication between virtual machines and hosts.

---

net: Make copy_safe_from_sockptr()match documentation

Explain the change:
Michal Luczaj Changes in the copy function_**safe_from_sockptr()**applied to the network code to conform it to the official documentation.This change makes the behavior of the function consistent with what is mentioned in the documentation and avoids errors.

Benefits of change:

- Improve accuracy and compliance with documentation.
- Avoiding mistakes and problems caused by code incompatibility with documentation.

Specialized words:

- **copy_safe_from_sockptr()**:A function to ensure that network data is safely sent from sockptr**(**Socket pointer**)**are copied.

Landlock: Improve documentation of previous limitations

Explain the change:
Mickael Salaun Made changes to the landlock documentation to better explain the previous restrictions.This change helps users to overcome the limitations of the systems**landlock**better understand.

Benefits of change:

- Improving clarity and transparency in documentation.
- Helping users to make better use of**landlock**.

Specialized words:

- **Landlock**:A set of tools for creating isolated and constrained environments for applications.

---

landlock: Refactor filesystem access mask management

Explain the change:

Mickael Salaun Made changes to the way filesystem access masks are handled in landlock.This change makes accesses to file resources to be managed more accurately and optimally.

Benefits of change:

- Improve security and control access to system files.
- Reducing the complexity of access management.

Specialized words:

- **Filesystem Access Mask**:Settings that manage access to system files,Usually to prevent unauthorized access.

---

landlock: Refactor network access mask management

Explain the change:

Mickael Salaun Made similar changes to manage network access masks in landlock.These changes are designed to improve access control and security in isolated networks.

Benefits of change:

- Improved security in restricted networks.
- Better management of access to network resources.

Specialized words:

- **Network Access Mask**:Settings that control access to network resources.

.Landlock: Optimize scope enforcement

Explain the change:
Mickael Salaun It has made changes to landlock to optimize the implementation of access domains.This optimization increases efficiency and reduces complexity in applying constraints.

Benefits of change:

- Improving the efficiency of isolated systems.
- Reducing processing time and optimizing resources.

Specialized words:

- **Scope Enforcement**:A process that applies access restrictions to various system domains.

DM-bufio: fix warnings about duplicate slab caches

Explain the change:
Mikulas Patocka Corrections in dm-**bufio**Done to fix warnings about duplicate caches.These fixes help reduce unnecessary alerts and improve system performance

.net: fix SO_DEVMEM_DON'T NEED looping too long

Explain the change:
Mina Almasry Changes in the SO section**_DEVMEM_DONTNEED**created to avoid the long loop that can occur in some situations,prevent.This change is especially important to improve performance and prevent excessive resource usage when using this option.

Benefits of change:

- Avoid excessive consumption of resources.
- Improved efficiency in handling requests**SO_DEVMEM_DONTNEED**.

Specialized words:

- **SO_DEVMEM_DONTNEED**:A configuration field on network sockets that tells the operating system kernel that it no longer needs the device's memory..

.net: clarify SO_DEVMEM_DONTNEED behavior in documentation

Explain the change:
In this change**, Mina Almasry**SO documentation**_DEVMEM_DONTNEED**forspecificIt has

updated its behavior.This helps users understand how to use the feature properly and what behavior is expected when using it..

Benefits of change:

- Improve understanding and use of features**SO_DEVMEM_DONTNEED**.
- Reducing mistakes and misunderstandings in implementations.

Specialized words:

- **SO_DEVMEM_DONTNEED:**An option on network sockets to indicate that data from the device's memory is no longer needed.

---

net/mlx5e: CT: Fix null-ptr-deref in add rule error flow

Explain the change:
Moshe Shemesh Fixed an issue in the mlx5e section of the CT driver that caused a NULL pointer to be referenced when adding a rule.This modification helps to prevent possible crashes and crashes in the system.

Benefits of change:

- Increasing system stability when managing rules.
- Prevent crashes and crashes in the network driver**mlx5e**.

Specialized words:

- **mlx5e:**A network driver for Mellanox cards using the MLX5 architecture.
- **CT(Connection Tracking):**A way to keep track of connection status in network protocols.

---

tools/mm: fix compile error

Explain the change:
Motiejus Jakštys Fixed a compilation error in the mm tool.This change allows developers to error-free from the tool**mm**use and the manufacturing process is done correctly.

Benefits of change:

- Compile error fix and build process improvement.
- Ensuring the compatibility and correct operation of the tool**mm**.

Specialized words:

- **mm(memory management):**A part of the Linux kernel that is responsible for managing memory allocation.

.net: stmmac: dwmac-mediatek: Fix inverted handling of mediatek,mac-wol

Explain the change:

Nicolas F.R.A.PradoA problem with dwmac-**mediatek**Fixed the stmmac driver which resulted in the mac behavior being reversed-**wol**would be.This modification makes the feature**mac-wol (**Wake on LAN**)**work properly and avoid problems in network communication.

Benefits of change:

- Improve performance**mac-wol**On dwmac-based systems-**mediatek**.
- Increasing accuracy in managing energy saving capabilities in the network.

Specialized words:

- **mac-wol(Wake on LAN):**A feature that allows devices to be turned on remotely.
- **dwmac-mediatek:**Driver for MediaTek chips using the DWMAC interface.

---

mptcp: error out earlier on disconnect

Explain the change:

Paolo Abeni Changes in mptcp**(**Multipath TCP**)**It has created so that errors are detected earlier and in case of disconnection**,**Be announced sooner.This change makes the system react more quickly to connection problems.

Benefits of change:

- Reducing the time delay in identifying errors.
- Increased stability and efficiency**mptcp**.

Specialized words:

- **mptcp(Multipath TCP):**A protocol for using multiple network paths simultaneously in a TCP connection.

---

mptcp: cope racing subflow creation in mptcp_rcv_space_adjust

Explain the change:
In this change, **Paolo Abeni**Amendments related to competitions**(**race conditions**)**When creating subflows in mptcp**_rcv_space_adjust**has applied.This change prevents concurrency issues and improves performance and stability**mptcp**will be.

Benefits of change:

- Avoiding competitions and concurrency problems in**mptcp**.
- Improve system performance and stability.

Specialized words:

- **subflow**:A sub-data stream in the mptcp protocol used to improve connectivity and fault tolerance.
- **mptcp_rcv_space_adjust**:A function in mptcp that sets the receive space for substreams.

---

net/mlx5: Fix msix vectors to respect platform limit

Explain the change:
Parav Pandit Made changes to mlx5 so that msix vectors respect platform constraints.This modification improves the compatibility and efficiency of network based systems**mlx5**will be.

Benefits of change:

- Avoid performance problems caused by violation of restrictions.
- Improved compatibility with different platform systems.

Specialized words:

- **MSI-X(Message Signaled Interrupts)**:A technology for sending interrupts using signaling messages instead of using physical interrupt lines.

KVM: selftests: fix unintentional noop test in guest_memfd_test.c

Explain the change:
Patrick RoyA no-tamper test in the guest**_memfd_test.c**has fixed that was done in KVM.This change makes self-tests run more accurately.

Benefits of change:

- Improving accuracy in tests**KVM**.
- Ensuring the accuracy and correct performance of tests.

Specialized words:

- **KVM**:Linux kernel virtualization technology that allows running virtual machines.

---

pmdomain: imx93-blk-ctrl: correct remove path

Explain the change:

Peng FanA problem with the removal path of imx93-**blk-ctrl**It has been modified in pmdomain.This change will make the resource removal process work properly and prevent problems.

Benefits of change:

- Ensure proper removal of resources.
- Prevent problems after removing resources.

Specialized words:

- **pmdomain**:A unit for managing resources and controlling devices in embedded systems.

sched/task_stack: fix object_is_on_stack()for KASAN tagged pointers

Explain the change:

This change is specifically to modify the function**object_is_on_stack()**Pays for pointers that have the KASAN tag.KASAN**(Kernel Address Sanitizer)**An error detection tool for detecting unauthorized accesses to memory,And this change helps to ensure the correct functioning of this tool.

Benefits of change:

- Improve tool accuracy**KASAN**In identifying incorrect memory accesses.
- Avoid mistakes in identifying objects in the stack.

Specialized words:

- **KASAN**:A memory address check tool to detect memory access failures in the Linux kernel.
- **object_is_on_stack()**:A function that checks whether an object is on the stack or not.

---

cpufreq: intel_pstate: Rearrange locking in hybrid_init_cpu_capacity_scaling()

Explain the change:

Rafael J.Wysocki In the intel section**_pstate**It has made changes from cpufreq system to the order of locks in hybrid**_init_cpu_capacity_scaling()**to be better and more optimized.This change was made to improve efficiency and prevent race conditions or unnecessary locks.

Benefits of change:

- Improving efficiency and preventing simultaneous competitions.
- Increasing system stability in capacity scaling managementCPU.

Specialized words:

- **cpufreq**:Frequency and voltage management system in processors.
- **Intel_pstate**:Power management driver for Intel processors.
- **hybrid_init_cpu_capacity_scaling()**:A function that handles CPU capacity scaling for hybrid processors.

Drm/amd/display: Adjust VSDB parser for replay feature

Explain the change:

Rodrigo Siqueira In the drm section/**amd**/**display**Made changes to the VSDB parser to properly support the replay feature.These changes are to improve data processing**VSDB**Designed on AMD systems.

Benefits of change:

- Improved feature support**replay**.
- Increasing the accuracy and efficiency of data analysis.

Specialized words:

- **VSDB**:A data structure for managing and processing video signals.
- **replay feature**:A feature that allows a system to replay signals or data.

---

mm: page_alloc: move mlocked flag clearance into free_pages_prepare()

Explain the change:

Roman Gushchin Changes to page allocation management in the Linux kernel have been made to move mlocked cleanup to the free function**_pages_prepare()**It is related.This change is to optimize the allocation of memory pages and avoid problems in memory management.

Benefits of change:

- Improved memory allocation performance.
- Reducing the complexity of managing flags in page allocation.

Specialized words:

- **mlocked:**A flag indicating that a page of memory is locked and cannot be removed from physical memory.
- **free_pages_prepare():**A function that performs the necessary preparations before freeing memory pages.

ARM: fix cache flush with PAN

Explain the change:

Russell King (Oracle**)**Made some fixes to the cacheflush performance on the ARM architecture to work correctly with PAN**(**Privileged Access Never**)**be coordinated.This change to ensure that the operation**cacheflush**Done properly in high security environments**,**It is necessary.

Benefits of change:

- Improving performance and accuracy in data processing in secure environments.
- Prevent problems related to unauthorized access**ARM**.

Specialized words:

- **PAN(Privileged Access Never):**A security feature that restricts access to certain resources to unauthorized or unauthorized states.
- **cacheflush:**CPU cache clearing process.

---

net: phylink: ensure PHY momentary link-fails are handled

Explain the change:

Russell King (Oracle**)**Made improvements to phylink to ensure correct handling of transient PHY link errors.This modification improves stability in network communication.

Benefits of change:

- Increasing network stability.
- Avoiding problems in network communication in case of temporary errors.

Specialized words:

- **PHY(Physical layer):**The physical layer in the OSI model that is responsible for transmitting electrical or optical signals.
- **phylink:**A framework for managing physical layer communications**(**PHY**)**In Linux.

Drm/amd/display: Handle dml allocation failure to avoid crash

Explain the change:
Ryan Seto Changes in the drm section/**amd**/**display**Done in case of an allocation error

dml (Display Management Layer**),**Avoid system crashes.

Benefits of change:

- Prevent system crashes.
- Improved stability in graphics resource management.

Specialized words:

- **dml(Display Management Layer):**A layer in the graphics system that is responsible for managing display resources.

---

nilfs2: fix null-ptr-deref in block_touch_buffer tracepoint

Explain the change:
Ryusuke Konishi Made modifications to nilfs2 to avoid referring to NULL pointers in block tracepoints**_touch_buffer**prevent.This modification helps to improve the stability of the system.

Benefits of change:

- Avoid crashes caused by dereferencing pointersNULL.
- Increase the stability of the file system**nilfs2**.

Specialized words:

- **nilfs2:**A file system for Linux that uses various techniques to ensure data persistence.
- **tracepoint:**A point in code used to record information about the operation or state of the system.

---

nilfs2: fix null-ptr-deref in block_dirty_buffer tracepoint

Explain the change:
Ryusuke Konishi Also, similar modifications in nilfs2 to prevent reference to NULL pointer in block tracepoint**_dirty_buffer**has applied.This change also helps to increase stability.

Benefits of change:

- Avoid crashes caused by dereferencing pointersNULL.
- Increase the stability of the file system**nilfs2**.

Specialized words:

- **block_dirty_buffer:**The part of the file system that specifies that a block of memory needs to be saved.

ima: fix buffer overrun in ima_eventdigest_init_common

Explain the change:

Samasth Norway Ananda In the ima section**(**Integrity Measurement Architecture**)**Made some fixes to avoid buffer overflows in the ima function**_eventdigest_init_common**prevent.Buffer overflow may damage data and system security**,**Therefore, this change is necessary to improve security and prevent security risks.

Benefits of change:

- Prevent buffer overflow and improve system security.
- Improved performance and stability in**IMA**.

Specialized words:

- **IMA:**An integrity measurement architecture used to evaluate the integrity of Linux systems.
- **buffer overrun:**When more data than the size allocated for the buffer is written to memory**,**which can lead to data corruption or malicious code execution.

KVM: selftests: Disable strict aliasing

Explain the change:

Sean Christopherson In the KVM self-tests code**(**Kernel-based Virtual Machine**)**Implemented a fix to disable strict aliasing.Strict aliasing is a compiler optimization that may cause problems when executing certain codes**,**Especially when different addresses point to the same data.

Benefits of change:

- Preventing problems caused by compiler optimizations in some special situations.
- Improving the stability of self-tests and tests**KVM**.

Specialized words:

- **Strict aliasing:**An optimization where a variable cannot overlap with a different type of variable**,**which can cause problems in some codes.
- **KVM:**A virtualization technology in the Linux kernel for running virtual machines.

KVM: selftests: Don't force -march=x86-64-v2 if it's unsupported

Explain the change:

In this modification, **Sean Christopherson** Option **-march=x86-64-v2** which will cause an error if it is not supported by the system, compulsion Y has not done. This change improves compatibility and supports different architectures in tests **KVM** will be.

Benefits of change:

- Increased compatibility with different architectures.
- Avoid errors related to unsupported settings during testing.

Specialized words:

- **-march=x86-64-v2**: An option used to specify the processor architecture, That here is the second version of the architecture **x86-64** refers to.

KVM: nVMX: Treat vpid01 as current if L2 is active, but with VPID disabled

Explain the change:

This change to improve performance **nVMX (** A feature in **KVM** To manage virtual machines in different modes **)** is. In case **L2** is enabled and VPID is disabled, **vpid01** It is considered as the current status.

Benefits of change:

- Improved accuracy and efficiency in mode management **nVMX**.
- Reduce errors associated with **VPID** In special situations.

Specialized words:

- **nVMX**: A feature in KVM that uses two-level virtualization **(** nested virtualization **)** supports.
- **VPID**: An identifier in processors used to manage address translation.

KVM: SVM: Propagate error from snp_guest_req_init() to userspace

Explain the change:

In this modification, **KVM** For the SVM architecture **(** Secure Virtual Machine **)** Has made changes to Errors that in **snp_guest_req_init()** occurs, be transferred to the user space. This change helps user programs to properly detect and handle existing errors.

Benefits of change:

- Improved interaction between user space and kernel space **SVM**.

- Improved detection and handling of errors when using**KVM**.

Specialized words:

- **SVM**:Secure virtualization feature on AMD processors.
- **snv_guest_req_init()**:A function that important guest requests**(**guest**)**manages in SVM virtualization systems.

KVM: x86: Unconditionally set irr_pending when updating APICv state

Explain the change:
This change makes it so that when updating the status**APICv (**Advanced Programmable Interrupt Controller Virtualization**)**In KVM for x86 architecture**,**always**irr_pending (**Pending status of interrupt requests**)**Set unconditionally.

Benefits of change:

- Improving accuracy in interrupt management in architecture**x86**.
- Avoid problems simulating interruptions in virtualization.

Specialized words:

- **APICv**:Virtualization technology to manage APIC interrupts in virtual systems.
- **irr_pending**:Pending interrupt request status in hardware systems.

KVM: VMX: Bury Intel PT virtualization(guest/host mode)behind CONFIG_BROKEN

Explain the change:
Sean Christopherson In this correction feature Intel PT**(Processor Trace)**VMX virtualization may still cause problems**,**Back option**CONFIG_BROKEN**has hidden.This change makes this feature unavailable by default to avoid potential issues.

Benefits of change:

- Avoiding problems and instabilities related to**Intel PT**.
- Improved stability and reliability**VMX**.

Specialized words:

- **Intel PT**:A feature on Intel processors to track and analyze application performance.
- **VMX**:A feature in KVM for managing virtual machines.

Fix typo in vringh_test.c

Explain the change:
Shivam ChaudharyA typo in the vringh file**_test.c**has corrected.This change helps to improve the readability and accuracy of the code.

Benefits of change:

- Improve code readability and clarity.
- Avoid confusion and possible errors caused by typing mistakes.

Specialized words:

- **vringh_test.c:**A test code file in virtualization and waring projects.

---

vdpa/mlx5: Fix PA offset with unaligned starting iotlb map

Explain the change:
Si-Wei Liu Corrections in vdpa/**mlx5**Has done up PA displacement problems**(**Physical Address**)**with iotlb maps not properly aligned**,**be resolved.

Benefits of change:

- Avoid problems related to non-aligned memory access.
- Improved performance in virtualization systems.

Specialized words:

- **Pa(Physical Address):**Physical address in memory systems.
- **iotlb:**Translation of address table

sched_ext: Add a missing newline at the end of an error message

Explain the change:
Add a new line to the end of the error message**sched_Ext**Added to format messages correctly.This change helps improve the readability and robustness of error messages.

Benefits of change:

- Improved readability of error messages.
- Fixed problems related to incorrect formatting of messages.

---

sched_ext: Update scx_show_state.py to match scx_oops_bypass_depth's new type

Explain the change:
In this modification, **scx_show_state.py**Updated to include the new version of scx**_oops_bypass_depth**match.This change helps to better align the code with the new data.

Benefits of change:

- Better coordination of code with recent changes.
- Prevent possible errors in matching data types.

---

sched_ext: Handle cases where pick_task_scx()is called without preceding balance_scx()

Explain the change:
This change includes modification**sched_Ext**is to ensure that if pick**_task_scx()**is called,First**balance_scx()**be called correctly.This change prevents possible problems.

Benefits of change:

- Avoid errors or logical problems during code execution.
- Improve performance**sched_Ext**.

---

sched_ext: ops.cpu_acquire()should be called with SCX_KF_REST

Explain the change:
This corrective change in**sched_Ext**is to ensure that ops.**cpu_acquire()**Always with SCX**_KF_REST**is called,That may help improve system performance and accuracy.

Benefits of change:

- Improve code integrity and stability.
- Avoiding potential errors in calling functions.

Drm/amd/pm: print pp_dpm_mclk in ascending order on SMU v14.0.0

Explain the change:
Tim Huang In this change, it has ensured that pp**_dpm_mclk**Correctly and in ascending order in SMU v14.**0**.**0**be printed.

Benefits of change:

- Improved display of data at runtime**S.M.U**

- Helping to better analyze data in systemsAMD.

Drm/amd/display: Change some variable name of psr

Explain the change:
Tom Chung In this modification, there are changes in the names of the variables in psr in the drm section/**amd**/**display**has applied.These changes help to improve the code and its readability.

Benefits of change:

- Improve code readability and clarity.
- Avoid confusion and errors related to incorrect naming.

Drm/amd/display: Fix Panel Replay not updating screen correctly

Explain the change:
Tom Chung Made this change to fix an issue that caused Panel Replay to not update the screen correctly.

Benefits of change:

- Improve performance**Panel Replay**in drm/**amd**/**display**.
- Fixed image display problems in some situations.

Drm/amd: Fix initialization mistake for NBIO 7.7.0

Explain the change:
Vijendar Mukunda This fix to fix a bug in NBIO 7 initialization.**7.0**In the drm section/**amd**has done.

Benefits of change:

- Fixed initialization errors.
- Improved performance and stability in**NBIO 7.7.0**.

Drm/i915: grab intel_display from the encoder to avoid potential oopsies

Explain the change:
Ville Syrjälähas applied changes to intel_**display**from encoder in drm/**i915**access to avoid possible problems and failures.

Benefits of change:

- Avoid possible hardware failures and problems.
- Improve stability in**Drm/i915**.

---

stmmac: dwmac-intel-plat: fix call balance of tx_clk handling routines

Explain the change:
Vitalii Mordan In this change the balance of calling tx management routines**_clk**in dwmac-**Intel-plat**has been modified to avoid performance problems.

Benefits of change:

- Improving the performance and stability of based systems**dwmac-Intel-plat**.
- Reducing management problems**tx_clk**.

Revert "igb: Disable threaded IRQ for igb_msix_other"

Explain the change:
Wander Lairson Costa Made this change to revert the previous change that made the IRQ threaded for igb**_msix_other**It disabled.This change is made to fix issues and improve performance.

Benefits of change:

- Restore previous performance and prevent new problems.
- Improve performance**IRQ**in igb**_msix_other**.

---

net: fix data-races around sk->sk_forward_alloc

Explain the change:
Wang Liang Made changes to address data contention issues around sk->**sk_forward_alloc**to correct.This change helps improve synchronization and prevent race conditions.

Benefits of change:

- Avoiding race conditions and synchronization problems.
- Improved performance in network resource allocation management.

ARM: 9435/1: ARM/nommu: Fix typo "absence"

Explain the change:
WangYuliA typo in the ARM section/**nommu**It has been modified to improve the readability and accuracy of the code.

Benefits of change:

- Improved code readability.
- Fix problems related to typos.

---

samples: pktgen: correct dev to DEV

Explain the change:
Wei Fang Fixed a mistake in naming dev to DEV in the pktgen sample code.

Benefits of change:

- Improve code clarity and accuracy.
- Avoid mistakes in variable naming.

net/mlx5e: clear xdp features on non-uplink representatives

Explain the change:
This change is related to**mlx5e**which clears XDP attributes on non-uplink representors to ensure that these attributes are not applied correctly.

Benefits of change:

- Prevent performance problems in**XDP**.
- Clearing features under certain conditions to prevent performance disruptions.

---

v.p_vdpa: fix id_table array not null terminated error

Explain the change:
In this modification,The problem of not terminating the array correctly**id_table**in vp_**vdpa**Fixed that could lead to errors in data processing.

Benefits of change:

- Avoiding problems related to data processing.
- Improving the stability and performance of systems**vdpa**.

mm,doc: update read_ahead_kb for MADV_HUGEPAGE

Explain the change:
In this update,Documents related to**read_ahead_KB**for MADV_**HUGEPAGE**Updated to provide detailed information on how this parameter works.

Benefits of change:

- Improved documentation and clarity in settings**MADV_HUGEPAGE**.
- Helping developers to use memory parameters correctly.

---

vDPA/ifcvf: Fix pci_read_config_byte()return code handling

Explain the change:
This modification to fix the problem in**vDPA/ifcvf**That is how to process the return code from pci_**read_config_byte()**It is related.

Benefits of change:

- Correct code behavior and avoid problems related to configuration readingPCI.
- Improved performance and stability in**vDPA**.

LoongArch: Define a default value for VM_DATA_DEFAULT_FLAGS

Explain the change:
This change for**LoongArch**is a default value for the VM_**DATA_DEFAULT_FLAGS**defines to ensure that these flags are set correctly.

Benefits of change:

- Improve stability and performance in**LoongArch**.
- Setting the default value to avoid possible errors.

---

bpf: Add sk_is_inet and IS_ICSK check in tls_sw_has_ctx_tx/rx

Explain the change:
In this change,reviews**sk_is_inet**and IS_**ICSK**to tls functions_**sw_has_ctx_tx/rx**Added to validate data before processing.

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Designer,Developer and Linux sysadmin

Founder and Developer of Emperor-OS, Hubuntu and Predator-OS. I bring significant experience as a Linux/Windows sysadmin and graphical web design,UX/UI to the Open Source Community.

LITTLE-PSYCHO
DESTRUCTIVE LINUX

Emperor-OS

Predator-OS