today's leftovers

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- **Securing and Hardening Linux and Unix Endpoints Against Cyber Attack: Part IV** [2]
  How Secure are your Linux Endpoints? An Ethical Hacker’s Guide to Securing and Hardening Linux and Unix Endpoints

- **Henri Sivonen: A Look at Encoding Detection and Encoding Menu Telemetry from Firefox 86** [3]

  The failure mode of decoding according to the wrong encoding is very different for the Latin script and for non-Latin scripts. Also, there are historical differences in UTF-8 adoption and encoding labeling in different language contexts. For example, UTF-8 adoption happened sooner for the Arabic script and for Vietnamese while Web developers in Poland and Japan had different attitudes towards encoding labeling early on. For this reason, it’s not enough to look at the global aggregation of data alone.

  Since Firefox’s encoding behavior no longer depends on the UI locale and a substantial number of users use the en-US localization in non-U.S. contexts, I use geographic location rather than the UI locale as a proxy for the legacy encoding family of the Web content primary being read.

  The geographical breakdown of telemetry is presented in the tables by ISO 3166-1 alpha-2 code. The code is deduced from the source IP addresses of the telemetry submissions at the time of ingestion after which the IP address itself is discarded. As another point relevant to make about privacy, the measurements below referring to the .jp, .in, and .lk TLDs is not an indication of URL collection. The split into four coarse categories, .jp, .in+.lk, other ccTLD, and non-ccTLD, was done on the client side as a side effect of these four TLD categories getting technically different detection treatment: .jp has a dedicated detector, .in and .lk don’t
run detection at all, for other ccTLDs the TLD is one signal taken into account, and for other TLDs the detection is based on the content only. (It’s imaginable that there could be regional differences in how willing users are to participate in telemetry collection, but I don’t know if there actually are regional differences.)

• **Puppy Linux without an initrd** [4]

  We know about the 'initrd' file, which is an initramfs that runs first at bootup. EasyOS has this, as do the puppies.
  A traditional full installation, occupying an entire partition, may not need an initrd, and can be run directly from the kernel boot parameters. For example, if the full installation is in /dev/sda9, then boot parameters would include root=/dev/sda9, or the PARTUID could be specified.
  If an initrd is used, the boot parameters would not have root=, instead would have something like initrd=initrd.gz, where initrd.gz is the name of the file, with perhaps a path.
  One of the reasons we have a initrd is to setup the layered filesystem, using overlayfs or aufs, then a switch_root is performed onto the layered filesystem.
  However, Dima, forum name 'dimkr' on github and the Puppy Forum, and 'iguleder' on the old Puppy Murga Forum, has come up with a way to load the layered filesystem without requiring an initrd.

• **Losca: MotionPhoto / MicroVideo File Formats on Pixel Phones** [5]

  Google Pixel phones support what they call 'Motion Photo', which is essentially a photo with a short video clip attached to it. They are quite nice since they bring the moment alive, especially as the capturing of the video starts a small moment before the shutter button is pressed. For most viewing programs they simply show as static JPEG photos, but there is more to the files.

• **Containerize all the things! Arm v9 takes security seriously** [6]

  The key concept introduced in Arm v9's new Confidential Compute Architecture is the realm. Realms are containerized, isolated execution environments, completely opaque to both operating system and hypervisor. The hypervisor itself will only be responsible for scheduling and resource allocation. Realms themselves are to be managed by the realm manager?a new concept that can apparently be implemented in 1/10th the code required for a hypervisor.
Arm has set out its stall for the first major new version of its instruction set architecture, Armv9, in about a decade, and promised compatible chips will have improved machine-learning and security capabilities.

Previous versions of the architecture introduced support for things like virtualization and SIMD; the last major update, Armv8, debuted in 2011. Arm says its latest instruction set architecture, v9, will be geared toward today's top buzzword in tech, AI. The chip design house, which Nvidia is still trying to acquire from Softbank, laid on the marketing a little thick for the unveiling of the ISA, though there is some detail here.

Armv9 architecture to focus on AI, security, and ?specialized compute? [8]

Armv8 was announced in October 2011 as the first 64-bit architecture from Arm, while keeping compatibility with 32-bit Armv7 code. Since then we've seen plenty of Armv8 cores from the energy-efficient Cortex-A35 to the powerful Cortex-X1 core, as long as some custom cores from Arm partners.

But Arm has now announced the first new architecture in nearly ten years with Armv9 which builds upon Armv8 but adds blocks for artificial intelligence, security, and ?specialized compute? which are basically hardware accelerators or instructions optimized for specific tasks.

SiFive Core IP 21G1 release improves bit manipulation, floating-point unit, reduces code footprint [9]

As SiFive has a portfolio of RISC-V cores ranging from low-power E2-series to high-performance U8-series cores with performance similar to Cortex-A7x cores, the company has not released new cores for a while, and instead focuses on improving their current RISC-V cores.

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