TrenchBoot AEM - Project Status

FOSDEM 2024

Open Source Firmware, BMC and Bootloader devroom

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3MDEB

whoami

Maciej Pijanowski
Engineering Manager

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- over 7 years in 3mdeb
- Open-source contributor
- Interested in:
  - build systems (e.g., Yocto)
  - embedded, OSS, OSF
  - firmware/OS security

Who we are ?

- coreboot licensed service providers since 2016 and leadership participants
- UEFI Adopters since 2018
- Yocto Participants and Embedded Linux experts since 2019
- Official consultants for Linux Foundation fwupd/LVFS project since 2020
- IBM OpenPOWER Foundation members since 2020

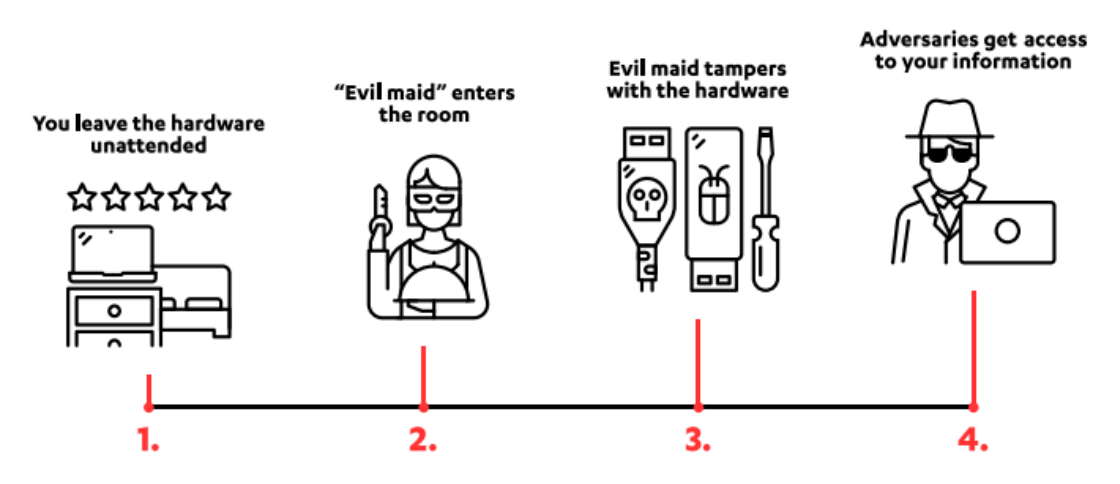
Agenda

- Intro
- Qubes OS AEM
- Current state
- Further plans
- Q&A

- Today we will cover current state since Oct 2023 and further plans
- Project has been already discussed during past Qubes OS summits
  - https://www.youtube.com/watch?v=A9GrlQsQc7Q&t=17441s
  - https://www.youtube.com/live/xo2BVTn7ohs?si=BVUnKccSe-saRf2b&t=5441

Qubes OS Anti Evil Maid

- A set of software packages and utilities
  - https://github.com/QubesOS/qubes-antievilmaid
- The goal to protect against Evil Maid attacks
- Requires **TPM**
- Requires **Dynamic Root of Trust for Measurement (DRTM)**
  - technology from silicon vendor
  - needs to be present in hardware and supported by the firmware

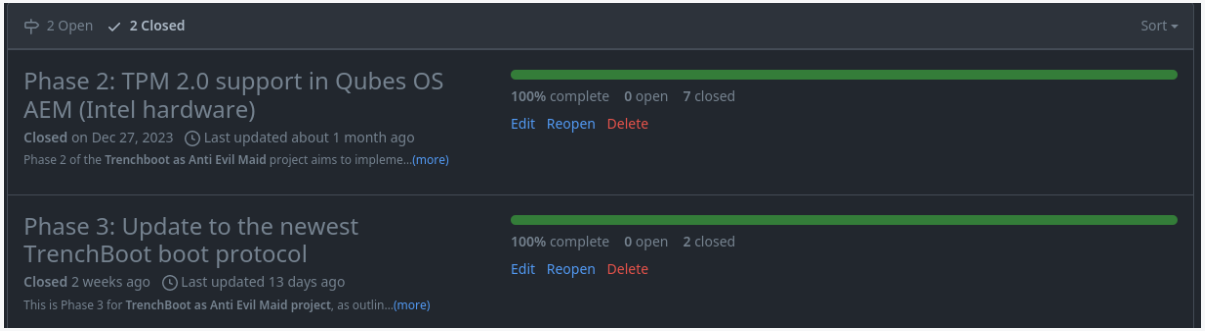


https://blog.f-secure.com/de/evil-maid-attacken-wenn-die-putzfrau-den-pc-hackt/

Current state

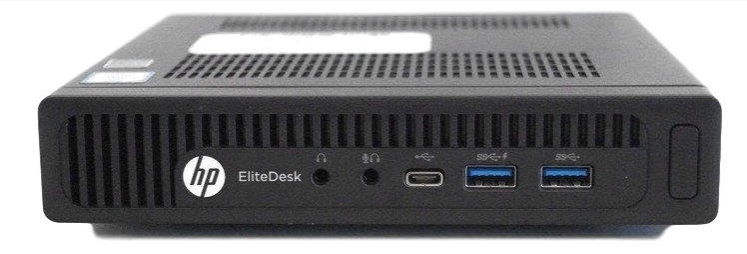
Current status

- Phase 2 released
  - https://github.com/TrenchBoot/trenchboot-issues/milestone/2
- Phase 3 released
  - https://github.com/TrenchBoot/trenchboot-issues/milestone/3
- Phase 4 started
  - https://github.com/TrenchBoot/trenchboot-issues/milestone/4



Phase 2 - released

- Qubes OS AEM on Intel boards with TPM 2.0
- GH release
  - GRUB: https://github.com/TrenchBoot/grub/releases/tag/aem_v0.2
  - Xen: https://github.com/TrenchBoot/xen/releases/tag/aem_v0.2
  - Qubes OS AEM: https://github.com/TrenchBoot/qubes-antievilmaid/releases/tag/aem_v0.2
- Blog post
  - https://blog.3mdeb.com/2023/2023-09-27-aem_phase2/

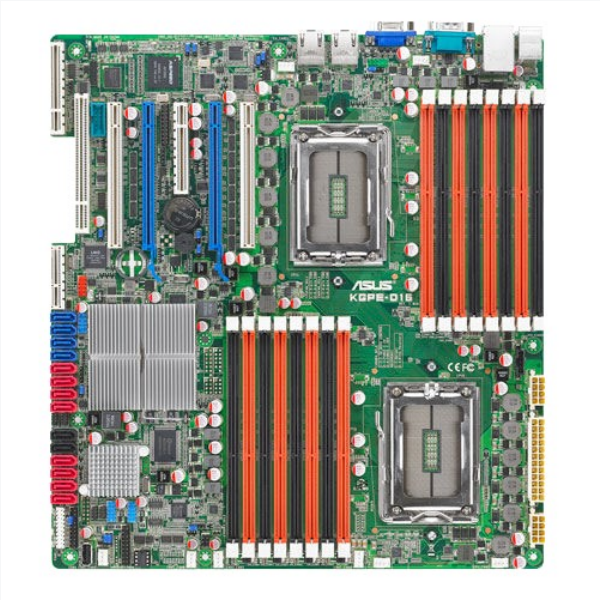


Phase 3 - released

- Update to recent TrenchBoot boot protocol
- GH release
  - GRUB: https://github.com/TrenchBoot/grub/releases/tag/aem_v0.3
  - Xen: https://github.com/TrenchBoot/xen/releases/tag/aem_v0.3
  - Qubes OS AEM: https://github.com/TrenchBoot/qubes-antievilmaid/releases/tag/aem_v0.3
- Upstreaming into Qubes OS still in progress
  - Xen: https://github.com/QubesOS/qubes-vmm-xen/pull/160
  - GRUB: https://github.com/QubesOS/qubes-grub2/pull/13
- Blog post
  - https://blog.3mdeb.com/2024/2024-01-12-aem_phase3/

Phase 4 - started

- Qubes OS AEM on AMD boards with TPM 1.2 and TPM 2.0
- HW selection
  - Asus KGPE-D16
  - Supermicro M11SDV-4C-LN4F (QubesOS 4.2 install issue)
  - subject to change



QubesOS installation issue: https://github.com/QubesOS/qubes-issues/issues/8322#issuecomment-1904423204

Further plans

Phase 5

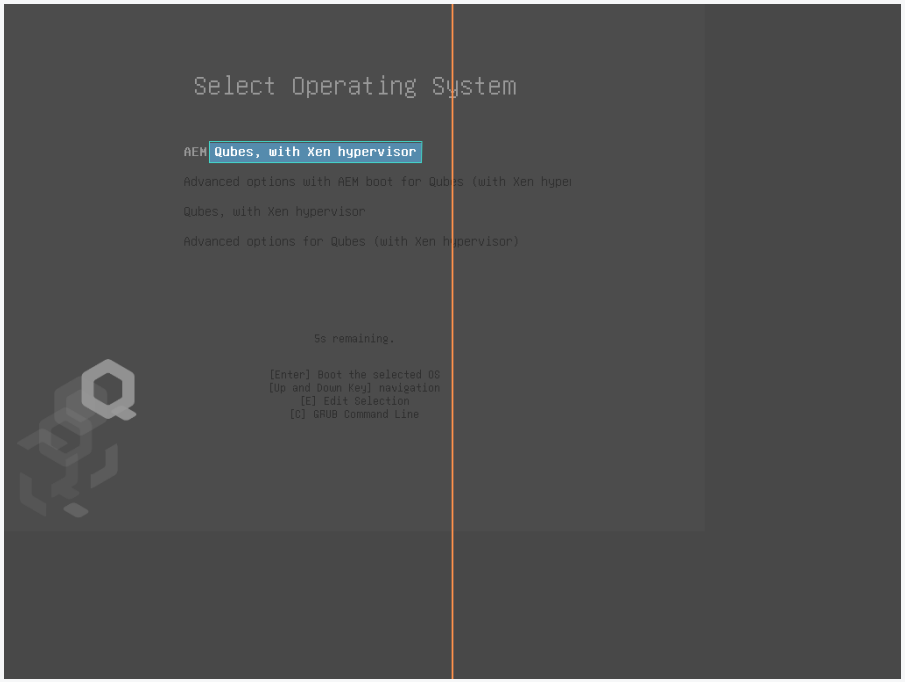
- Phase 5
  - UEFI support
    - so far we focused on legacy boot
    - both Intel and AMD
    - both TPM 1.2 and TPM 2.0
  - Finalizing scope
  - To be presented as another GH milestone
  - Opens up wider hardware variety

Testing and documentation improvements

- Project consists of multiple moving parts
- Installation of custom packages under QubesOS can be challenging
- A lot of manual work was required
- We have started some automation effort as shown in the last status

Testing and documentation improvements

- The goal is to move that forward
  - Run tests on hardware, not only QEMU
  - Automatically install artifacts from Github Actions



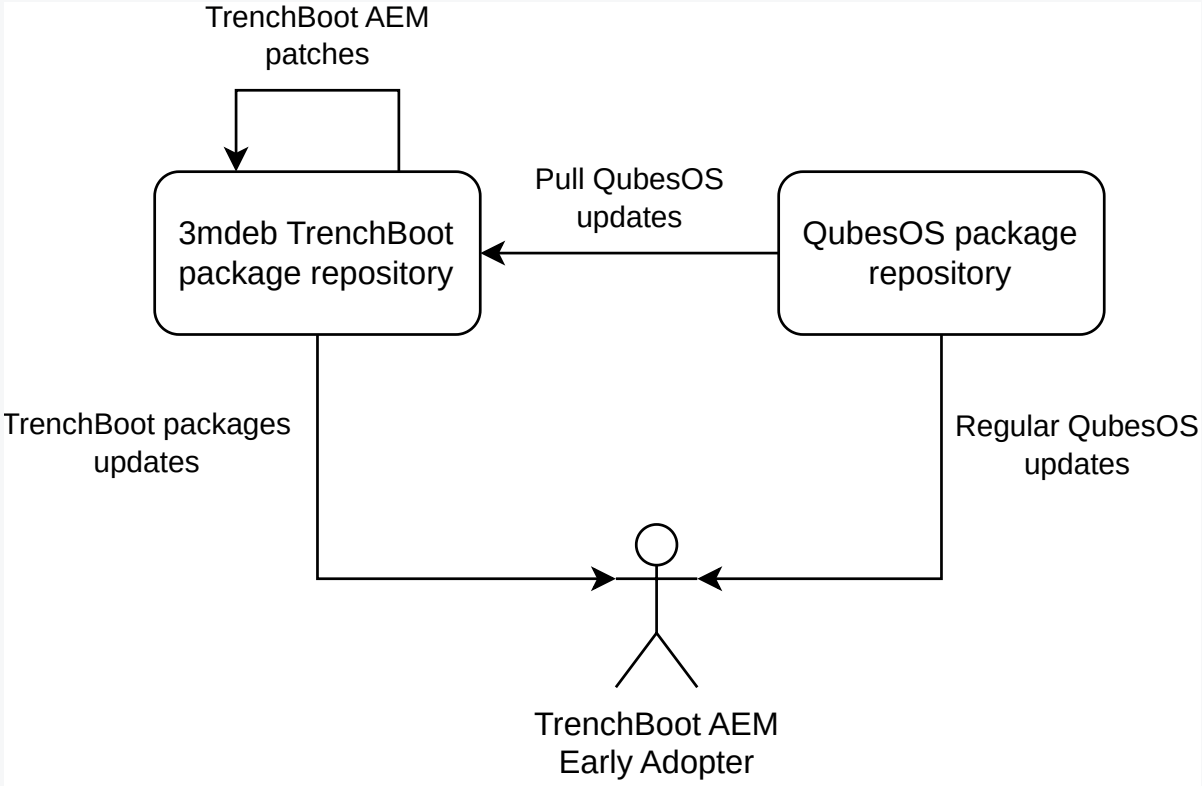
Upstream TrenchBoot AMD Linux patches

- Intel series in progress
  - v7 and counting
  - https://lore.kernel.org/lkml/20231110222751.219836-1-ross.philipson@oracle.com/
- nlnet grant for AMD equivalent
  - https://nlnet.nl/project/TrenchBoot-AMD/
- Sync with Oracle's latest work
- Will need some more time to start this effort
  - ideally if some Intel part is already merged

More Dasharo synergies

DASHARO

Early Adopters



- Interested? Join [Matrix channel](#).

Matrix channel

- TrenchBoot Matrix channel
  - https://matrix.to/#/#OSFW-Trenchboot:matrix.org

Contact us

We are open to cooperate and discuss

- contact@3mdeb.com
- facebook.com/3mdeb
- @3mdeb_com
- linkedin.com/company/3mdeb
- https://3mdeb.com
- Book a call
- Sign up for the newsletter

Feel free to contact us if you believe we can help you in any way. We are always open to cooperate and discuss.

Q&A

After party