Oniro on Volla Devices

Volla Community Days 2024

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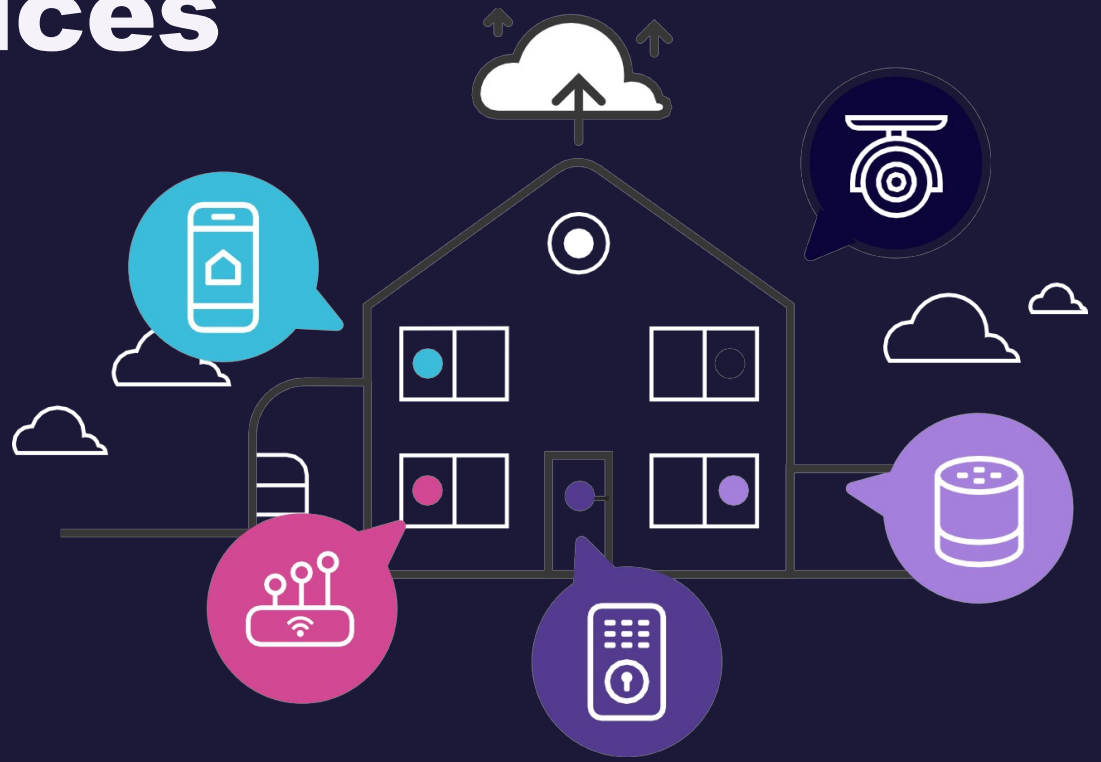


oniro

Agenda

- Oniro & OpenHarmony Overview
- X23 as Developer Handset
- Current Development Status
- Future Roadmap

Oniro Overview

The Eclipse Oniro project is centered around the Oniro Working Group at the Eclipse Foundation https://oniroproject.org

“Oniro is an Eclipse Foundation project focused on the development of a **distributed open source operating system** platform that enables interoperability of consumer devices, regardless of brand, make, or model.The platform is designed to be compatible with a broad range of embedded operating system environments, including OpenHarmony, an open source operating system specified and hosted by the OpenAtom Foundation.”

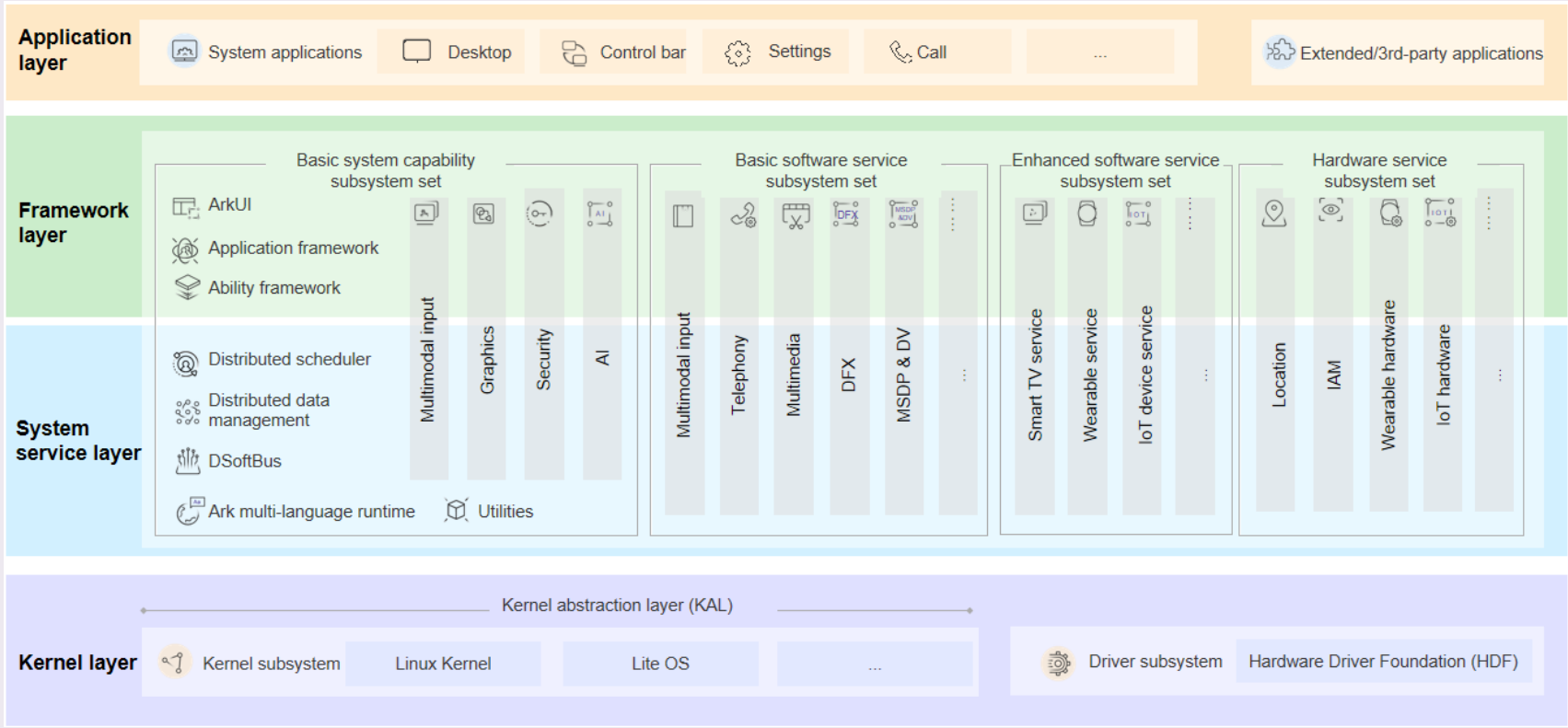
- Started 2020 as sister project to OpenHarmony for Europe and other markets
- Development of additions based on the needs of these markets

OpenHarmony Overview

- Hosted and developed at the OpenAtom Foundation
- Open Source foundation of HarmonyOS
- Apache 2.0 licensed

- Mini, small and standard systems
- Linux and Lite OS

- 274 certified products from 108 manufacturers
- Chinese market
- Expanding markets



OpenHarmony Overview

Three different system types:

- Mini (Cortex-M, >= 128 KiB, RTOS) system
- Small (Cortex-A, >= 1 MiB, RTOS or Linux) system
- Standard (Cortex-A, >= 128 MiB, Linux) system
- Linux and LiteOS

- DSoftBus, distributed scheduler and data management
- Kernel Abstraction Layer (KAL)
- Hardware Driver Foundation (HDF)
- ArkTS as extended TypeScript based application framework

Volla X23 Developer Handset

- Oniro project is missing a good developer device
- A fully working product would be preferred over a dev board like the Pi

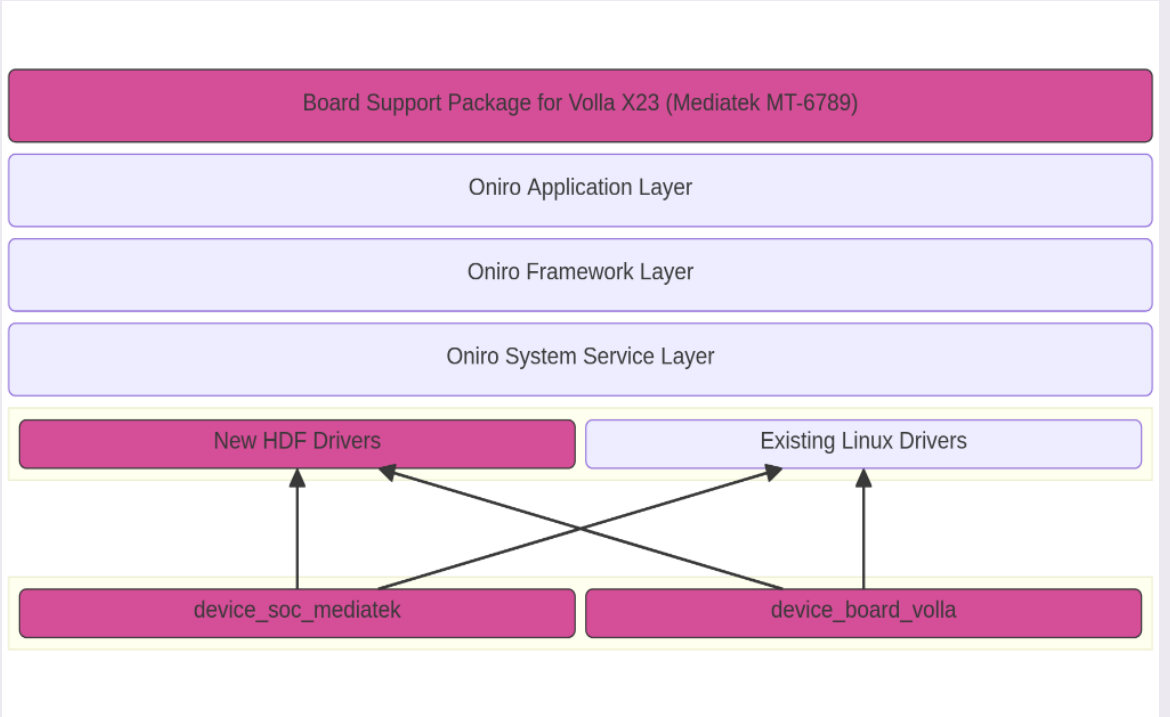
Goals:

- Stable BSP based on mainline Linux
- Fully supported target in DevEco Studio IDE for application development
- Easy access, off-the-shelf, purchase in Europe
- Hardware platform for partners

Kernel Selection

Base kernel options for enablement:

1) Work with Volla, Coosea Group and Mediatek on a non-Android board support package (BSP) for the board
2) Start from mainline Linux kernel and enable MT-6789 (Volla X23 SoC) specific parts for basic boot bringup
3) Stripping down Android common kernel and remove all Android specific interfaces and userspace requirements



A fully mainline based BSP would be the best solution:

- OpenHarmony kernel tracks mainline and platform feature patches are updated regularly
- Avoiding conflicts with features and Android userspace interfaces
- Decoupling from AOSP release cycle

Current Development Status

- Oniro running in LXC container for rapid testing cycles
- Enablement of system services
- Kernel modifications needed for system bringup (HDF, hiview, hilog, binder configuration, etc)
- Operating on sub-optimal Android common 5.10 kernel to allow progress
- Verification of older mainline patches from Jami

Roadmap

Phase 1: Proof of Concept

- Kernel patches for Oniro on top of Android common
- Finish enablement of system services in LXC container
- Create system.img with Oniro rootfs, to allow super.img + boot.img fastboot flashing

Phase 2: Developer Handset

- Mainline Linux kernel based instead of Android common
- Production ready images for X23
- Enablement for DevEco Studio IDE target
- OTA infrastructure enablement for different streams (stable, beta, development, etc)
- Maybe an pre-installed option in Volla shop

Thank you!

Join us @
oniroproject.org