RustNL

GOSIM 2024 EUROPE

THE ONIRO PLATFORM

AN OPEN SOURCE OPERATING SYSTEM PLATFORM DEVELOPED AS AN ECLIPSE FOUNDATION PROJECT
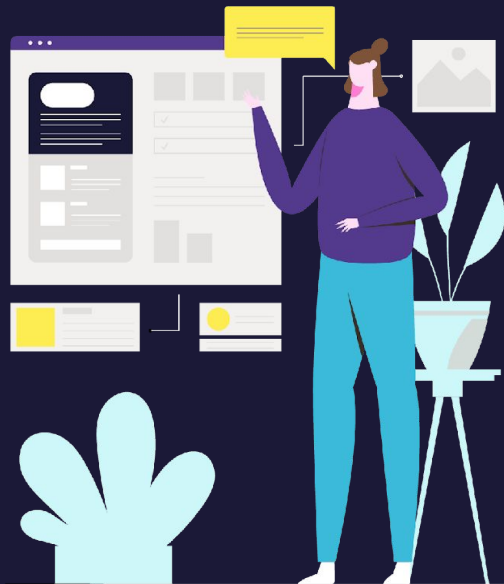
Juan Rico

Senior Manager Oniro and Cloud Programs - Eclipse Foundation

May 6th, 2024

Open Source Operating System Platform

THE **MISSION** IS TO ACHIEVE THE GOAL OF AVOIDING TECHNOLOGY SILOS THROUGH THE PATH OF **OPEN SOURCE.** THAT MEANS **PROVIDING EVERY DEVICE MAKER WITH THE SAME TECHNOLOGY BASELINE,** IN AN **OPEN, TRUSTED, TRANSPARENT, COLLABORATIVE WAY.**
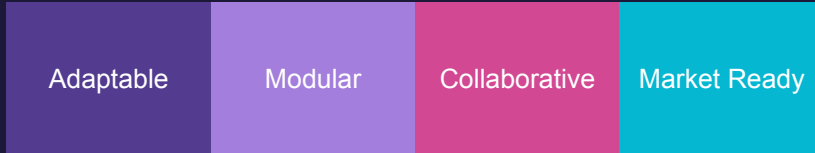
Ōniro Members

Eclipse Foundation

Oniro 4 Principles

Adaptable	Modular	Collaborative	Market Ready

What's next in Oniro

Eclipse Foundation

Oniro 4 Principles

What's next in Oniro

The Community for Open Innovation and Collaboration

Community driven.
Code first.
Commercial-friendly.

ECLIPSE®
FOUNDATION

We host a broad spectrum of industry collaborations

Open Source Java
- ADOPTIUM
- JAKARTA EE
- MICROPROFILE
- OSGi

Automotive & Mobility
- SDV (Eclipse Software Defined Vehicle)
- openMDM (Measured Data Management)
- openMobility
- openPASS

Embedded, IoT & Mobile
- eclipse iot
- Eclipse ThreadX
- oniro
- Sparkplug

Next Gen Tooling
- eclipse
- ECLIPSE Cloud DevTools
- Open VSX

Emerging Collaborations
- AsciiDoc
- ECLIPSE CYBER RISK INITIATIVE
- Eclipse Dataspace
- Models for Privacy Eng.
- OPENHW ASIA WG (PROVEN PROCESSOR IP)
- OPENHW EUROPE WG (PROVEN PROCESSOR IP)

Eclipse Foundation

Governance & Processes	IP Management & Licensing	Community Development & Outreach	Infrastructure & Security	Back-Office Operations

ECLIPSE FOUNDATION

The Eclipse Foundation at a glance

Driven by a diverse community of communities, we foster open collaboration and sustainable innovation on a global scale

415+
Projects

2,000+
Committers

360+
Members

21
Industry Collaborations

450M+
Lines of Code

50+
Countries Represented by Committers

$25B+
Shared Technology Investment

65+
Staff Members

Eclipse Foundation unique approach

	GitHub	Single-Vendor Open Source	Eclipse Foundation
Thriving developer community	✔	✔	✔
High quality code that solves complex problems	✔	✔	✔
Ecosystem development and marketing services to drive adoption and monetization		✔	✔
Predictable processes and guidance to deliver large-scale innovation on a regular cadence			✔
Vendor-neutral governance model to support industry-wide collaboration			✔
Business-friendly IP and licensing services to enable commercialization			✔

Eclipse Foundation

Oniro 4 Principles

Adaptable	Modular	Collaborative	Market Ready

What's next in Oniro

ONIRO
The concepts Oniro relies on to develop the Operating System Platform

Adaptable	Modular	Collaborative	Market ready
An open specification to serve devices in multiple domains.	**Modularity is key to introduce innovations and grow Oniro attractiveness to the community**	**Cooperation with EF projects, with other OS Foundations and with other OS projects**	**Creating value through engaging user interfaces & minimizing risks through IP Compliance toolchain**
Oniro specification is based on OpenHarmony to ensure adaptability to hardware of different types, from graphic rich mobile devices to IoT gateways.	The modularity supports the participation and growth in the platform.	The cooperative mindset is of paramount importance to build a global solution.	The toolchain minimize the risk of license infringement in the development of products, while the integration of React to build appealing apps for the OS.

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oniro

ONIRO Interoperability
OpenHarmony intro

OpenAtom OpenHarmony (OpenHarmony for short) is an open source project incubated and operated by the Open Atom Open Source Foundation. It aims to build an open source framework and platform for the **operating system of smart devices in the all-scenario, all-connected, and all-intelligence era**. Promote the prosperity and development of the Internet of Everything industry.

OpenHarmony

Code and Community

100+ million
Number of Code Lines

300000 +
PR Number

76000 +
Forks

26000 +
Number of stars

7500 +
Community contributors

59
Number of SIGs

Adaptable

An open specification to serve devices in multiple domains.

Oniro specification is based on OpenHarmony to ensure adaptability to hardware of different types, from graphic rich mobile devices to IoT gateways.

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ONIRO Interoperability
OpenHarmony market impact

350+

Commercial equipment

44

Software distribution

212

Development Board/Module

350+ products tested

Covers multiple industries, such as finance, ultra-HD, education, commercial display, industry, police, city, transportation, and healthcare.

Module/Development board: 74 vendors, 147 products

Commercial devices: 87 vendors, 174 products

Release: 20 vendors, 34 products

* Source:OpenHarmonyOfficial website

Adaptable

An open specification to serve devices in multiple domains.

Oniro specification is based on OpenHarmony to ensure adaptability to hardware of different types, from graphic rich mobile devices to IoT gateways.

ONIRO Interoperability
How Oniro interoperability is built

OpenHarmony

Specification

OPENATOM FOUNDATION

开放原子开源基金会

Developed following OpenAtom Specification Process

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ECLIPSE FOUNDATION
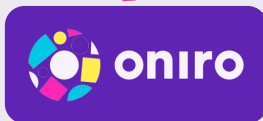
Specification (Superset of OH Specification)

OpenHarmony

Distribution
(OpenHarmony compatible)

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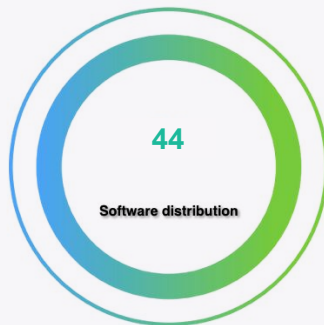
Distribution (Oniro & OpenHarmony compatible)

Adaptable

An open specification to serve devices in multiple domains.

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ONIRO

Adaptable architecture to integrate innovations, maintain interoperability and set our own path.

Modular

Modularity is key to introduce innovations and grow Oniro attractiveness to the community

The modularity supports the participation and growth in the platform.

Open Mobile Hub

React Native

Rust

servo

IP Pipeline
Profiling tools

oniro

OpenHarmony

IDE

Application

Framework

System Services

Driver Subsystem

Swappable Kernel

THEIA

matter

kanto

LAVA
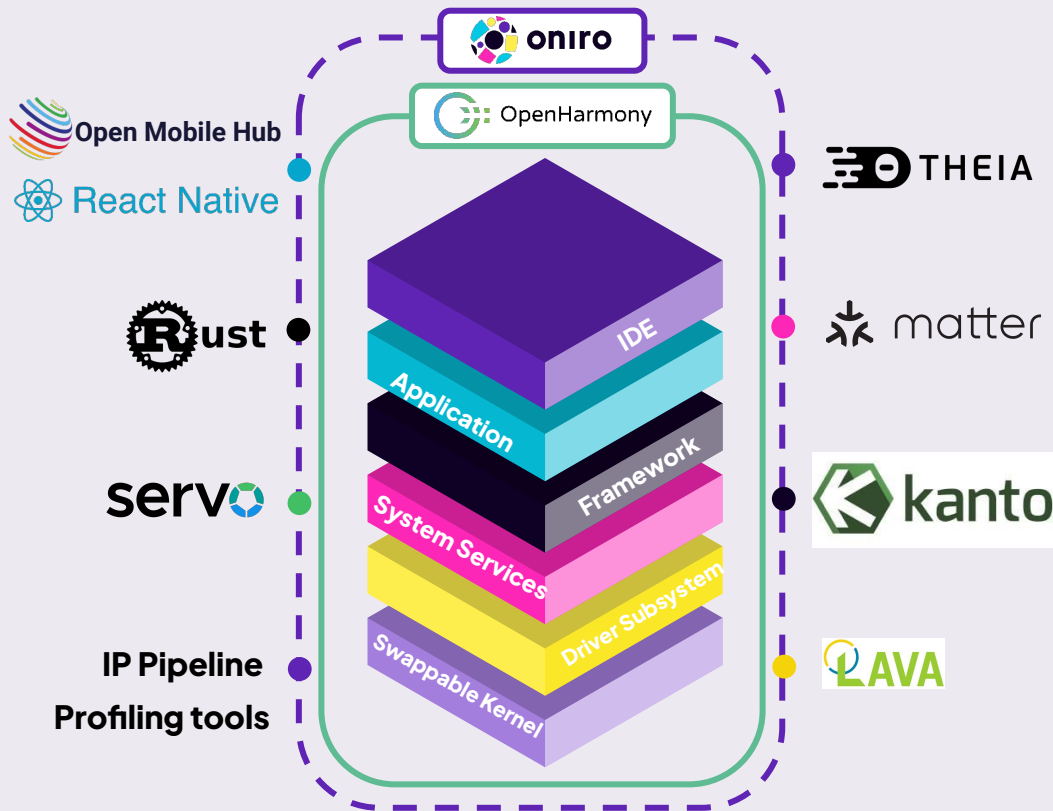
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ONIRO Architecture
Modularity for taking opportunities, scalability and impact

Modular

Modularity is key to introduce innovations and grow Oniro attractiveness to the community

The modularity supports the participation and growth in the platform.

Modularity is not a revolutionary approach, but what makes it valuable for Oniro is:

- **Independent** innovation growth.
- **Synergies** developed with other Open Source initiatives.
- **Opportunistic** selection of technologies.
- **Complement** OpenHarmony code base where needed.
- **Quicker** releases.

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ONIRO Architecture
OpenHarmony/Oniro code downstream and upstream relationship

gitee

Modular

Modularity is key to introduce innovations and grow Oniro attractiveness to the community

The modularity supports the participation and growth in the platform.

Downstream

Eclipse Oniro currently bases its enhancements of OpenHarmony on the 4.0 release. Newer versions will be targeted as they become available and used by the working group members. To collect enhancements and fixes, check for consistency, and run them through continuous integration (CI), the project is using a downstream fork to incorporate these changes.

Upstream

Any modification applicable to OpenHarmony upstream should be proposed via a pull request on the Gitee master branch. By doing so we get crucial feedback from OpenHarmony developers. This will help in the design and implementation of changes, to fit well into the existing code base.

GitHub

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ONIRO

Openess and cooperations - **Do not reinventing the wheel**

开放原子开源基金会
OPENATOM FOUNDATION

OpenHarmony

eclipse iot

kanto

BOSCH

servo

THEIA

HOPERUN

Rust

React Native

Cooperation with EF projects, with other OS Foundations and with other OS projects

The cooperative mindset is of paramount importance to build a global solution.

ONIRO Developer Phone

Offering developers the means to try and exploit the Oniro OS

Why a developer Phone?

1. **European Phone for a European Open Source OS.**

2. **Fully committed with privacy and open source, having in mind the regulatory requirements.**

3. **Offering to the developers community a device for deploying their innovations.**

4. **Complements the already available developer board.**

Collaborative

Cooperation with EF projects, with other OS Foundations and with other OS projects

The cooperative mindset is of paramount importance to build a global solution.

ONIRO Developer Phone

Collaborative

Cooperation with EF projects, with other OS Foundations and with other OS projects

The cooperative mindset is of paramount importance to build a global solution.

ONIRO Developer Phone
Volla Phone

The Goal: open-source backed and EU based mobile phone running Oniro OS

Stage 1

SoC & Driver Analysis
Upstream vs. AOSP

Mediatek Support
Secure Resources & HQ Backing

Hardware Enablement Plan
Requirements & Contracting

Stage 2

Kernel Porting
Basic Boot Functionality

Graphical Boot
Initial UI Display

HDF Support
Driver Integration & Example Sensors

Stage 3

Subsystem Activation
Audio & WiFi

App Store Launch
Oniro Apps Marketplace

Stage 4

CI Test Images
User Feedback Loop

Documentation
Developer & User Guides
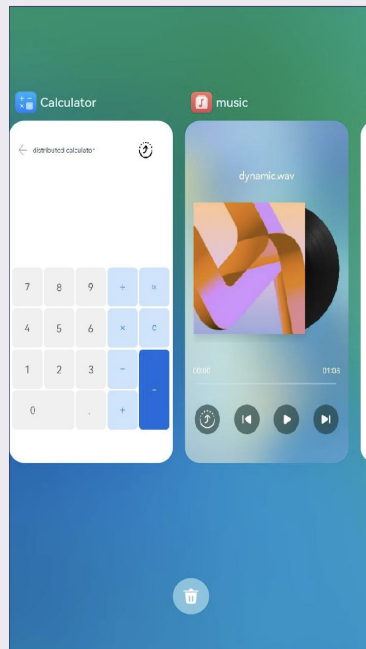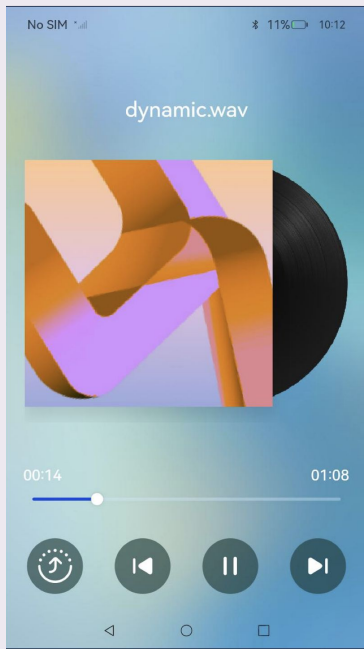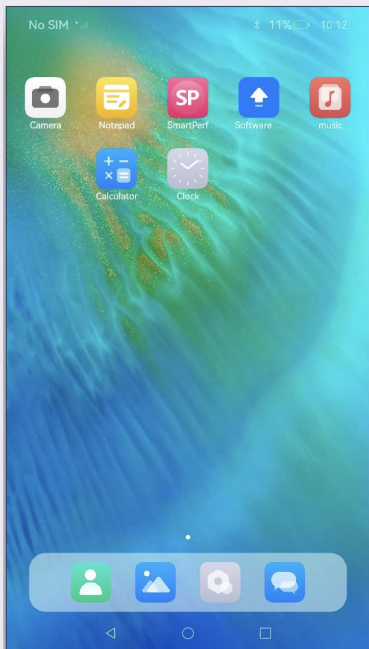
Demonstrable Apps
Native and ReactNative Apps

Collaborative

Cooperation with EF projects, with other OS Foundations and with other OS projects

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BOSCH

HOPERUN

To integrate an IoT backend supporting the implementation of IoT uses cases based on Oniro.
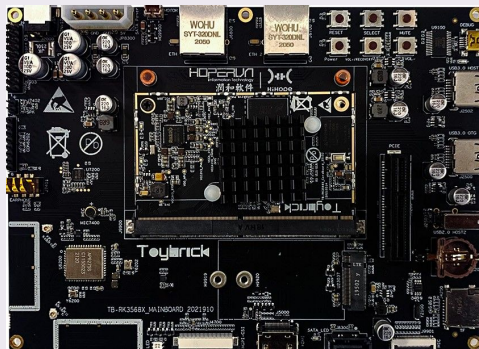
- Integrates [Eclipse Kanto](#) a widely deployed IoT management platform.
- Supports the integration of commercial sensors as part of the remote management need.
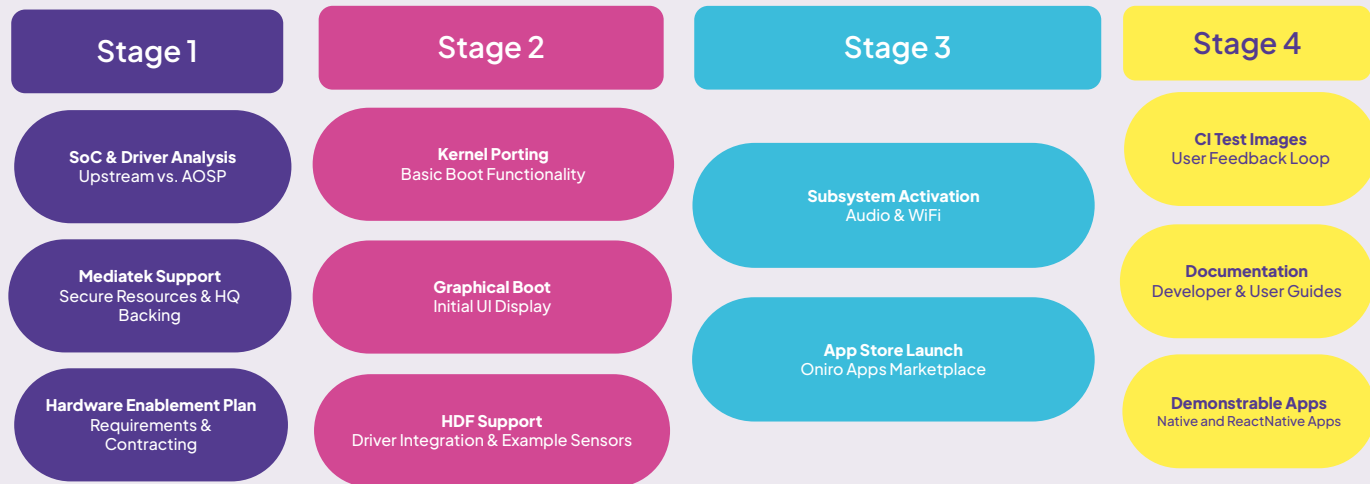- Demonstrate Oniro value in the IoT vertical

Collaborative

Cooperation with EF projects, with other OS Foundations and with other OS projects

The cooperative mindset is of paramount importance to build a global solution.

[Access to the repo](#)   Oniro Devlopment Board HiHope HH-SCDAYU200 - [Doc](#)

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ONIRO Market readiness
Paving the way from idea to the market

Market ready

Creating value through engaging user interfaces & minimizing risks through IP Compliance toolchain

The toolchain minimize the risk of license infringement in the development of products, while the integration of React to build appealing apps for the OS.

React Native

Supporting ***cross-platform*** *developers*

IP Compliance Toolchain

Automating *IP scanning (built in CI/CD process) to minimize go to market risks.*

ONIRO Market readiness
React app working in a HiHope HH-SCDAYU200

Rich GUI & IP Compliance

Creating value through engaging user interfaces & minimizing risks through IP Compliance toolchain

Bringing an extended developer framework opens new challenges that will be covered in the short term.

- Application ecosystem

- App validation framework

YouTube [Bringing Graphical Applications to Oniro on the Example of React Native](#)
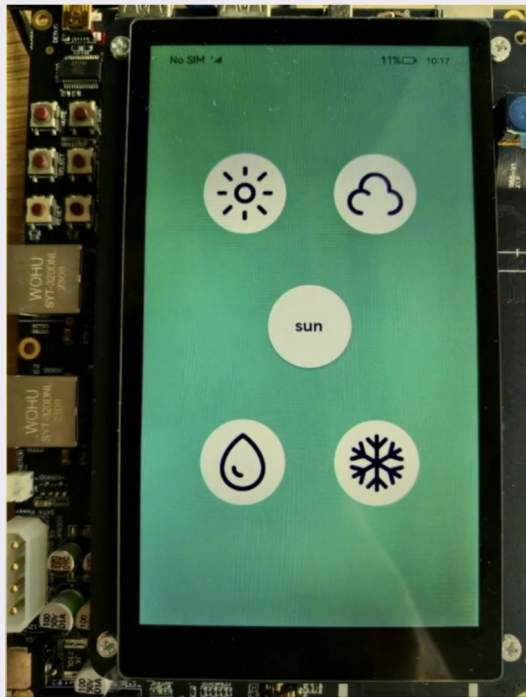
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React app working in a HiHope HH-SCDAYU200

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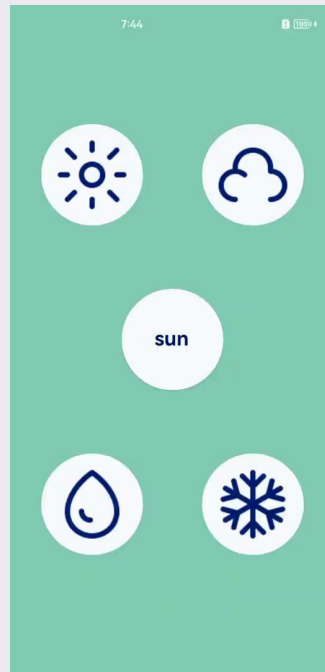
ONIRO Market readiness
Oniro IP compliance toolchain

Rich GUI & IP Compliance

Creating value through engaging user interfaces & minimizing risks through IP Compliance toolchain

Eclipse Oniro Compliance Toolchain implements a **Continuous Compliance workflow for Oniro repositories.**

- Checks **1st and 3rd party** components.
- Combines ScanCode and FOSSOLOGY
- Generate an outcome that can be checked by the Audit team identifying IP issues.
- **Early identification – Early fixing**

GitLab   Oniro Compliance toolchain repo

Providing a user interface to simplify the process of the results of the scan.

Rich GUI & IP Compliance

Creating value through engaging user interfaces & minimizing risks through IP Compliance toolchain
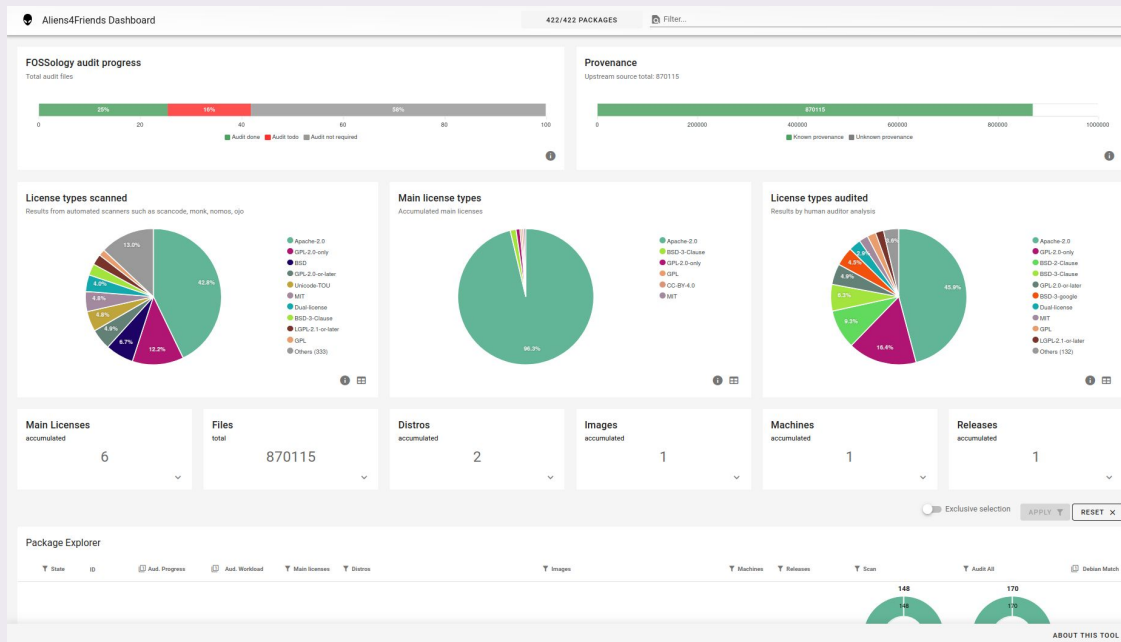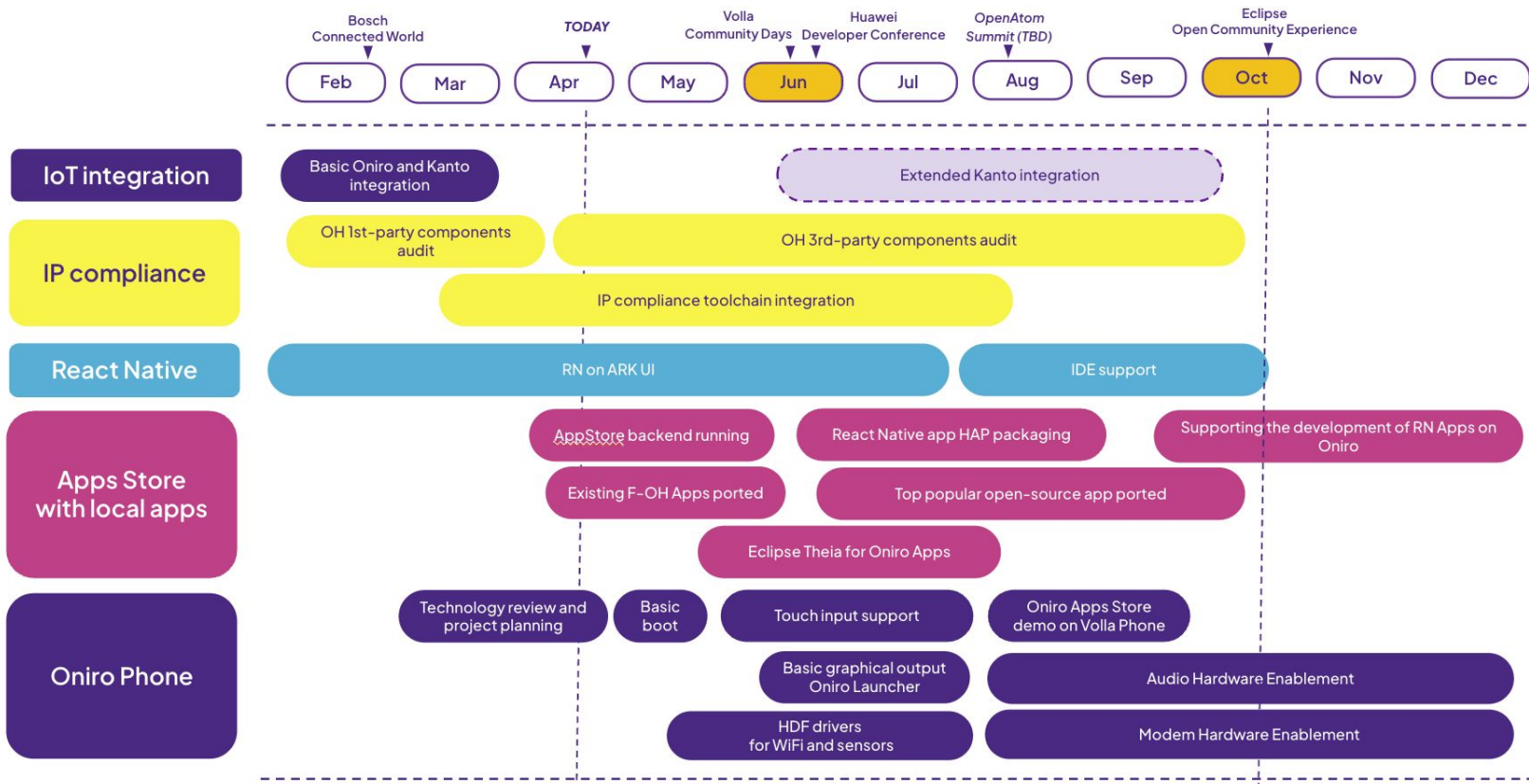
Eclipse Foundation

Oniro 4 Principles

What's next in Oniro

Oniro Roadmap 2024

	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Events:
- Bosch Connected World (Feb)
- TODAY (Apr)
- Volla Community Days (Jun)
- Huawei Developer Conference (Jun)
- OpenAtom Summit (TBD) (Aug)
- Eclipse Open Community Experience (Oct)

IoT integration
- Basic Oniro and Kanto integration
- Extended Kanto integration

IP compliance
- OH 1st-party components audit
- OH 3rd-party components audit
- IP compliance toolchain integration

React Native
- RN on ARK UI
- IDE support

Apps Store with local apps
- AppStore backend running
- React Native app HAP packaging
- Supporting the development of RN Apps on Oniro
- Existing F-OH Apps ported
- Top popular open-source app ported
- Eclipse Theia for Oniro Apps

Oniro Phone
- Technology review and project planning
- Basic boot
- Touch input support
- Oniro Apps Store demo on Volla Phone
- Basic graphical output Oniro Launcher
- Audio Hardware Enablement
- HDF drivers for WiFi and sensors
- Modem Hardware Enablement
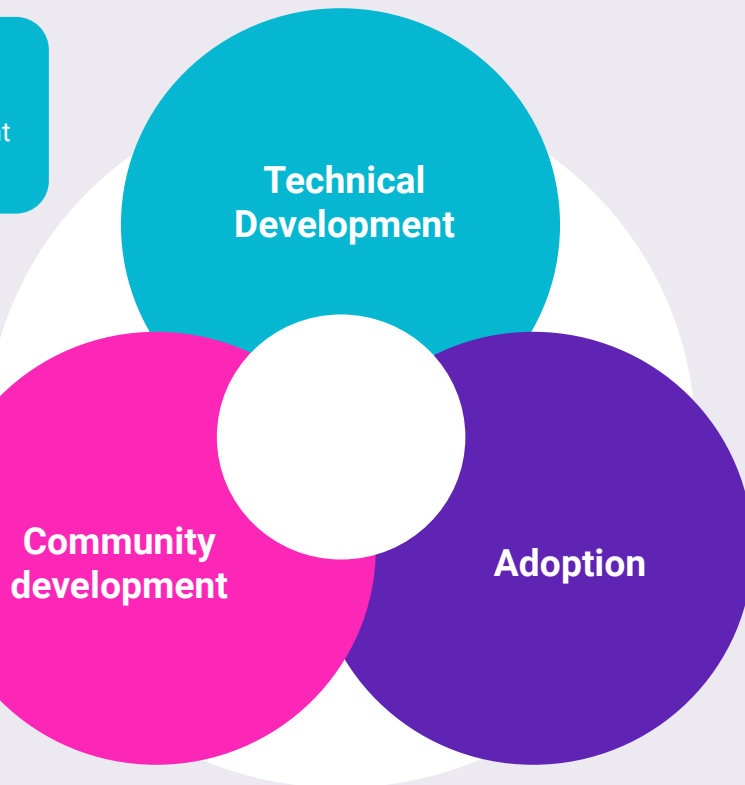
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Short term challenges

- Servo Integration
- Rust Integration
- Application ecosystem development
- IDE support for app developers

Technical Development

Community development

Adoption

- New Hardware to run Oniro OS
- Development of end user apps
- Porting of existing OS apps
- Integration in new verticals

- New members for the WG
- New committers contributing to Oniro
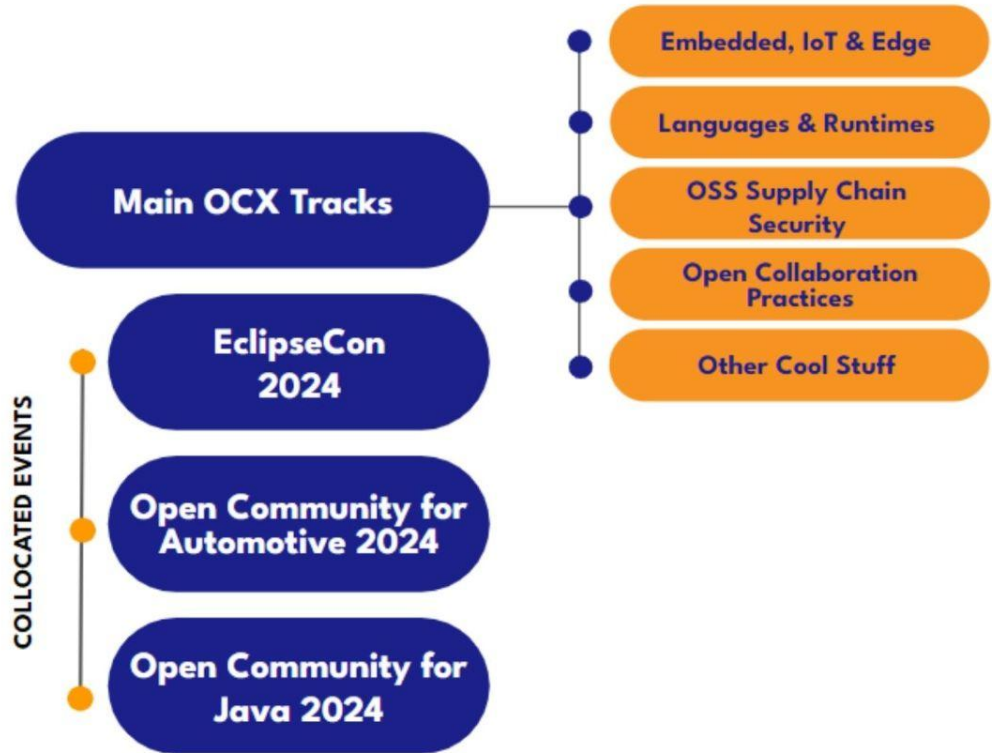- Alliances and cooperation with other FOSS initiatives

OCX24
#OCX24

22-24 October 2024
Mainz, Germany

CALL FOR PROPOSALS NOW OPEN!

OCXconf.org

Open Community Experience 2024 is the Eclipse Foundation's flagship developer conference. As the leading forum in Europe for developers engaged in open source ecosystems to meet, share ideas and experiences, and learn from each other, this is a event you won't want to miss.

Main OCX Tracks

- Embedded, IoT & Edge
- Languages & Runtimes
- OSS Supply Chain Security
- Open Collaboration Practices
- Other Cool Stuff

COLLOCATED EVENTS

EclipseCon 2024

Open Community for Automotive 2024

Open Community for Java 2024

Join OCX24 at the Open Community Expirience!

OCX 24

SAVE THE DATE!

22-24 October 2024
Mainz, Germany

GET YOUR TICKET

OCX24
OPEN CODE EXPERIENCE

Resources

Communication channels:

- Oniro Working Group mailing list: oniro-wg@eclipse.org
- Oniro Projects (technical) mailing list: oniro-dev@eclipse.org
- Chat channel: #oniroproject at matrix
- X: @oniro_project #Oniro

    LinkedIn: Oniro Project

Eclipse Oniro Projects:

Eclipse Oniro Compliance Toolchain - Description & Code

Eclipse Oniro4OpenHarmony - Description & Code

Oniro Technical documentation - https://docs.oniroproject.org/

Oniro Developer Board - https://docs.oniroproject.org/hh-scdayu200.html

Oniro is a collaborative, market focused and code first initiative

Oniro & OpenHarmony	Mobile & IoT	Community of Developers

The relationship between the two initiatives support the **common growth and cross-pollination**. Each focus on their main markets, but compatibility adds an extra value for all.

The current Oniro proposal works on deploying the **same code base for Mobile and IoT devices** demonstrating the mission Oniro set in its conception.
Both cases take advantage of the **market ready principle**.

Oniro as Eclipse Foundation project is a code first initiative. **Developers are welcome to test and experiment** with Oniro code.
Additionally, **OCX is the event where developers' communities present their advances, check the CFP**.

oniro

@your-github-here

THANK YOU

More information available at: www.oniroproject.org

@OniroProject

#oniroproject

Oniro Project

oniro-wg@eclipse.org

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