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
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.
Oniro Members

HUawei
ARRAY
FUTUREwEI
POLICNICO
MILANO 1863
TECHPARK SÜDTIROL ALTO ADIGE
Linaro
SOFTWARE MANSION
Type Fox

COPYRIGHT (C) 2024, ECLIPSE FOUNDATION | THIS WORK IS LICENSED UNDER A CREATIVE COMMONS ATTRIBUTION 4.0 INTERNATIONAL LICENSE (CC BY 4.0)
Oniro 4 Principles

Adaptable  Modular  Collaborative  Market Ready

What’s next in Oniro
Oniro 4 Principles

What’s next in Oniro
The Community for Open Innovation and Collaboration

Community driven.
Code first.
Commercial-friendly.
We host a broad spectrum of industry collaborations

Eclipse Foundation

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

Open Source Java
- Adoptium
- Jakarta EE
- MicroProfile
- OSGi

Automotive & Mobility
- SDV
- openMDM
- openMobility
- openPASS

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

Next Gen Tooling
- Cloud DevTools
- Open VSX

Emerging Collaborations
- Eclipse Dataspase
- Models for Privacy Eng.

COPYRIGHT (C) 2024, ECLIPSE FOUNDATION. | ALL RIGHTS RESERVED
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

<table>
<thead>
<tr>
<th>Feature</th>
<th>GitHub</th>
<th>Single-Vendor Open Source</th>
<th>Eclipse Foundation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thriving developer community</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>High quality code that solves complex problems</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Ecosystem development and marketing services to drive adoption and monetization</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Predictable processes and guidance to deliver large-scale innovation on a regular cadence</td>
<td></td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>Vendor-neutral governance model to support industry-wide collaboration</td>
<td></td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>Business-friendly IP and licensing services to enable commercialization</td>
<td></td>
<td></td>
<td>✔</td>
</tr>
</tbody>
</table>
Oniro 4 Principles

Adaptable  Modular  Collaborative  Market Ready

What’s next in Oniro
<table>
<thead>
<tr>
<th>ONIRO</th>
<th>The concepts Oniro relies on to develop the Operating System Platform</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Adaptable</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Modular</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Collaborative</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Market ready</strong></td>
</tr>
<tr>
<td></td>
<td><strong>An open specification to serve devices in multiple domains.</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Modularity is key to introduce innovations and grow Oniro attractiveness to the community</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Cooperation with EF projects, with other OS Foundations and with other OS projects</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Creating value through engaging user interfaces &amp; minimizing risks through IP Compliance toolchain</strong></td>
</tr>
</tbody>
</table>

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.
**ONIRO**

The concepts Oniro relies on to develop the Operating System Platform

<table>
<thead>
<tr>
<th>Adaptable</th>
<th>Modular</th>
<th>Collaborative</th>
<th>Market readiness</th>
</tr>
</thead>
<tbody>
<tr>
<td>An open specification to serve devices in multiple domains.</td>
<td>Modularity is key to introduce innovations and grow Oniro attractiveness to the community</td>
<td>Cooperation with EF projects, with other OS Foundations and with other OS projects</td>
<td>Creating value through engaging user interfaces &amp; minimizing risks through IP Compliance toolchain</td>
</tr>
<tr>
<td>Oniro specification is based on OpenHarmony to ensure adaptability to hardware of different types, from graphic rich mobile devices to IoT gateways.</td>
<td>The modularity supports the participation and growth in the platform.</td>
<td>The cooperative mindset is of paramount importance to build a global solution.</td>
<td>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.</td>
</tr>
</tbody>
</table>
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.

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
OpenHarmony market impact

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

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
Developed following OpenAtom Specification Process

Specification (Superset of OH Specification)

Adaptable
An open specification to serve devices in multiple domains.

OpenHarmony Distribution (OpenHarmony compatible)

Oniro Distribution (Oniro & OpenHarmony compatible)

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

COPYRIGHT (C) 2024, ECLIPSE FOUNDATION | THIS WORK IS LICENSED UNDER A CREATIVE COMMONS ATTRIBUTION 4.0 INTERNATIONAL LICENSE (CC BY 4.0)
## ONIRO
The concepts Oniro relies on to develop the Operating System Platform

<table>
<thead>
<tr>
<th>Adaptable</th>
<th>Modular</th>
<th>Collaborative</th>
<th>Market readiness</th>
</tr>
</thead>
<tbody>
<tr>
<td>An open specification to serve devices in multiple domains.</td>
<td>Modularity is key to introduce innovations and grow Oniro attractiveness to the community</td>
<td>Cooperation with EF projects, with other OS Foundations and with other OS projects</td>
<td>Creating value through engaging user interfaces &amp; minimizing risks through IP Compliance toolchain</td>
</tr>
<tr>
<td>Oniro specification is based on OpenHarmony to ensure adaptability to hardware of different types, from graphic rich mobile devices to IoT gateways.</td>
<td>The modularity supports the participation and growth in the platform.</td>
<td>The cooperative mindset is of paramount importance to build a global solution.</td>
<td>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.</td>
</tr>
</tbody>
</table>
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.
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.
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.
ONIRO
The concepts Oniro relies on to develop the Operating System Platform

<table>
<thead>
<tr>
<th>Adaptable</th>
<th>Modular</th>
<th>Collaborative</th>
<th>Market readiness</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>An open specification to serve devices in multiple domains.</strong>&lt;br&gt;Oniro specification is based on OpenHarmony to ensure adaptability to hardware of different types, from graphic rich mobile devices to IoT gateways.</td>
<td><strong>Modularity is key to introduce innovations and grow Oniro attractiveness to the community</strong>&lt;br&gt;The modularity supports the participation and growth in the platform.</td>
<td><strong>Cooperation with EF projects, with other OS Foundations and with other OS projects</strong>&lt;br&gt;The cooperative mindset is of paramount importance to build a global solution.</td>
<td><strong>Creating value through engaging user interfaces &amp; minimizing risks through IP Compliance toolchain</strong>&lt;br&gt;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.</td>
</tr>
</tbody>
</table>
Openness and cooperations - Do not reinventing the wheel

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

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.
To integrate an IoT backend supporting the implementation of IoT use 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

**Access to the repo**

Oniro Development Board HiHope HH-SCDAYU200 - [Doc](#)
## ONIRO
The concepts Oniro relies on to develop the Operating System Platform

<table>
<thead>
<tr>
<th>Adaptable</th>
<th>Modular</th>
<th>Collaborative</th>
<th>Market ready</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>An open specification to serve devices in multiple domains.</strong></td>
<td><strong>Modularity is key to introduce innovations and grow Oniro attractiveness to the community</strong></td>
<td><strong>Cooperation with EF projects, with other OS Foundations and with other OS projects</strong></td>
<td><strong>Creating value through engaging user interfaces &amp; minimizing risks through IP Compliance toolchain</strong></td>
</tr>
<tr>
<td>Oniro specification is based on OpenHarmony to ensure adaptability to hardware of different types, from graphic rich mobile devices to IoT gateways.</td>
<td>The modularity supports the participation and growth in the platform.</td>
<td>The cooperative mindset is of paramount importance to build a global solution.</td>
<td>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.</td>
</tr>
</tbody>
</table>
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.

Supporting cross-platform developers

Automating IP scanning (built in CI/CD process) to minimize go to market risks.
Rich GUI & IP Compliance

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

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

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

- Application ecosystem
- App validation framework
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
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
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

ONIRO Market readiness
Visualization for the Oniro IP Compliance toolchain
Oniro 4 Principles

What’s next in Oniro
Short term challenges

Technical Development

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

Community development

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

Adoption

- New Hardware to run Oniro OS
- Development of end user apps
- Porting of existing OS apps
- Integration in new verticals
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 an event you won’t want to miss.
Join OCX24 at the Open Community Experience!

SAVE THE DATE!
22-24 October 2024
Mainz, Germany

GET YOUR TICKET
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](https://docs.oniroproject.org/)
Eclipse Oniro4OpenHarmony - [Description & Code](https://docs.oniroproject.org/)
Oniro Technical documentation - [https://docs.oniroproject.org/](https://docs.oniroproject.org/)
Oniro Developer Board - [https://docs.oniroproject.org/hh-scdyu200.html](https://docs.oniroproject.org/hh-scdyu200.html)
Oniro is a collaborative, market focused and code first initiative.

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.
THANK YOU

More information available at:

@your-github-here

www.oniroproject.org

@OniroProject

#oniroproject

Oniro Project

oniro-wg@eclipse.org

GOSIM 2024 EUROPE