

# Plasma on Mobile devices

Application Ecosystem MC

Bhushan Shah

KDE Developer



**LINUX  
PLUMBERS CONFERENCE** / August 24-28 2020

# Agenda

- Initial development of the Plasma Mobile
- Basic architecture details
- Advantages to KDE community
- Application ecosystem and development
- Future for Plasma Mobile
- Challenges



**LINUX  
PLUMBERS CONFERENCE** / August 24-28 2020

A decorative graphic of yellow pipes with orange valves and a red-handled valve, forming a network around the slide content.

# Introduction

- KDE developer and sysadmin
- Plasma Mobile maintainer and lead developer
- Employed by Bluesystems GmbH
- From Vadodara, India



**LINUX  
PLUMBERS CONFERENCE** / August 24-28 2020

# KDE

- Previously known as the K Desktop Environment
- Now community, which creates free software for end users
- Several products including Plasma, KDE Frameworks, KDE applications.

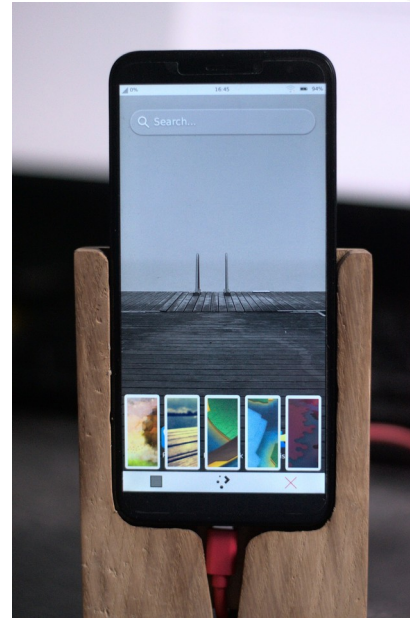
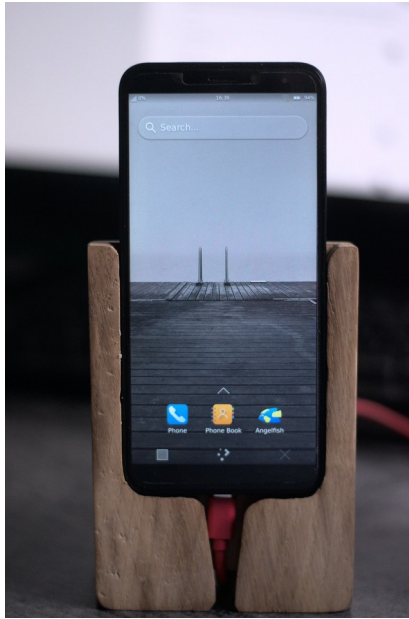
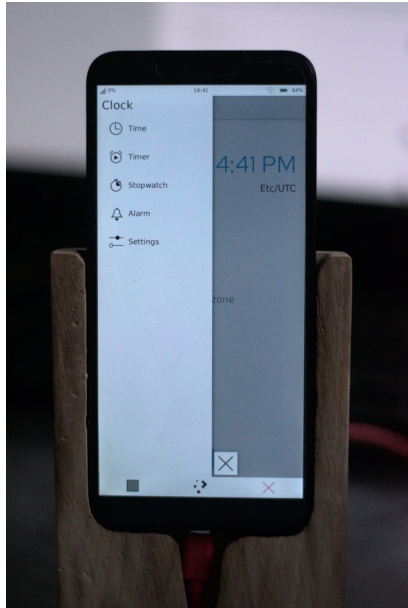




# Plasma Mobile

- Announced in the July 2015
- Vision of providing completely free and open-source mobile platform which respects user's privacy and freedom.
- Initial prototype on the LG Nexus 5.





**LINUX**  
**PLUMBERS CONFERENCE** / August 24-28 2020



# Initial Development

- LGE Nexus 5 as reference device
- Ubuntu Touch 15.04 (vivid) as base system
- Makes use of the Android binary blobs / drivers
- Can also run on the desktop system for development





# Basic architecture details

- KWin wayland as compositor
- DRM/GBM or hwcomposer backends
- plasmashell and mobile shell package
- QtQuickControls2 and Kirigami for application development





A decorative background of yellow pipes and valves. A red valve handle is visible at the top left. The pipes are connected in various ways, creating a complex network of lines and curves.

# Advantages to KDE community

- Several performance improvements
- Better touch input support in applications and shell
- Improvements in Wayland support
- More modular and re-usable user interfaces



**LINUX  
PLUMBERS CONFERENCE** / August 24-28 2020

A decorative background of yellow pipes with various fittings and a red valve. The pipes are arranged in a complex network, with some horizontal, some vertical, and some curved. The red valve is located in the upper left quadrant.

# Application ecosystem and development

- QtQuickControls2 and Kirigami as toolkit
- CMake/QMake as a buildsystem
- Various bundle formats as well as native distribution packaging for the distribution



**LINUX  
PLUMBERS CONFERENCE** / August 24-28 2020

The background of the slide features a complex network of yellow pipes and valves, resembling a plumbing system. The pipes are connected at various points with valves and fittings, creating a grid-like structure. The color is a bright, golden yellow. The pipes run horizontally, vertically, and diagonally, with some curves. The overall aesthetic is clean and technical.

# Future for Plasma Mobile

- Looks brighter than ever
- Phone vendors are mainlining their kernel trees
- Phone vendors are creating devices which runs the open drivers (Purism Librem 5, PinePhone, more)
- Community is mainlining off-the-shelf devices



**LINUX  
PLUMBERS CONFERENCE** / August 24-28 2020

A decorative graphic of yellow pipes with various fittings, elbows, and a valve, forming a network around the text.

# Challenges and work areas

- Application life-cycle
- Hardware enablement and bring-up
- Power management



**LINUX  
PLUMBERS CONFERENCE** / August 24-28 2020

# Application lifecycle

- Limited resources are available on mobile devices
- Start/stop applications from consuming excessive resources
- Giving priority to application in foreground
- Kill the unused applications running in background
- <https://invent.kde.org/libraries/kcgroups>



A decorative background of yellow pipes and valves. A red valve handle is visible at the top left. The pipes run horizontally and vertically, with several elbow joints and smaller connecting pipes.

# Hardware enablement and bring-up

- Working on bringing traditional GNU/Linux to various off-shelf devices
- Binary drivers and Hardware Abstraction Layers from Android
- Modem devices continues to be blackbox
- Downstream kernels



A decorative background of yellow pipes with various fittings, valves, and elbows, set against a light gray background. The pipes are arranged in a complex, interconnected pattern, with some sections being vertical and others horizontal. A prominent red valve with a blue handle is visible in the upper left quadrant.

# Power Management

- Traditional Desktop systems like Plasma assumes huge source of power is available
- Need for benchmarking various components of the system from energy use perspective
- Adapting the userspace for “mobile” related power management features like autosleep and wakelocks



A decorative graphic of yellow pipes and valves, resembling a plumbing system, framing the slide. The pipes are connected by various fittings and valves, with a prominent red-handled valve on the top left. The pipes run horizontally and vertically, creating a grid-like structure.

# Questions and discussions?

Pictures credit: Martijn Braam  
License: CC0



**LINUX  
PLUMBERS CONFERENCE** / August 24-28 2020