



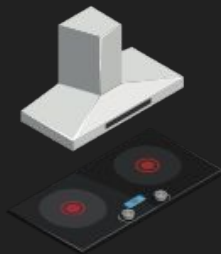
# **Linux and Zephyr interoperability**

## **The start of a beautiful relationship**

Amit Kucheria

# Bio

- Been involved in Linux and Zephyr
- Distro, SoC vendors, Product development
  - A decade @ Linaro
    - Qualcomm upstreaming
    - 96boards
    - Lead the Power Management working group
  - Kernel Engineer @ Canonical
  - Power management @ Nokia Maemo





# The IoT Juggernaut

# Specialists

**Specialists**  
OTA

# Specialists

OTA  
Security

# Specialists

OTA

Security

Key Provisioning



# Specialists

OTA

Security

Key Provisioning

IP Compliance

# Specialists

OTA

Security

Key Provisioning

IP Compliance

Networking

# ~~Specialists~~

OTA

Security

Key Provisioning

IP Compliance

Networking

@



The background of the image is a dark charcoal gray. Scattered across this background are approximately 18 isometric icons of various smart home and IoT devices, all rendered in a lighter gray color. These icons include a smart scale, a fitness tracker, a smart speaker, a video doorbell, a smart microwave, a front-loading washing machine, a coffee machine, a circular smart fan, a smart light switch, a smart stove, a rice cooker, a tall smart refrigerator, a robotic vacuum cleaner, a smartphone with a Wi-Fi symbol, a smartwatch, and a smart water bottle. The text '@internetofshit' is centered in the middle of the image in a large, white, sans-serif font.

**@internetofshit**



# Path to a Product

# Zephyr











# An OS for All Scenarios

Linux

Zephyr

Yocto

Linux

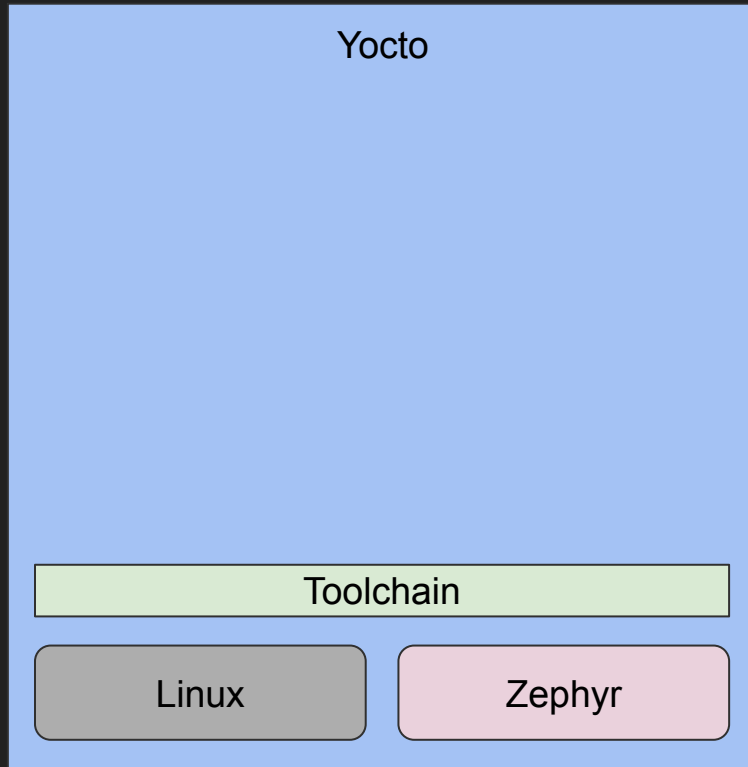
Zephyr

Yocto

Toolchain

Linux

Zephyr



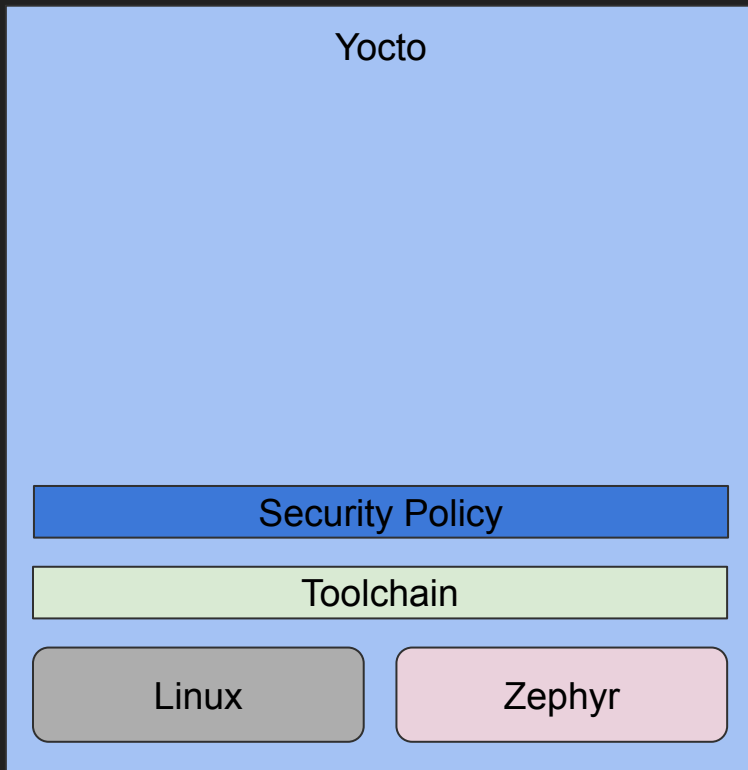
Yocto

Security Policy

Toolchain

Linux

Zephyr



Yocto

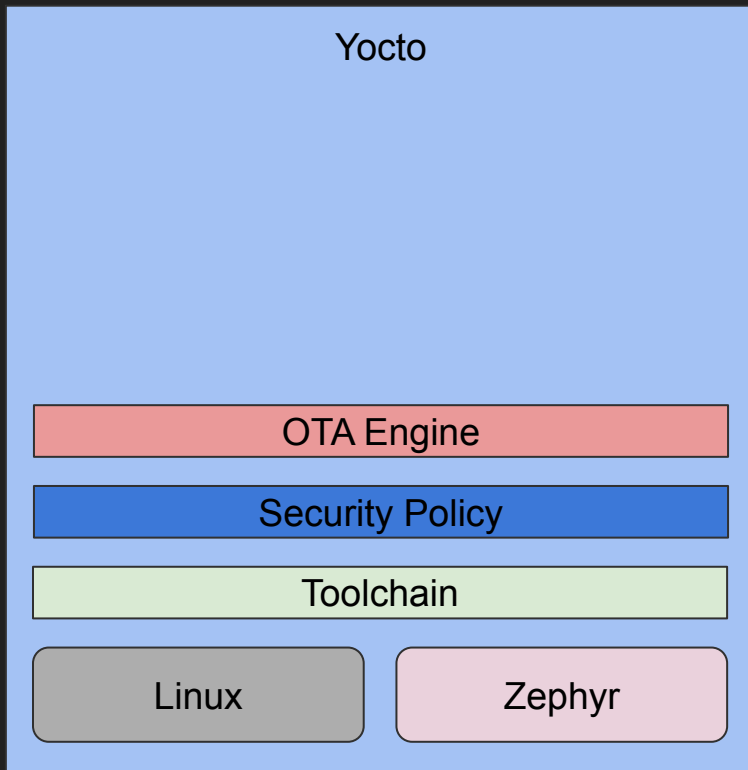
OTA Engine

Security Policy

Toolchain

Linux

Zephyr



Yocto

Net

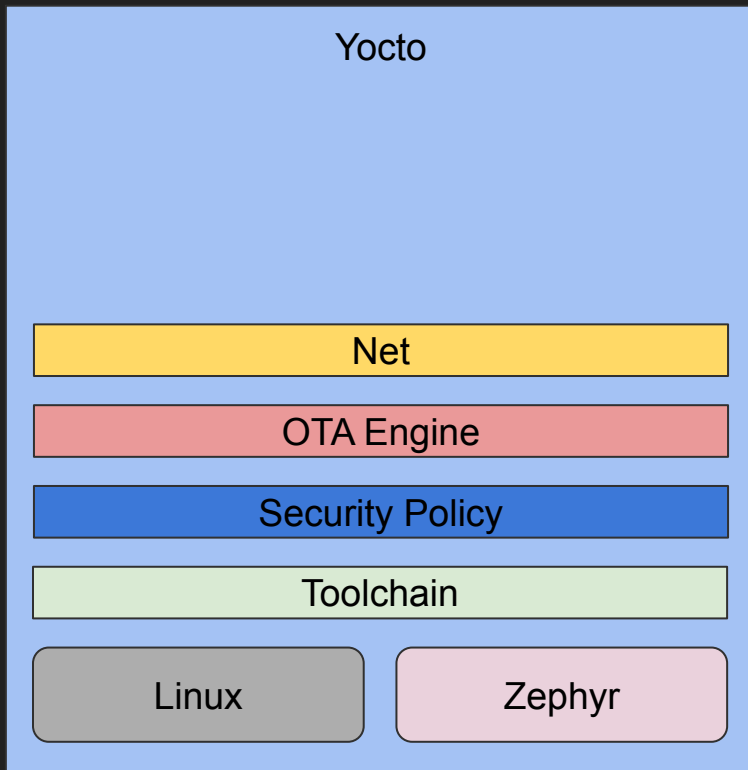
OTA Engine

Security Policy

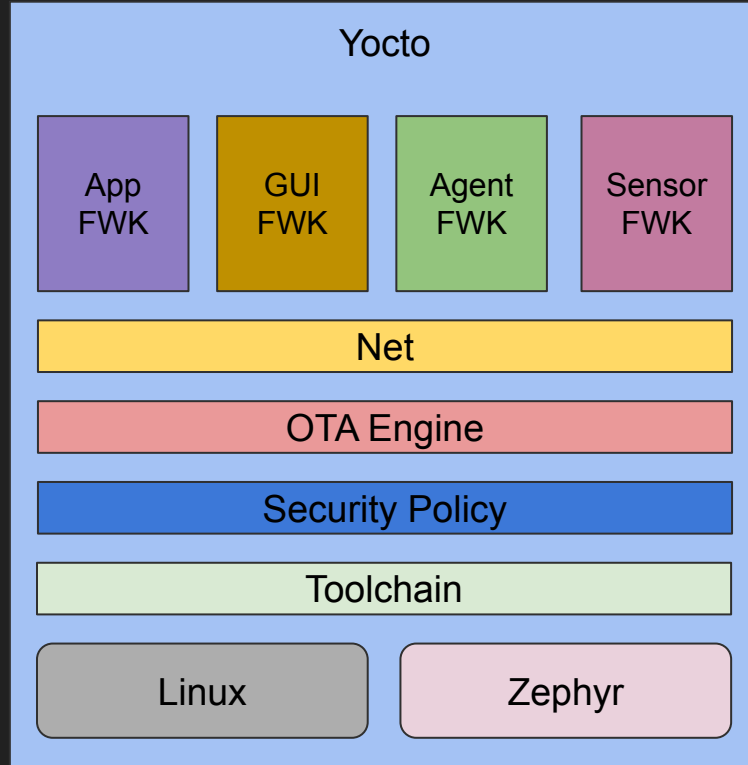
Toolchain

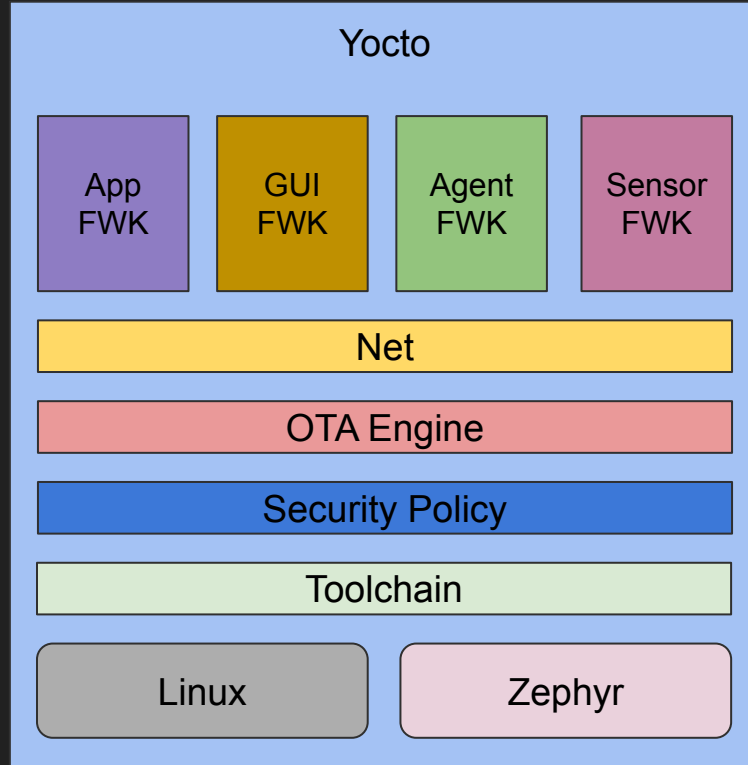
Linux

Zephyr









**Opinionated  
defaults**



## Yocto

App  
FWK

GUI  
FWK

Agent  
FWK

Sensor  
FWK

Net

OTA Engine

Security Policy

Toolchain

Linux

Zephyr

# Library Version Sync

Library Version Sync  
**West bitbake class in Yocto?**

Library Version Sync  
West bitbake class in Yocto?  
**Improve Device longevity**

Library Version Sync  
West bitbake class in Yocto?  
Improve Device longevity  
**Secure Defaults**

Library Version Sync  
West bitbake class in Yocto?  
Improve Device longevity  
Secure Defaults  
**Developer Experience**



Library Version Sync  
West bitbake class in Yocto?  
Improve Device longevity  
Secure Defaults  
Developer Experience  
**SBOM and License Dashboard**

# FOSSology audit progress

Total audit files



# Provenance

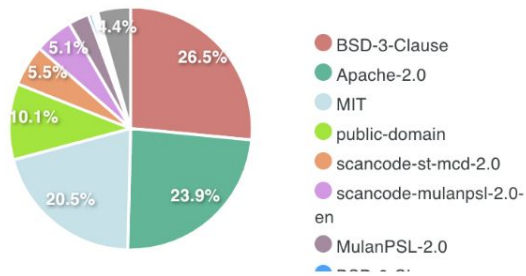
Upstream source total: 1606



# License types scanned

27

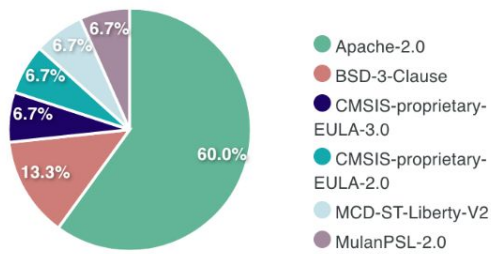
Results from automated scanners such as scancode, monk, nomos, ojo



# Main license types

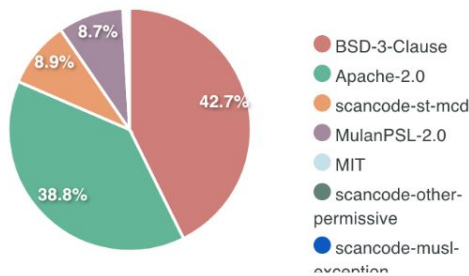
Accumulated main licenses

6



# License types audited

Results by human auditor analysis



# Main Licenses

accumulated

6

# Files

total

1606

# Distros

accumulated

0

# Images

accumulated

0

# Machines

accumulated

0

# Releases

accumulated

1

Library Version Sync  
West bitbake class in Yocto?  
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SBOM and License Dashboard

**Work upstream (Linux, Zephyr, Yocto)**

# Summary

1. Think of Linux and Zephyr as part of a single OS platform for **products**
2. Sync the **package versions** to simplify support
3. Use Yocto/bitbake to enforce **policy** for the platform
4. Use **Blueprints** to create more realistic product MVPs
5. Work **upstream** with Linux/Zephyr/Yocto
6. Use broader Linux + Zephyr use cases to drive **standards** around security, networking, OTA.

**Stay tuned for more @ ELC**

Thanks for listening!



[amitk@kernel.org](mailto:amitk@kernel.org)