

AOSP Toolchain Evolution and Experimental Languages in AOSP

Presented by

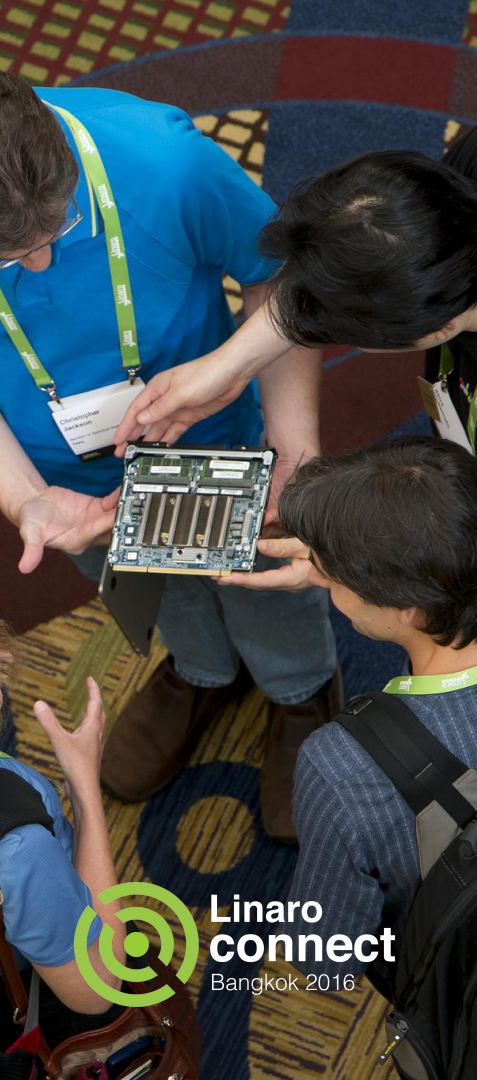
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Event

Linaro Connect BKK16

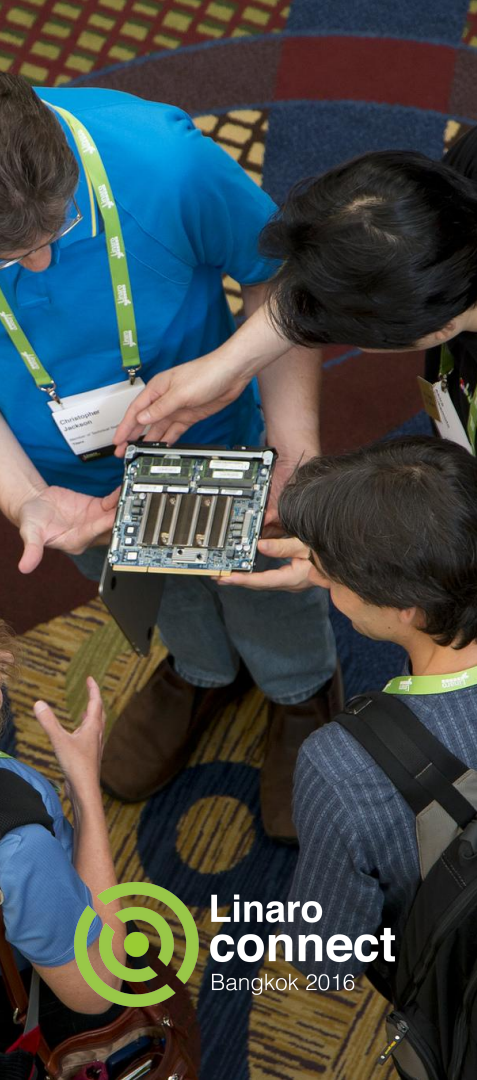


Big toolchain changes ahead...

AOSP is moving towards clang based toolchains rather than gcc.

Current AOSP master already builds completely with clang 3.8 by default.

Kernels and some HAL layers for old devices remain on gcc for now.



What is Linaro doing to help?

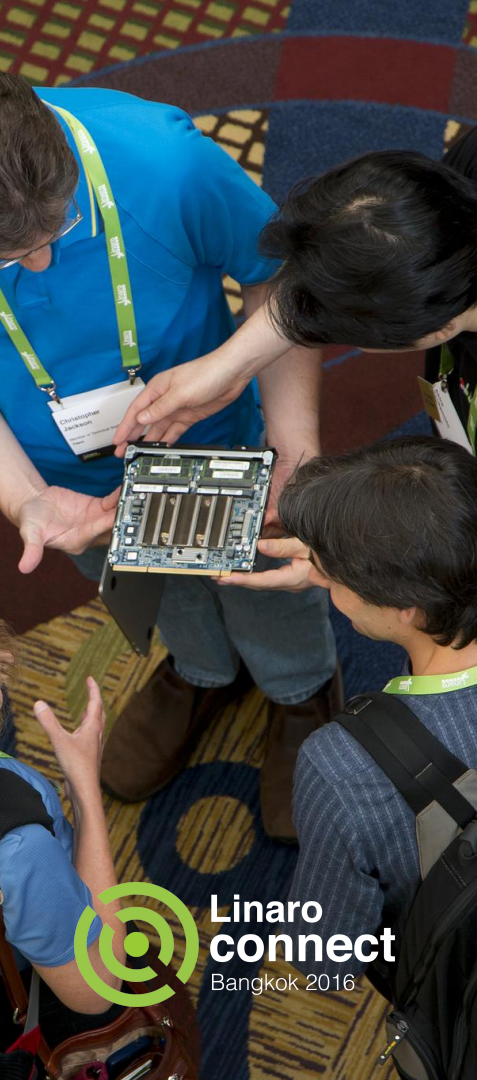
- Initial “make it build with clang” patches came from Linaro
- Fix up assembly code so we don’t have to use `-no-integrated-as` with clang (for ARMv7 and ARMv8)
- Test newer clang builds
- Make sure building with newer gcc versions keeps working as well

Other related changes in AOSP

- Build system changes: OpenJDK 8 required, javac being replaced with jack, ninja replacing GNU make
- Currently, `kati` converts Makefiles to Ninja files
- Future: Android.mk files being replaced with JSON-like files for a new tool, `Soong`

Soong

- Soong is a Makefile generator replacement written in go - it handles simple stuff by itself, complex functionality can be added by writing a go module...



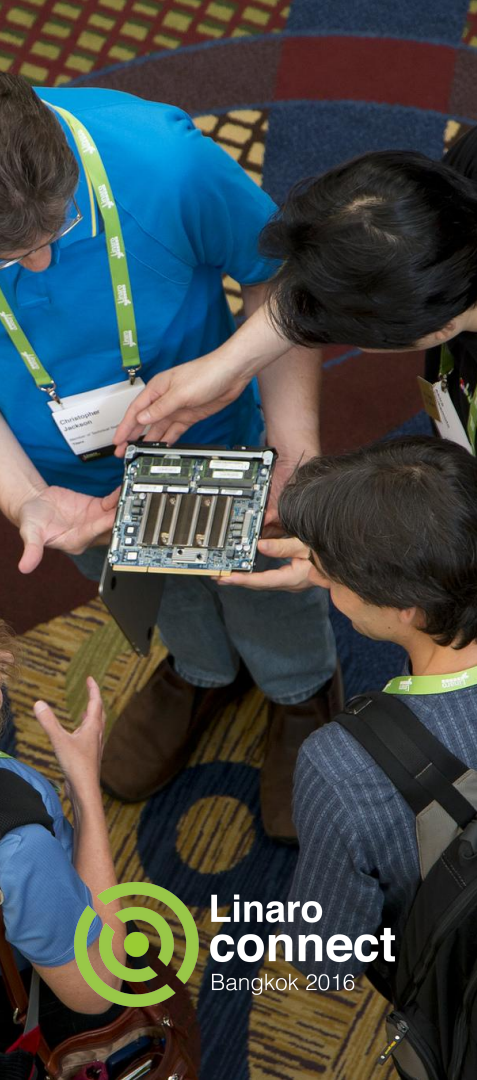
Go

- Yet, there are no signs of any official support for Android applications written in Go
- That may be worth fixing, especially if we want to...

Make AOSP self-hosting

- Step 1: Get toolchain and build tools to work on aarch64 Linux (in progress)
- Step 2: Get it to run on AOSP - adding missing command line tools as we go





Let's make
devices like
this one as
useful as
they could be...



Other languages that could be useful

SWIFT - recently Open Sourced, already running on ARM Linux. Based on clang, which already has Android support and ARM support. Android port in progress...

Useful for people porting code from that other mobile OS?

Other languages that could be useful - Swift

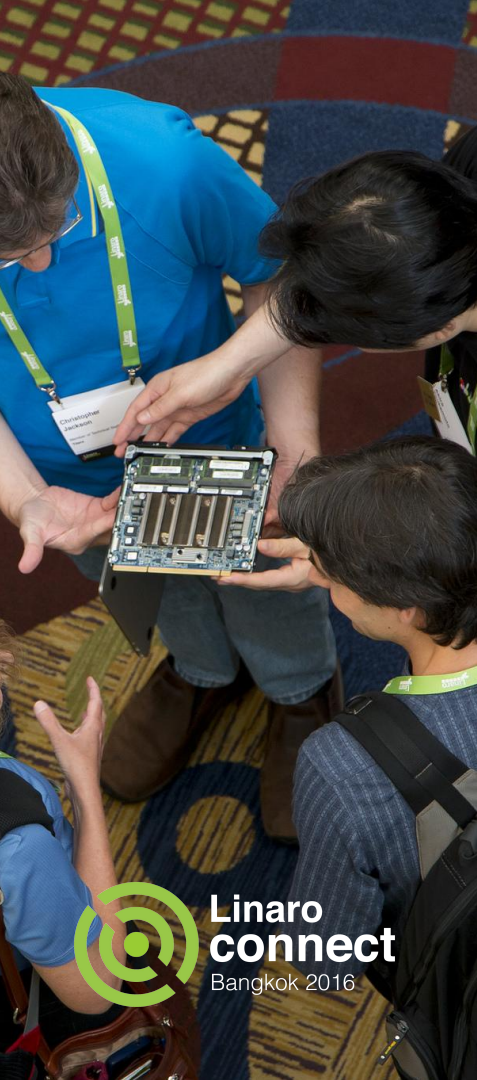
Are we trading away freedom?

- Improvements and Extensions to the language is in the open
- Projects roles open to anyone (even commit and lead!)

Other languages that could be useful - SWIFT

Challenges:

- Need to port/implement the UI libraries to be really useful for cross-platform mobile applications.



Other languages that could be useful

Objective-C/Objective-C++

The next thing from that other mobile OS that comes to mind...tho it's use is falling...

And it already works.

Other languages that could be useful

Rust (<http://rust-lang.org/>)

- In many ways similar to swift
- Based on clang - AOSP support is easy to get.

Other languages that could be useful

C/C++

- Already possible - but there's room for improvements.
 - Libraries doing the JNI wrapping for talking to AOSP components written in Java would be useful
 - Qt for Android (esp. Qt Creator) may need some changes to work well after the clang transition

Questions? Comments?

Talk to us...

Or email:

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