Akraino and O-RAN W6 Colloboration

April 3rd, 2020

Executive summary

› O-RAN W6 group publishes specifications.

› Specifications to deployment requires development of full stack, testing, CI/CD and associated continued support.

› LF Akraino community mission is to deliver proven & tested edge stack for different edge use cases. Akraino community already delivered O-RAN REC blueprint by integrating RIC s/w from O-RAN SC.

› Akraino community proposes following the following to W6

  › Work effort within W6 to convert speficifcations in to a test cases

  › Work effort (Feature project) within Akraino to automate Edge stack test cases (enhancement to existing Akraino automation)

  › Work effort (Blueprints) within Akraino to deliver tested and validated Edge stack supporting O-RAN specifications.

  › Akraino community will coordinate with other O-RAN & O-RAN SC groups if any other coordination required.

  › Akriano community welcomes O-RAN colloboration

Akraino Edge Stack Quick Overview

Akraino Edge Stack is an Linux Foundation open source project that:

› Delivers fully integrated, community tested, "ready and proven" edge cloud open source software stacks (a.k.a Blueprints) to support a wide variety of edge deployments.

› Addresses the integration of open source projects and performs CI/CD, security reviews and testing upfront in the community.

› Contains the right mix of equipment vendors (Dell, HP, Ericsson, Nokia, Windriver, …), chip vendors (Intel, Arm, ...) and providers (AT&T, China Mobile, Baidu, Tencent, …) to collaborate and deliver edge cloud blueprints.

› Creates customized blueprints for specific use cases and validates/tests with community automation at the Akraino Community lab and User labs (a.k.a Validation labs)

› Uses upstream projects for majority of the components within each blueprint.

› Delivered 10+ blueprints in Akraino R1 in June, 2019, and 14+ blueprints in Akraino R2 in January 2020, for Telco, IoT, and enterprise use cases.

› Delivered Radio Edge Cloud (REC) blueprint which integrates with O-RAN SC developed RIC.
https://wiki.akraino.org/pages/viewpage.action?pageId=6128402

› Developing liaison with Telecom Infra Project and intend to liaison with Common NFVI Telco Task Force

AKRAINO EDGE STACK
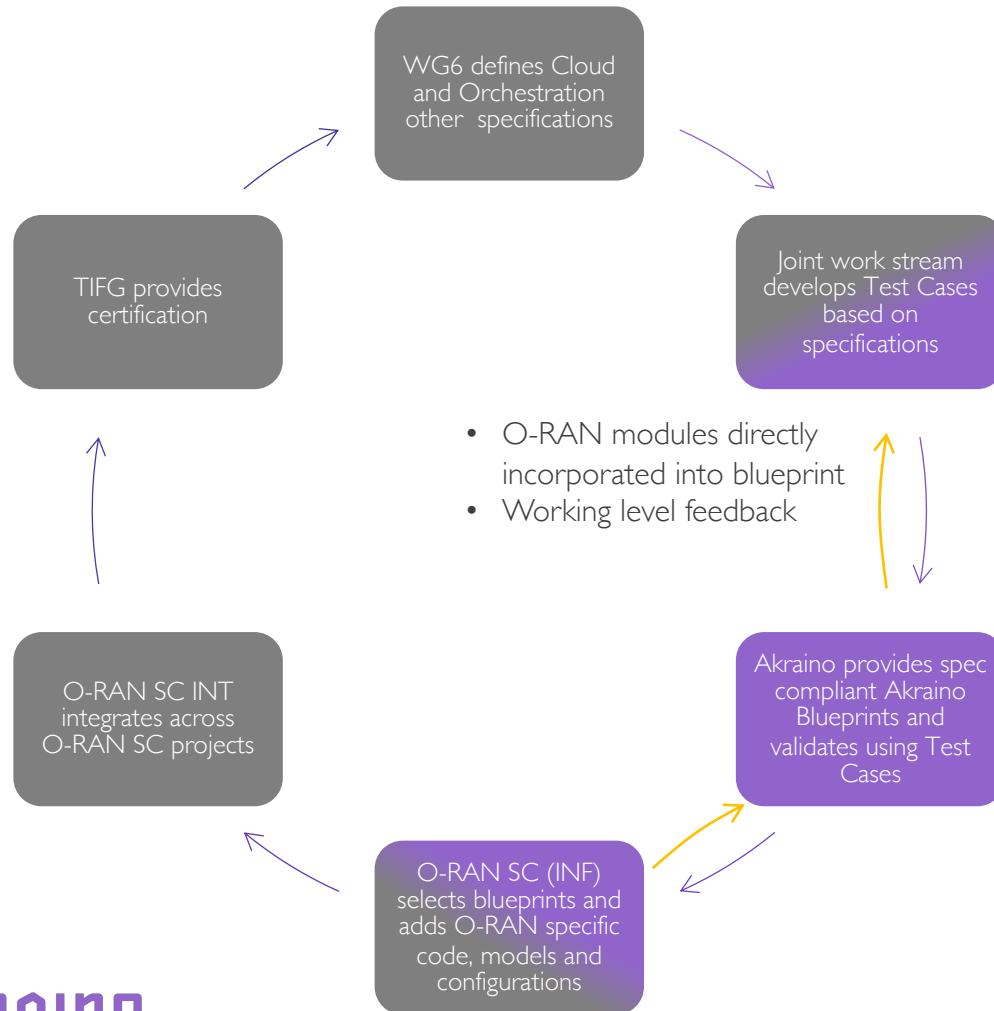
Why O-RAN should use Akraino?

Goal of Contribution:

› Efficient deliver of open source O-Cloud solutions compliant with O-RAN specifications

Proposal:

› In O-RAN W6 -> Define specific test cases for each O-Cloud requirement that can be used by an automated testing framework

› In Akraino -> develop blueprints and testing framework, test blueprints and publish results

  › Leverages Akraino community's established CI/CD, lab infrastructure, automated testing, community process and engagement of right industry players to develop blueprints

  › Avoids duplicate work by companies engaged in both O-RAN and Akraino (e.g, AT&T, Ericsson, Nokia, Intel, Radisys, Qualcomm, Windriver, etc.) to save time and money

  › Delivers Akraino Blueprints with tested edge cloud/Virtualizaiton layer required by O-RAN to support O-RAN developed software and use cases (eg., RIC, CU/DU..)

AKRAINO EDGE STACK

Proposed cross-community colloborations

WG6 defines Cloud and Orchestration other specifications

TIFG provides certification

Joint work stream develops Test Cases based on specifications

- O-RAN modules directly incorporated into blueprint
- Working level feedback

O-RAN SC INT integrates across O-RAN SC projects

Akraino provides spec compliant Akraino Blueprints and validates using Test Cases

O-RAN SC (INF) selects blueprints and adds O-RAN specific code, models and configurations

Akraino Provides:

› Automation of Test Cases

› Lab hardware for validation

› CI/CD environment

› End to End tested Blueprints

Akraino Community Best practices

In Scope Activities:

› Akraino community charter is to develop edge cloud stacks (blueprints) for different use cases.

› Akraino community requires a clear use case for each edge cloud stack. Platform requirements, specs and test requirements from O-RAN (starting with WG-6).

› Akraino community validates the blueprints in the lab. Each BP can have its own release schedule but to be part of Akraino release (every six months) needs to pass community testing/gating.

› Akraino community can support multiple blueprints for same edge use cases (different architecture/solution)

Out of Scope:

› Akraino community does not develop applications (e.g., RAN software).

› Akraino community cannot test all application scenarios (e.g., functionality of RIC or CU/DU) but can test the integration aspects with the cloud

› Akraino community blueprints cannot use proprietary software as part of community integration (all source needs to be open). Proprietary components can be added on top of community delivered software.

› Akraino community cannot fork upstream software; instead community establishes liaison with upstream to bridge any gaps

Next steps

› Request approval to create WG6 work item to define test cases based on O-Cloud specifications

› Working with O-RAN SDFG & LF to establish formal alliance between O-RAN, O-RAN SC and Akraino