03-06-24 - 5G SBP Bi-Weekly Status Meeting

Recording & Transcript

Attendance

Please enter your name and company. Tag yourself using LF ID User Name. Don't have an LF ID yet? Go here: https://myprofile.lfx.linuxfoundation.org/.

Name	Company
LJ Illuzzi	Linux Foundation
Muddasar Ahmed	MITRE
Vijayakumar R Tawker	Veltris
Zahir Patni	Peraton Labs
@Ron Victor	Accuknox

Agenda:

- Antitrust
- Reminder to sign is on this page
- Add meeting logistics/Zoom, etc to top of page
- Welcome 1st Time Attendees
- DST Change Next Week
- Events - ONE Summit Update
- Project Updates
- Upcoming Meetings
- Any Other Business

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LF Anti-trust

- We will start by mentioning the project's Antitrust Policy, which you can find linked from the LF and project websites. The policy is important where multiple companies, including potential industry competitors, are participating in meetings. Please review and if you have any questions, please contact your company legal counsel. Members of the LF may contact Andrew Updegrove at the firm Gesmer Updegrove LLP, which provides legal counsel to the LF.
  - Antitrust Policy

Start Recording

Welcome 1st Time Attendees

Welcome all. new attendees. If you have any questions about participating in this community, please contact Louis Illuzzi (lilluzzi@linuxfoundation.org).

5G Super Blueprint Overview and Getting Started

DST Change- March 10

- This meeting is locked to 1600 UTC, therefore the meeting will shift forward 1 hour for those impacted by DST

Events

- **Upcoming Events:**
    - ONE Summit 2024, April 29 - May 1. San Jose CA
        - Schedule: https://events.linuxfoundation.org/one-summit-north-america/program/schedule/
            - Intent Driven Orchestration for Autonomous Networks Leveraging GenAI, Nephio & ONAP - Keguang He, China Mobile & Ganesh Narayan, Infosys. https://sched.co/1YUrH
            - SEDIMENT for IoT Device Security and Authentication - Zahir Patni, Peraton Labs. https://sched.co/1YUsm
    - **Proposal to add 5G SBP Office hours during ONE Summit, will kiosks be available?** LJ Illuzzi
    - LFN D&TF May 2-3, San Jose CA. Request for Programming Committee help

Project Updates:

5G SBP Use Case - MultiCloud HybridCloud NaaS (Network as a Service)

- A meeting between IBM, Aarna Networks, and LFN took place on 02/16. to discuss high-level overview and scope.
    - Recording
- IBM introduced the concept of application-centric connectivity <---YouTube link
    - IBM Hybrid Cloud Mesh (IBM product). Potential to open source a subset of this product.
      Open-source Mesh components currently include Open Horizon and skupper.io
- Potential to integrate connectivity APIs to CSP 4G and 5G cores - AT&T, as an example
- Next Steps:
    - IBM to present an overview and deep dive of IBM Hybrid Cloud Mesh.

SEDIMENT- Environmental Sensor Use Case

- New version on demo with multiple devices, and includes failure
- Updates to slides in progress.
- Then send to DARPA for approval
- SEDIMENT presentation accepted for ONE Summit: https://onesummit2024.sched.com/event/1YUsm?iframe=no
- Demo on environmental sensors Use Case was presented on 12/06.
    - Recording: https://zoom.us/rec/share/WBx-IEaAOA-Lziq0QFL2fgHeTueprtEMWuJ8OmjFVhyaFY03A2sIZdN6FbA-sZ5U.
      i5IRCAXgvYEuxX45
        - Jump forward 13 minutes for start of demo
- Notes from 02/06 and 02/20- Zahir/LJ
    - Updated demo that includes RA failure. Target end of Feb
    - Submit for DARPA approvals by mid-March

  Established Baselines:

    - Environmental Sensor Use Case will be a separate entry into the Library as opposed to adding to the existing SEDIMENT entry
    - DARPA approval is required. Both Environmental Sensor Use Case for Library submission, as well as ONE Summit presentation, and updated demo will be sent for approval at the same time.
        - April 25 deadline for ONE Summit material submission.
        - DARPA needs 15 business days (3 weeks) for approval process.
        - DARPA approval items should be summitted by mid-March
    - Repo: github.com/sediment-lfproject/remote-attestation

SEDIMENT+KubeArmor

- **New Use Case/Collaboration Proposals:**
    - Project L3AF uses eBPF for LSM (Linux Security Modules). There may be a potential for alignment around security; zero-trust capabilities-.
    - Are there Industry vertical support templates for KubeArmor? @ron victor to followup
        - Next Steps:
            - ☐ Ron to take it up with KubeArmor technical team. LJ Illuzzi send L3AF info to Ron.

            - ☐ Ron to follow up on Industry vertical support templates

    - Can SEDIMENT be ported to Linux to expand it capabilities to say, self-attestation.

- Zahir shared that SEDIMENT can be used on Linux and uses the notion of user-defined functions so that for Linux devices, with much larger storage spaces then IoT devices, specific files can be specified to be attested to insure they have not been tampered with.
- Drilling deeper it is proposed that SEDIMENT might be used to attest a Linux host before deployment. For example, when a CSP deploys Kubernetes infrastructure on Linux based platforms there is a capability where SEDIMENT can attest the host before deployment. A base-level Use Case can show the concept of using Linux to deploy different security-level SLAs
- Expand to confidencial computing?
  - Next Steps:
    - Zahir flushing out the idea internally at Peraton Labs

Intent Driven Orchestration for an Autonomous 5G Network - Keguang He (China Mobile)/Praveen Kumar Kalapatapu (Infosys)

- Overview- Showcase Level 4 Autonomous 5G Network that can be provisioned using Intents and also maintain intents by effectively managing and resolving conflicts without manual interventions. Use case would use TMF 921 standards for the intent management.
- Operators are required to maintain highly complex 5G network based on the varied business requirements/intents.

  Following are the solutions to be addressed in this usecase (Scope)

  1. Automatically manage network availability, scalability and other quality of services as per business requirements/intents with minimal or zero manual interventions.
  2. Standardize the construct used to write Intents and maintain the same.
  3. Scalable to fulfill Edge, Core and RAN Requirements using intents
  4. Provide agility to autonomously resolve conflicts between the intents

- A ONE Summit session has been approved: https://events.linuxfoundation.org/one-summit-north-america/program/schedule/
- There is a need to set up a recurring call on India/China friendly time to keep this moving forward. This may occur through the AI Task Force where an APAC-friendly time is being established
- The AI Taskforce will serve as another platform to move this initiative forward
- Current Work-in Progress:
  - Add Large Model Interactive Interface
  - Create the llm-adaptation service
  - Integrate llm-adaptation with OpenAI.
  - Integrate llm-adaptation with intent-analysis.
  - Fine tune China Mobile's Jiutian large model to obtain a large model suitable for ONAP knowledge question answering and ONAP intent processing
- Next Steps/Goals:
  - Present relevant large model demo at ONE Summit in April
  - Potential add Nephio integration
- A bi-weekly call on Mondays has been established at an APAC friendly time for this project.
  - How do we advertise this initiative to outside world; DT, AT&T?
  - Add meeting logistics here: https://zoom-lfx.platform.linuxfoundation.org/meeting/93560504385?password=edb14ea6-3588-40b3-87f2-f6b879f0403d

----- Back Burner ---------

Orchestration of OAI Core and Amarisoft gNB with EMCO - Yogen/Vikas (Aarna Networks)

Next Steps:

- *Add to the 5G SBP Library.*
  - *Whats needed:*
    - *code- Put it in an Aarna repo*
    - *Additional documentation pending*
- Marketing:
  - Need ETA from Yogen
  - Align with LFN marketing for blog (LJ)
- ONAP SMO?

  ONAP SMO

  - Scope-
    - use ONAP SMO to exercise gNodeB. Showcase RAN connectivity (O1 interface)
    - Showcase orchestration
    - Connect gNodeB
      - Mitigation- UNH can host core but has no resources to implement; Yogen can implement
    - Potential reference point/tie-in with ORAN-SC
  - Requirements/Goals
    - Demonstate connectivity and orchestration
    - exercise Amarisoft gNodeB (UNH)
    - Stretch goal- tie-in with ORAN-SC
    - Stretch goal - Showcase RAN connectivity (O1 interface). OAI not ready with O1 interface
  - Resources-
    - Aarna Networks
    - UNH - gNodeB. Note; gNodeB is T&M gear and will need to be shared among projects.
  - Next Steps-
    - Bring up OAI core and orchestrator with Amarisoft gNodeB - UNH lab

- Create Ansible template / tasks that would deal with the gNodeB - Lincoln/Yogen
- Bring up OAI core at UNH using the orchestrator. No update, been using SD-Core in the meantime
  - LaaS booking, extend the booking to last longer than 21 days - ping Lincoln by email.

Simplified E2E Network Slicing -Yogen (Aarna)

- Simplified Slicing repo; use Aarna repo for now
- Bring in OAI stack
- Next Steps:
  - 5G SBP: Orchestration of OAI Core and Amarisoft gNB with EMCO
  - Slice selection within Edge Site Selection and Placement use case
  - Any other roadmapped items?

SABRES: Slice Selection, Path Validation, Multiparty Management - Lincoln Thurlow. (USC/ICI)

- Agreement with the Linux Foundation has ended
- All code commited to LF repos will remain intact and continue to be updated through at least Sept2024
  - https://github.com/openfheorg/openfhe-development
    https://github.com/orgs/sabres-lfproject/repositories
- *Open source license is BSD3*
- *A demo on Constraint-based search is created; needs legal approval to make available*
- *Lumen technologies* will act as distributor
- *What existing capabiliites can be included/added to the 5G Super Blueprint Library? Constraint-based search, demo*

- Next Steps:
  - Improve algorithms for constraint based search
  - Path validation with a different proof algorithm to improve the performance
  - **Inclusion into 5G SBP Library**
    - **Scope: Constraint-based search, Can be done where RAN and other resources are deployed on a 5G network. If there are any contraints, for example disk space or CPU latency, and have a placement problem, thats where SABREs shines. The demo shows constraint-based search**
  - Legal approval is needed to release the demo

Upcoming Meetings

- 13 Mar 2024 Off-week Working Group and Deep Dive Meeting
  - Topic- KubeArmor/L3AF collaboration - Tentative

    or

  - Topic- Overview and Deep Dive of IBM Hybrid Cloud Mesh - Tentative
- 20 Mar 2024 Bi-weekly status meeting
- 27 Mar 2024 Off-week Working Group and Deep Dive Meeting
  - Topic- SEDIMENT/Linux Use Case - Tentative

Any Other Business

--------- Reference material below --------

5G Super Blueprint Library -

- Page opened for viewing- send comments to lilluzzi@linuxfoundation.org
- Proposal to add a column for higher level network function associated with each entry, example; slicing, security, UPF integration, IoT (visual inspection), etc.
- Marketing Plan
  - The goal is that each completed project get the same marketing treatment (i.e. Marketing Plan execution) where the technology is highligthed and the participants and contributing companies are recognized.

5G Super Blueprint Whitepaper

Documentation - Deliverables to the 5G SBP

From Use Case Template:

Blueprint Outputs (Mandatory)	check all that apply:
	☐ Code repository
	☐ Configuration files (e.g. Helm charts, etc.)
	☐ Upstreaming to relevant projects
	☐ Continuous Integration
	☐ Test requirements and test results (if applicable)
	☐ Documentation:
	☐ Overview and Theory of Operation (i.e., what does it do?)
	☐ Deployment and setup
	☐ Videos
	☐ demo
	☐ lab setup/behind the scenes
	☐ other
	☐ YouTube

- Create a template for documentation collateral
- Playbook-like theme
- YouTube - independent of any D&TF YouTube postings, but cross-linked