

LF NETWORKING
Developer & Testing Forum

5G Super Blueprint- eUPF with Free5GC

LFN Developer & Testing Forum November 2023

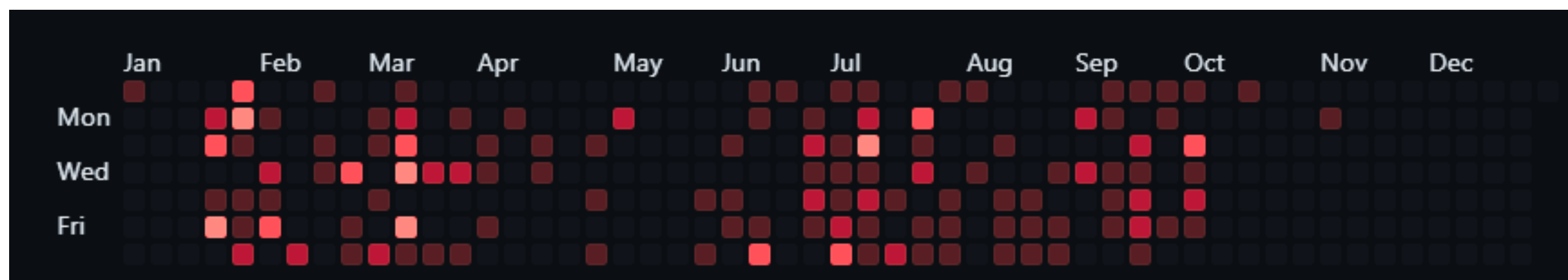
By: SHANKAR

<https://lfnetworking.org>



\$ whoami

- ❏ SHANKAR (@evershalik)
- ❏ Research Engineer @ UniversityOfDelhi
- ❏ LFN Mentee'23 @ L3AF
- ❏ Lead Researcher @ Ngkore
- ❏ UnderGraduate @ UniversityOfDelhi







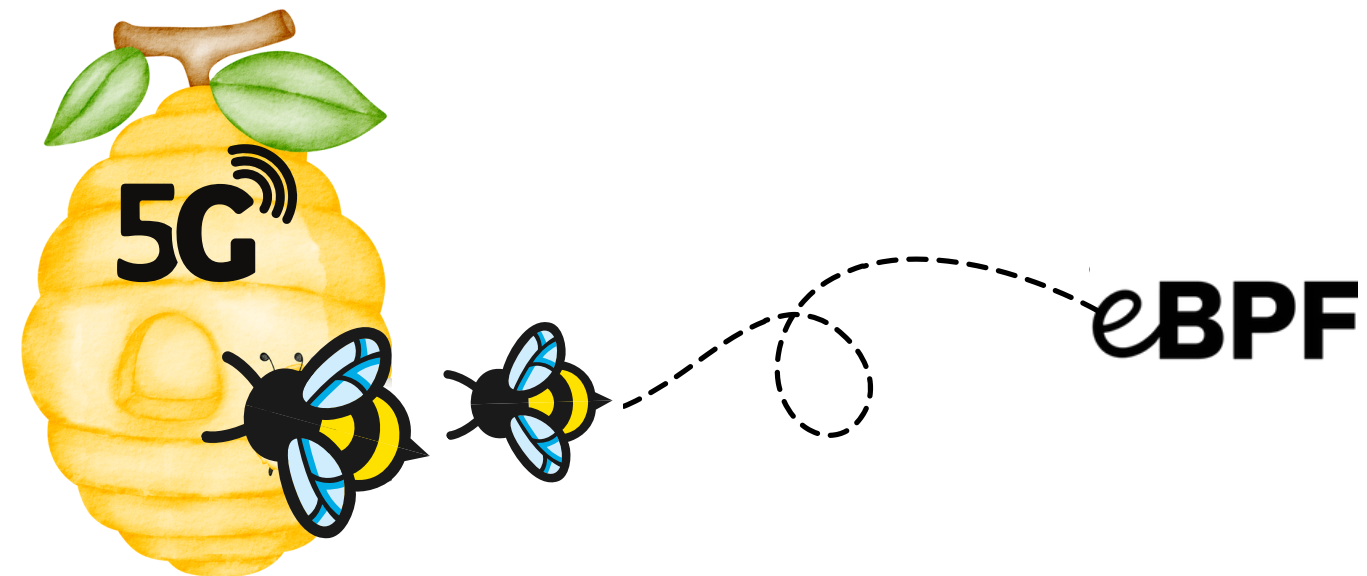
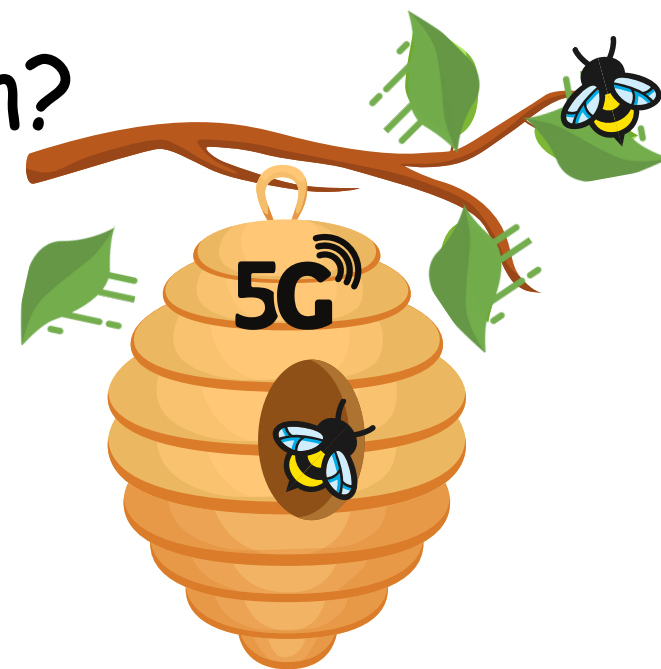
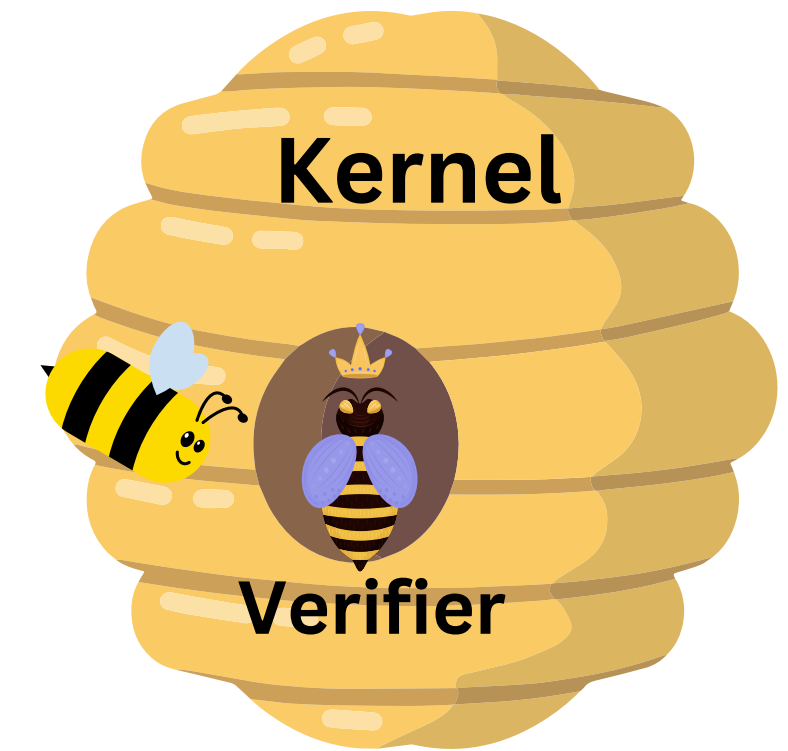
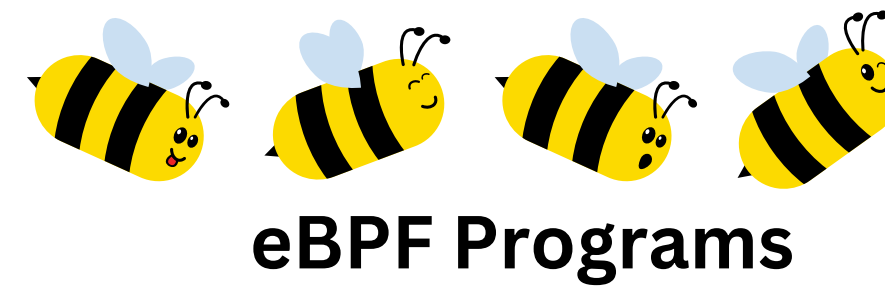
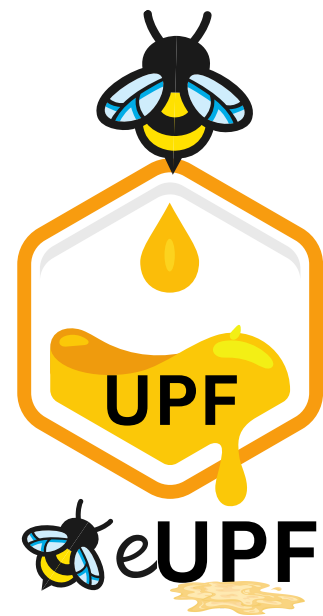
EXPENSIVE

❑ What is 🐝 eUPF?

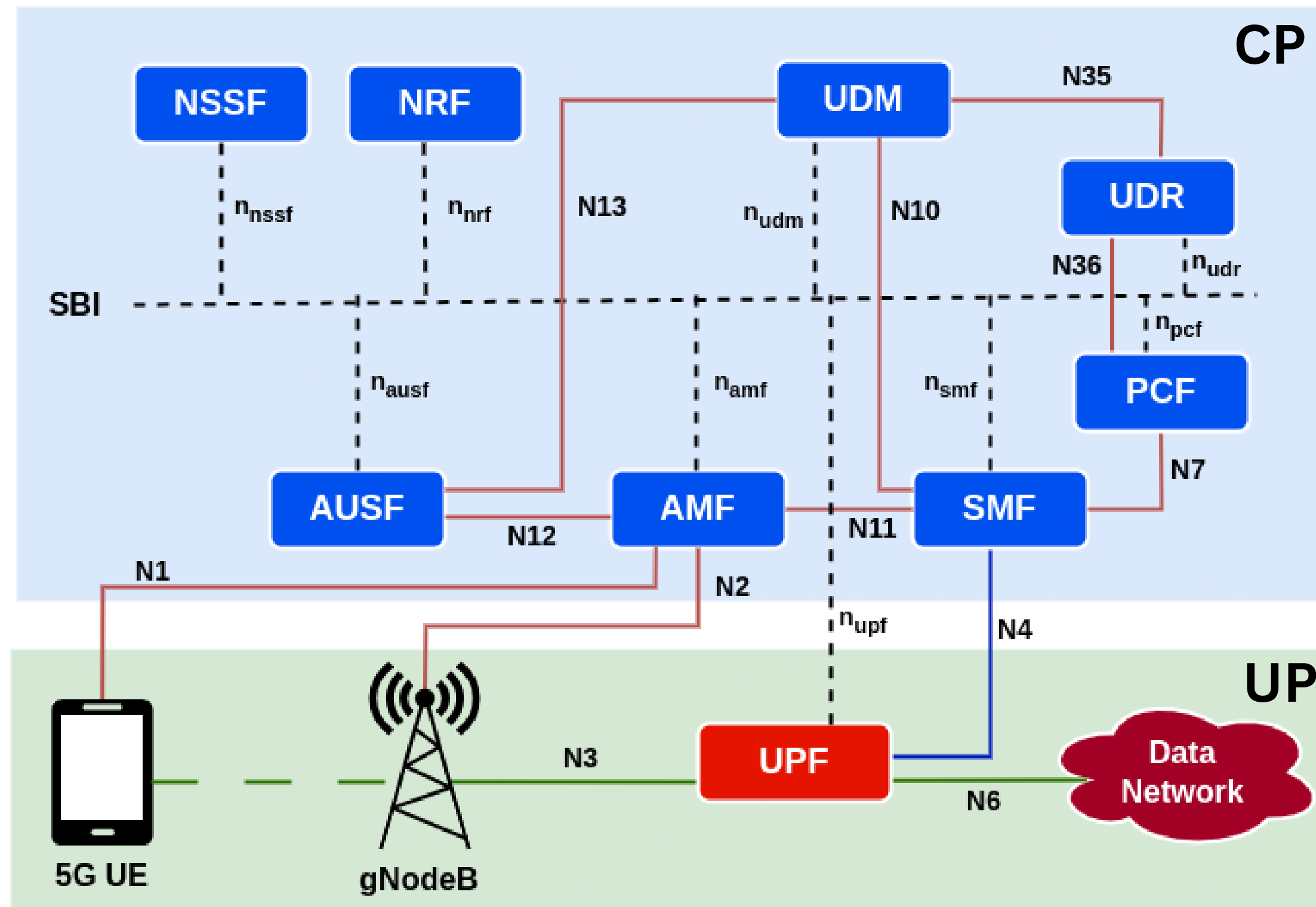
❑ Why 🐝 eBPF?

❑ 🐝 eUPF with 5G Core

❑ Future Plan?



\$ whatis UPF



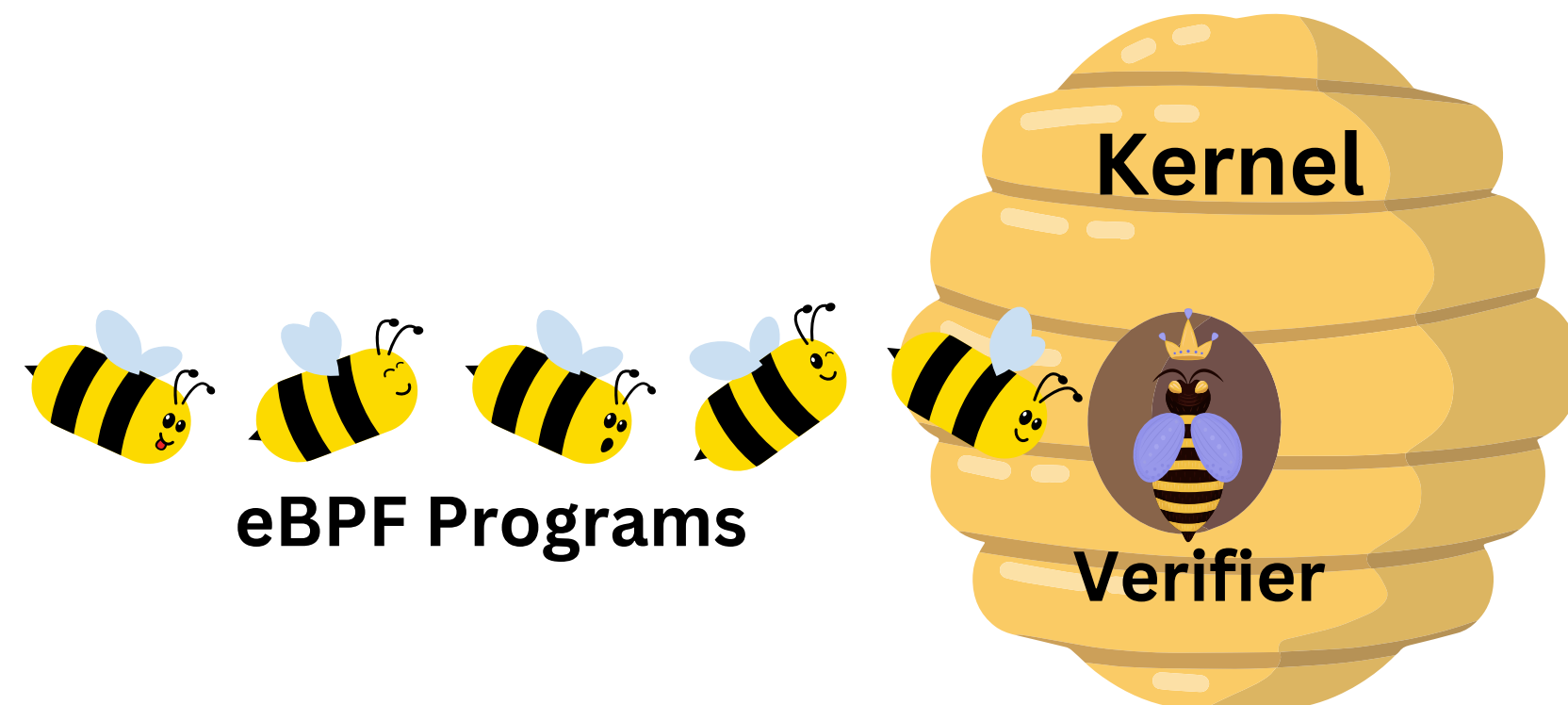
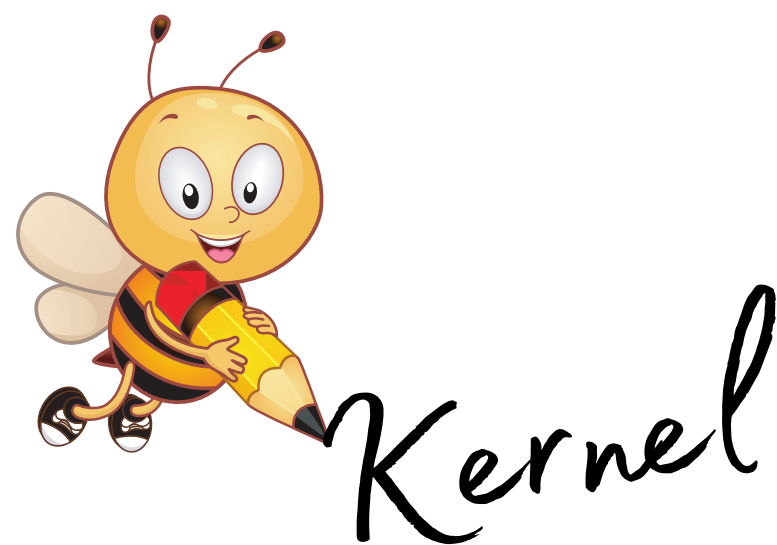
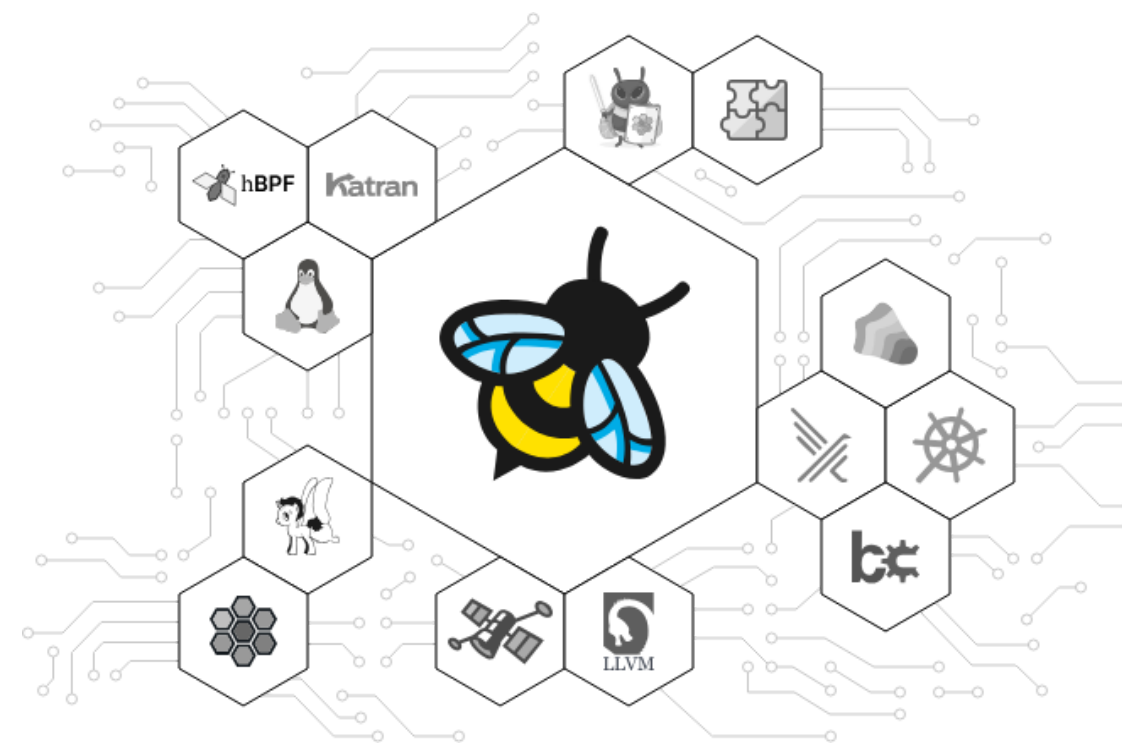
CP - UP signalling with PCF

Control Plane

User Plane

\$ what is eBPF

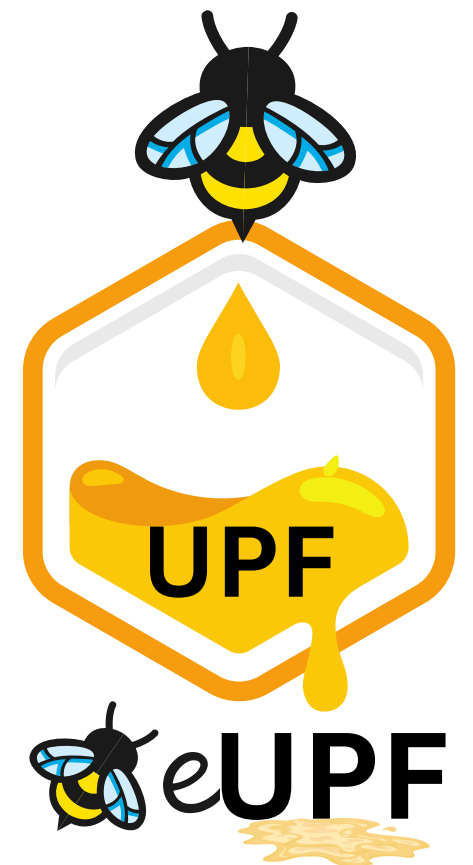
- ☐ Lightweight Virtual Machine
- ☐ Safe and Efficient 🐝
- ☐ No Kernel Modification Required



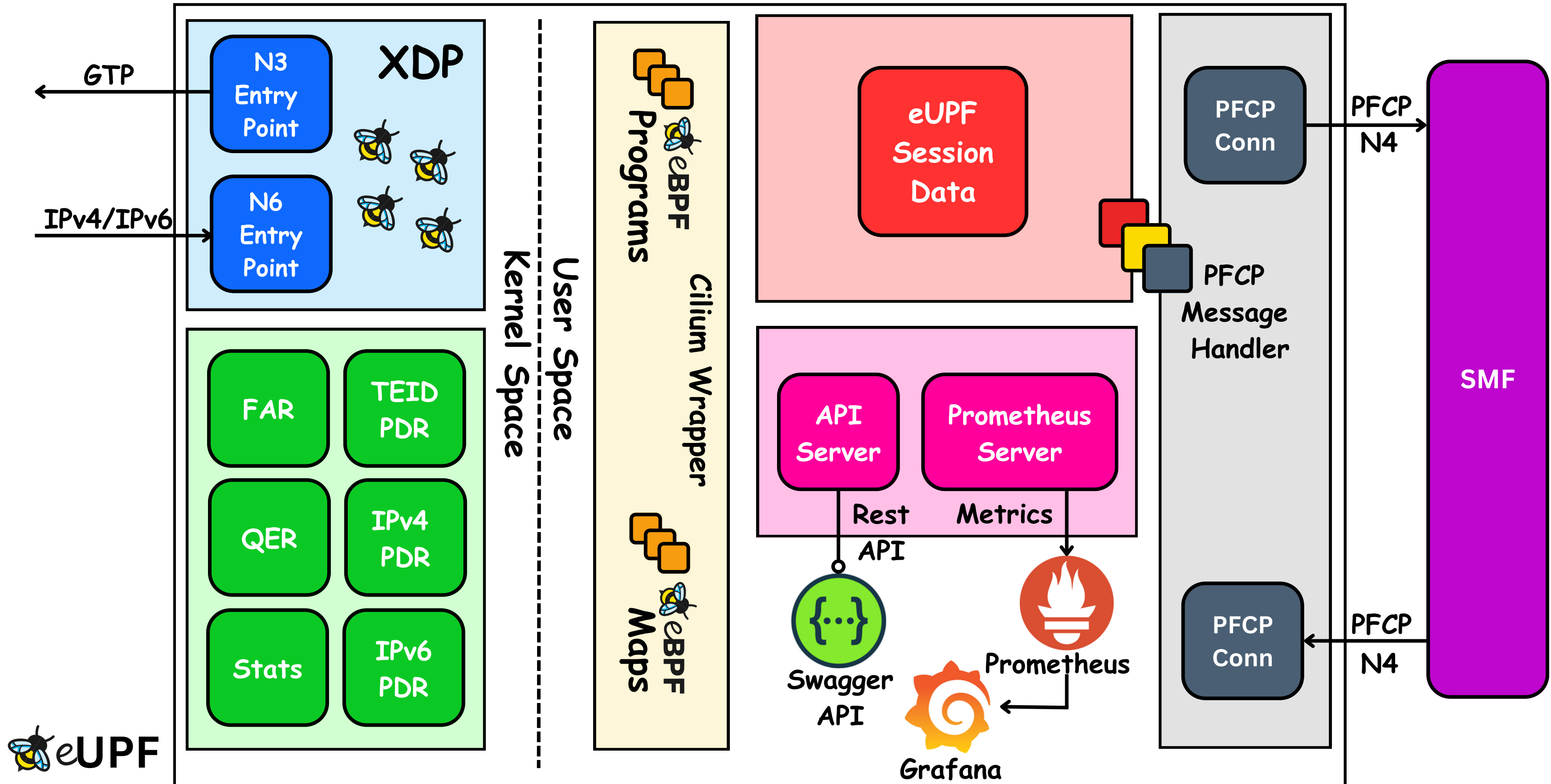
\$ man eUPF

- ❏ Open Source eBPF-based UPF Project - @ Edgecomllc
- ❏ High Flexibility - PSA UPF / MEC UPF
- ❏ Enhanced Observability and Performance
- ❏ Compatibility and Rigorous Testing - Free5GC & Open5GS

Github: <https://github.com/edgecomllc/eupf>



\$ `display eUPF.image`



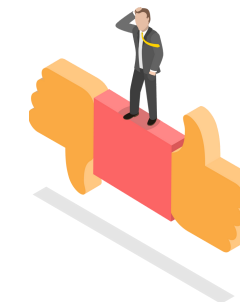
\$man -why eBPF?

Use Cases:



- ❏ Packet Filtering and Routing
- ❏ Traffic Management
- ❏ Load Balancing
- ❏ Monitoring and Telemetry
- ❏ Security Enhancements

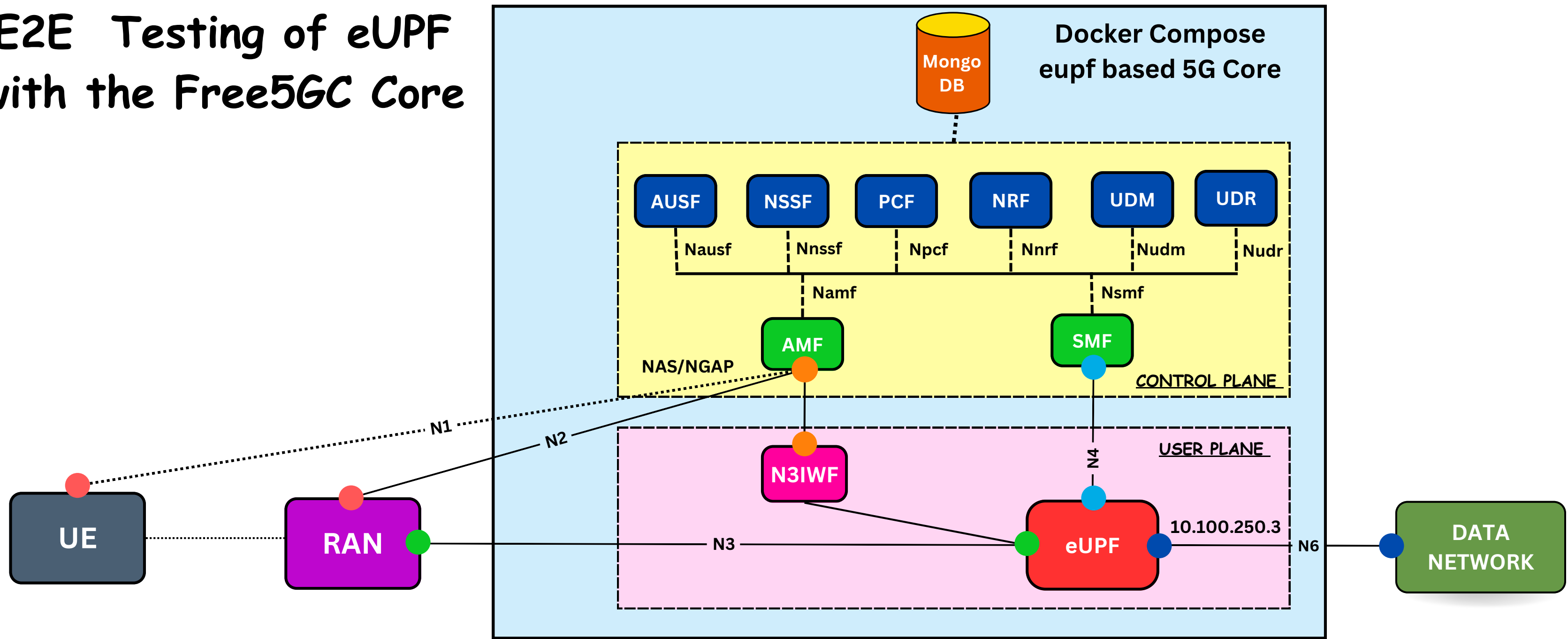
Advantages:



- ❏ Performance Efficiency
- ❏ Flexibility & Programmability
- ❏ Scalability
- ❏ Reduced Latency
- ❏ Enhanced Network Visibility

\$ cat eUPF | free5gc

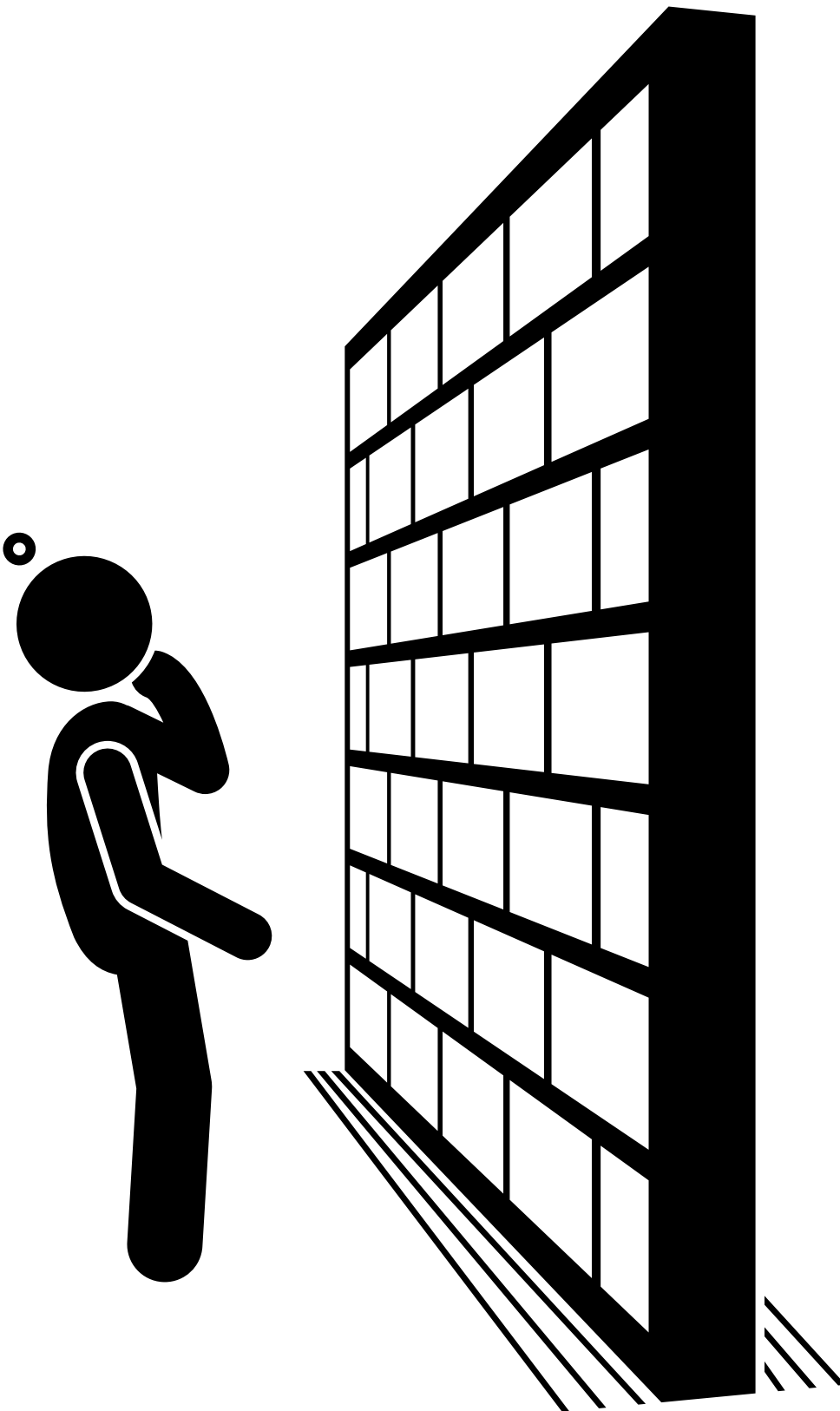
E2E Testing of eUPF with the Free5GC Core



Youtube: <https://youtu.be/ZGKBPVXSApQ?si=T4IjPVlmySiAziUy>

\$ look future?

What
Next?



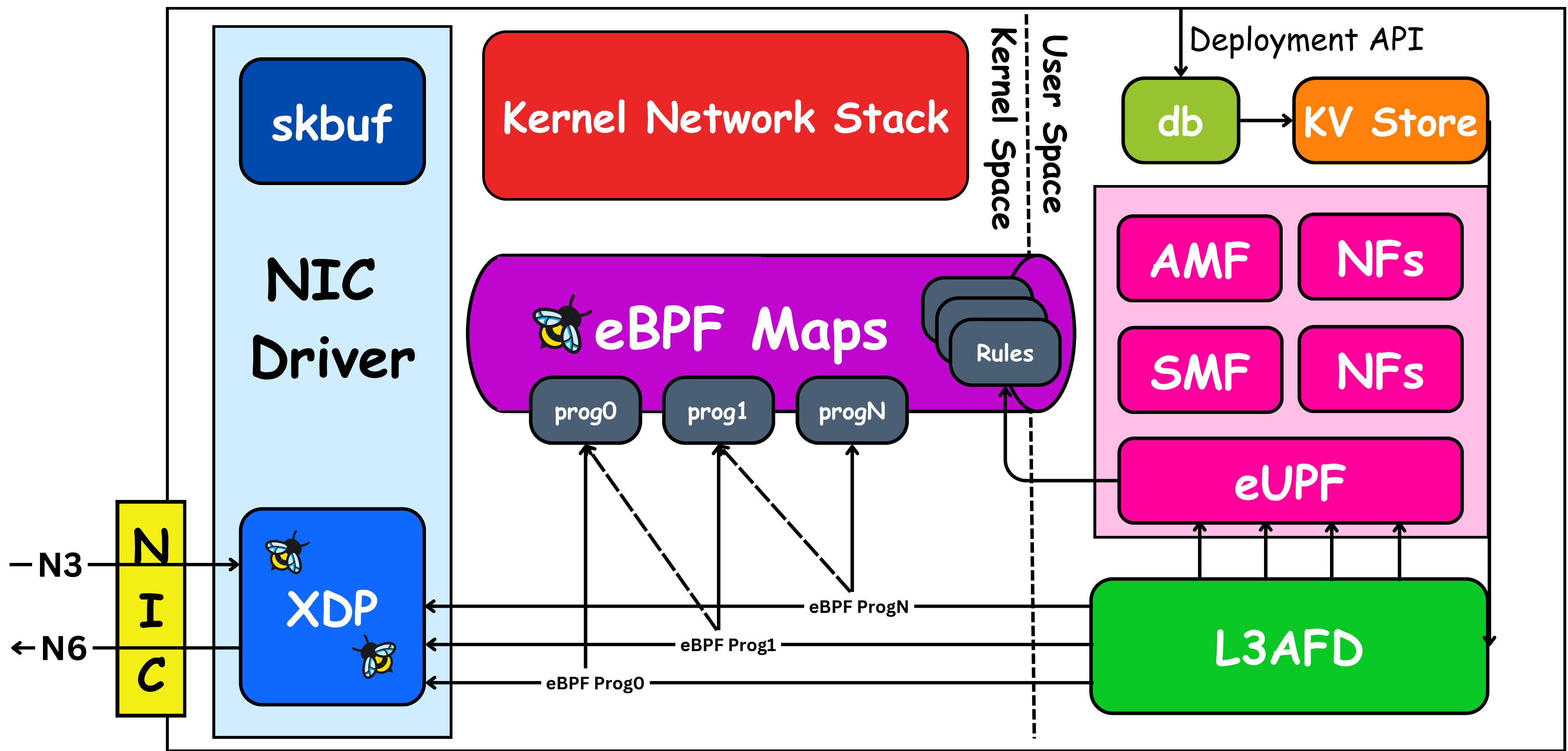
INTEGRATION WITH



L3AF



\$ less future.image?



How to Get Involved in the 5G SBP

- Attend a community meeting
 - Bi-weekly Status Meetings on Wednesdays
 - Bi-weekly Working Group/Deep Dive meeting on the alternate Wednesday
- Submit a project proposal/Use Case
 - Use the [5G Super Blueprint Use Cases & Submission Template](#) wiki page to submit a project proposal

Submitting a Project Proposal

How 5G Super Blueprint projects evolve from concept to completion- a 5G Super Blueprint project starts as a concept or idea from our partner ecosystem and begins its life as a 5G Super Blueprint use case submission: [5G Super Blueprint Use Cases & Submission Template](#)

What do I need to submit a Project Proposal?

- The initial use case submission can be as little as a title and short description, or can include more detail depending on how far along in development the concept is.

Then what?

- Schedule it to be discussed within the 5G SBP community.

Some projects gain traction and grow within the community, while others do not. A key ingredient for a project to gain traction and grow is to have a project champion who is dedicated to seeing the project through to completion.

Tools & Resources

Mailing List: <https://lists.lfnetworking.org/g/LFN-5G-Super-Blueprint>. Please subscribe to remain up to date on demo evolution and planning.

Bi-Weekly Meeting Calendar: <https://lists.lfnetworking.org/g/LFN-5G-Super-Blueprint/calendar>. Get the meeting information here.

Slack Channel: https://join.slack.com/t/lfn-demo/shared_invite/zt-pcf5086a-l0i926BOhc9pzf5_mVDhtA. View and contribute to the latest technical conversations here.

Meeting Agenda/Minutes: <https://wiki.lfnetworking.org/x/GgADAw>. Catch up on the latest and see what's coming up.

Repository: <https://github.com/5G-Super-Blue-Print>

Jira: <https://jira.lfnetworking.org/projects/BLUEPRINT/summary>. Bug & issue tracking. You'll need to login with your LF ID.

Questions: Email: superblueprint@lfnetworking.org

Any Doubts, feel free to ask?

Thank You 