



OPEN SOURCE NETWORKING DAYS

How to start contributing to free5GC

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About Me



- 陳毅 (Ian)
 - SDE @ Saviah (禾薪科技)
 - free5GC/SD-CORE Contributor
 - Book Author
 - EN 帶你入門 5G 核心網路
 - EN 帶你寫個作業系統
 - Speaker at COSCUP/SITCON/GDG DevFest...

Outline

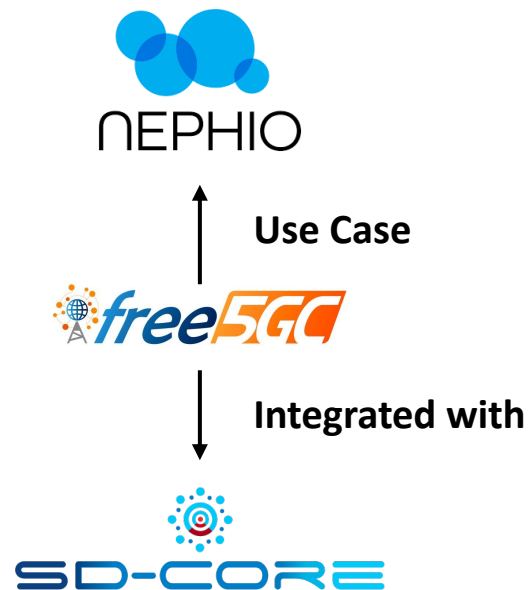


- What is the free5GC?
- 5GC Overview
- free5GC implementation details
- How to contribute?
- Q&A

What is free5GC?



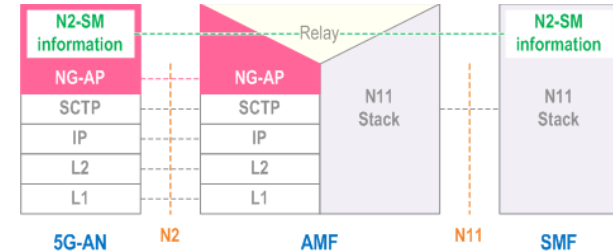
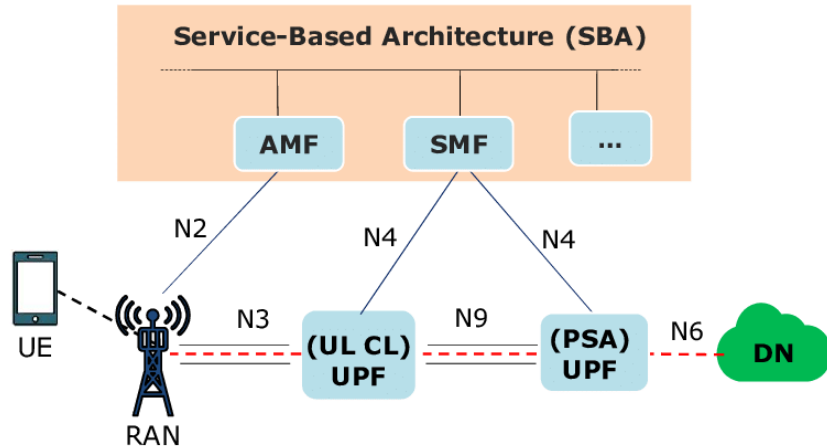
- The free5GC is an open-source project for 5th generation (5G) mobile core networks.
- Major contributors are from National Yang Ming Chiao Tung University
- Currently, we're working on:
 - Upgrade to 3GPP release 17
 - Support OAuth 2.0
 - Support Converged Charging



5GC Overview



- All of the Network Functions communicate with each other via SBA.
- Each Network Function exposes its service interface to provide the dedicated service.
- Proprietary hardware is not needed (leverage from NFV).



5GC Overview

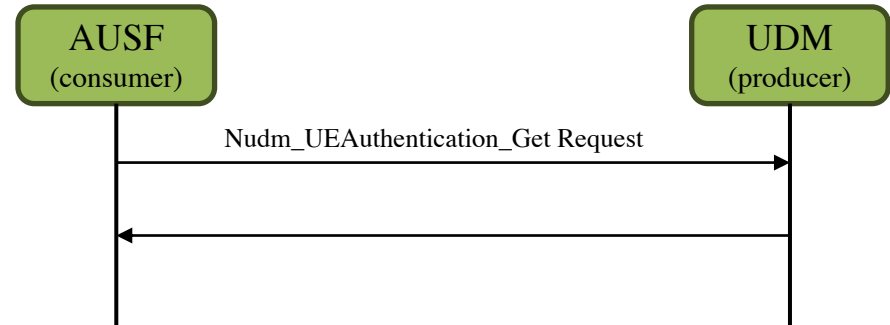


- AMF (Access and Mobility Management Function)
- SMF (Session Management Function)
- UPF (User Plane Function)
- AUSF (Authentication Server Function)
- NSSF (Network Slice Selection Function)
- PCF (Policy Control Function)
- UDR (Unified Data Repository)
- UDM (Unified Data Management)
- NRF (Network Repository Function)
- CHF (Charging Function)

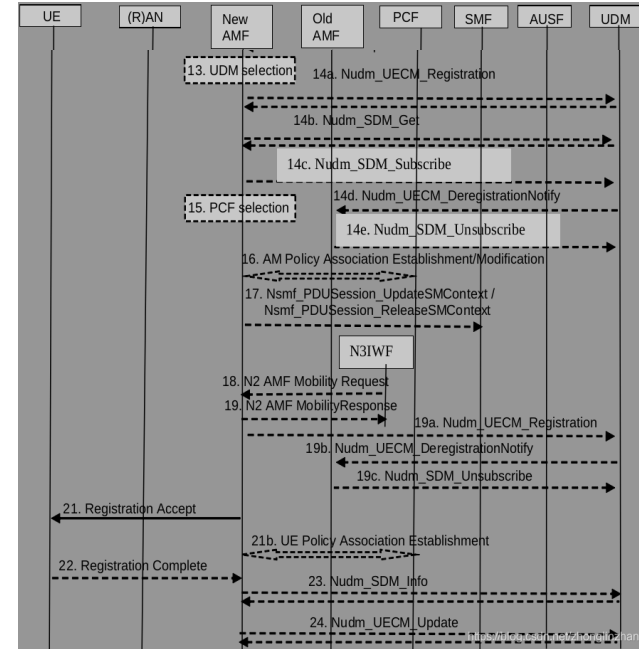
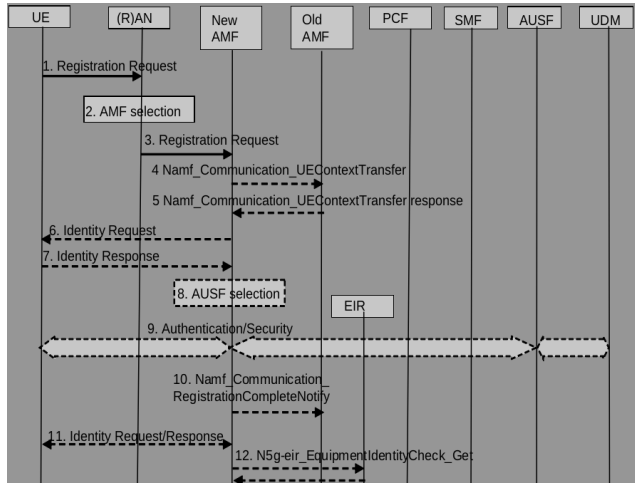
5GC Overview



- Service-Based Interface procedure type:
 - Query (Resource)
 - Subscription
 - Notification



5GC Overview - Registration



free5GC implementation details



free5gc / NFs /			Add file	...
4 people TestRegistrationMultiAMF (#503) ✓			e48e933 · 2 weeks ago	History
Name	Last commit message	Last commit date		
..				
amf @ ae9c9fc	TestRegistrationMultiAMF (#503)	2 weeks ago		
ausf @ 492b37a	TestRegistrationMultiAMF (#503)	2 weeks ago		
chf @ 1022a4f	TestRegistrationMultiAMF (#503)	2 weeks ago		
n3iwf @ 8710868	TestRegistrationMultiAMF (#503)	2 weeks ago		
nrf @ 854498f	TestRegistrationMultiAMF (#503)	2 weeks ago		
nssf @ 0217fbc	TestRegistrationMultiAMF (#503)	2 weeks ago		
pcf @ e2fb235	TestRegistrationMultiAMF (#503)	2 weeks ago		
smf @ 1be9308	TestRegistrationMultiAMF (#503)	2 weeks ago		
udm @ 0f91e05	TestRegistrationMultiAMF (#503)	2 weeks ago		
udr @ 609c016	TestRegistrationMultiAMF (#503)	2 weeks ago		
upf @ 4fe9ca3	TestRegistrationMultiAMF (#503)	2 weeks ago		

free5GC implementation details



- Cmd
 - Entry point
- Internal
 - Context
 - Logger
 - Pfcpl
 - Sbi
 - Pkg
- Pkg
 - Service
 - Association
 - Factory

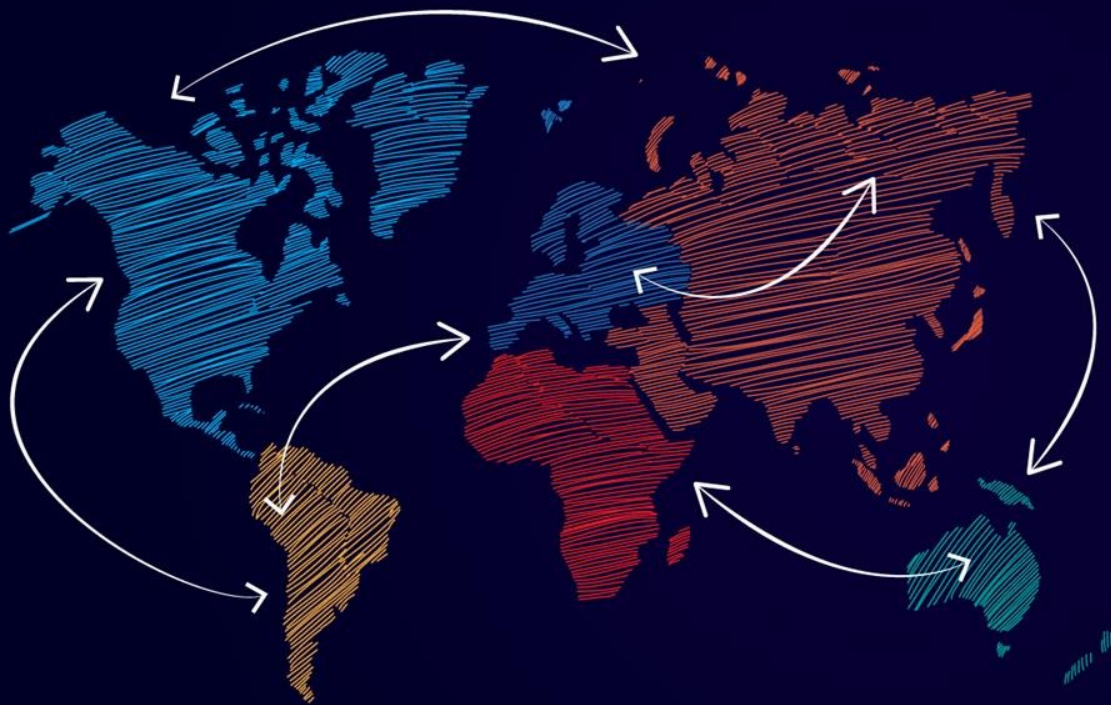
smf Public

1be93089df 5 branches 6 tags

Go to file Code

dependabot[bot] Bump golang.org/x/net from 0.10.0 to 0.17.0 (#87) 1be9308 on Oct 12 112 commits

.github/workflows	remove go 1.17 in workflows	2 months ago
cmd	Add ReadUERoutingConfig() in factory.go (#77)	6 months ago
internal	fix: remove incorrect assignment in AddQoS() (#86)	2 months ago
pkg	Revert "changed sd to lowercase" (#81) (#83)	3 months ago
.gitignore	refactor packages, update go.mod, and add config validator	last year
.golangci.yml	update github go action with matrix and update golangci-lint	last year
LICENSE	refactor packages, update go.mod, and add config validator	last year
go.mod	Bump golang.org/x/net from 0.10.0 to 0.17.0 (#87)	last month
go.sum	Bump golang.org/x/net from 0.10.0 to 0.17.0 (#87)	last month



Live Demo

How to Contribute?



- Network Function
 - Dedicated interface(s)
 - SBI service(s)
 - Functionality, Reliability
- Deployment
 - Host
 - Docker Compose
 - K8s

How to Contribute?

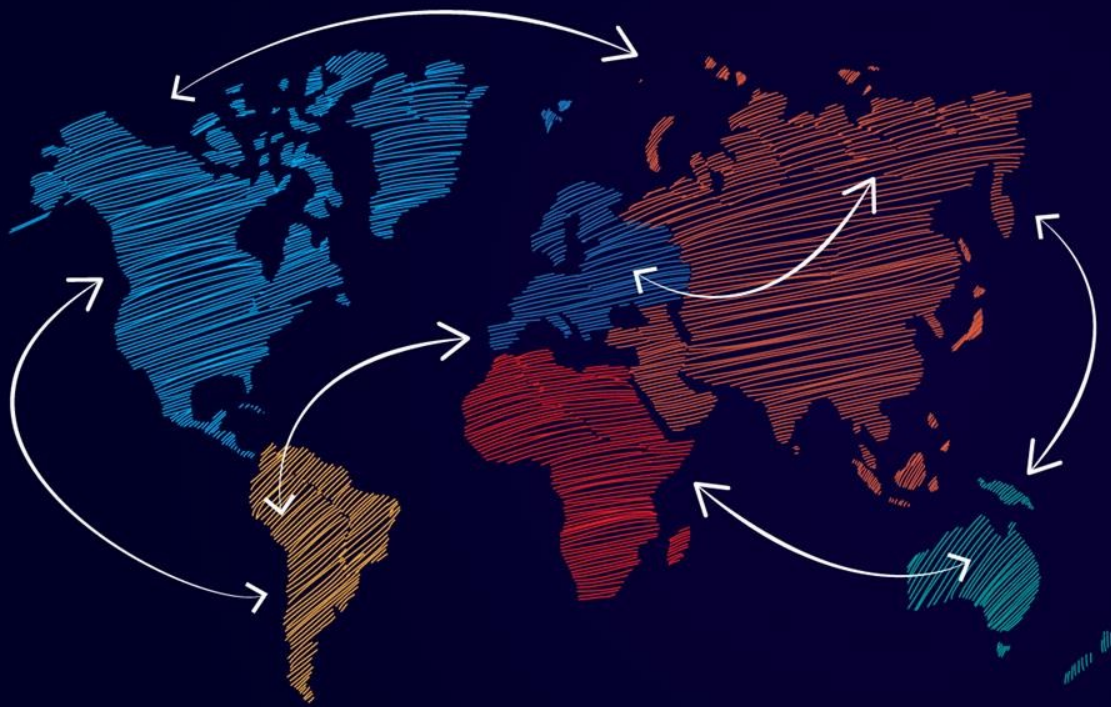


- OAM
 - UI
 - Backend
- Test
 - Integration test
 - Unit Test
 - Fuzzing
- Data Plane
 - Linux Kernel

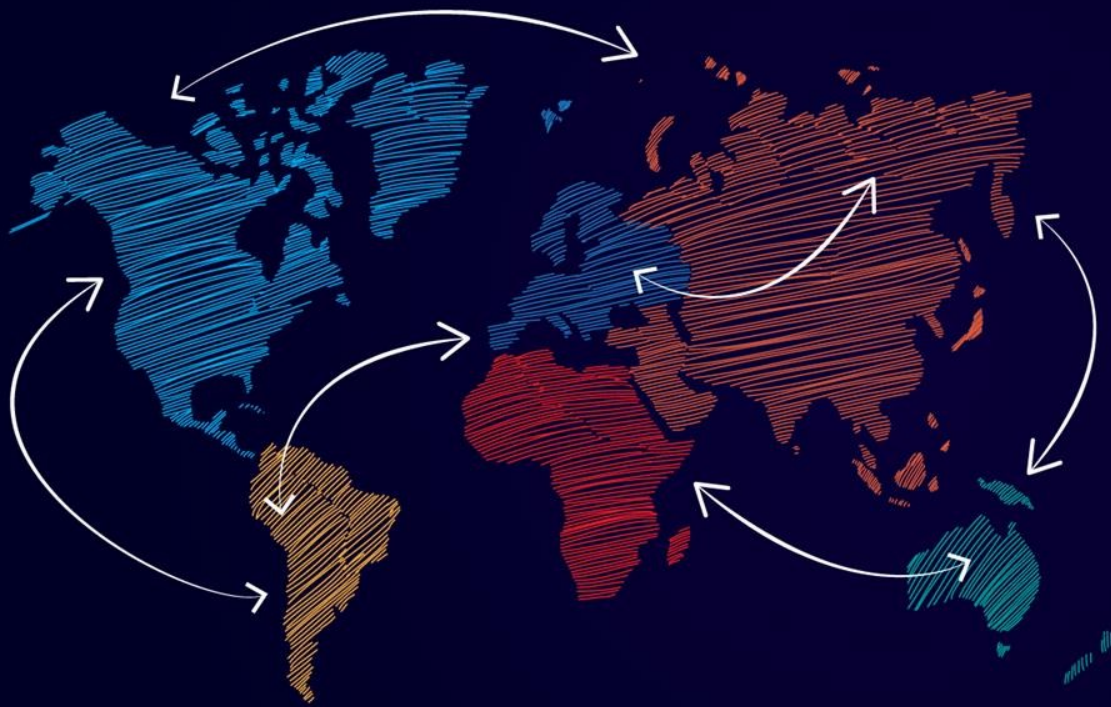
How to Contribute?



- Protocol
 - NGAP
 - NAS
 - PFCP
 - GTP-U
- Blog
 - Use cases



Q & A



Thank you!

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