

How-to-experiment tutorial with hands-on showcasing of the procedure: nApp Onboarding and 5G-IANA platform capabilities

NEXTWORKS
HEADING THE FUTURE

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Agenda



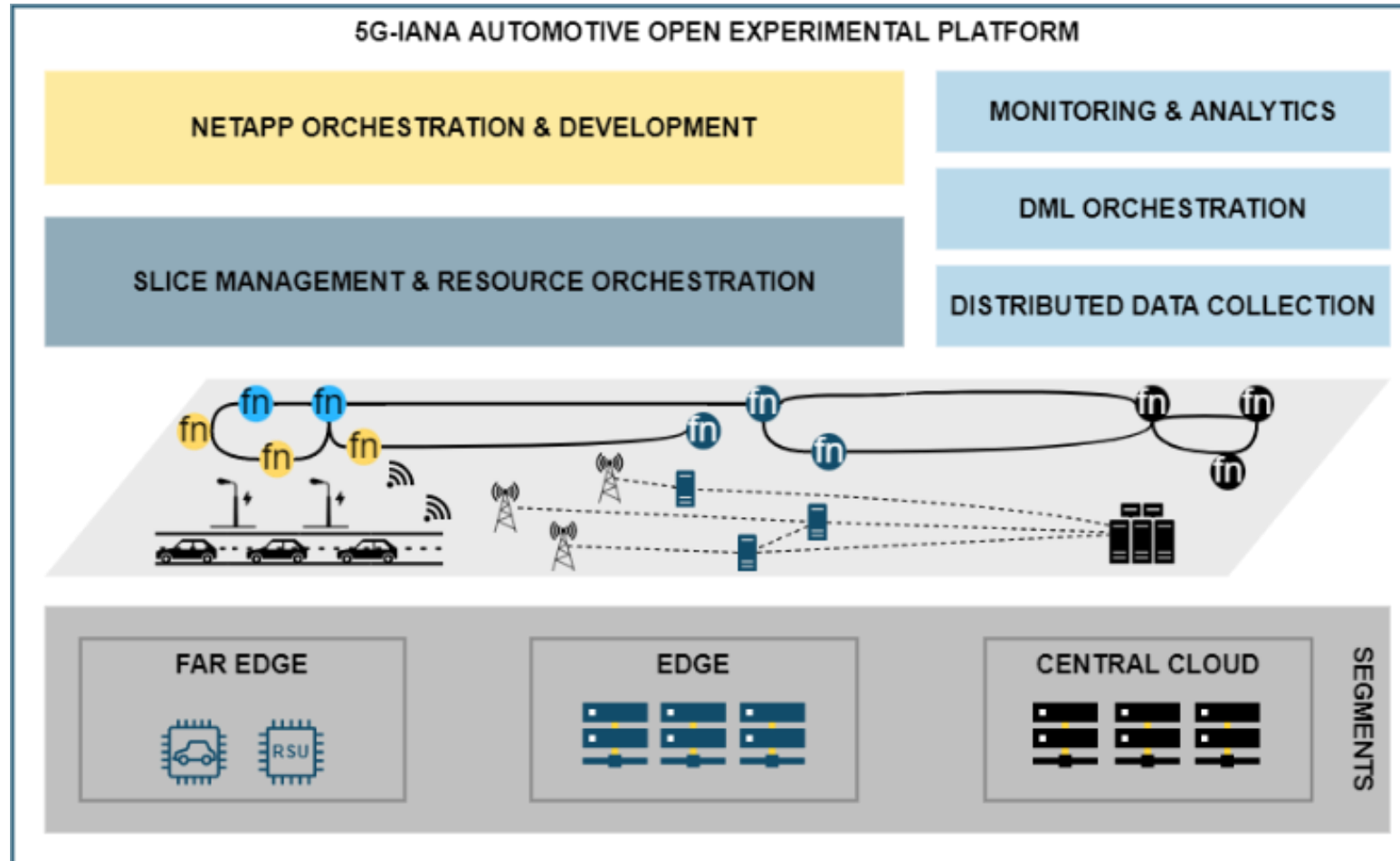
- Why using 5G-IANA AOEP
- Development of an Atomic Component
- Commit and CI/CD of the Atomic Component source code
- Upload of the docker images on the Centralized registry
- Load of the images on the VAO
- Creation of the nApp
- Deploy of the nApp

Glossary



- Atomic Component
 - **A virtualizable function deployable in a container**
- nApp
 - **A composition of Atomic Component which can be deployed on a 5G infrastructure and can use 5G services**

Using the 5G-IANA AOEP



nApp toolkit

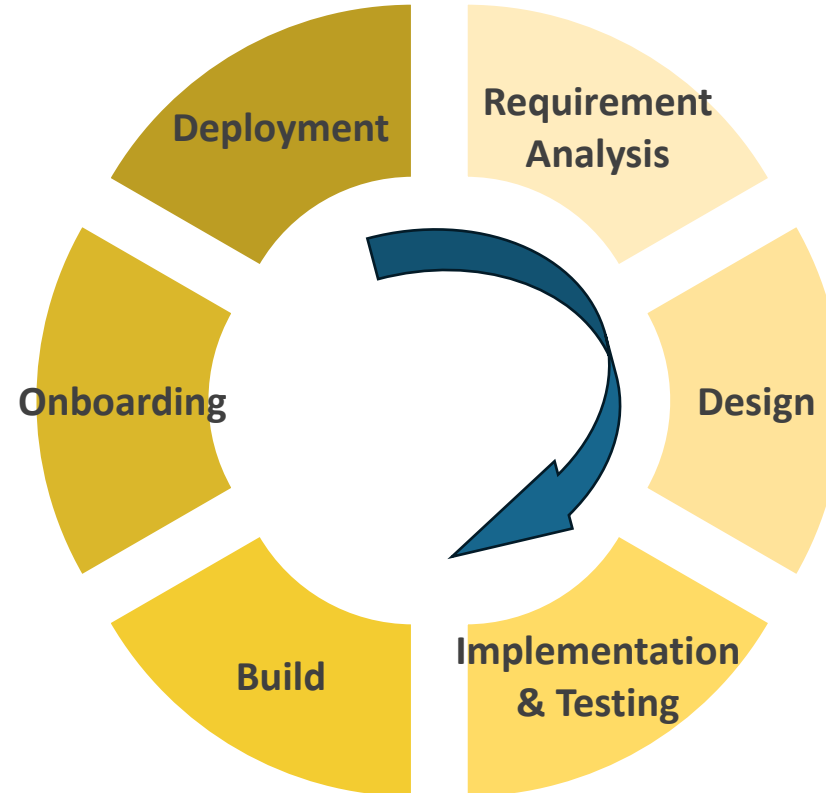


nApp	Industry 4.0	Agriculture & agri-food	Automotive	Transport & logistics	Smart Cities & utilities	Public Safety	Smart airports	Energy	eHealth & wellne	Media & entertainment	Vertical Agnostic
Real Time Stream Delivery	X		X							X	
Object Detection Stream and Data Delivery	X		X								
AGV Data Processing, Communication and Control	X		X	X							
Remote Driving			X								
MCAD Edge Node			X	X	X	X					
MCAD Rover Node			X	X	X	X					
AI Enhanced Video Stream Delivery										X	
Video enabled VR Client										X	
Active Network Monitoring Module											X
Virtual Bus Tour – UC3										X	
AR App										X	
AR streaming application										X	
Real-time Hazardous driving event detection											
Aggregated Hazardous driving event detection											
Real-time vehicle trajectory prediction											
Hazardous driving event notification – UC5											
Predictive QoS			X	X			X				
Obtain Training Data											X
DML Training											X
Video stream delivery											X
Environmental/IoT monitoring	X		X	X	X	X					
Simulator of ETSI Cooperative Awareness Service			X								
Vehicle monitoring			X			X					

Development of an Atomic Component

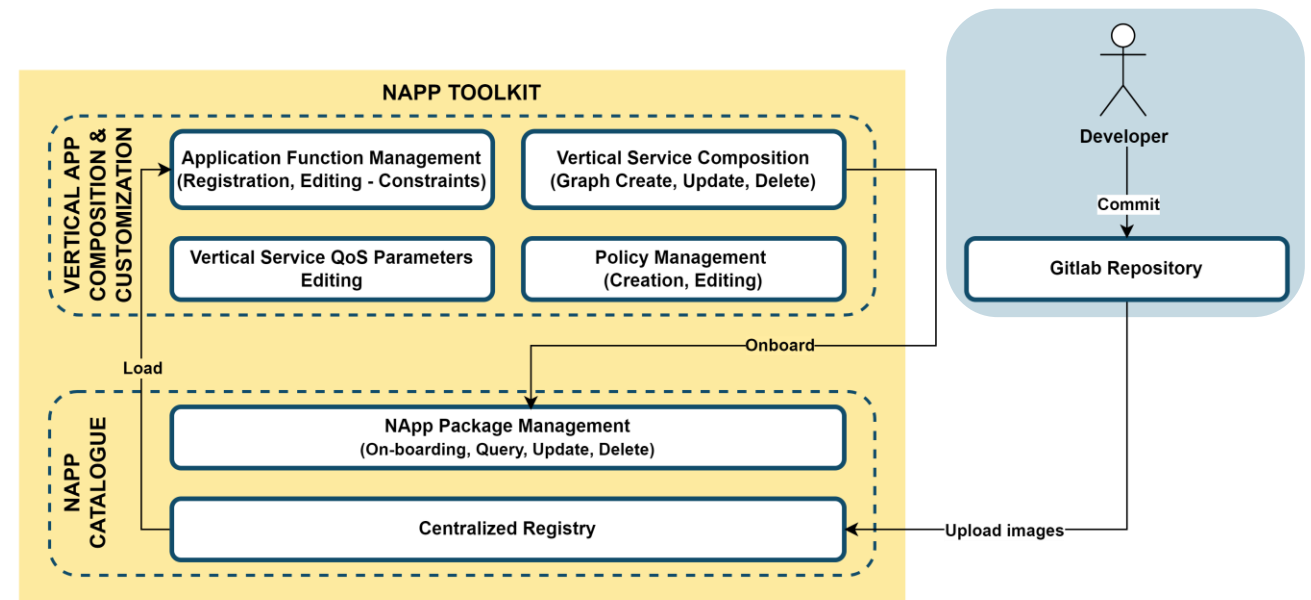
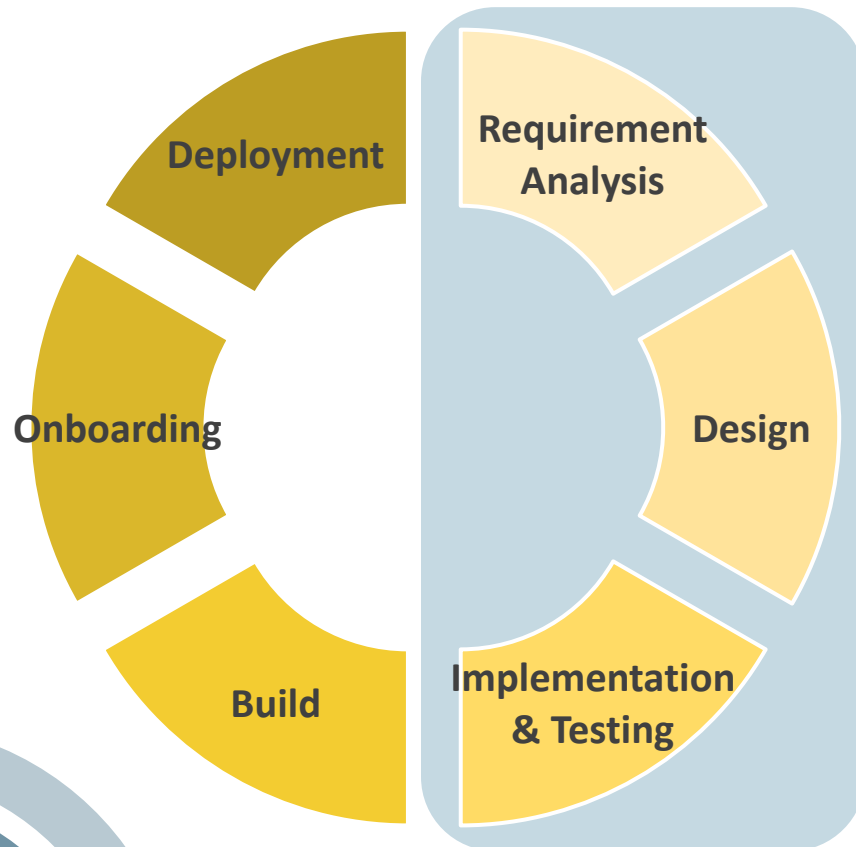


Development Lyfecycle



Development of an Atomic Component: Design and implementation phases

Development Lifecycle



Development of an Atomic Component: Design and Implementation phases

A screenshot of the GitLab web interface. The top navigation bar includes the GitLab logo, 'Projects', 'Groups', and 'More' dropdowns, along with a search bar. The left sidebar shows the '5g-IANA' group overview with sections for 'Details', 'Activity', 'Issues', 'Merge requests', 'Kubernetes', 'Packages & Registries', 'Analytics', 'Members', and 'Settings'. The main content area displays the '5g-IANA' group details, including the group ID (868) and options to 'New subgroup' or 'New project'. Below this, there are tabs for 'Subgroups and projects', 'Shared projects', and 'Archived projects'. A search bar is present. The main list shows subgroups and projects: 'platform' (Owner), 'use-cases', and 'Component' (Owner). Under 'Component', there is a list of projects: 'Autotestfmwk' (5G-IANA Automatic Testing Framework), 'Component Template' (Skeleton template for an atomic component of 5G-IANA), 'Load Balancer', 'Net Monitoring' (The Network Monitoring application function for UC5), 'uc1-iana-ai', 'uc1-iana-api', 'uc1-iana-video', and 'uc1-iana-web'. At the bottom, there are subgroups 'nApp' (Owner) and 'Testing'.

Subgroup/Project	Owner	Stars	Last Updated
platform	Owner	0	1
use-cases		9	3
Component	Owner	0	8
Autotestfmwk		0	1 month ago
Component Template		0	6 months ago
Load Balancer		0	1 month ago
Net Monitoring		0	3 weeks ago
uc1-iana-ai		0	6 months ago
uc1-iana-api		0	6 months ago
uc1-iana-video		0	6 months ago
uc1-iana-web		0	6 months ago
nApp	Owner	0	2
Testing		0	3

Development of an Atomic Component: Design and Implementation phases



Net Monitoring Project ID: 1359

13 Commits 2 Branches 0 Tags 532 KB Files 621 KB Storage

The Network Monitoring application function for UCS

master net-monitoring / +

History Find file Web IDE Clone

Update application.properties Matteo Andolfi authored 2 days ago ef738ee6

README Add LICENSE Add CHANGELOG Add CONTRIBUTING Enable Auto DevOps Add Kubernetes cluster

Set up CI/CD

Name	Last commit	Last update
.idea	new version	3 weeks ago
.vscode	new version	3 weeks ago
alerts	new version	3 weeks ago
constants	new version	3 weeks ago
docker	new version	3 weeks ago
flows	new version	3 weeks ago
hosts	new version	3 weeks ago
interface	new version	3 weeks ago
resources	Update application.properties	2 days ago
service	new version	3 weeks ago
utils	new version	3 weeks ago
Main.go	new version	3 weeks ago
README.md	Update README.md	3 weeks ago
desktop.ini	changed properties	3 weeks ago
go.mod	new version	3 weeks ago
go.sum	new version	3 weeks ago

README.md

ntopng-driver

Getting started

Prerequisite for launching this driver is to have golang \geq 1.20.2 installed.

Running

from the project root folder, execute the command:

```
go run .
```

Resources

there are some properties file in the resources folder:

- the application.properties defines the ntopng parameters as well as the endpoints queried, From this file you can switch between kafka and console for the outputs (console is used for developing and debugging)
- the interface.properties contains all the endpoints info for the interface REST API of ntopng like the URL, the parameters to use etc.
- the alerts.properties contains all the endpoints info for the alerts REST API of ntopng like the URL, the parameters to use etc.
- the flows.properties contains all the endpoints info for the flows REST API of ntopng like the URL, the parameters to use etc.
- the hosts.properties contains all the endpoints info for the hosts REST API of ntopng like the URL, the parameters to use etc.
- the discovery.properties contains all the endpoints info for the discovery REST API of ntopng like the URL, the parameters to use etc.

It is important to highlight that thanks to an elaborate mechanism it is possible to make change real-time to the endpoint to query or to the frequency requests by simply changes the properties and saving the changes without stopping and restarting the component.

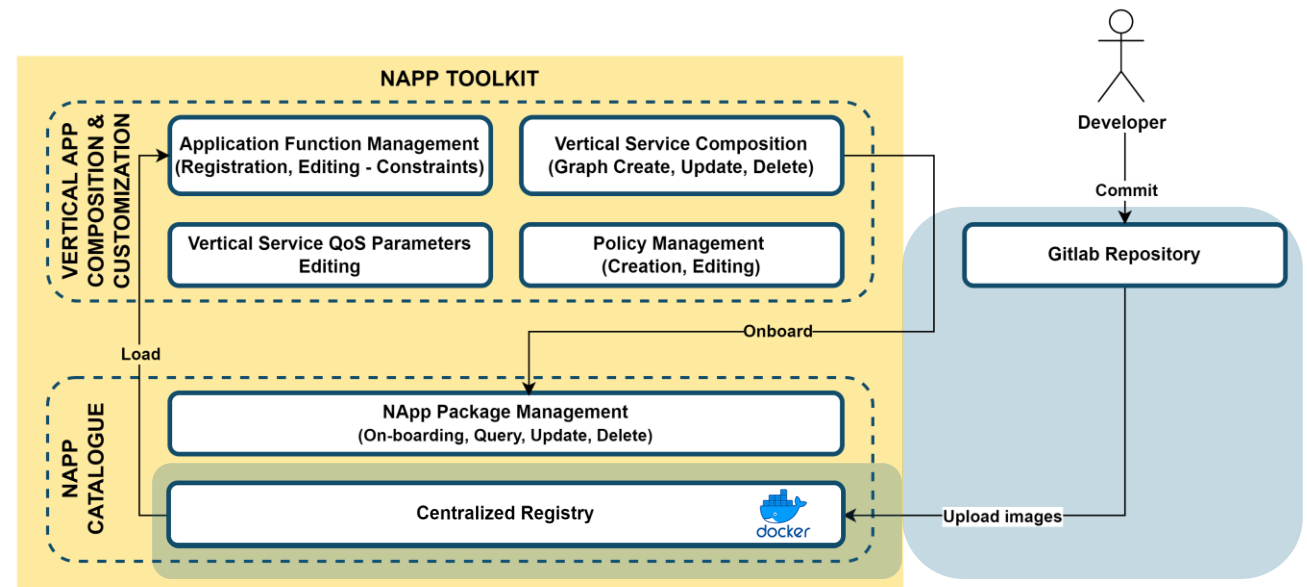
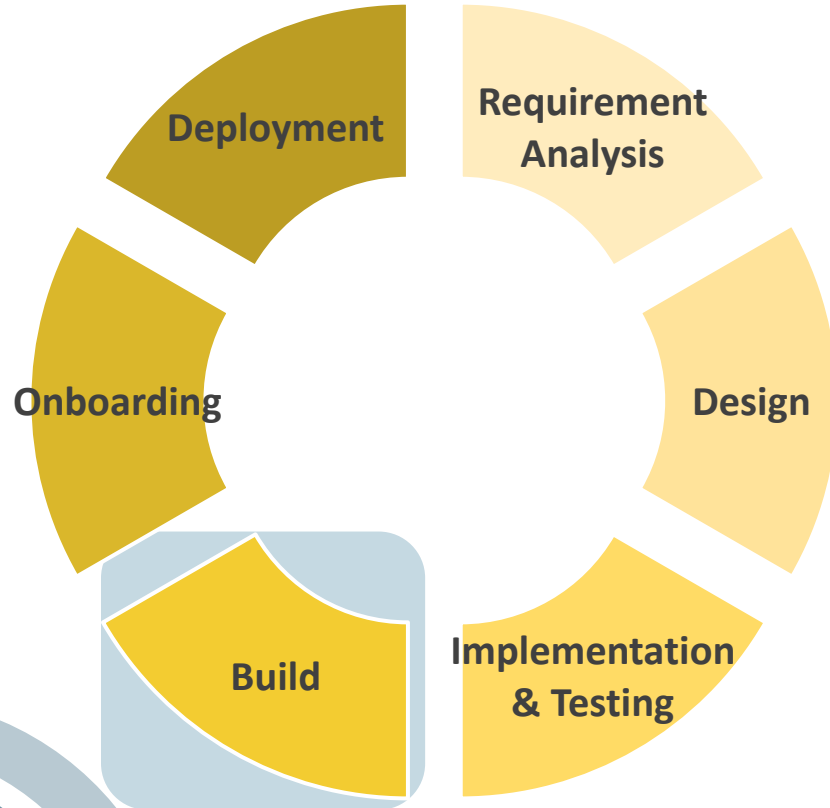
Docker

In the Docker folder you can find:

- docker-compose.yaml: a docker compose to launch ntopng community (and openvas)
- docker-compose-message-broker.yaml: a docker compose to launch kafka

Development of an Atomic Component: Build phase

Development Lifecycle



Development of an Atomic Component: Build phase



5g-IANA > ... > Component > Net Monitoring > Pipelines

All 21 Finished Branches Tags Clear runner caches CI lint Run pipeline

Filter pipelines

Status	Pipeline	Triggerer	Commit	Stages	Duration	
passed	#33772 latest		master -> ef738ee6 Update application.properties		00:01:42 2 days ago	
passed	#33770 latest		master -> ef738ee6 Update application.properties		00:01:49 2 days ago	
passed	#33769		master -> a0e3e601 Update hosts.properties		00:01:44 2 days ago	
canceled	#33768		master -> f420c046 Update discovery.properties		00:00:23 2 days ago	

Development of an Atomic Component: Build phase

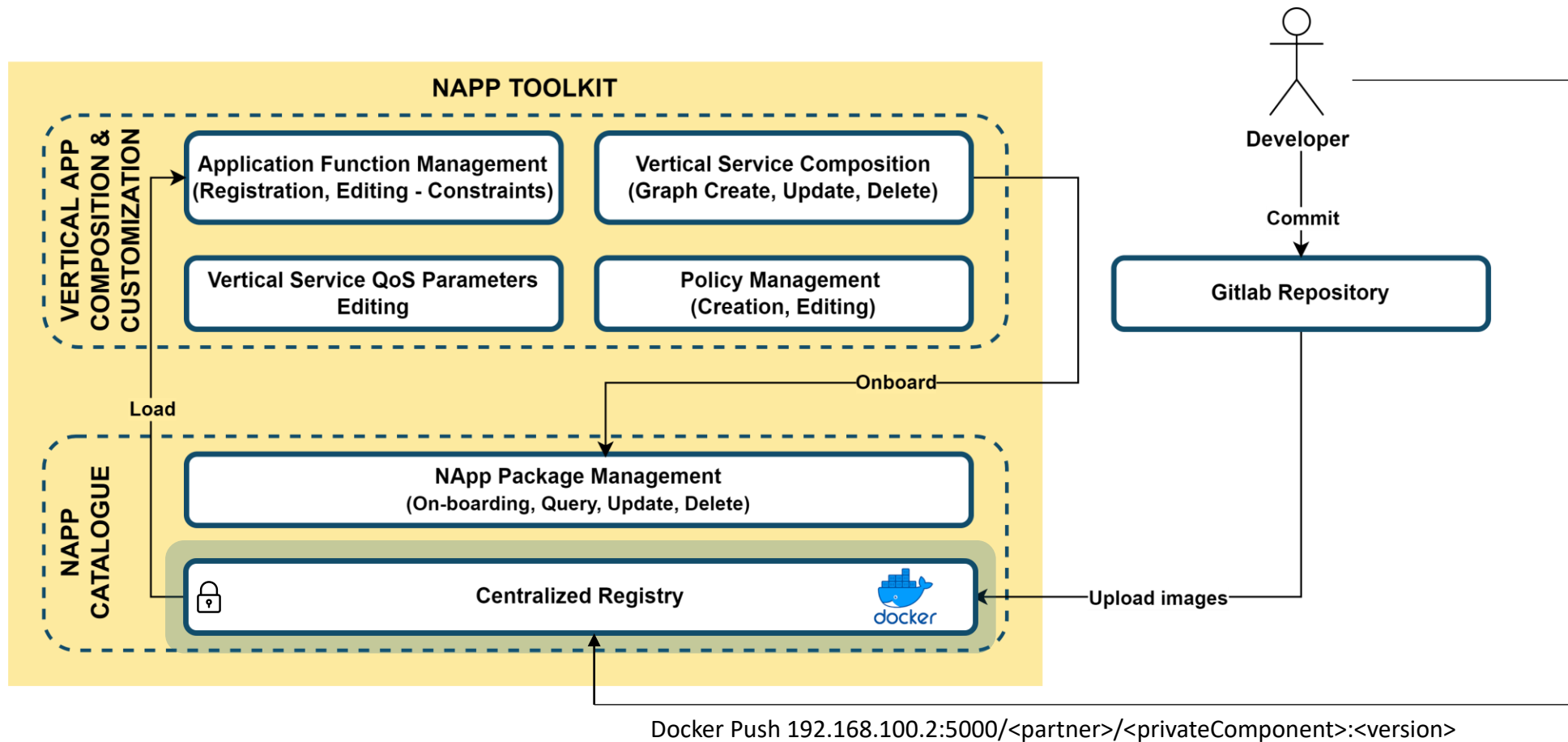


```
46 INFO[0016] Taking snapshot of files...
47 INFO[0016] RUN export GOPROXY=direct
48 INFO[0016] Initializing snapshotter ...
49 INFO[0016] Taking snapshot of full filesystem...
50 INFO[0020] Cmd: /bin/sh
51 INFO[0020] Args: [-c export GOPROXY=direct]
52 INFO[0020] Running: [/bin/sh -c export GOPROXY=direct]
53 INFO[0020] Taking snapshot of full filesystem...
54 INFO[0021] No files were changed, appending empty layer to config. No layer added to image.
55 INFO[0021] COPY . .
56 INFO[0021] Taking snapshot of files...
57 INFO[0021] RUN go mod download
58 INFO[0021] Cmd: /bin/sh
59 INFO[0021] Args: [-c go mod download]
60 INFO[0021] Running: [/bin/sh -c go mod download]
61 INFO[0030] Taking snapshot of full filesystem...
62 INFO[0038] RUN go build -o /app/ntopng-driver
63 INFO[0038] Cmd: /bin/sh
64 INFO[0038] Args: [-c go build -o /app/ntopng-driver]
65 INFO[0038] Running: [/bin/sh -c go build -o /app/ntopng-driver]
66 INFO[0058] Taking snapshot of full filesystem...
67 INFO[0065] EXPOSE 8080
68 INFO[0065] Cmd: EXPOSE
69 INFO[0065] Adding exposed port: 8080/tcp
70 INFO[0065] CMD ["go","run","."]
71 INFO[0065] Pushing image to 192.168.100.2:5000/nxw/networkmonitoring:0.0.2
72 INFO[0090] Pushed 192.168.100.2:5000/nxw/networkmonitoring@sha256:39d08506cc8682965cf400c3b5a6245db96c6cd9427154d117d253aa2c973d42
74 Cleaning up project directory and file based variables
76 Job succeeded
```

Push on Centralized Registry

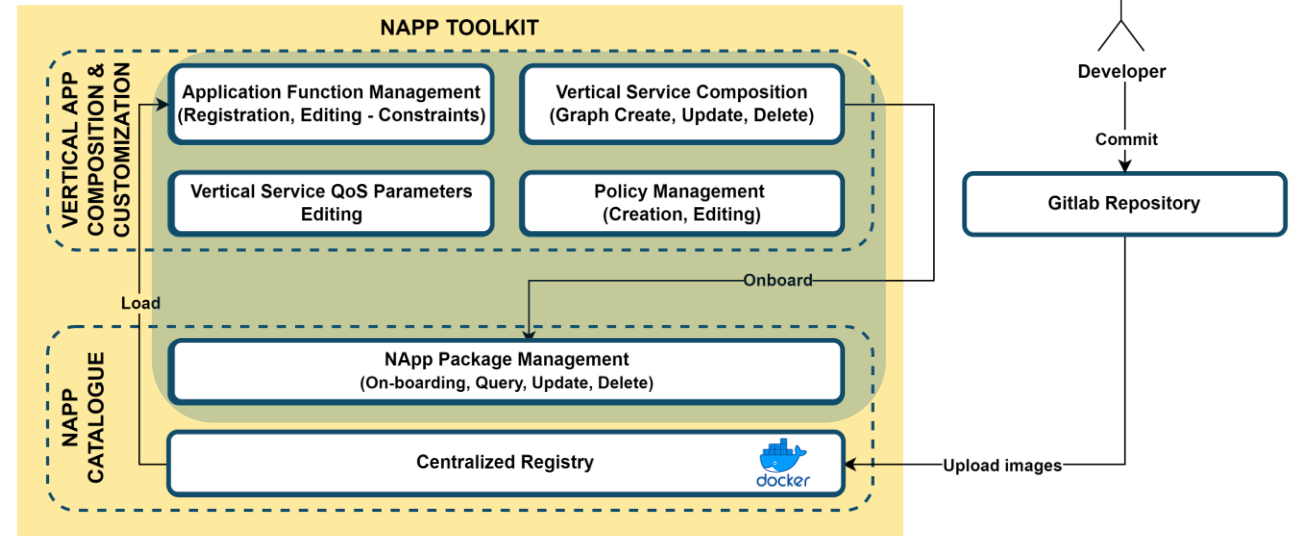
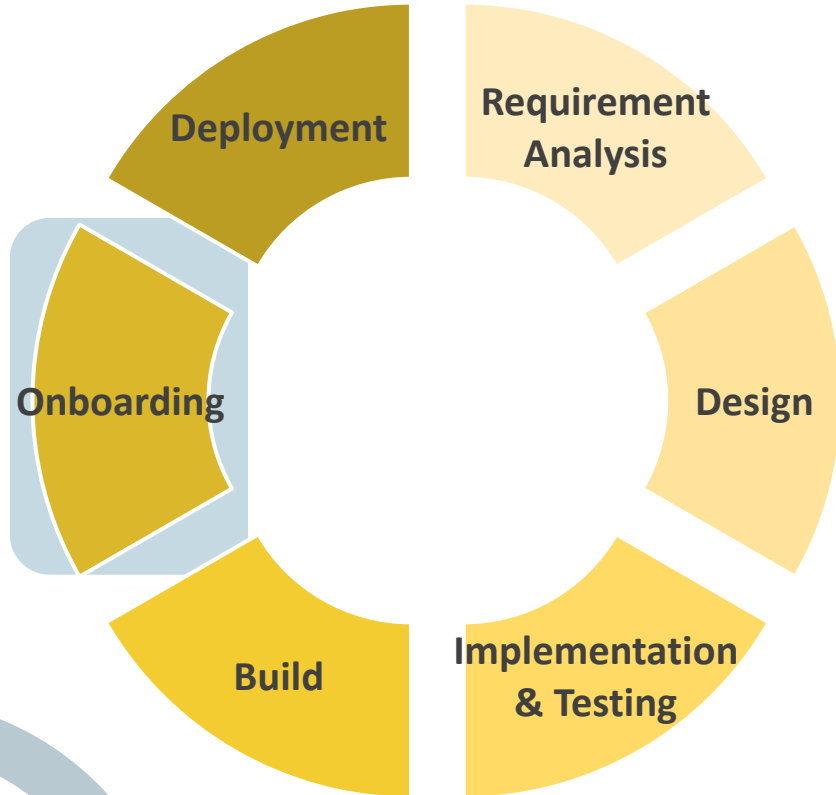
00:00

Centralized Registry



Development of an Atomic Component: Onboarding phase

Development Lifecycle



Development of an Atomic Component: Onboarding phase



[Components](#) > [Edit](#)

Components | Edit

Navigation tabs: General, **Distribution Parameters**, Minimum Execution Requirements, Health Check, Container Execution, Environment variables, Exposed Interfaces, Required Interfaces, Plugins, Volumes, Devices

Distribution Parameters

Docker Image *

Docker Credentials

Would you like to change your Docker credentials? (Username, Password fields)

Docker Username

Docker Password

Would you like to change your custom Docker registry?

Custom Docker Registry

Development of an Atomic Component: Onboarding phase



[Components](#) > [Edit](#)

Components | Edit

Navigation tabs: Distribution Parameters, Minimum Execution Requirements, Health Check, Container Execution, **Environment variables**, Exposed Interfaces, Required Interfaces, Plugins, Volumes, Devices, Labels, Adv...

Environmental variables

Key	Value	
<input type="text" value="NTOPNG_HOST_ENV"/>	<input type="text" value="@NetMonNpng"/>	<input type="button" value="+"/> <input type="button" value="-"/>
<input type="text" value="INTERFACE_ID_ENV"/>	<input type="text" value="?ifid=2"/>	<input type="button" value="-"/>
<input type="text" value="NTOPNG_PORT_ENV"/>	<input type="text" value="3000"/>	<input type="button" value="-"/>

(Public) If this option is checked, anyone could see this component

Development of an Atomic Component: Onboarding phase



[Components](#) > [Edit](#)

Components | Edit

Parameters | Minimum Execution Requirements | Health Check | Container Execution | Environment variables | **Exposed Interfaces** | Required Interfaces | Plugins | Volumes | Devices | Labels | Advanced Options

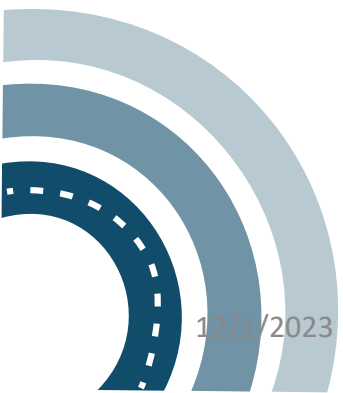
Exposed Interfaces

[Add a new one](#)

Name	Port	Interface Type	Transmission Protocol	
<input type="text" value="testNtongDr"/>	<input type="text" value="83"/>	<input checked="" type="radio"/> Core <input type="radio"/> Access	<input checked="" type="radio"/> TCP <input type="radio"/> UDP <input type="radio"/> TCP/UDP	<input type="button" value="+"/> <input type="button" value="-"/>

(Public) If this option is checked, anyone could see this component

Save



Development of an Atomic Component: Onboarding phase (1/3)



A screenshot of the 5G IANA onboarding interface. At the top left is the 5G IANA logo. To its right is a search bar containing the text "nxw". Below the logo is a menu icon (three horizontal lines). Underneath is a checkbox labeled "(Public) If this option is checked, anyone could see this Application". Below that is a search bar labeled "Search a component" containing the text "net". A list of components is shown below the search bar, each with a green plus icon on the left and a dropdown arrow on the right: "ActiveNetMonIperfServer", "ActiveNetMonIperfClient", "NetMonNpng", and "NetMonNpngDriver". At the bottom of the panel is a green "Save" button. The main area of the interface is a light gray canvas with two green circular nodes. The top node is labeled "NetMonNpng441" and the bottom node is labeled "NetMonNpngDriver452".

Development of an Atomic Component: Onboarding phase (2/3)





nxwNetworkMonitoring

(Public) If this option is checked, anyone could see this Application

Search a component

net

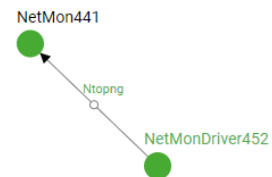
Generic info:
ID: xy5xwi0xdc
Name: NetMonDriver

NetMonDriver452  

Required Interfaces:
1. Interface: Ntopng

Exposed Interfaces:
1. Interface: testNtongDr

Save



Development of an Atomic Component: Onboarding phase (3/3)



```
{
  "id": 44,
  "name": "NetMon",
  "description": null,
  "hexID": "jb03jgp1v5",
  "architecture": null,
  "elasticityController": "HORIZONTAL",
  "elasticityControllerMode": null,
  "iconBase64": null,
  "iconContentType": null,
  "iconFilename": null,
  "iconPath": null,
  "iconContent": null,
  "dockerImage": "ntopng/ntopng:stable",
  "dockerRegistry": "192.168.100.2:5000",
  "dockerCredentialsUsing": "false",
  "dockerCustomRegistry": false,
  "dockerUsername": "5g-iana",
  "dockerPassword": "7qYzf0bbRI0LKJregfnf9A==\r\n",
  "organization": null,
  "publicComponent": true,
  "exposedInterfaces": [
    {
      "interfaceID": 53,
      "name": "NetworkMonitoringNtopng3000",
      "port": "3000",
      "vna": null,
      "interfaceType": "ACCESS",
      "transmissionProtocol": "TCP",
      "dateCreated": null,
      "lastModified": null
    }
  ],
  "softwareLicenses": null
}
```

```
{
  "id": 45,
  "name": "NetMonDriver",
  "description": null,
  "hexID": "xy5xwi0xdc",
  "architecture": null,
  "elasticityController": "HORIZONTAL",
  "elasticityControllerMode": null,
  "iconBase64": null,
  "iconContentType": null,
  "iconFilename": null,
  "iconPath": null,
  "iconContent": null,
  "dockerImage": "nxw/networkmonitoring:0.0.2",
  "dockerRegistry": "192.168.100.2:5000",
  "dockerCredentialsUsing": "false",
  "dockerCustomRegistry": false,
  "dockerUsername": "5g-iana",
  "dockerPassword": "7qYzf0bbRI0LKJregfnf9A==\r\n",
  "organization": null,
  "publicComponent": true,
  "exposedInterfaces": [
    {
      "interfaceID": 54,
      "name": "testNtongDr",
      "port": "83",
      "vna": null,
      "interfaceType": "CORE",
      "transmissionProtocol": "TCP",
      "dateCreated": null,
      "lastModified": null
    }
  ],
  "softwareLicenses": null
}
```

☰

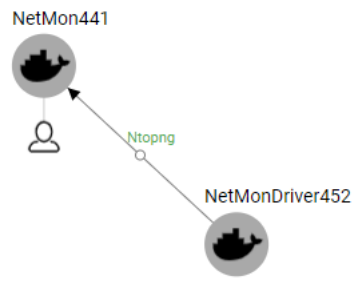
Select Provider

NEXTWORKS-OSS

Enable End-To-End Encrypted IPv6 Communication

Enable Soc on each component Node Instance

Proceed



Configure "NetMon441" Component

ID: 430bxni9e4

- General
- System Security
- Workers
- Flavor
- Health Check
- Container Execution
- Interfaces
- Environmental Variables
- Plugin

General

Select SSH Key

adminKey

Select Provider

NEXTWORKS-OSS

Select location

TEST

Select node

5g-iana-mec

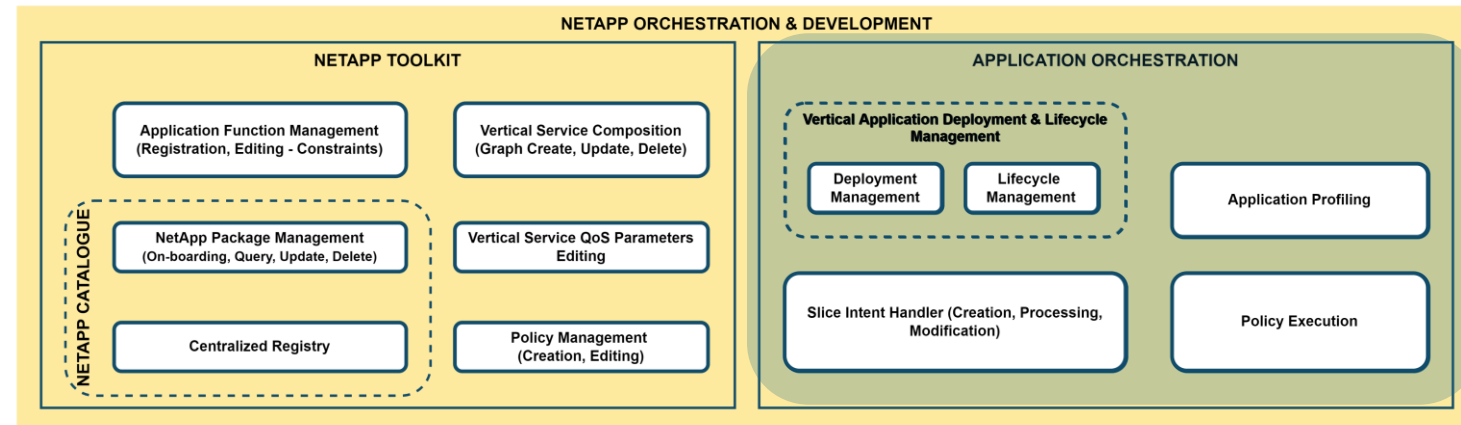
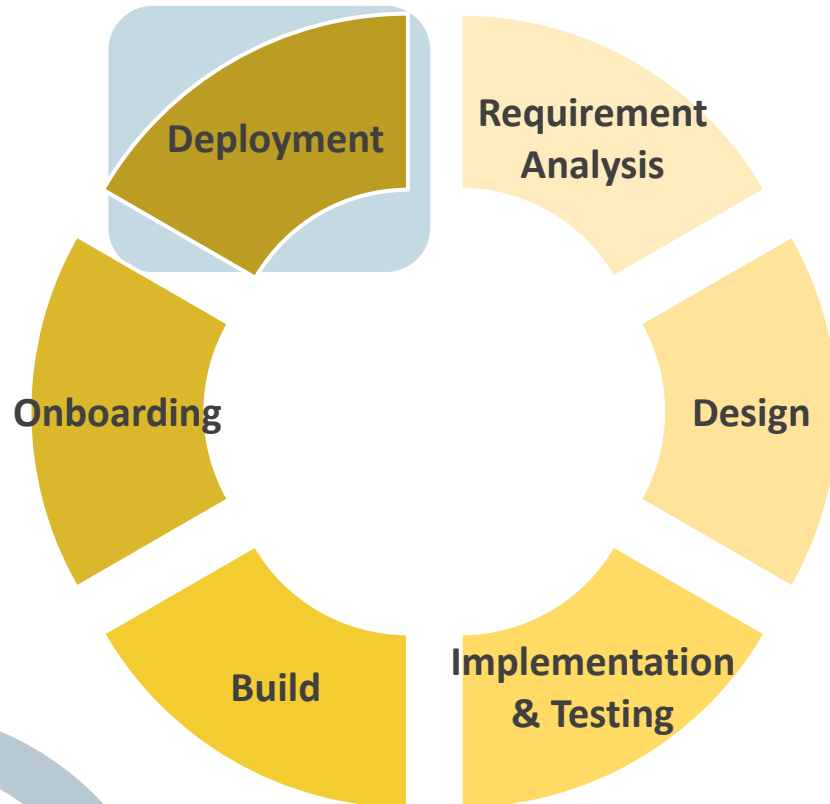
Select Region *

Ulm-DE-Nokia

DNS Entry

Development of an Atomic Component: Deployment phase

Development Lifecycle



Development of an Atomic Component: Deployment phase



enp1s0 28.20 Kbps 31.10 Kbps License expires in 03:11

Search

Live Flows | Analysis

Live Flows

Flow Idle Timeout: 60 sec

10 Hosts Status Severity Direction L7 Protocol Categories DSCP Host Pool Networks IP Version Protocol

Serial	Application	Proto	Client	Server	Duration	Score	Breakdown	Actual Thpt	Total Bytes	Info
1	TLS DPI	TCP	links-vobu-2 L:37758	5g-iana-mec L:16443	03:36	110	Client Server	34.50 Kbps	290.87 KB	
2	TLS DPI	TCP	192.168.100.101 L:45346	5g-iana-mec L:16443	03:36	110	Client Server	0 bps	236.5 KB	
3	TLS DPI	TCP	10.0.0.1							time="2023-11-27T10:58:38Z" level=info msg="Discovery: {IP:0.0.0.0 MAC:54:AB:3A:BE:43:36 Manufacturer: Name:noip SeenLast:1701082686 SeenFirst:1701081279 Ifid:2}\n"
4	TLS DPI	TCP	10.0.0.1							time="2023-11-27T10:58:38Z" level=info msg="Discovery: {IP:192.168.100.254 MAC:A0:36:9F:87:0E:31 Manufacturer: Name:gateway SeenLast:1701082480 SeenFirst:1701082479 Ifid:2}\n"
5	HTTP.ntop DPI	TCP	10.0.0.2							time="2023-11-27T10:58:38Z" level=info msg="Discovery: {IP:192.168.100.12 MAC:04:42:1A:ED:E7:BE Manufacturer: Name: SeenLast:1701082459 SeenFirst:1701082051 Ifid:2}\n"
6	HTTP DPI	TCP	10.0.0.2							time="2023-11-27T10:58:38Z" level=info msg="Discovery: {IP:192.168.200.3 MAC:04:42:1A:ED:E7:BE Manufacturer: Name: SeenLast:1701082703 SeenFirst:1701081330 Ifid:2}\n"
7	HTTP.ntop DPI	TCP	10.0.0.2							time="2023-11-27T10:58:38Z" level=info msg="Discovery: {IP:192.168.100.101 MAC:52:54:00:51:79:9C Manufacturer: Name: SeenLast:1701082717 SeenFirst:1701081278 Ifid:2}\n"
8	HTTP.ntop DPI	TCP	10.0.0.2							time="2023-11-27T10:58:38Z" level=info msg="Discovery: {IP:192.168.100.13 MAC:54:AB:3A:EE:82:4F Manufacturer: Name: SeenLast:1701082546 SeenFirst:1701082343 Ifid:2}\n"
9	HTTP.ntop DPI	TCP	10.0.0.2							time="2023-11-27T10:58:38Z" level=info msg="Discovery: {IP:10.0.0.12 MAC:A0:36:9F:87:0E:31 Manufacturer: Name: SeenLast:1701082713 SeenFirst:1701081275 Ifid:2}\n"
10	HTTP.ntop DPI	TCP	10.0.0.2							time="2023-11-27T10:58:38Z" level=info msg="Discovery: {IP:192.168.100.102 MAC:52:54:00:1D:F3:EB Manufacturer: Name:links-vobu-2 SeenLast:1701082713 SeenFirst:1701081275 Ifid:2}\n"
11	TLS DPI	TCP	10.0.0.1							time="2023-11-27T10:58:38Z" level=info msg="Discovery: {IP:10.0.0.21 MAC:A0:36:9F:87:0E:31 Manufacturer: Name: SeenLast:1701082716 SeenFirst:1701081565 Ifid:2}\n"
12	TLS DPI	TCP	links-vobu-2							time="2023-11-27T10:58:43Z" level=info msg="HostsActive: &{RcStr:OK Rc:0 Rsp:{Data:[{IsLocalhost:false LastSeen:1701082703 Thpt:{Bps:0 Pps:0} IsBroadcast:false Country: NumAlerts:0 IsMulticast:false NumFlows:{Total:2 AsClient:0 AsServer:2} Key:192_168_200_3 Bytes:{Total:3330 Recvd:652 Sent:0} Vlan:0 IsBroadcastDomain:false Name:0 IP:192.168.200.3 IsBlacklisted:false Os:0 FirstSeen:1701081330} {IsLocalhost:true LastSeen:1701082480 Thpt:{Bps:0 Pps:0} IsBroadcast:false Country: NumAlerts:0 IsMulticast:false NumFlows:{Total:0 AsClient:0 AsServer:0} Key:192_168_100_254 Bytes:{Total:210 Recvd:0 Sent:210} Vlan:0 IsBroadcastDomain:true Name:0 IP:192.168.100.254 IsBlacklisted:false Os:0 FirstSeen:1701082479} {IsLocalhost:true LastSeen:1701082546 Thpt:{Bps:0 Pps:0} IsBroadcast:false Country: NumAlerts:0 IsMulticast:false NumFlows:{Total:0 AsClient:0 AsServer:0} Key:192_168_100_13 Bytes:{Total:1616 Recvd:652 Sent:964} Vlan:0 IsBroadcastDomain:true Name:0 IP:192.168.100.13 IsBlacklisted:false Os:0 FirstSeen:1701082343} {IsLocalhost:true LastSeen:1701082459 Thpt:{Bps:0 Pps:0} IsBroadcast:false Country: NumAlerts:0 IsMulticast:false NumFlows:{Total:0 AsClient:0 AsServer:0} Key:192_168_100_12 Bytes:{Total:36238 Recvd:21775 Sent:14463} Vlan:0 IsBroadcastDomain:true Name:0 IP:192.168.100.12 IsBlacklisted:false Os:0 FirstSeen:1701082051} {IsLocalhost:true LastSeen:1701082723 Thpt:{Bps:0 Pps:0} IsBroadcast:false Country: NumAlerts:0 IsMulticast:false NumFlows:{Total:30 AsClient:30 AsServer:0} Key:192_168_100_102 Bytes:{Total:2399059 Recvd:532148} Vlan:0 IsBroadcastDomain:true Name:0 IP:192.168.100.102 IsBlacklisted:false Os:0 FirstSeen:1701081275} {IsLocalhost:true LastSeen:1701082717 Thpt:{Bps:0 Pps:0} IsBroadcast:false Country: NumAlerts:0 IsMulticast:false NumFlows:{Total:20 AsClient:20 AsServer:0} Key:192_168_100_101 Bytes:{Total:1745499 Recvd:1380653 Sent:364846} Vlan:0 IsBroadcastDomain:true Name:0 IP:192.168.100.101 IsBlacklisted:false Os:0 FirstSeen:1701081278} {IsLocalhost:true LastSeen:1701082723 Thpt:{Bps:0 Pps:0} IsBroadcast:false Country: NumAlerts:0 IsMulticast:false NumFlows:{Total:83 AsClient:3 AsServer:80} Key:192_168_100_1 Bytes:{Total:325316785 Recvd:22516003} Vlan:0 IsBroadcastDomain:true Name:0 IP:192.168.100.1 IsBlacklisted:false Os:0 FirstSeen:1701081275} {IsLocalhost:false LastSeen:1701082720 Thpt:{Bps:0 Pps:0} IsBroadcast:false Country: NumAlerts:0 IsMulticast:false NumFlows:{Total:4 AsClient:4 AsServer:0} Key:10_0_0_21 Bytes:{Total:15515488 Recvd:14967529 Sent:547959} Vlan:0 IsBroadcastDomain:false Name:0 IP:10.0.0.21 IsBlacklisted:false Os:2 FirstSeen:1701081565} {IsLocalhost:false LastSeen:1701082723 Thpt:{Bps:0 Pps:0} IsBroadcast:false Country: NumAlerts:0 IsMulticast:false NumFlows:{Total:26 AsClient:26 AsServer:0} Key:10_0_0_12 Bytes:{Total:1916219 Recvd:1499506 Sent:416713} Vlan:0 IsBroadcastDomain:false Name:0 IP:10.0.0.12 IsBlacklisted:false Os:0 FirstSeen:1701081275} {IsLocalhost:true LastSeen:1701082686 Thpt:{Bps:0 Pps:0} IsBroadcast:true Country: NumAlerts:0 IsMulticast:false NumFlows:{Total:1 AsClient:1 AsServer:0} Key:0_0_0_0 Bytes:{Total:7613 Recvd:0 Sent:7613} Vlan:0 IsBroadcastDomain:false Name:0 IP:0.0.0.0 IsBlacklisted:false Os:0 FirstSeen:1701081279}]] CurrentPage:1 PerPage:10 Sort:[[]]\n"
13	TLS DPI	TCP	links-vobu-2							time="2023-11-27T10:58:43Z" level=info msg="Discovery: {IP:10.0.0.21 MAC:A0:36:9F:87:0E:31 Manufacturer: Name: SeenLast:1701082720 SeenFirst:1701081565 Ifid:2}\n"
14	TLS DPI	TCP	10.0.0.1							time="2023-11-27T10:58:44Z" level=info msg="Discovery: {IP:192.168.100.254 MAC:A0:36:9F:87:0E:31 Manufacturer: Name:gateway SeenLast:1701082480 SeenFirst:1701082479 Ifid:2}\n"
15	TLS DPI	TCP	10.0.0.1							time="2023-11-27T10:58:44Z" level=info msg="Discovery: {IP:192.168.100.12 MAC:04:42:1A:ED:E7:BE Manufacturer: Name: SeenLast:1701082459 SeenFirst:1701082051 Ifid:2}\n"
16	TLS DPI	TCP	links-vobu-2							time="2023-11-27T10:58:44Z" level=info msg="Discovery: {IP:0.0.0.0 MAC:54:AB:3A:BE:43:36 Manufacturer: Name:noip SeenLast:1701082686 SeenFirst:1701081279 Ifid:2}\n"
17	TLS DPI	TCP	10.0.0.1							time="2023-11-27T10:58:44Z" level=info msg="Discovery: {IP:192.168.100.101 MAC:52:54:00:51:79:9C Manufacturer: Name: SeenLast:1701082717 SeenFirst:1701081278 Ifid:2}\n"
18	TLS DPI	TCP	10.0.0.1							time="2023-11-27T10:58:44Z" level=info msg="Discovery: {IP:10.0.0.12 MAC:A0:36:9F:87:0E:31 Manufacturer: Name: SeenLast:1701082723 SeenFirst:1701081275 Ifid:2}\n"
19	TLS DPI	TCP	links-vobu-2							time="2023-11-27T10:58:44Z" level=info msg="Discovery: {IP:192.168.200.3 MAC:04:42:1A:ED:E7:BE Manufacturer: Name: SeenLast:1701082703 SeenFirst:1701081330 Ifid:2}\n"
20	TLS DPI	TCP	10.0.0.1							time="2023-11-27T10:58:44Z" level=info msg="Discovery: {IP:192.168.100.101 MAC:52:54:00:01:7F:F7 Manufacturer: Name:5g-iana-mec SeenLast:1701082723 SeenFirst:1701081275 Ifid:2}\n"
21	TLS DPI	TCP	10.0.0.1							time="2023-11-27T10:58:44Z" level=info msg="Discovery: {IP:192.168.100.102 MAC:52:54:00:1D:F3:EB Manufacturer: Name:links-vobu-2 SeenLast:1701082723 SeenFirst:1701081275 Ifid:2}\n"
22	TLS DPI	TCP	links-vobu-2							time="2023-11-27T10:58:44Z" level=info msg="Discovery: {IP:192.168.100.13 MAC:54:AB:3A:EE:82:4F Manufacturer: Name: SeenLast:1701082546 SeenFirst:1701082343 Ifid:2}\n"

Conclusion



- AOEP
 - **An easy to use platform for linking components developed by other partners and made available for using them in a 5G environment**
 - **New components (open-source/open-use/private) can be developed and used in the platform**
 - **Direct connection to a 5G environment to experiment the applications**

www.5g-iana.com

Thank you for your attention!

Any questions?

NEXTWORKS
HEADING THE FUTURE

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