



# IOS-MCN Overview

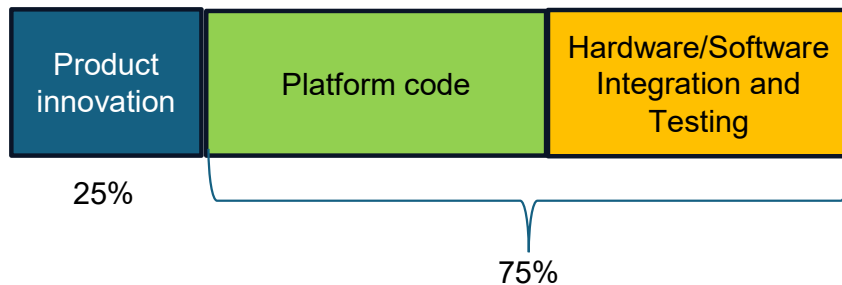
Dec 2024

# Why are we doing this project?

## TODAY in 5G:

- Available Open-Source code is buggy. Components often from different sources and do not work together.
- Companies spend excessive effort on undifferentiated development just to reach parity
- Smaller product companies are locked out even if they have innovative ideas

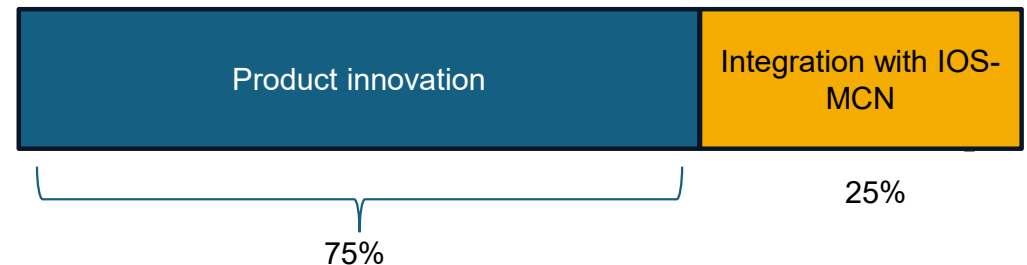
EFFORT SPENT IN TYPICAL PRODUCT DEVELOPMENT



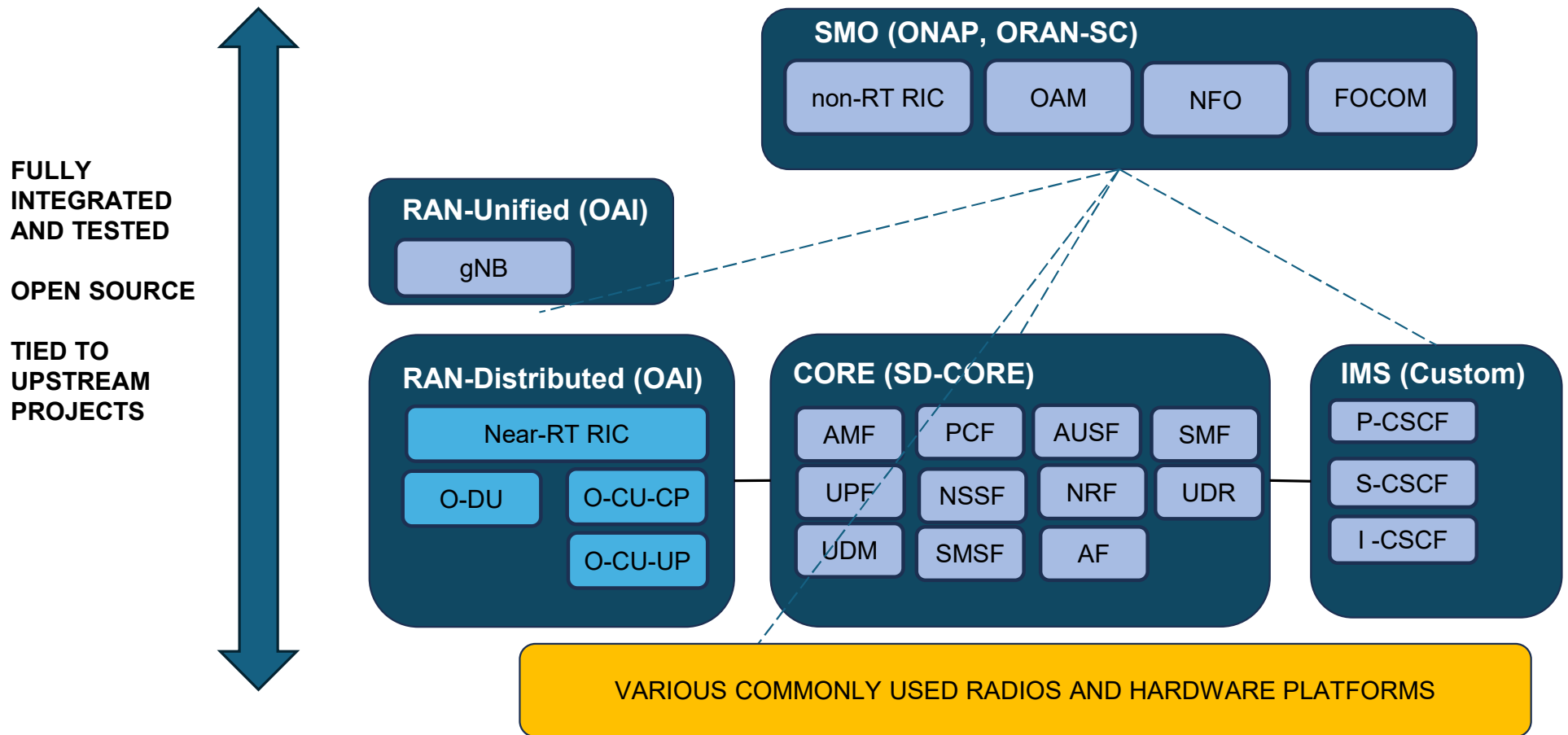
## WITH IOS-MCN:

- A reliable, end-end integrated and tested Open Source stack that works “out-of-the-box”
- Smaller companies can build on IOS-MCN and focus on differentiated value
- Researchers have an open platform for innovation

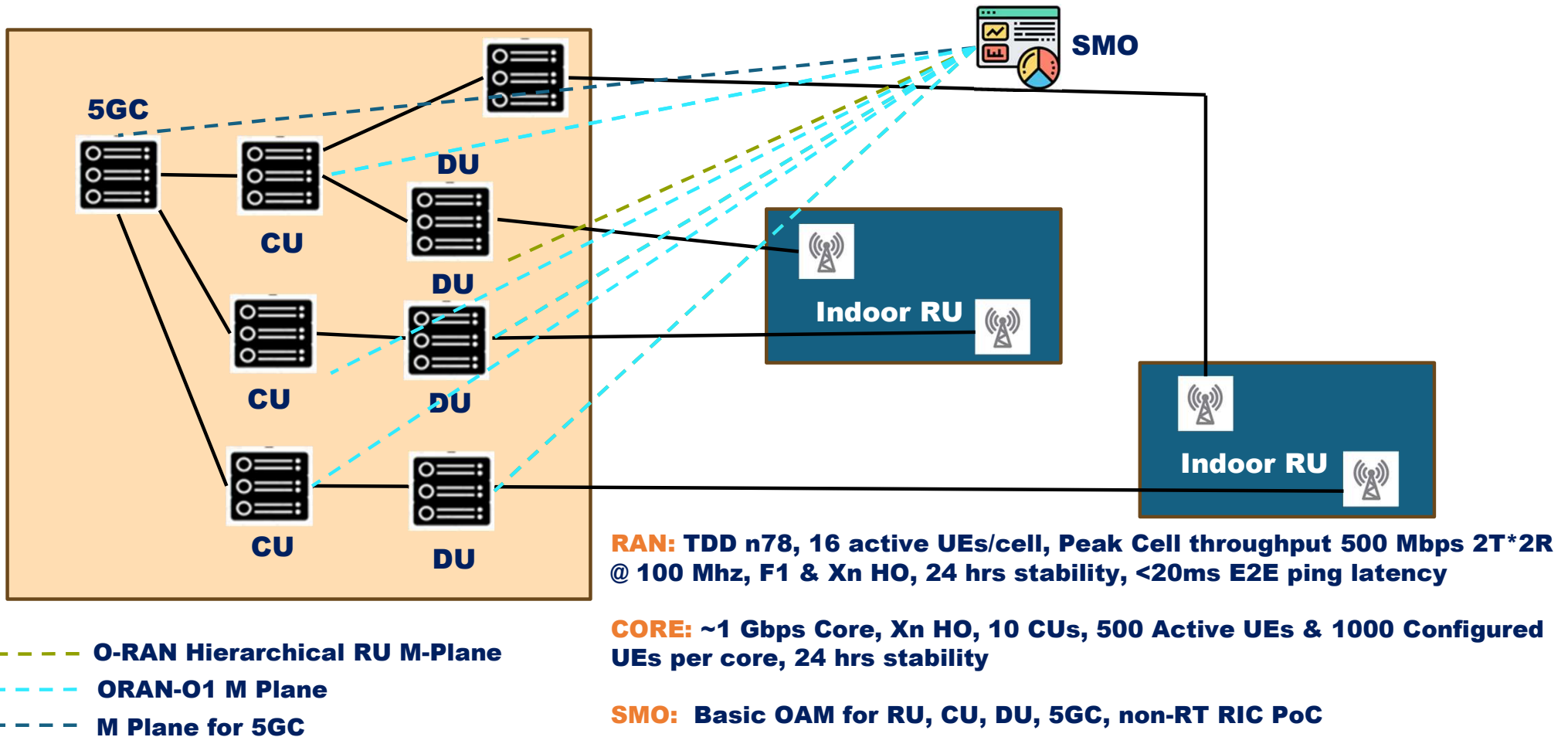
EFFORT SPENT IN TYPICAL PRODUCT DEVELOPMENT



# What are we building?

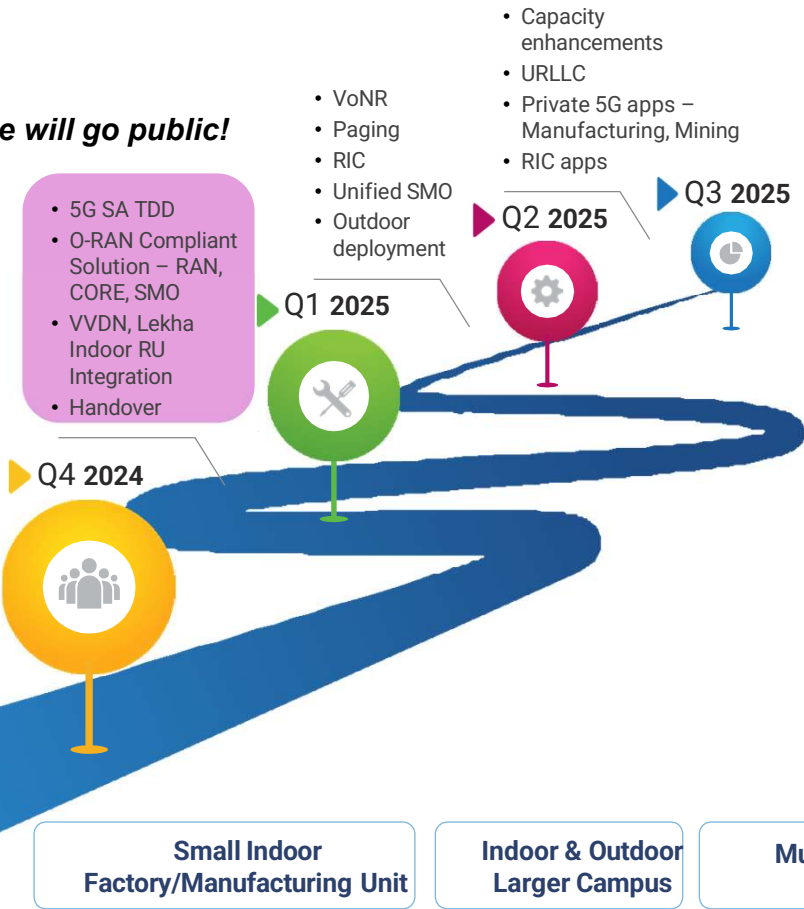


# What are we building in the first release?



# When can you expect it?

*Agartala Release will go public!*



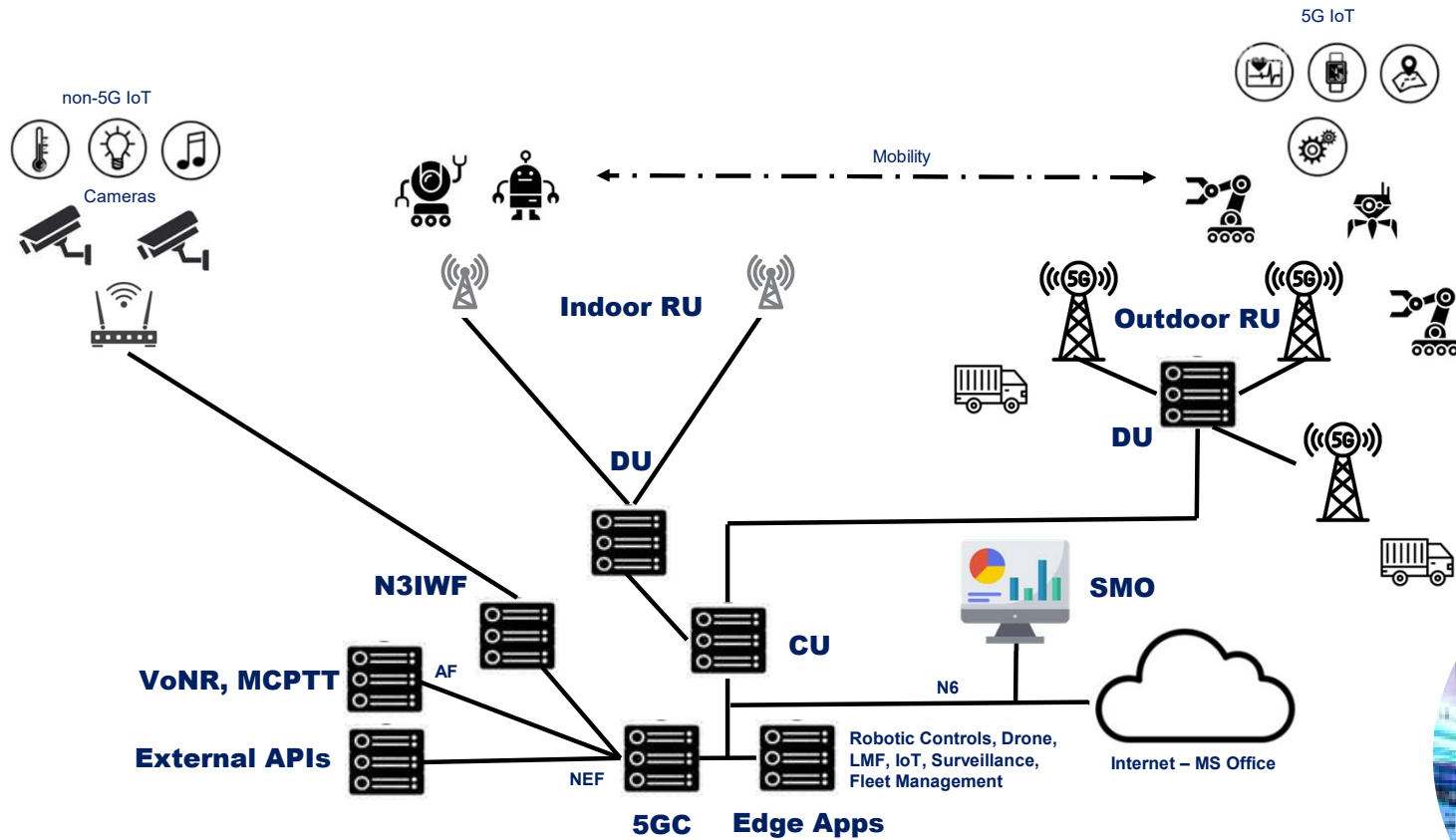
Small Indoor  
Factory/Manufacturing Unit

Indoor & Outdoor  
Larger Campus

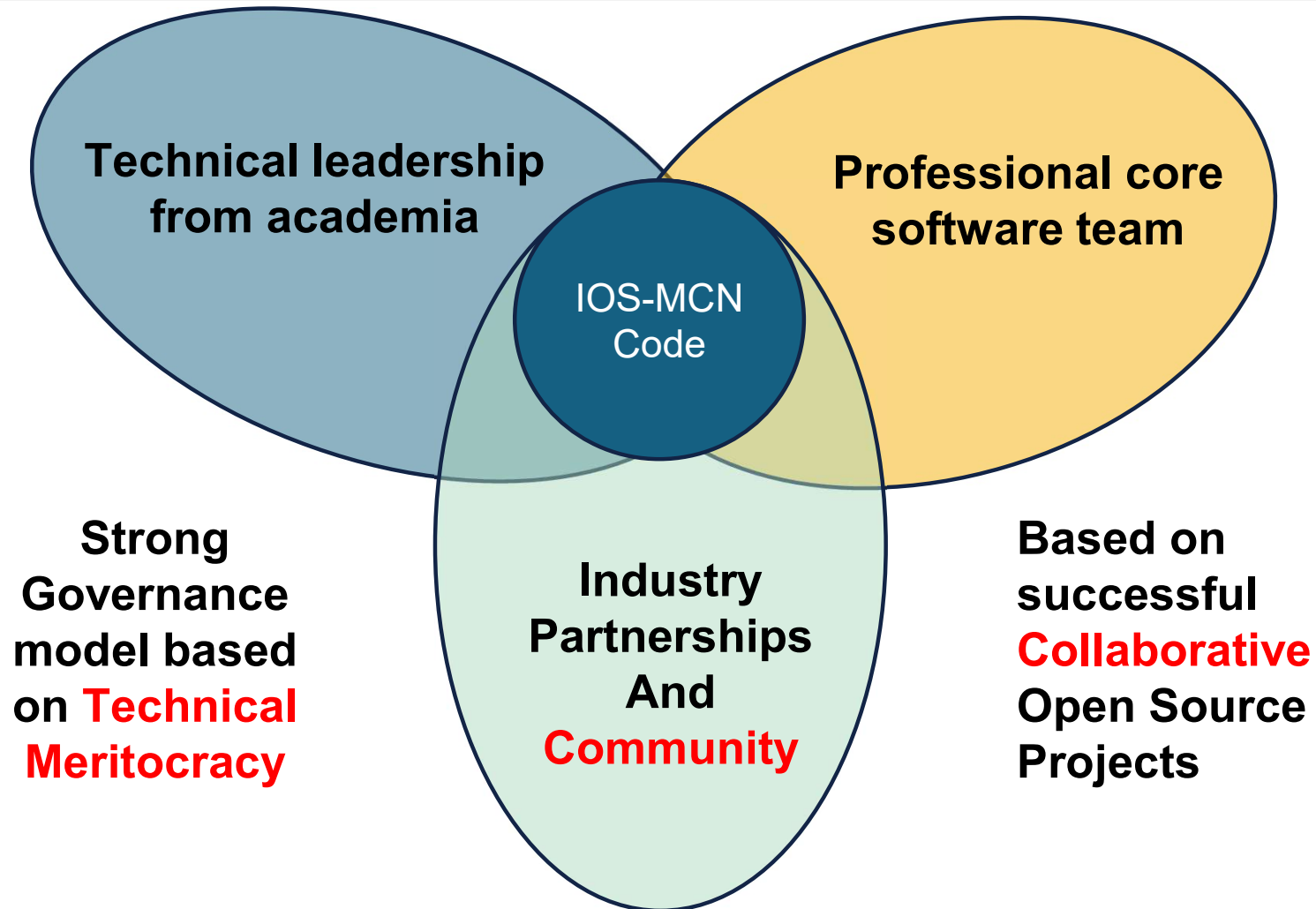
Multi-Site Indoor/Outdoor  
Private 5G



# Use-Cases for Indian Private 5G Market



## How are we doing it?



# Loss Adaptive Fair Scheduling in 5G with Minimum Rate Guarantees

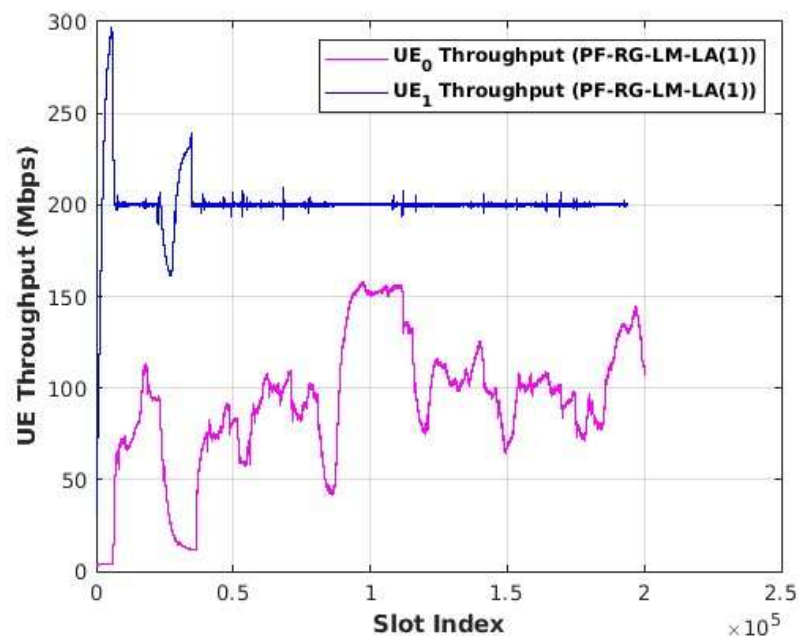
Dept. of Electrical Communication Engineering  
Indian Institute of Science, Bangalore



Joint work with Venkatareddy Akumalla, S. V. R. Anand  
Anurag Kumar, Chandra R. Murthy, and Rajesh Sundaresan

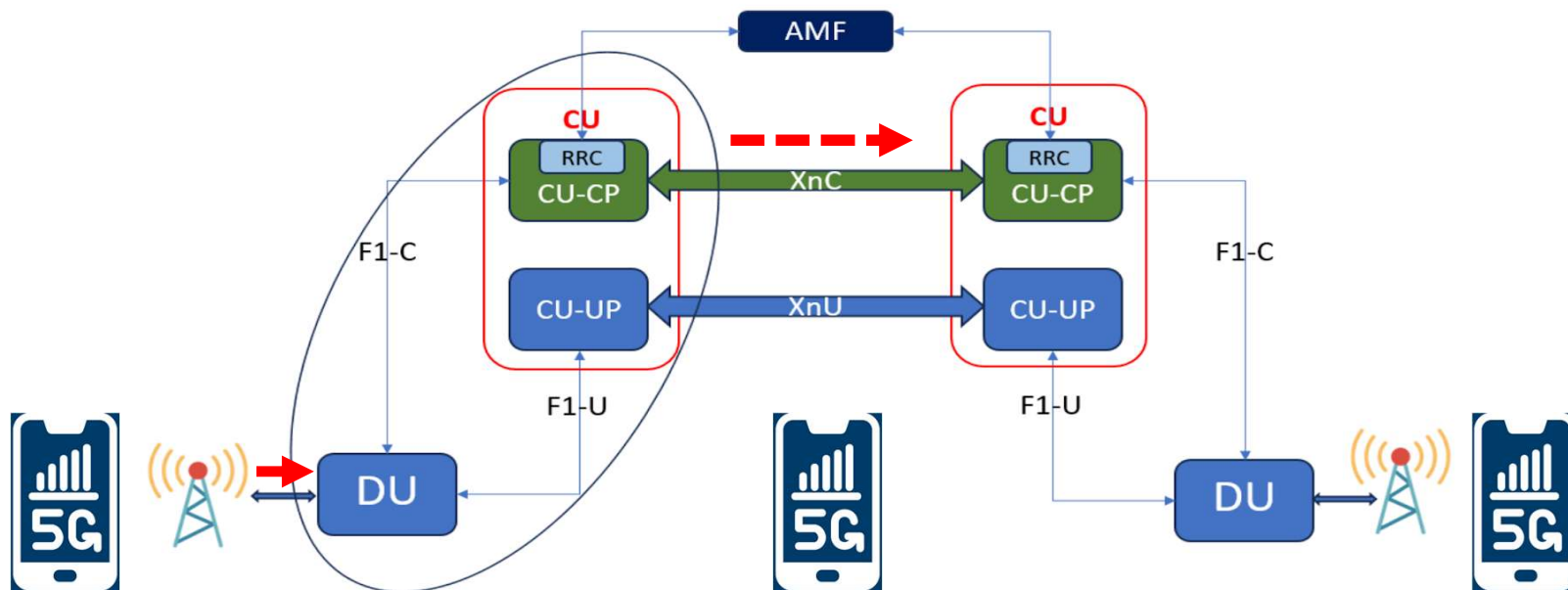


# Rate Guarantee with an Arbitrarily Moving UE



- $UE_1$  throughput remains at 200 Mbps
  - Except where the rate region cannot accommodate 200 Mbps
- $UE_0$  throughput varies depending on whatever the rate region boundary accommodates

# Xn-Handover

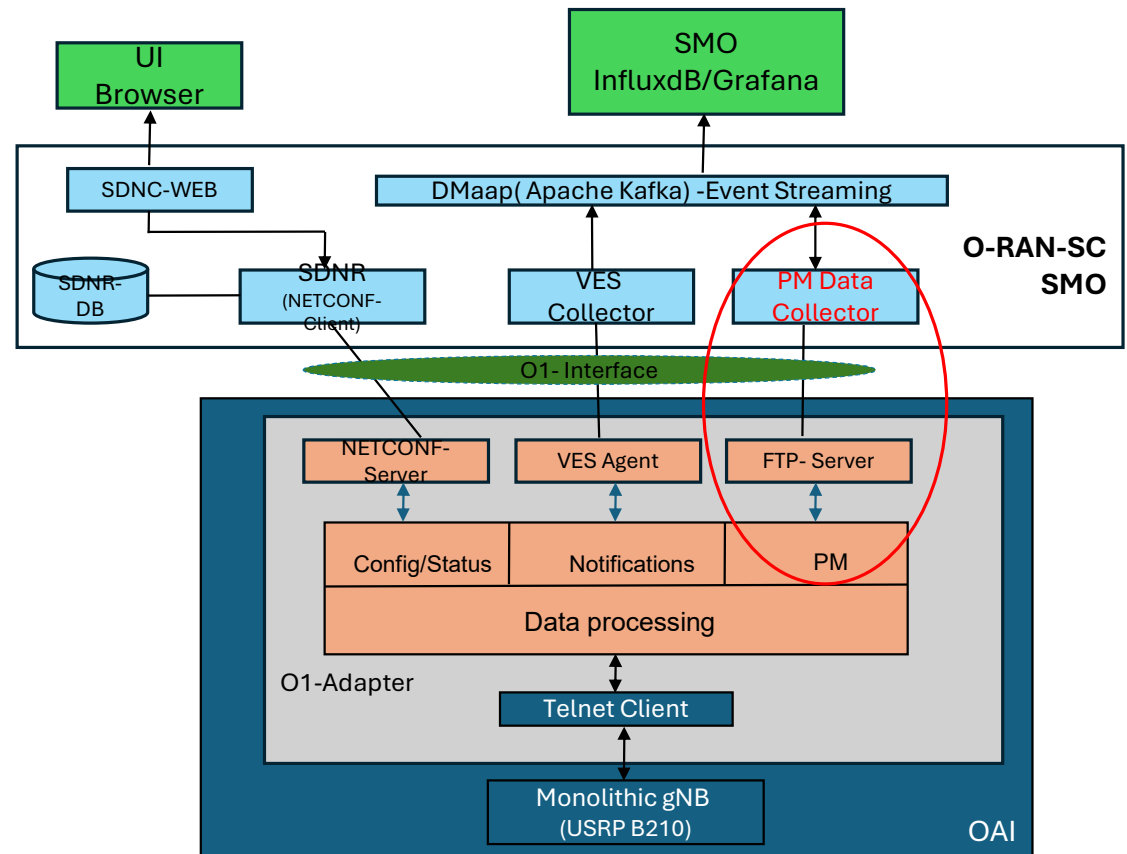


## Xn-Handover (Xn-HO):

- Handover from Source gNB to Target gNB depending upon BW, Power, etc.
- Complete profile of a UE is transferred

# Non-RT RIC Architecture

- Sample RIC to demo infrastructure for config and controls
- Implement an SMO framework (provision for AI/ML integration)
  - R1 Interface
  - A1 interface
  - O1 interface
- R1 services:
  - one-one, one-many, pub-sub, routed etc.,



# IOS-MCN Consortium

Strategic  
Partners



Platinum  
Partners



सी-डॉट  
C-DOT

Gold  
Partners



Silver  
Partners/Members



# Value Proposition with IOS-MCN SW

## Partners/Members

- **Influencing the product roadmaps** by prioritizing the features and solutions as the consortium members see fit for their needs
- **Visibility & Recognition** through the various forums the strategic partners and consortium members participate in
- **Faster development** – access to broader technology competency areas through the consortium
- **Early Access** to the design/code along with test artifacts

## User community

- **A complete E2E Solution** of 5G open source for private networks
- **Additional Critical Features implementations**
- **Stability and Capacity improvements**
- **More test coverage with traffic model testing**
- **More automated test coverage** and stronger Continuous Integration process
- **Integration with Indian vendor O-RUs** – eg: VVDN, Lekha, etc
- **Application development** as relevant to Indian private 5G market

# IOS-MCN License Strategy

- Apache V2.0 License for IOS-MCN own developed source code
- Select upstream base code compatible with Apache V2.0, where possible
- Follow original license terms for added and modified code within the base code
- IOS MCN Release level license files and comprehensive license listing will be provided
- Not all projects will require a CLA, but it is required to contribute to a project, one needs to sign as an Individual Contributors License Agreement or as an Corporate Contributor License. These will be prepared when IOS-MCN is made public for contributors

# Key Value Proposition for Partners:

**Partner** organizations will participate in the **governance** of the IOS MCN Project



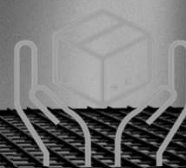
Visibility &  
Recognition



Trust &  
Credibility



Technology  
Competency



Faster  
Product  
Development



Ground for  
test and  
trials

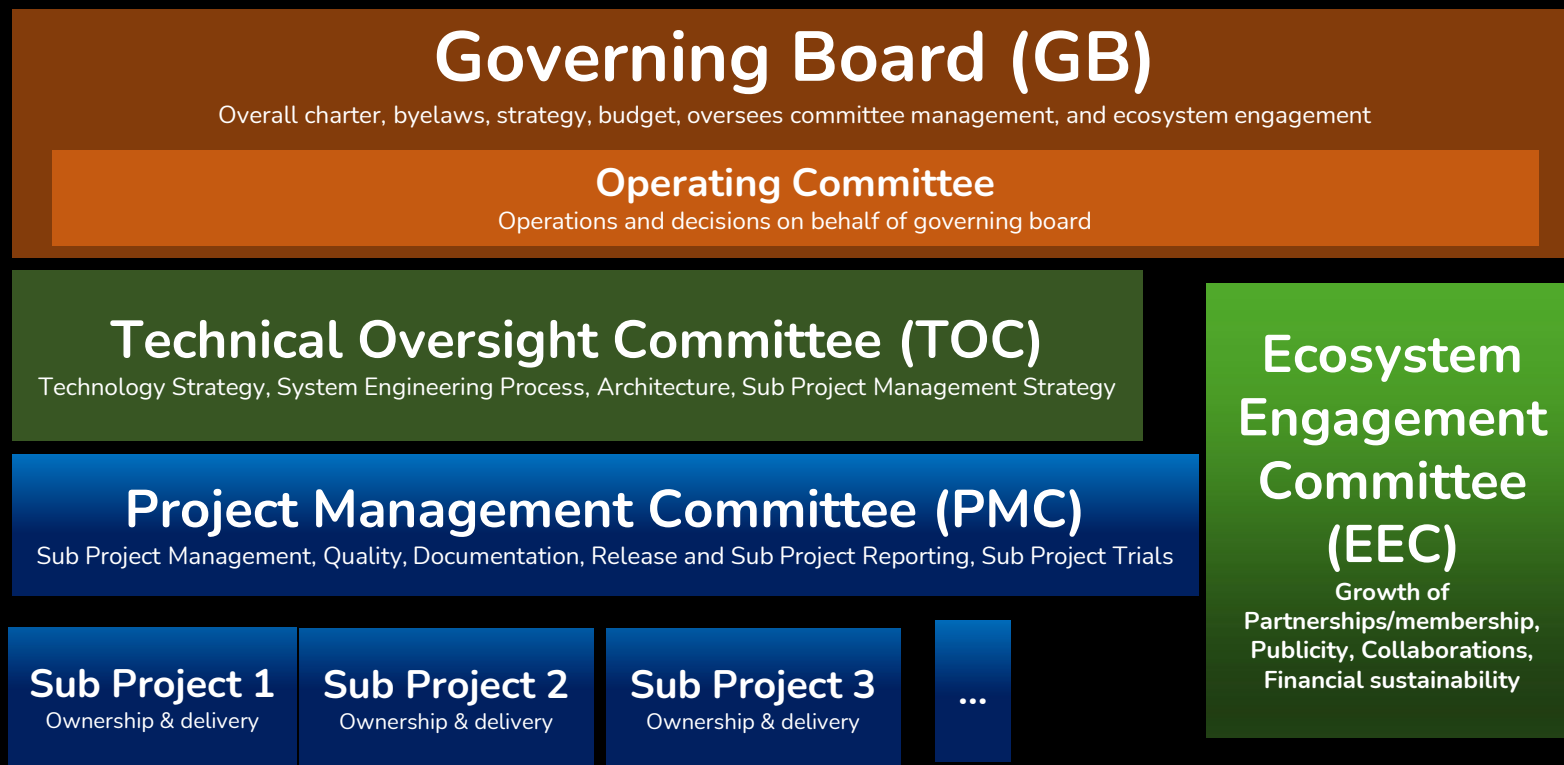


Technology  
Influence

A value based collaborative ecosystem in India!

# IOS MCN Governance

The overall **governance** of the project is handled through various **committees** constituted by the **representatives from partner** organizations.





# IOS MCN Structure Details (Page 1 of 2)

## Governing Board (GB)

<b>Collaborators</b>	Indergopal, IISc	Chandra Murthy, IISc	Krishna Sirohi, IITD	Swades De', IITD	K. Selvan, CDAC-T
<b>Partners</b>	Simnovus	CDOT			
<b>Convener</b>	Pamela, FSID		Observer / Presenter	Usha Padmini, FSID	

## Operating Committee (OC)

<b>Members</b>	Indergopal, IISc	Chandra Murthy, IISc	Krishna Sirohi, IITD	Rajasree, CDAC-T	
<b>Convener</b>	Pamela, FSID		Observer / Presenters	Usha Padmini, FSID	Sanil, Caze Labs

## Technical Oversight Committee (TOC)

<b>Collaborators</b>	Rajiv, IITD Release Rqmts	Aneesh, CDAC-T Core & OAM Arch	Vinay Kulkarni, IISc RAN Dist	Ravindra, IITD, RAN UNI System Architect	Bhaskar, CDOT, Validation	
<b>Members</b>	Sanil, Caze Labs Engg Process, CICD	Abhijit, Niral Networks Market Rqmts, Pilots	Deepanjan, Rebeca Core Test Strategy	Rajani, Lekha Wireless RU Support	Ajit Singh, W4S System Architect	Sridhar, CIT SMO
	Shyam Kaluve, OpenNets	Naveen Khanna, Coral Telecom, IMS	Ritesh, TechPhosis, RAN & Ecosystem	Neeraj, INVAS RF Compliance and Safety	Subbaih, Resonous Flexran DU	
<b>Conveners</b>	Usha Padmini, FSID	Sanil, Caze Labs	<b>Observer</b>	Pamela, FSID		

## IOS MCN Structure Details (Page 2 of 2)

### Program Management Committee (PMC)

<b>Sub Project Leads</b>	Vinay, FSID RAN Distributed	Ravindra, IIT-D RAN Unified	Sibi, CDAC-T SMO Co-Lead	Aneesh/Saji, CDAC-T CORE	Murali CDOT, Validation
	Ajeesh, Caze Labs Github, CICD	Siva, Niral Networks Pre-deployment & Pilots	Deepanjan, Rebeca Core Test & Automation	Sridhar, CIT SMO Co-Lead	Naveen, Coral Telecom IMS
	Uday, Simnovus RAN-DIST Test & Automation	Mangal, Techphosis RAN, Debug	XX INVAS, RF Compliance and Safety	XX, Resonous, DU L2	
<b>Conveners</b>	Usha, FSID	Sanil, Caze Labs			
<b>Observers</b>	Pamela, FSID	Prof Vijaya Kumar, MSRIT	Reddy, OpenNets	Navnath, Space Pulse	

### Ecosystem Engagement Committee (EEC)

<b>Members</b>	Usha, FSID	Vijayalakshmi, Sinnovus	Sridhar Rao, CIT	Abhijit, Niral Networks	Naveen Khanna, Coral Telecom
	Sanil, Caze Labs	Rajani, Lekha	Rajiv Khanna, IITD		
<b>Convener</b>	Pamela, FSID	Ritesh, Techphosis			

Join us today!  
Together We WILL!



Thank You!