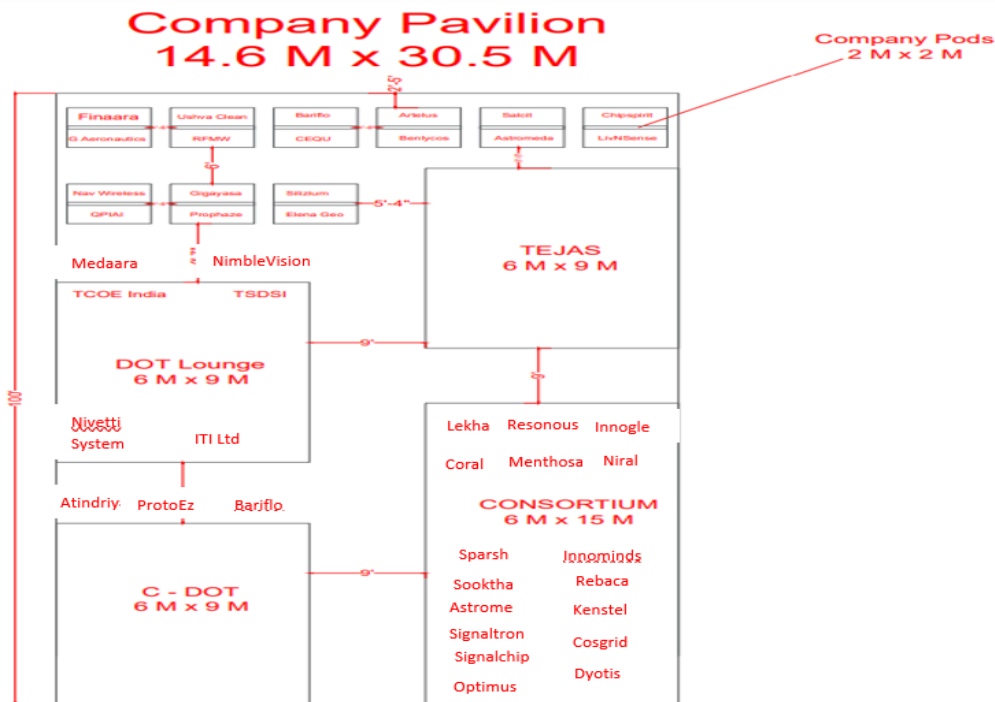


## G20 Digital Innovation Alliance Summit held in Bengaluru at a Tudor-style palace, from August 17th to 19th, 2023

G20 Digital Innovation Alliance Summit held in Bengaluru at a Tudor-style palace, from August 17th to 19th, 2023 is organized by the Ministry of Electronics and Information Technology (MeitY), Government of India, and the MeitY Start-up Hub. With the focal theme, 'Driving Digital Innovation for World Economies', the Summit anticipates substantial participation from delegates representing the G20 countries and 9 guest countries, including policymakers, business leaders, technocrats, young innovators, and investors.

A total of 174 startups have been celebrated and supported under this initiative which has resulted in the selection of 6 best startups from each 29 participating countries who has been given more than 30 awards along with an opportunity to raise funds from investors and engage with corporates.

On behalf of the Department of Telecommunications (DoT), TCOE India invited 40 innovators to participate in a 3-day summit (from 17th to 19th August 2023) and showcased 4G/5G technology powers to the world. There were 23 Innovators who individually showcased their products in different sectors for example- Agri Tech, Circular Economy, FinTech, Secure Digital Infrastructure etc and 17 Innovators who showcased their products as a Consortium and C-DoT showcased their innovation. TCS Tejas showcased indigenous 4G stack. ITI Ltd Bangalore showcased their innovation. TSDSI and TCOE India showcased opportunities to startups. The layout for display of domestic innovations are as follows: -



As a Consortium the Innovator technologists presented "use cases" for end customer or Telco applications rather than showcasing individual products or modules. These were theme based on use cases which were presented live with interworking of products from different consortium partners. Most of the participants, whose products were used to build these solutions in the consortium pavilion, have been designed by domestic companies supported by TCOE India/ DOT under DCIS scheme and today they can deliver complete solutions for customers, Governments or Telecom operators. Most of these themes are based on specific tenders and real-life customers' requirements observed in the last few months in India. Selected use cases are for Converged Defense Network, Battlefield Geolocations Tracking and Theaterisation, Railways converged 4G / 5G Network, Rural Areas Communication solutions and Disaster Management Applications.

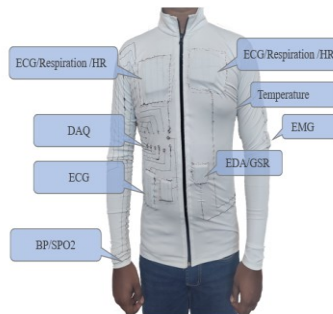
## Domestic Companies supported by TCOE India/DoT



### ***GigaMesh - High Performance 5G Backhaul Radio***

A Multi-beam E-band product, GigaMesh that packs multiple Point-to-Point E-band radios in one thereby distributing the cost of the device over multiple links.

*Neha Satak*  
9830370684



### ***E Fabrics Based Tele Health Monitoring System empowered by 4G/5G***

AstroMon 4G/5G is intended to serve as a portable on the go telehealth ICU. It monitors the physiological parameters in real-time and transmit data in the real-time to a doctor for assessing the patient condition using 4G/5G network.

*Rajagurunathan K*  
8553727320



### ***Sensoí Adapieí Sofiwaíe based on Daia Disiibuñion Seívce***

Working in the field of Radai Engineering, Antenna system engineering

*Dí. Muthukumái*  
77600 90565



### **Aquafarming**

Intelligent and secure Iorawan-blockchain driven mesh net (LWBDM) integrated water quality monitoring sensors for aquaculture practices. To mitigate the impact of climate change but also scale up their profitability than traditional systems by at least two-fold.

*Mrutyunjaya Sahu*  
7328021033



### **BSS/OSS Project**

Solving the last mile internet connectivity for speed, availability, reliability and security by combining multiple forms of available internet connections at any time and location.

*Sajith Kandiyl*  
9739255007



### **Indigenous Indian Artificial Intelligence Surveillance System**

An OEM IP based IoT camera relayed from our own servers based designed to bypass Chinese servers powered with additional layer of security through Blockchain authentication at the login stage for users. The platform also provides features of video analytics through AI based face recognition detection technologies provided as SaaS Platform.

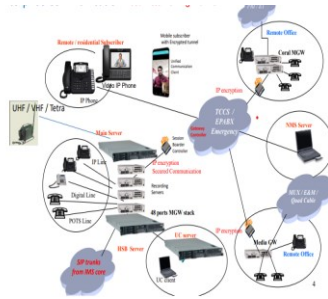
*Kumar Satyam*  
7060448441



### **Abhed1\_DISC1**

Hardware-based encryption platform for High Grade Secure communication, platform supports USB-3.0 and Ethernet-1G data transfers. IDEX Winners for DISC1.

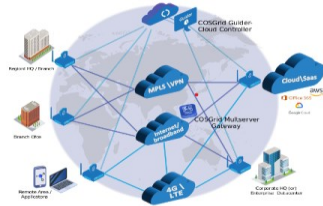
*Mohan Kumar Jindal*  
9500093999



### Unified Enterprise communication solutions

Seamless communication across various telecom protocols & devices with a common switching matrix.

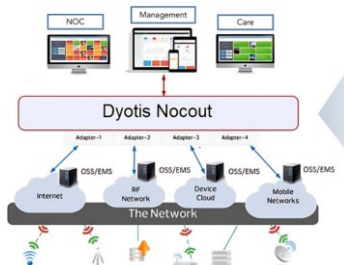
Mr. Rajesh Tuli  
9891499300



### Integrated Secure SD-WAN Edge

NetSecOps platform - Net Security, SD-WAN & User Experience, Multi-4G(5G) radio Bonding for quality streaming, Edge computing / IoT support enabled by SDN/NFV

Mr. Murugavel  
8610144212



### E-Life

E-Life is Remote monitoring & Care ICU solution. We are partnered with renowned Anesthesia doctors Networks along with Next Gen technology to remotely monitoring the ICU Where Expert Doctors can directly interact with patient via Video and Voice and also Bedside monitor data can be tracked live. This is the complete solution of E-ICU

Rohit Pandey  
9899451659



### NavIC based GNSS Solutions

Developing timing products that will translate the advantages of IRNSS for the Indian Public in the time critical applications

Mr. Velan  
9384864265



### Automated Verifiable Remittance Machine

5G private network enabled AVRМ – world first standalone automated verifiable remittance and money exchange machines to perform both traditional and digitalised process without middleman

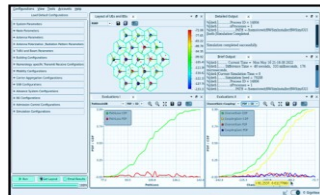
Rajendran  
9941909030



### Krishak Drone

Hexacopter Kisan/ Agri Drone Tech Solutions

Abhishek  
9989834865



### 5G Advance Simulator

5G-Toolkit™ provides a rich library of functions and modules in Python based on NumPy to design algorithms for 5G and Beyond wireless systems.

Ravinder Singh  
8950543353



### Kadalcompass

Innogle, the very first 5G deployer on Ocean. 5G Enabled Kadalcompass Device, A patent product of Innogle using Emerging Technologies of AI vision, IoT (internet of Underwater things)

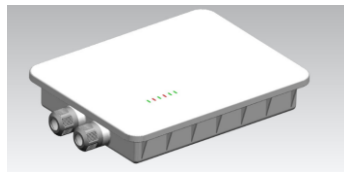
Shobana Uthayashankar  
9941909070



**iDHI 5G Enabled AI**

iDHI ([www.idhi.ai](http://www.idhi.ai)) is a highly customizable and secured platform suitable for developing applications requiring vision based real-time intelligence on the edge. iDHI supports multiple high-performance interfaces for cameras, lidars and intelligent sensors & controllers.

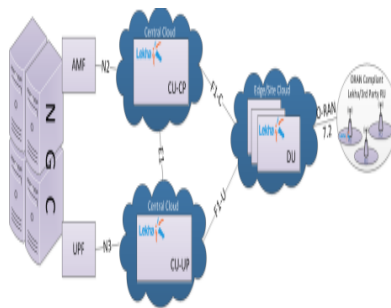
Parvathi  
8105567825



**5G CPE**

Three different models of 5G CPE for home and enterprise applications

Dhruv Kansal  
9899245654



**Lekha's O-CU and O-DU**

Stacks developed for the RAN are indigenously developed and the stacks are platform independent. Only Indian company to develop 5G NR L1 stack

Ramu T S  
0973139526



**GreenOps impacts the Unit Economics of the Industry by reducing CO2 for every unit of product yield**

Addressing 'Net Zero Challenge' to reduce GHG carbon emissions across the globe

OIL & GAS	CHEMICAL	ALUMINUM SMELTER	UTILITIES BOILER
Reduce Energy Losses Cost Reduction by 2.5% ROI: 27% per year	Optimized Energy Consumption GHG Intensity Reduction by 25 per month (250,000 units GHG) ROI: 25% per year	Improved Current Efficiency (CE) and AC GHG Intensity Reduction by 7% per month ROI: 27% per year	Optimized Steamline, Heat and Energy Efficiency CO2 Reduction by 1% per month ROI: 15% per year

**SAAS Energy Balance Platform**

Pioneering industrial AI platform venture that aims at maximizing the profitability of the process manufacturing industry with key focus on efficiency, energy optimization and GHG carbon reduction.

Avnish Kumar  
9845161339





### **HEALTH CARE REMOTE INTERACTIVE MACHINE**

A Healthcare Remote Interactive Machine - remote Mini clinic for quality and rural for the last mile connectivity.

*Thathachari Seshadri*  
9940332682



### **Realtime drone communication over 4G/5G and centralized Monitoring system**

Develop end-to-end drone solution for optimizing logistics, bridge, road construction, and monitoring, telecom towers inspection. And pipeline inspection for the oil and gas industry.

*Nitish Mahajan*  
8729098911



### **Optical Wireless/ LiFi**

Optical Wireless/ LiFi based Networking and Communication Solutions. Our indigenously Designed, Developed and Made In India P2P Optical Wireless Communication LiFi / FSOC Link Solution provides 1+ Gbps Optical Wireless P2P link for the distance upto 10+ Kms. It could be used as Backhaul for 5G/4G Infrastructure, Bharatnet expansion, Enterprise & Edge Network,

*Prateek Parikh*  
9909002586



### **Ni-The Smart Manhole Monitor**

Ni platform brings domestic & industrial automation using IoT, AI,VR

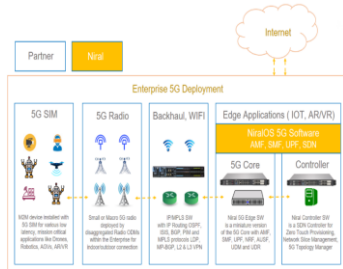
*Chinnayya Math*  
9535271529



### Secure Network Operating System

Nivetti designs and builds Secure IP Networking and Cyber Security products and solutions. Nivetti Products are powered by a very modern and Secure Network Operating System, fully designed and developed by Nivetti. Portfolio includes IP/MPLS Routers and a large portfolio of Ethernet Switches.

Raghuveer B K  
9845030160



### IP/MPLS Transport and Packet Core Software;

Niral Networks offers a comprehensive platform for private 5G and Edge, aimed at boosting operational effectiveness for enterprises. The company's vision is to make private 5G and Edge as ubiquitous as WIFI and accelerate the adoption of emerging technologies like IoT, drones,AR/VR.

Abhijit Chaudhary  
9886179612



### India's first homegrown 5G Mobile with Mukth Mobile Computing Platform

The Optimus Rhino 5G Satcom. We will add Satellite connectivity within the smartphone to use anywhere for day-to-day secure transactions, communication and emergency services.

Chandrakumar Chettiar  
9866677117



### Cloud native security solution

Prophaze presents a holistic Web and API Security Platform that protects against DDoS assaults, malicious bots, and provides robust API security

Lakshmi Das  
6282610684

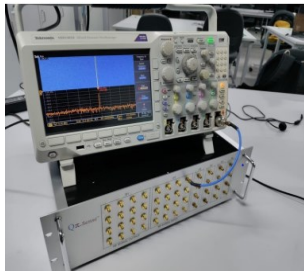




**Sensor Adapter Software based on Data Distribution Service**

Design house for advanced tech products in medical, Automotive, Defence and Aerospace sectors.

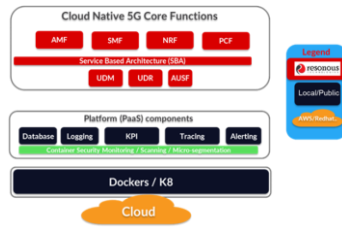
Dr. Muthukumar  
77600 90565



**Stack Quantum Computing Solution**

QpiAI is developing Qpi AI Sense - a scalable Quantum Hardware electronics for interfacing and executing applications on Quantum Computers.

Manjunath.R.V  
9008892602



**4G & 5G Radio Network, Core Network, Management System**

Resonous 5G O-RU hardware and software development wrt DCIS2 both enterprise and telco grade core for all microservices delivery (5G core earlier 3/4G as block now subdivided into multiple services)

Subbaiah  
7022859850



**ABot 5G Lab & ABotEdu platform**

Rebaca Technologies Abot integrated with the Aarna Network AMCOP SMO offers a comprehensive environment to emulate any O-RAN and 4G/5G network functions

Vishal Tripathi  
9831742210

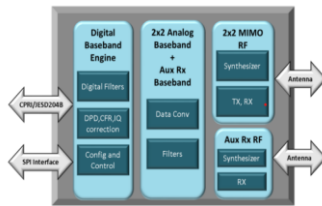


### LUNG HEALTH ASSESSMENT

Swaasa, is able to detect respiratory diseases by analyzing cough sounds remotely. Aim is to transform respiratory health screening in an affordable accessible manner.

Manmohan Jain  
9849842002

### semiconductor ICs for wireless communication and other domains



The chip is an optimal 5G RF chip targeted at highly optimal implementation of 5G Remote Units significantly reducing the form factor, real estate and bill of materials enabling development of highly optimum Remote Unit systems for 5G

Vivin Ganapathy  
919945670936

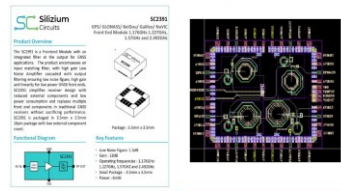
### 5G/4G DU/BBU



Signaltron is building A 5G/4G O-DU/BBU system for 5G and 4G deployments, with certain enhancements to the existing system are proposed, like Multiple O-RU, massive MIMO, TDD support, H/W accelerators for hi-phy, NSA mode, higher speed fronthaul options wrt DCIS2.

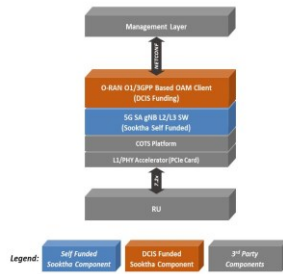
Himamshu Khasnis  
99452447

### Indigenous Semiconductor IPs and Solutions



Silizium Circuits is an Analog Radio Frequency Semiconductor IP and Services venture based out of IIT Hyderabad FabCI. The company focuses on developing indigenous IPs for a wide range of wireless applications like 5G, GNSS, IoT, Smart Mobility, AL ML etc.

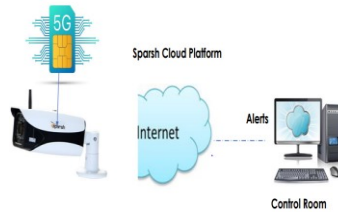
Rijin John  
9895050030



### 5G NR GNB solutions

Sooktha offers 5G NR GNB solutions integrated with Baseband based on a 5G NR FAPI interface, standardized by the small cell forum (SCF). The gNodeB could be offered as an integrated unit having the RF module or in disaggregated mode.

Ambarish A  
990057697



### 5G Private Network Ready Camera

It is a Next Generation camera with a perfect blend of looks and features for any security requirement. A 100% "Made in India" product with best-in-class technology, robust mechanical, cloud support and service centers all over the country.

Sanjeev  
9212175453



### IoT powered blockchain for data collection automation

This is a next-generation Industry 4.0 IoT edge device /gateway branded as Flowlinec and dashboard flowlinec.io used for remote data control equipped with device management and analytics. The device is Industry and communication agnostic (5G, 4G, WIFI, Lora, NbloT, Satellite).

Ashutosh Kumar  
9969800285



### Powering Global Wireline and wireless Networks

full range of products for building end-to-end telecom networks including wireless access (4G, 5G), fiber broadband (GPON, XGS-PON), optical transmission (DWDM, OTN) and packet switches (Ethernet, IP) that can be managed by a universal, multi-technology network management system.

Arun Krishna  
7899920591



ITI Limited has manufacturing facilities in Bengaluru, Naini, Rae Bareli, Mankapur and Palakkad along with an R&D centre in Bengaluru and 25 Marketing, Services & Projects (MSP) centers in India, which are located at Bengaluru, Bhubaneshwar, Chennai, Hyderabad, Kolkata, Lucknow, Mumbai, New Delhi and 17 other places spread across the country.

Dr. C P Dwivedi  
9483009259



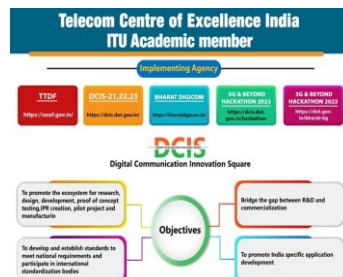
The Centre for Development of Telematics (C-DOT) is the Telecom Technology development centre of the Government of India. C-DOT has evolved, from a single mission-oriented organization to an R&D centre, working on several important, cutting-edge technologies. And, with the support it has been receiving from the Government, especially in Projects of National Importance, the Centre will strive to maintain its national relevance.

Ravinder Amberdar  
9810974556



TSDSI is an autonomous, membership based, standards development organization (SDO) for Telecom/ICT products and services in India. It develops standards for access, back-haul, and infrastructure systems, solutions and services that best meet India specific Telecom/ICT needs, based on research and innovation in India. TSDSI work closely with global standards' bodies to reflect Indian requirements into international telecom/ICT standards.

Bindoo Srivastavai  
9873840817



The main objective of the Society, called TCOE India, is to bring together premier technical and management institutes of the country, Telecom Operators/Industries, Start-ups, Industry Associations, Government organizations and other telecom stakeholders to a common platform for a balanced growth of telecom ecosystem in the country by supporting entrepreneurship, innovation and start-up activities.

Cdr Anurag Vibhuti  
9868102779

## **4G/5G India Stack**

### ***For a healthy and diversified telecom equipment supplier ecosystem***

The Indian Telecom market is one of the largest in the world. It has the second largest subscriber base in the world with more than a billion users. It has one of the highest monthly wireless data usages per subscriber. It is still growing and is one of the fastest growing markets.

Historically significant portion of telecom equipment in India has been imported. There have been some initiatives to ensure indigenous capability in the country. Initial steps were taken in the 80s with focus on saving scarce forex and had reasonable success. Then with the advent of globalisation in the late 90s and a robust global ecosystem of telecom equipment vendors, the need for indigenous capability reduced. A period of consolidation in the global telecom market started after the dot-com boom bust, and continued for a decade ending up with only a couple of players. The entry of new vendors from China, while mitigating this a bit, came with its own challenges.

There has been a growing realisation of this estranged telecom equipment vendor ecosystem in the recent years. This has further deteriorated with recent geopolitical developments, raising concerns across countries, and making even developed countries and strong proponents of globalisation to re-examine their policies in this area. India and many other countries have taken initiatives to create a healthy and diversified telecom equipment supplier ecosystem for this highly critical digital infrastructure. India has experience creating successful ecosystems in sectors like finance (with NEFT, RTGS, IMPS and UPI platform) and e-Governance (with the Aadhar platform) and has taken several initiatives in this area.

The nascent telecom vendor ecosystem has been nurtured with several initiatives like Digital Communication Innovation Square (DCIS), Telecom Technology Development Fund (TTDF) and C-DOT Collaborative Research Program (CCRP). The sector has also benefited from other schemes like Design Linked Initiative (DLI) and Production Linked Incentive (PLI) Schemes.

This has created a reasonably strong ecosystem of 4G/5G equipment vendors in India; locally developed systems are in various stages of deployment and testing with Operators, Railways, Defence, Rural connectivity projects and other initiatives. These systems are thus ready for deployment and we are in a unique position to offer alternatives to the G20 countries and the global market. A larger market will help this ecosystem to achieve economies of scale and efficiencies. This mutually beneficial virtuous cycle will create a healthy and diversified telecom equipment supplier ecosystem.

# 4G/5G India Stack players

Core Network	
	<p>C-DOT</p> <p>Resonous</p> <p>Niral</p>
Radio Access Network	
	<p>Signaltron</p> <p>Sooktha</p> <p>Tejas</p> <p>Lekha</p> <p>Resonous</p> <p>VNL</p>
Other Elements	
Semiconductor ICs	Signalchip
	Sankhya
Backhaul	Astrome
NMS	Coral
Routers	Tejas
	Nivetti
Handset/CPE	
TBD	



Signalchip is an Indian fabless semiconductor company established in 2010 with the vision of building an organization of highly motivated people working on cutting edge technologies creating differentiated semiconductor products. They work on extremely innovative chips to enable high speed wireless communication standards like 4G-LTE/3G-WCDMA and 5G-NR. Signalchip's devices provide extreme performance while being optimal owing to its slim baseband and RF architectures that are designed from grounds up with modern-day high-performance systems in mind and carry no baggage of legacy systems. Signalchip have the Agumbe series of Chipsets for Radio Access networks.

### Agumbe series of Chipsets for Radio Access Network



Single chip SoC	Baseband SoC	RF Transceivers	
LTE-LAA + WCDMA Dual Carrier 2X2 MIMO Single Chip	LTE Dual Carrier MIMO 4X4 Baseband Chip	2X2 MIMO Analog-RF Transceiver: 350MHz-6GHz with aux receiver	2X2 MIMO Analog-RF Transceiver: 350MHz-6GHz 5G-FR1 capable!
Ultra compact cost sensitive small cells	Local Area and Macro Base Stations	LTE Basestation, WiFi, SDR/Wireless Systems	5G NR, LTE Basestation, WiFi, SDR/Wireless Systems

### Multisystem and Multiband RF Transceiver

Signalchip's RF Transceiver chips **SCRF4502** and **SCRF3402** integrates all the necessary components for 5G-NR/ 4G/ 3G/ 2G, Wi-Fi systems and a wide range of SDR applications. Integrated CPRI/JESD link support enables unique and compact RRU designs. SCRF4502 is first 5G chip to be completely designed and developed by an Indian company.

### Complete LTE Base station in one chip

**SCBM3412** is a highly optimized device built for residential and enterprise class base stations from scratch with a CPE (Customer Premise Equipment) mindset. A platform that carries no baggage of legacy systems brings together the performance and robustness of enterprise class equipment with the cost sensitivity of mass market equipment. Powerful processing engines for L1/ L2/ L3 layers of LTE Advanced systems, LTE and WCDMA have been built with innovative hardware-software partitioning and optimal analog-digital partitioning of the functionalities. SCBM3412 provides the long-awaited low-cost small cell solution with best-in-class performance.

### High performance LTE Baseband

**SCBM3404** is a highly optimized device built for enterprise and local area/macro base stations. A platform that carries no baggage of legacy systems brings together the performance and robustness of enterprise class equipment at a competitive price point. Powerful processing engines for L1/L2/L3 layers of LTE Advanced systems, LTE and WCDMA have been built with innovative hardware-software partitioning to support 4x4 and advanced signal processing RRU functionality.

# Signaltron

Signaltron is an Indian original equipment manufacturer of Wired and Wireless communications systems established in 2019 with the vision of building complete end to end technology ownership within India in ubiquitous networking devices. Founders of Signaltron have spent many years developing solutions to some of the most complex problems in networking, computation, wired and wireless communication domains. Signaltron specializes in providing radio access network solutions for 5G and LTE

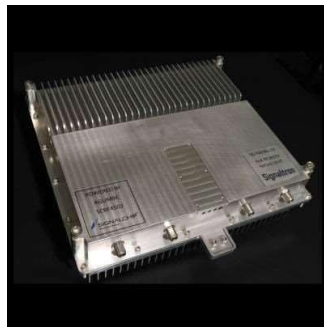
Focus areas of expertise:

- Wired and wireless networking solutions: Indigenous 4G, 5G, Wi-Fi, NavIC
- Wireless Infrastructure
- Enterprise and Consumer equipment
- Secure networking

## Sahyadri Series of RAN systems from Signaltron



Femtocell



5G-NR RU



4G/5G BBU/DU



Compact NIB



O-RU

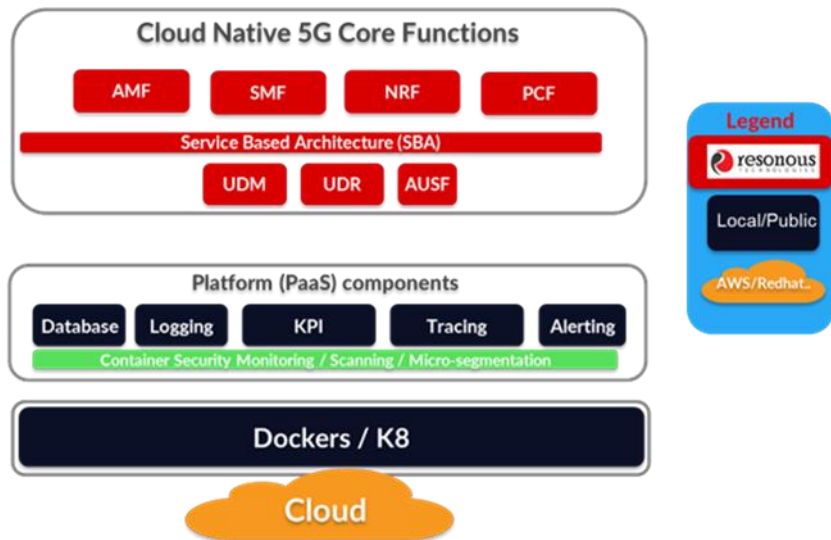


Micro Cell

## 5G SA Core for Enterprise and Telcos: Making a Difference to Remote Villages by bridging India's urban-rural divide

The Resonous solution will be an enabler to support better e-education, e-healthcare, and e-government, for rural regions. Our team is committed to finding new ways to bridge India's urban-rural divide in digital infrastructure and revitalize rural economies.

Resonous 5G CNF SA core that includes micro services of AMF, SMF, NRF, PCF, AUSF, UDM, UDR and UPF. These services are orchestrated using Kubernetes and containerized over docker.



### Resonous is proud to be part of USOF:

USOF Signed MOUs for 4 pilot projects for Bharatnet utilisation.



A banner celebrating the signing of MOUs for 4 pilot projects for BharatNet utilisation. The banner features the following logos and text:

- 75 Azadi Ka Amrit Mahotsav (top left)
- UNIVERSAL SERVICE OBLIGATORY FUND (top center)
- DOT INDIA TELECOM (top right)
- USOF signed MOUs for 4 pilot project for BharatNet utilisation (center text)
- resonous (bottom left, highlighted with a red dashed box)
- SIGNALCHIP (bottom right)
- ASTROME (bottom left, below Resonous)
- Lekha (bottom right, below SignalChip)



# Gigamesh

## World's First multigigabit Smart E-BandRadio



Auto-Link  
Alignment

Multi-Link From  
One Radio

5G Enabled



### Key Features

- **Automatic link alignment** using electronic beam steering
- Enables **simultaneous communication** between **multiple cell sites** in a sector
- Delivers **multi-gigabits per second speed** to each cell site
- Equipped with **Intelligent link optimization**
- Reduces site/tower rental and maintenance cost

## World's First Live Multi-link E-Band Deployment in Karnataka, India



Gigamesh installed at Nidavanda Village



Gigamesh installed on BSNL Tower at Sompura Gram Panchayat



Gigamesh installed at Pemmanahalli Village







## 5G PRODUCTS

### Integrated gNodeB

5G NR gNB Integrated small cell for Indoor Enterprise, Industry, and Campus



### Disaggregated gNodeB

Integrated CU/DU solution with Disaggregated RU for Indoor and Outdoor deployments

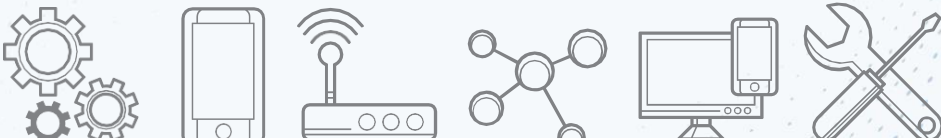


### Disaggregated Micro gNB

Suitable for both distributed and centralized deployments for outdoor coverage



[www.sooktha.com](http://www.sooktha.com)





## Secure & Reliable End-to-End private 5G & Edge Solution

### INDIA 5G STACK

#### TARGET MARKET

Manufacturing, Mining, Oil & Gas, Ports, Warehouse, Campus Networks, Railways, Defense, Hospitality, Airports, Shipping

#### CATEGORY

Industry 4.0, 5G Connectivity, Private Network, Multi-access Edge Cloud (MEC)

#### KEY MANAGEMENT TEAM

Abhijit Chaudhary  
Prasenjit Das  
Bhanu Pratap  
Tanmay Batabyal  
Dr. Inder Gopal

#### CONTACT

Name: Abhijit Chaudhary  
Designation: Founder & CEO  
Email: [abhijit@niralnetworks.com](mailto:abhijit@niralnetworks.com)  
Mobile: +91-9886179612  
Website: <https://niralnetworks.com/>

#### COMPANY NAME

NIRAL NETWORKS PRIVATE LIMITED

## Company Profile

### The Problem

Industrial Automation using Predictive Maintenance, Robotic Automation, Drone Surveillance, Real-time Monitoring etc. requires a reliable wireless Connectivity with high bandwidth, real-time communication with mobility support.

### Our Solution

Niral Networks provides a comprehensive private 5G Connectivity & Edge platform for accelerating Enterprise Operational Effectiveness. Niral S Private 5G & Edge brings in key features like Enhanced Mobile Broadband, Ultra Reliable Low Latency Communication, Massive Machine Type Communication, Guaranteed Security, Simplified Management to guarantee reliable wireless Connectivity with high bandwidth, low latency and mobility support within the industrial site.



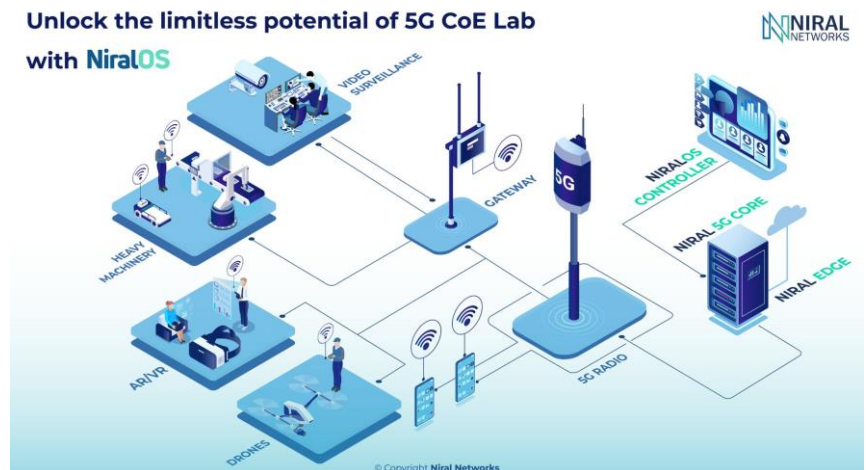
### Product

NiralOS is a network operating system (NOS) for Private 5G & Edge and contains 3 key components:

- **NiralOS 5G Core** - Cloud-Native 3GPP Release 16 compliant 5G SA core for enterprises that contains 5G functions - AMF, SMF, AUSF, NRF, UPF, PCF, UDM and integrated with various 5G Radio OEMs. Niral 5G core contains a compact UPF for local breakout when integrated with TSP Network. It supports Network Slicing, Mission Critical Application, MEC Integration
- **NiralOS Edge Platform** - Kubernetes and Virtualized infrastructure to create a Multi-access Edge Cloud (MEC) within an Enterprise using existing commodity servers and open APIs to host various applications like IOT, Robotics, Drones, IMS, AR/VR for low latency, high bandwidth, mobility and privacy.
- **NiralOS Controller** - Centralized management, orchestration, zero touch provisioning & monitoring of multi-site Private Network and On-premise Edge Cloud. The controller can be hosted in a data center to centrally manage & monitor multiple private networks.

NiralOS 5G Core runs on commodity servers and is integrated with 5G radio from various OEMs to create Private 5G Networks. Applications like Drone, Robotics, IOT can be easily deployed on Niral Edge Platform and remotely managed using Niral Controller

### Unlock the limitless potential of 5G CoE Lab with NiralOS



### Competitive Differentiation

Multi-site Private 5G Connectivity, Edge Cloud Platform and Use case Management using a Single Dashboard for Enterprises



Lekha Wireless Solutions is a Bengaluru (India) based deep tech company in wireless telecom, ISP, Defense and enterprise communication. We work with System Integrators and operators to deploy private and public telecom networks.

Lekha Wireless is a leading technology company has research and develop 3GPP standard based RAN product include 4G eNodeB small Cee reference, O-RAN compliant CU, DU and RU.

Lekha Marut Radio Unit is suitable for deployment of 5G network in Macro Cell Environment. RU implements CUSM planes as defined in ORAN 7-2 interface.

Lekha wireless has a strong Research and Development team, combined with Engineering expertise in software and hardware for delivering complete system.

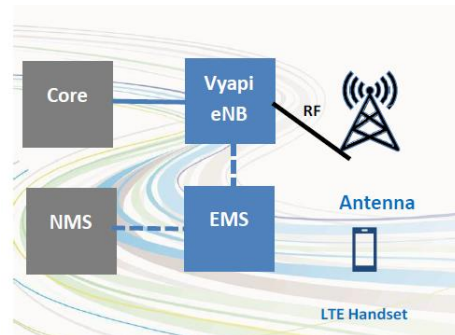
We also support customization of hardware and software to suit unique customer needs.

Lekha is having team of 250+ Engineers in Telecom R&D with HW and SW design capability. Visit us at [www.lekhawireless.com](http://www.lekhawireless.com) and contact us at [business@lekhawireless.com](mailto:business@lekhawireless.com) for more information about our products.

We are OEM of 4G & 5G radio product in telecom, defense and enterprise.



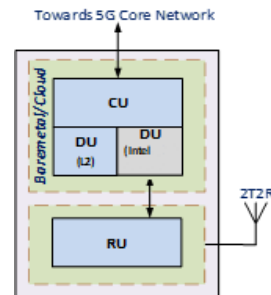
**LTE eNodeB / NIB**



**4G LTE User Equipment Eco System**



**5G OPEN RAN RU**



**5G O-RAN**

# CORAL TELECOM

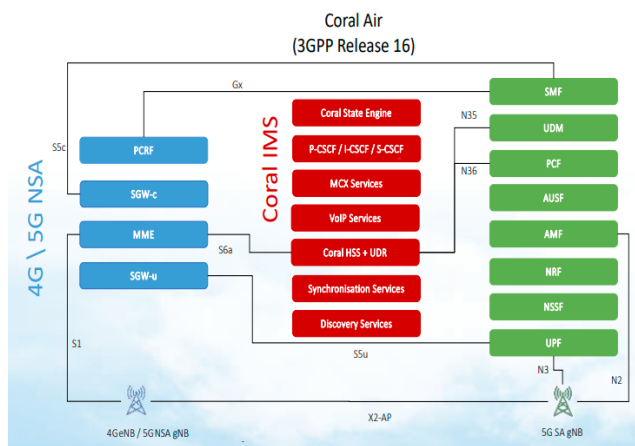
## 5G SA Core with MCX capabilities:

Experience in developing generations of wired and wireless communication systems enables Coral Telecom to develop and offer Converged core that can connect mobiles, UHF, IP Phones, Push to Talk (PTT) as well as legacy wired devices such as FXS Analog Phones through a common management and provisioning interface. Coral's (3GPP Release 16 compliant) Evolved Packet core (EPC) for 5G/4G networks can converge Voice, Data, IOT & M2M communication within the enterprise and opens a plethora of applications to address diverse Indian Railways requirements.

Coral's EPC is a small form factor NSA / SA Core optimized for cost effective network services to support captive networks offering 4 / 5G solutions. Coral's converged mobility communication network can also support communication on Wi-Fi based radiating environment that can also offer path replacement and failover on alternate media.

Solution is 3GPP Release 16 Compliant and follows a service-based architecture consisting of sub components such as Mobility Management Entity (MME), Serving Gateway (SGW) and PDN Gateway (PGW), Access and Mobility Management (AMF), User Plane Functions (UPF) as the subcomponents along with IMS on the same computing platform.

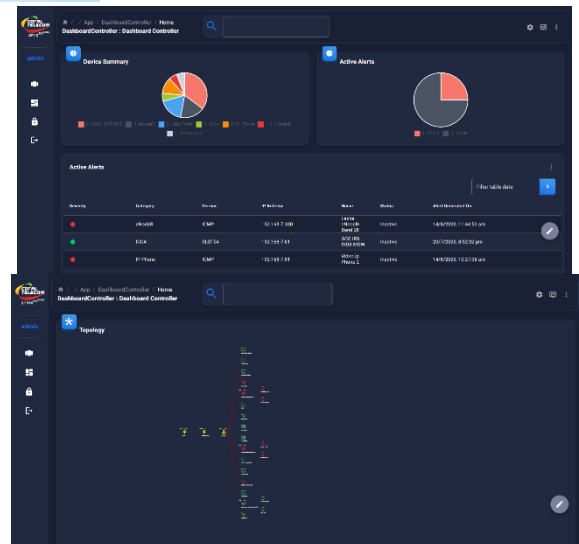
## 4G / 5G (NSA and SA) Support in a single box, along with MCX and VoIP Capabilities



## Network Monitoring System (NMS):

Coral Telecom's robust **network management system (NMS)** is capable of managing and monitoring all the wired, wireless, UHF/VHF and MCX devices in the network. NMS have ability to monitor data download speeds and traffic usage. Radio performance parameter and counters as per the 3GPP standards can be represented in graphical forms for monitoring and debugging. System can send alerts once defined thresholds are crossed in the form of text, SMS, Email. Further NMS have the ability to monitor and display the battery life , charging and time of the IOT sensors connected with the network.

Systems includes different views such as dashboard and Tree Views for convenience of the user and display of logs in meaningful forms.



## Some Photographs of G20 Event



***With Hon Minister of communications Shri Ashwini Vaishnav ji***



***With Ministry of Turkey Delegation.***



***With the Minister of South Africa and team Delegates***





***With the "Invest in Denmark" Team delegates in a deep discussion on 5G Tech.***



***With Director of DRDO.***





**Note-**For more information, please visit at <https://dcis.dot.gov.in/>