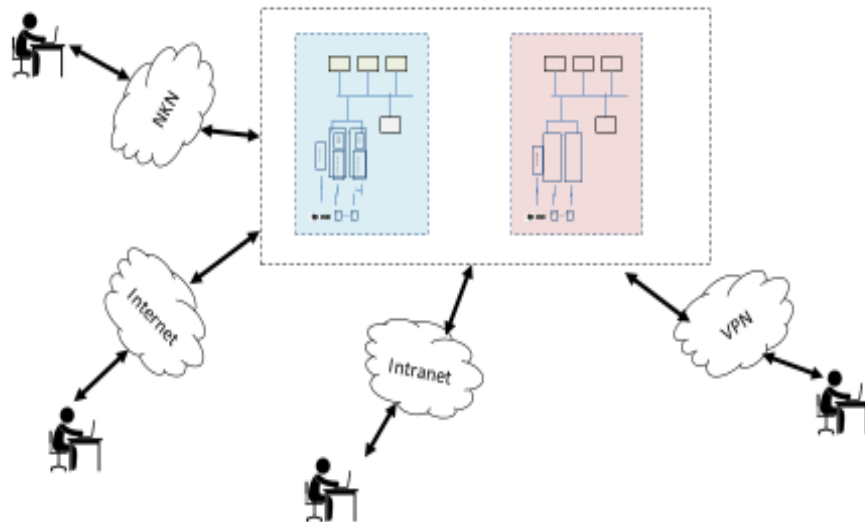


Indigenous 5G Test Bed

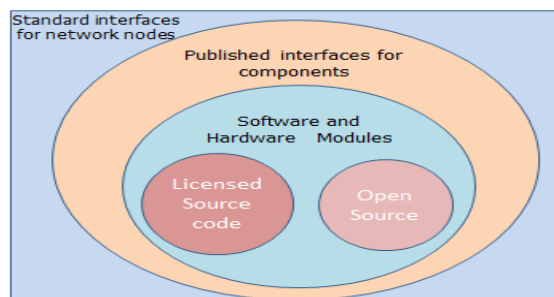
- In view of the fact that 5G Research & Standardization is reaching its global peak and technology demonstrations have started gaining momentum, it is imperative to take early lead in 5G technology development and facilitate the development of vibrant 5G ecosystem in India.
- Test beds play an important role in providing insight into the technology, its use cases and deployment challenges. Accordingly, Government has approved the financial assistance/ grant for the project to set up '**Indigenous 5G Test Bed**' (Building an end to end 5G Test Bed) by Indian Institutes of Technology (IITs) and Indian Institute of Science (IISc) in India.
- The collaborating institutes in the project are:
 - ✓ IIT Madras
 - ✓ IIT Bombay
 - ✓ IIT Delhi
 - ✓ IIT Hyderabad
 - ✓ IIT Kanpur
 - ✓ IISc Bangalore
 - ✓ SAMEER (Society for Applied Microwave Electronics Engineering & Research)
 - ✓ CEWiT (Centre of Excellence in Wireless Technology)
- The project envisages setting up of end-to-end Open 5G Test Bed for Indian companies & academia in distributed architecture model. It is the first step of a collaborative effort of a pan-Indian multi-institutional team which will enhance national capability in telecom technology, develop indigenous IP and give fillip to Indian telecom manufacturers.
- The major goals of the project to set up 'Indigenous 5G Test Bed' are as follows:
 - ✓ Providing an open test bed to validate products, prototypes and algorithms
 - ✓ Boost Product Design and Manufacturing in India for 5G technologies
 - ✓ Encourage telecom product startups in India
 - ✓ Multiply R&D capability to develop 5G based solutions for Indian markets
 - ✓ Demonstrate solutions for India:

- LMLC (Low Mobility Large Cell) for Rural network deployments
 - Smart city applications
 - Dense Urban broadband, “wireless fiber” for spurs
- ✓ Hugely enhance capacity in 5G technology skills
- ✓ Increase India’s participation in global forums (3GPP, ITU, IEEE) - present test results for Indian use cases
- ✓ Testing security and privacy aspects.

➤ The duration of the project is 3 years and total budget involved is Rs 224.0166 crore. The Test Bed can be accessed from anywhere using high speed links to connect to the network. The institutes can connect over NKN (National Knowledge network) as shown below:



➤ The Test Bed will allow users to penetrate deep inside the subsystems with open interfaces and technical support for integration as under:



- 5G Test Bed Users will comprise of the following :
 - ✓ **Academic Institutes** for research & validation of algorithms and experiential learning tool for 5G
 - ✓ **Mobile Network Operators** for early understanding of 5G and demos based on 5G
 - ✓ **Equipment companies** for R&D of their product and stack developments
 - ✓ **Application/Solution Developers** for end to end test bed to demonstrate applications and understand integration issues with 5G Network
 - ✓ **Telecom Startups** for having experience on end to end perspectives for starting point for product/solution development

- The Test Bed has the potential to go a long way in fostering the development of 5G ecosystem in India.