

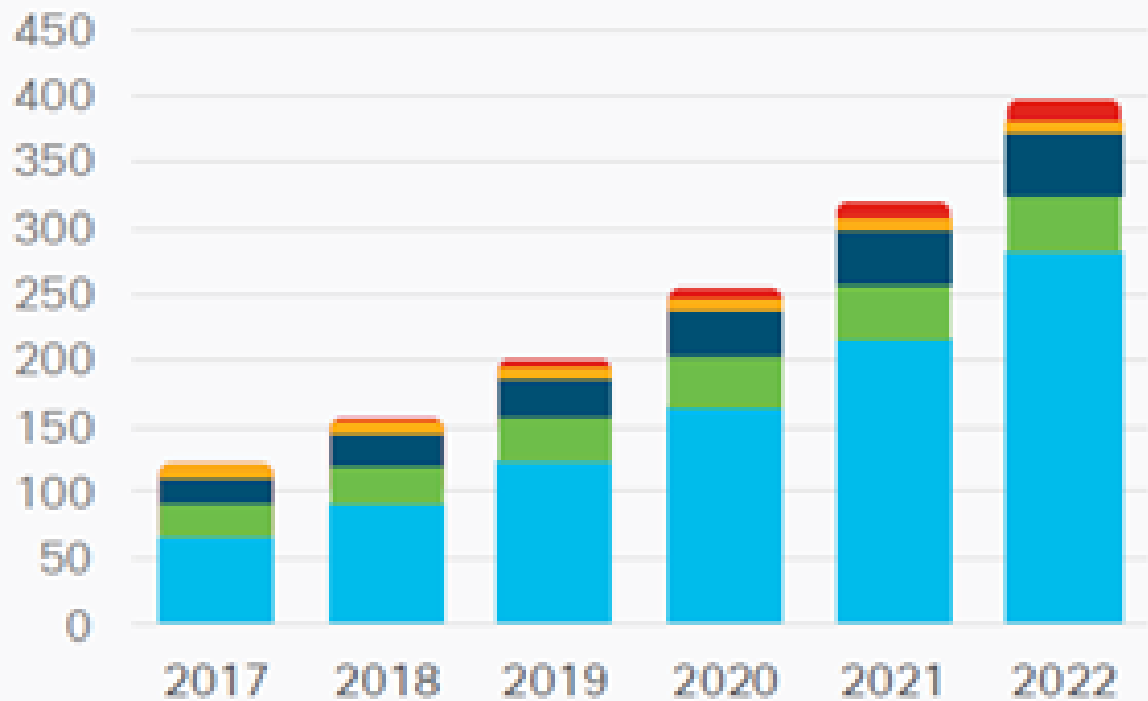
**NETWORK SLICING**  
**OVERCOMING BANDWIDTH CHALLENGES**

# Background

- Large bandwidth availability to users on Optical Fibre based networks has opened up new communication avenues for users
- Dependence on video communication as compared to voice communication has increased and this has led to change in work culture at various levels
- Phenomenal growth is seen in domain of Wireless Communication Networks in last few Years
- Meeting aspirations in a wireless network has remained challenging
- Network Slicing being offered in 5G networks is poised to meet aspirations to a great extent

26% CAGR  
2017-2022

Exabytes  
per Month

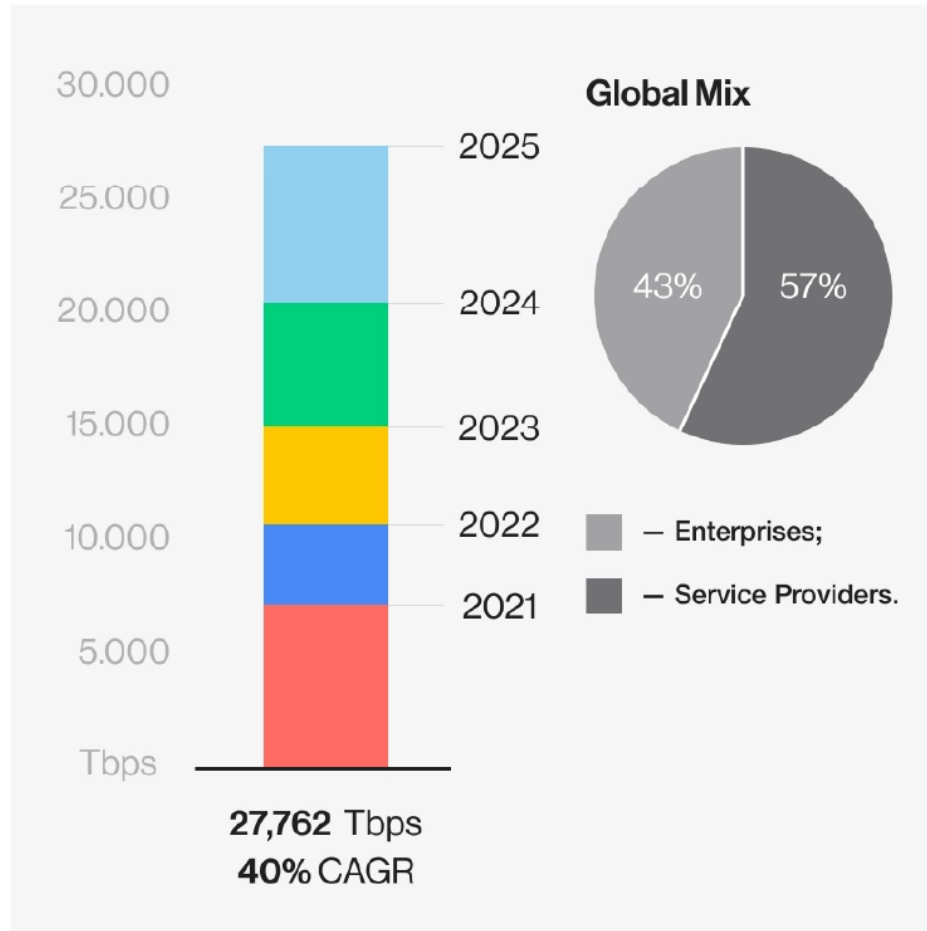


- Gaming (1%, 4%)
- File Sharing (7%, 2%)
- Web/Data (17%, 12%)
- IP VOD/ Managed IP Video (20%, 11%)
- Internet Video (55%, 71%)

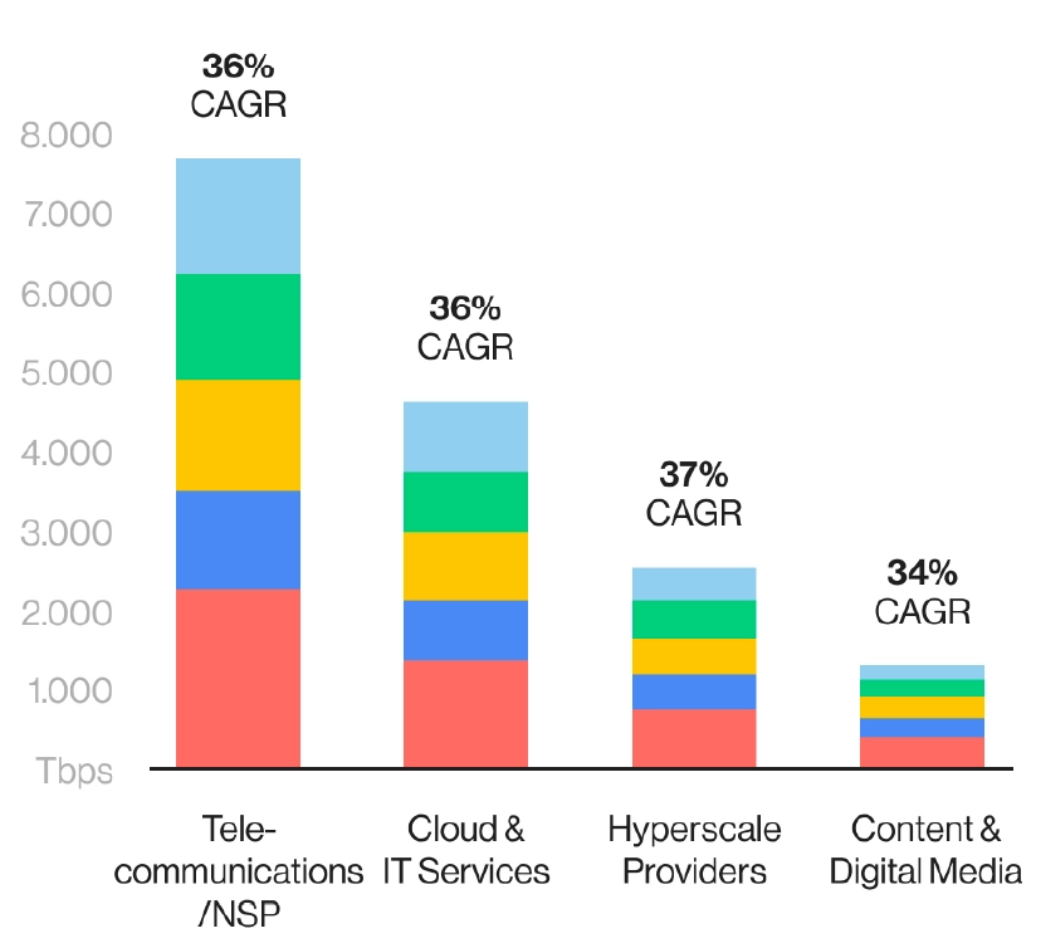
\* Figures (n) refer to 2017, 2022 traffic share

# Global Forecast of Interconnection Bandwidth Consumption

Global Growth



Service Providers



# What is Driving The Demand

- Video connections have made voice connections out dated
- Ever increasing density of IOT devices
- Compute on the Edge
- Gaming industry
- Tele medicine
- Robust, low latency, high availability, connections for mission critical communication

# 5G – The Enabler

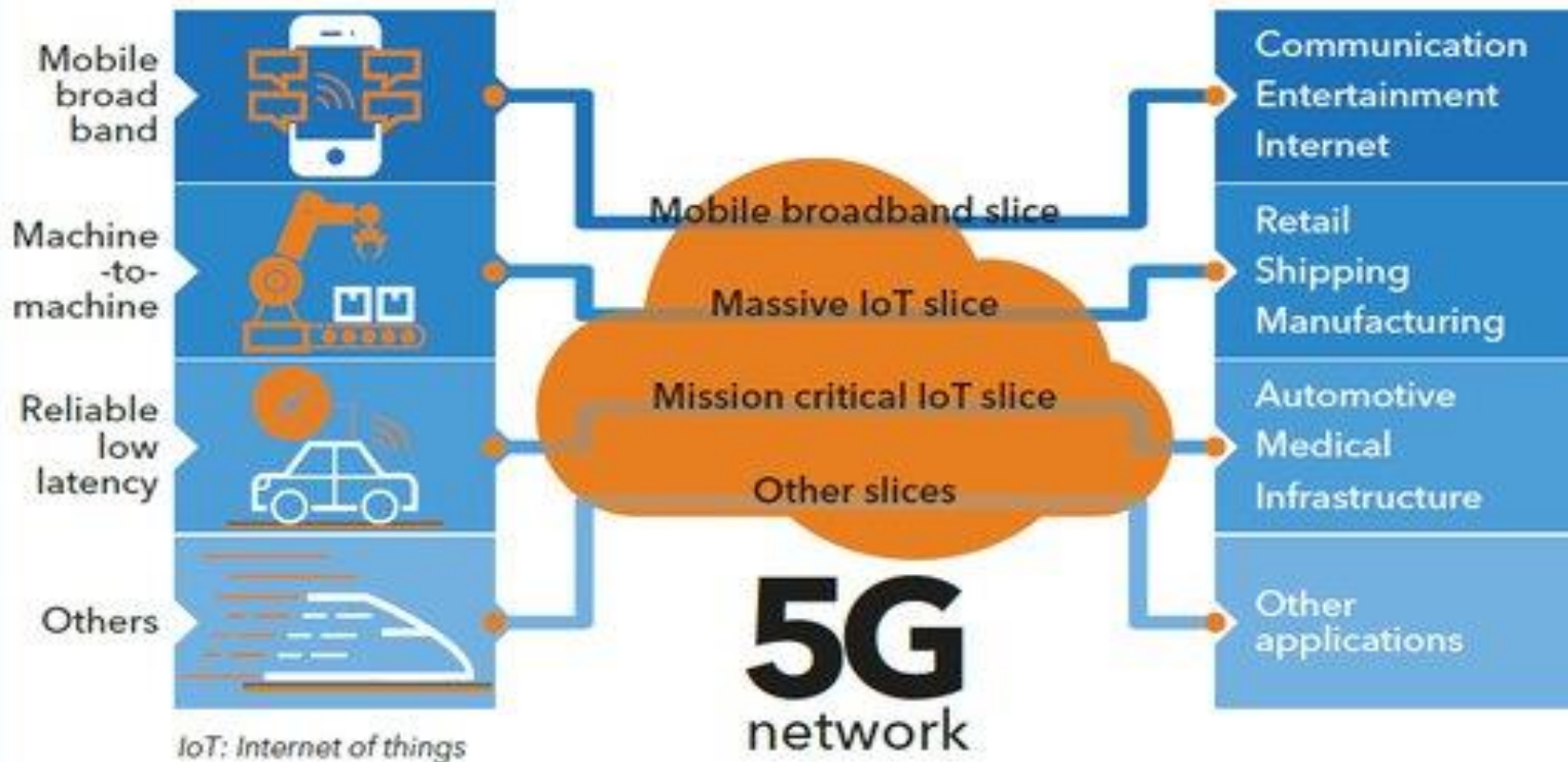


4G networks do not enable the range of services that the future requires. 5G will be faster and more flexible.

**4G**  
network

## 5G network slicing

5G network slicing enables service providers to build virtual end-to-end networks tailored to application requirements.



# Introduction of Network Slicing in 5G

- SDN and NFV are two main features which support network slicing in 5G networks
- Basic network slice lifecycle management features were introduced in Release 15 of the 3GPP 5G specification.
- Release 17 defined a closed loop mechanism to support multiple SLA requirements and introduced network slicing energy efficiency KPIs.
- 3GPP Release 18 established rules for third party slice usage based on UE quantity, load, and time limits.
- Major concern has been availability of bandwidth for normal users
- DOT has approved implementation of network slicing for third party applications

# Benefits of Network Slicing

- Operators can allocate resources to each slice individually to produce the speed, throughput, and latency needed to cover the breadth of network slicing in 5G.
- Offering network slices as a service minimizes operating expenses (OPEX) and capital expenditures (CAPEX) for operators.
- Critical public entities, such as first responders and medical emergency teams, can be prioritized with respect to coverage, capacity, and connectivity.
- Network slices can be initiated and deployed within minutes to serve the needs of temporary use cases like concerts and other gatherings.
- **Overcoming Bandwidth Challenge**



# Atmanirbhar: Govt Initiatives

## National Digital Communication Policy 2018

- OFC network increased from 17.5 lakh km in Mar 18 to 41.9 lakh km in Oct 24
- BTSs increased from 19.8 Lakh in Oct 18 to 29.4 Lakh in Oct 24.
- Today out of 6,44,131 villages; 6,22,840 are covered with mob connectivity
- No of broadband subscriber increased from 48 Cr in Sept 18 to 94 Cr in Jun 24
- Data usage increased from 8.32 GB per month in Sept 18 to 21.30 GB per month in Jun 24.
- Average tariff per GB wireless data has decreased from ₹10.91 in Sept 18 to ₹8.31 in Jun 24.
- **Guidelines for Captive Non-Public Network License (CNPN) issued in Jun 22** allows to provide a private isolated network as a service

# Military Applications

- Enterprise SA implementation of 5G in integrated Army communication networks will be a game changer
- Slicing will provide guaranteed connectivity to important IOT sensors
- Assured bandwidth for mission critical communication
- The op planning in ops room will get a boost with implementation of real-time holographic image rendering
- Telemedicine and remote surgeries
- Inventory management
- Convoy control
- AI based applications

**Thank You**