

A PRESENTATION ON 5G TECHNOLOGY™

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BRIEFT TIMELINE



- 1G: Analog voice calls (1980s)
- 2G: Digital voice calls and texting (1990s)
- 3G: Mobile data and internet access (2000s)
- 4G: High-speed data, video streaming (2010s)
- 5G: Next-gen wireless technology (present and beyond)

5G?

- 5G is the 5th generation of broadband wireless cellular networks
- Standardised by the 3GPP Consortium
- Has much higher speeds (gigabits), lower latency and network capacity over 4G

THE NEED FOR 5G

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- Support for emerging technologies like software as a service (SAAS), autonomous vehicles, IOT, AR/VR, game streaming services etc

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Let's look into some of these use cases in more detail...

USE CASE 1: SAAS & GAME STREAMING SERVICES



Last past few years have saw an emergence of a new field where companies offer to host the intensive workload on their powerful servers and stream the input/outputs to your low power devices like smartphones, tablets etc. For example, Allowing you to play the latest most resource intensive video games on your portable smartphone without any special hardware. This requies the availability of low-latency and high-bandwidth internet.



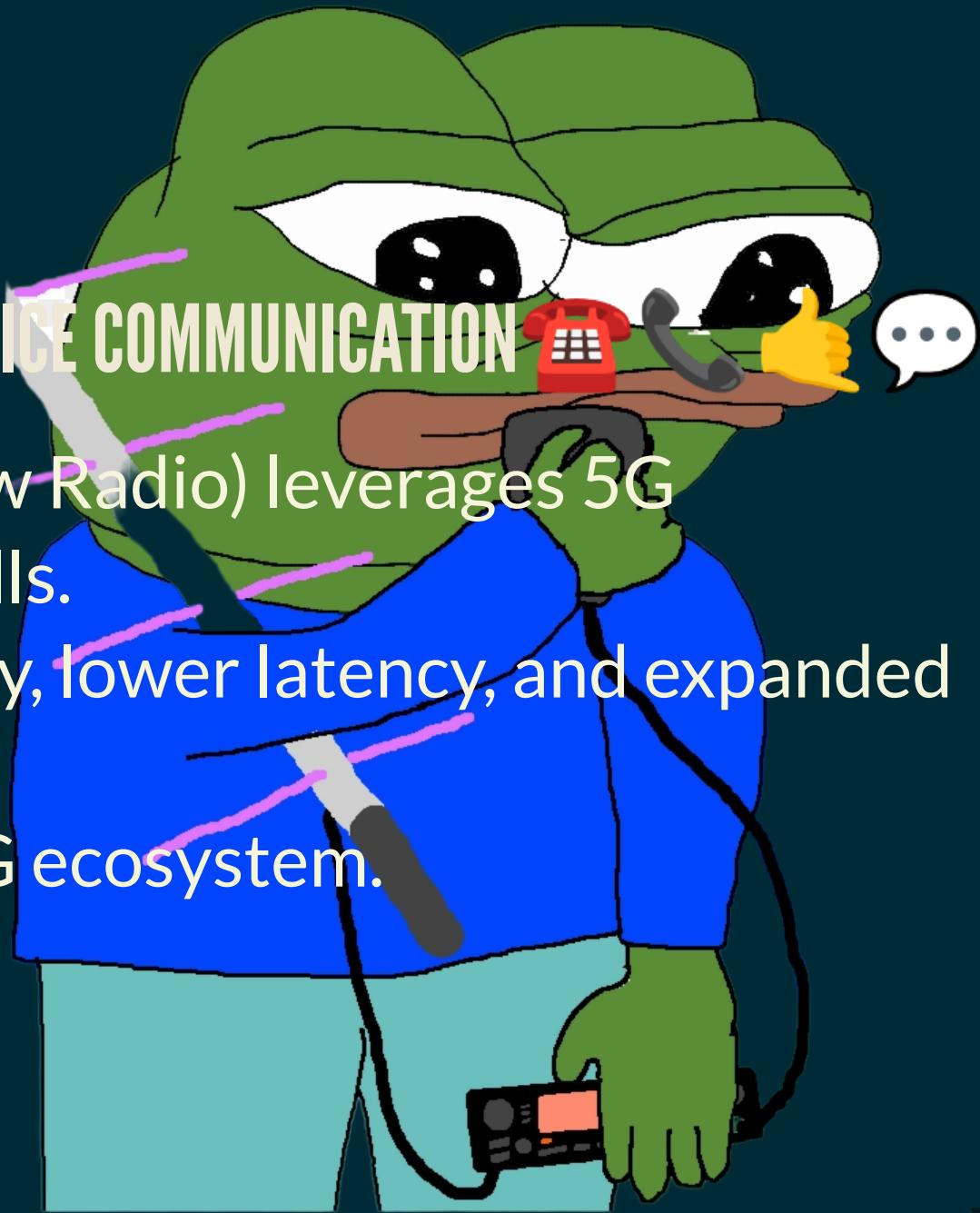
USE CASE 2: AUTONOMOUS AUTOMOBILES



5G has the potential to enable vehicles to communicate with each other (V2V), with infrastructure (V2I), with pedestrians (V2P), and with the network (V2N). This potential real-time communication could enhance safety, traffic management, and efficiency on the road. For example, cars could potentially exchange data about their positions, speeds, and routes to potentially avoid collisions and optimize traffic flow.

VONR: ENABLING NEXT-GEN VOICE COMMUNICATION

- VoNR (Voice over New Radio) leverages 5G networks for voice calls.
- Improved voice quality, lower latency, and expanded capabilities.
- Integral part of the 5G ecosystem.



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5G utilizes various frequency bands.
Each band has its unique characteristics.
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- High-Band (mmWave):
 - Above 24 GHz
 - Ultra-fast but limited range

OTHER TECHNOLOGIES USED IN 5G

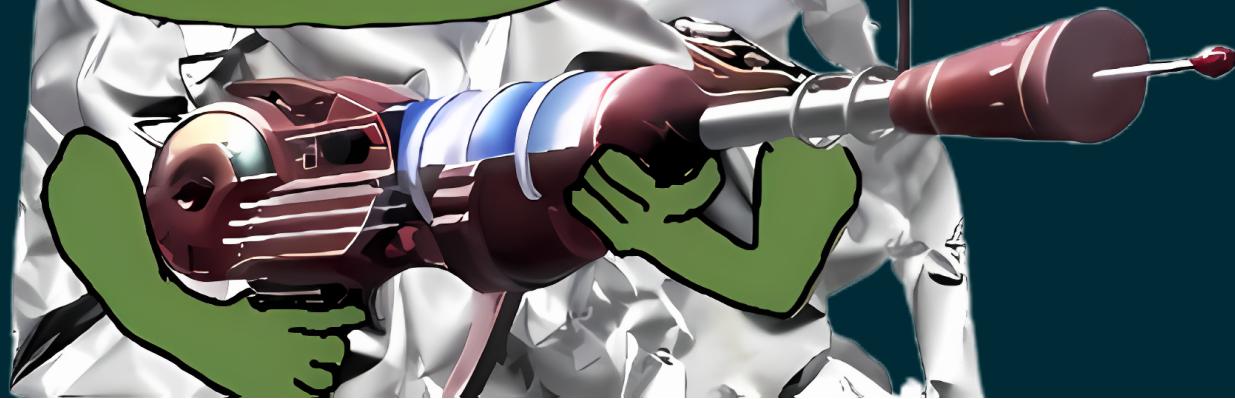
- Massive MIMO uses multiple antennas to enhance network capacity.
- Beamforming focuses signals directly to user devices for improved efficiency.
- Network Slicing creates custom networks for various services.
- Network Function Virtualization (NFV) replaces traditional hardware with software-based network functions for flexibility.

HEALTH CONCERN



Since the initial introduction of 5G, there has had been continuous discussion over its potential risks to human health.

- **Radiation:** 5G uses non-ionizing radiation, which is low-energy and deemed safe by international agencies.
- **Exposure Levels:** 5G transmitters have low power and exposure levels well below safety standards.
- **Ongoing Research:** Continual studies monitor potential health effects, with no conclusive findings to date.
- **Safety Measures:** Regulations and guidelines ensure safety standards are upheld in 5G deployment.



THANK YOU









<https://bit.ly/3ZaDckj>



