5G and Edge
Driving Telecom Industry Hopes and Fears

451 Research®

5G is unlike any previous mobile generational shift

It will give **consumers** the faster broadband pipes they demand and bring significant **enterprise functionality.**
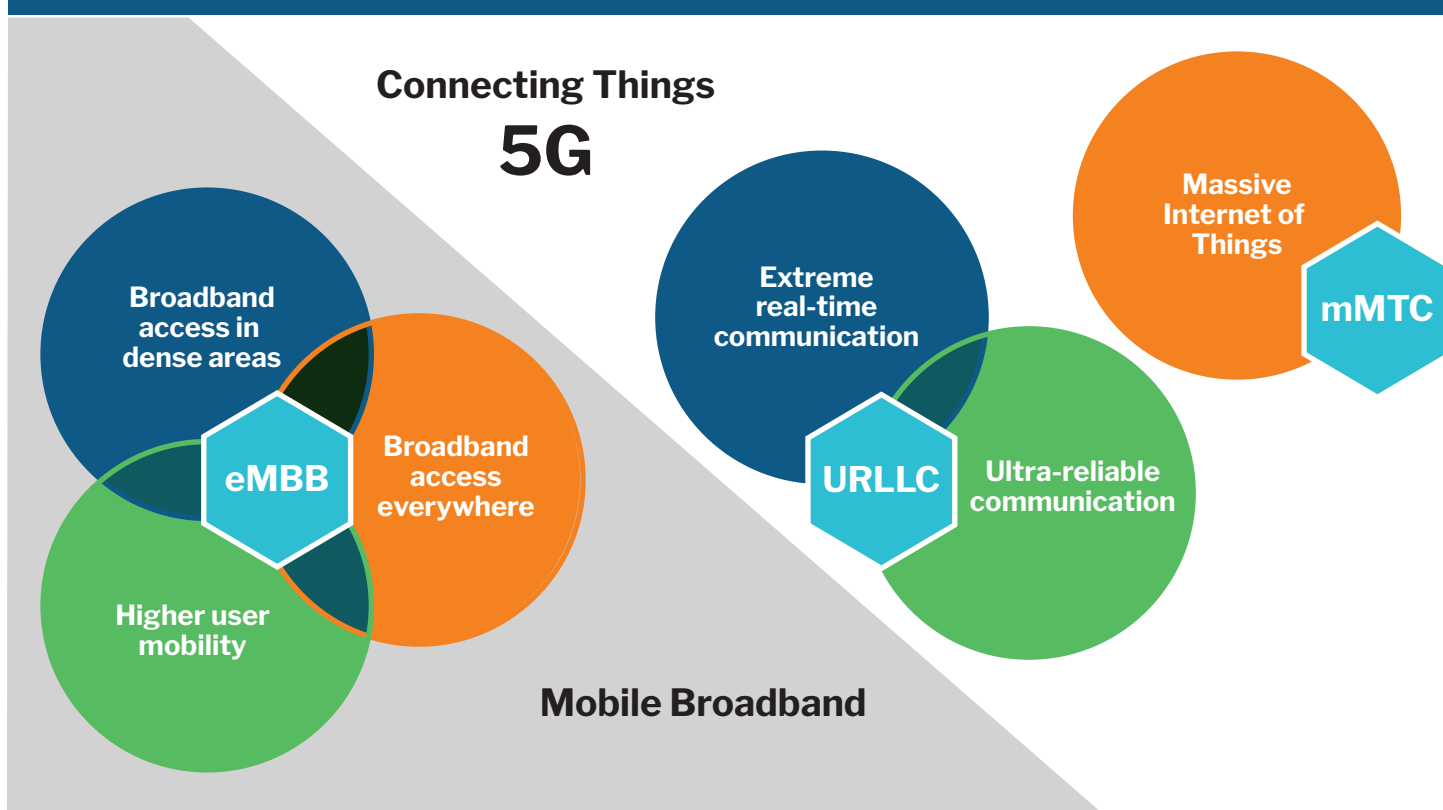
5G will support:

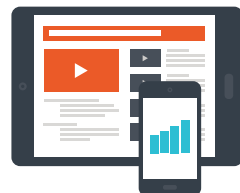| Enhanced mobile broadband (eMBB) | Ultra-reliable low latency communication (URLLC) | Massive machine-type communications (mMTC) |

over one physical network

5G IS 3 NETWORKS IN ONE

Connecting Things
5G

- Broadband access in dense areas
- eMBB
- Broadband access everywhere
- Higher user mobility

Mobile Broadband

- Extreme real-time communication
- URLLC
- Ultra-reliable communication

- Massive Internet of Things
- mMTC

5G is taking off faster than expected

Chipset and device vendors are investing heavily to 'get ahead' of 5G. Smartphones for the main 5G radio spectrum bands are slated to hit the market in 2020. More than 40 operators have already launched 5G services.

Some operators are accelerating initial 5G deployments to keep up with demand and competition. As a result we estimate that 65% will offer first commercial services in 2020.

In January 2019, 53% of global operators planned to offer first 5G services in 2020:

5G MILESTONES	2019	2020	2021	2022	2023-2025	2025-2027	BEYOND 2028
FIRST 5G SERVICES AVAILABLE	12%	53%	33%	2%			
25% COVERAGE		1%	19%	53%	27%		
50% COVERAGE					57%	41%	2%
100% COVERAGE					4%	28%	68%

5G power challenges: Desperately seeking solutions

Energy bills for 5G and edge network deployments are expected to be higher than those for 4G. This is a major concern for 5G network owners as **energy consumption constitutes 20-40% of network opex.**

Will 5G/MEC raise energy costs?
Yes 94%
No 6%

Vertiv estimates 5G might result in increased total network energy consumption of 150-170% by 2026

5G/Edge success depends on DCIM and energy efficiency

According to our survey respondents, **datacenter infrastructure management (DCIM)** is the most important technology for achieving operational and profitability goals related to 5G, edge computing and datacenter ops.

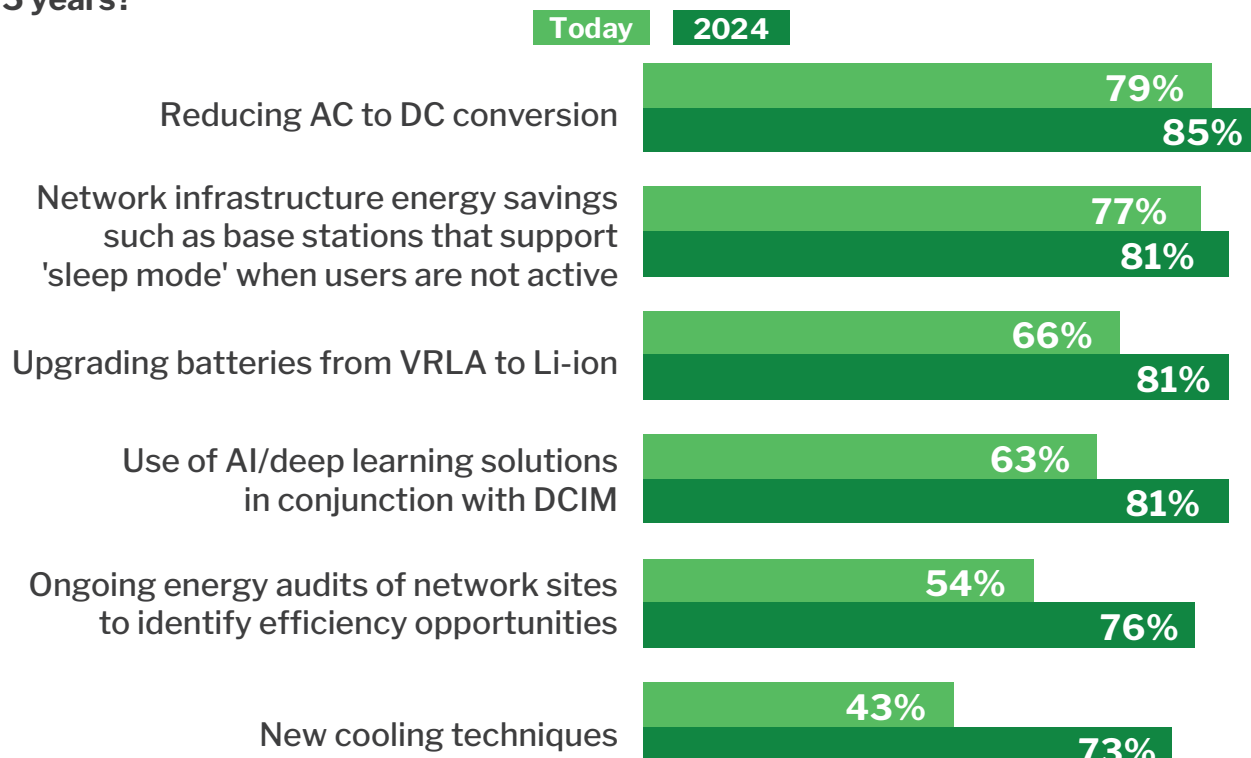| **55%**	**49%**	**45%**	**40%**
Datacenter infrastructure management	Energy/power efficiency	Security management	Connectivity

5G power solutions: Countermeasures required

The business case for 5G is far from a slam dunk given power's share of opex. The industry desperately needs **more energy-efficient solutions and datacenter-specific countermeasures.**

Which of the following energy savings tactics are you deploying in your network today? In 5 years?

Today | 2024

Reducing AC to DC conversion	79% / 85%
Network infrastructure energy savings such as base stations that support 'sleep mode' when users are not active	77% / 81%
Upgrading batteries from VRLA to Li-ion	66% / 81%
Use of AI/deep learning solutions in conjunction with DCIM	63% / 81%
Ongoing energy audits of network sites to identify efficiency opportunities	54% / 76%
New cooling techniques	43% / 73%

VERTIV™

Continue the conversation at **Vertiv.com/5GandEdge**