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# The Future of 5G

## Nevada Broadband Summit

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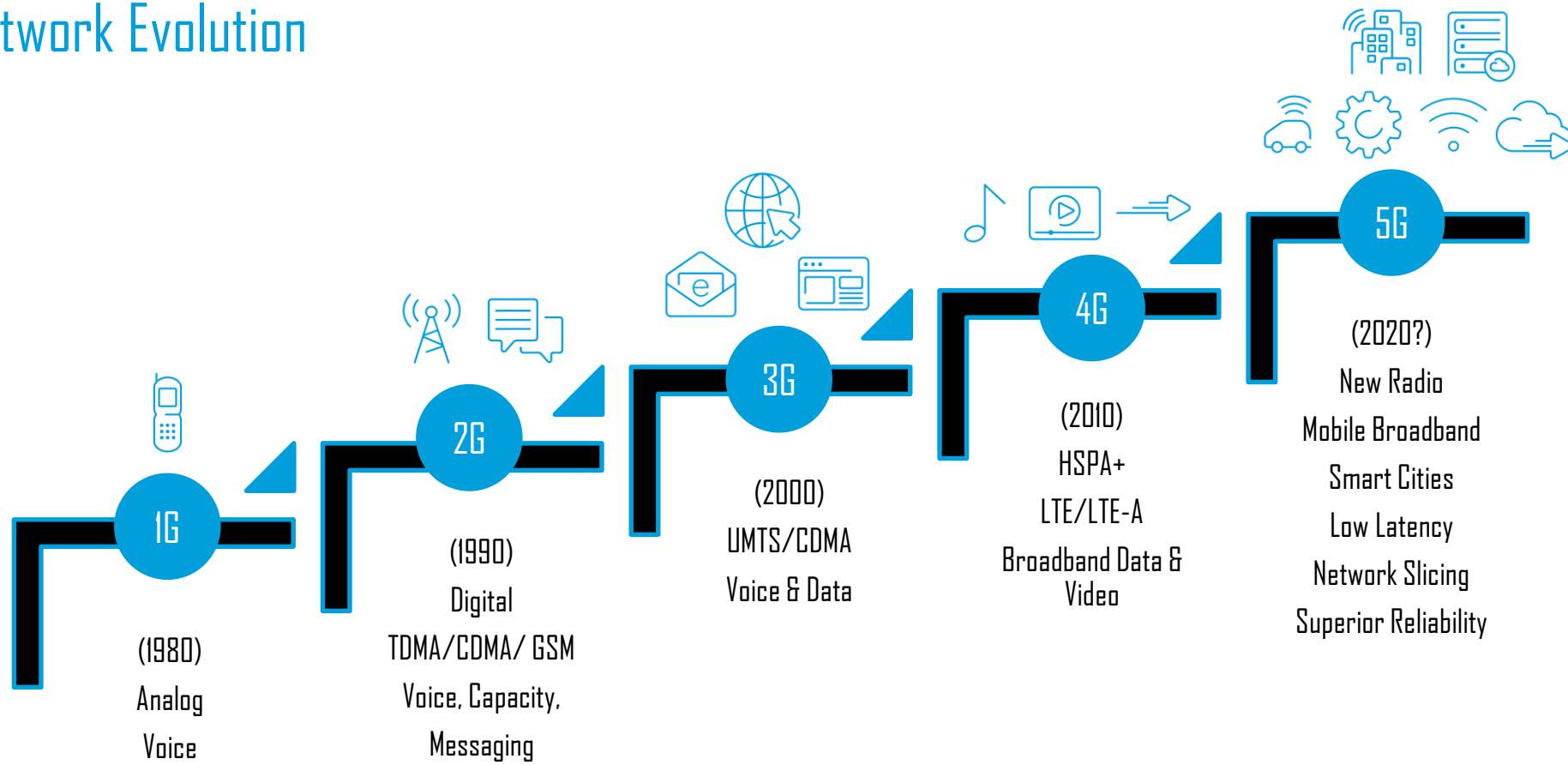


# The Future of 5G

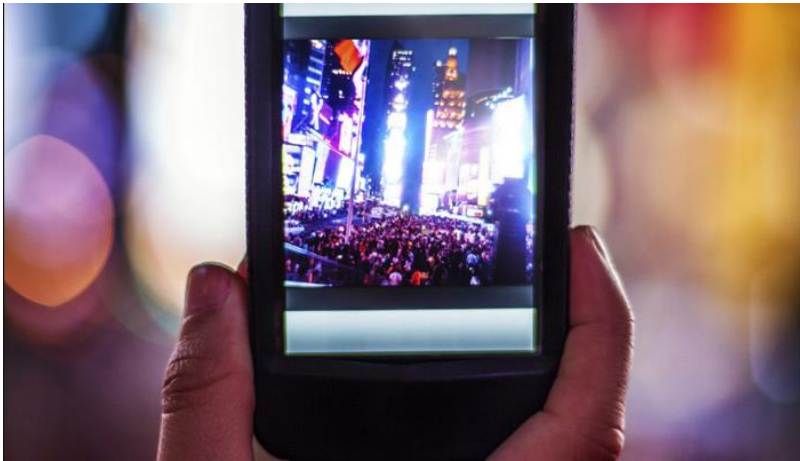
- ▶ What is it
- ▶ What does it mean
- ▶ How do we get there



# The Network Evolution



# 5G will make a connected world and society possible



 100x faster

 100x more devices

 5x faster response time

Source: CTIA





### Enhanced Mobile Broadband

Explosive wireless network growth “**from 20 million devices to 20 billion devices**”



### Internet of Things (IoT) Connectivity

The 5G network will be able to provide for massive IoT, from connecting sensors telling farmers when they need to water their fields to a city better managing traffic flow.



### Low Latency Applications

5G’s ultra-low latency will be essential for applications that require real time communications such as certain telemedicine applications, robotics, real time gaming, and the use of live maps for navigation.

## Economic Impact of Wireless Network Investment<sup>1</sup>

**\$275 Billion**  
INVESTMENT

**3 Million**  
NEW JOBS

**\$500 Billion**  
GDP GROWTH

**Small Cell Deployment**

**Spectrum Bands Above 24 Ghz (mmWave)**

**Ultra-high data rates and reliability**



Massive connectivity, higher speeds and lower latency will create opportunities with many new use cases and will transform how data and content is consumed



*Smart cities*



*Smart homes*



*Connected hospital*



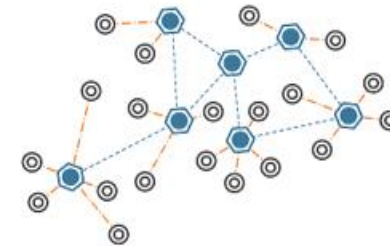
*Smart grids*



*Industrial automation*



*Vehicle2X & connected cars*



*Wireless sensor networks*



Many experts predict that AR/VR will be as game-changing as the smartphone

Imagine:

 Interactive AR-enhanced field trips for students to enrich their experiences at museums, historical buildings and national parks.

 AR-enhanced medical devices that put critical information in doctors' fields of vision and enable them to deliver more precise patient care.

 Life-like AR/VR training simulations to prepare public safety professionals for their critical work in the field.



# Making make cities cleaner, safer and stronger



**Cleaner:** Conserving energy and natural resources with modern technology

Smart meters help consumers pay-as-you-go

Sensors and acoustic technology can detect water pressure, and leaks

temperature



**Safer:** Promoting safety and improving infrastructure

Remotely monitor infrastructure to identify hazards and needs

Monitor and maintain traffic signals and pedestrian traffic stadiums, parks and busy intersections

maintenance

routes at



**Stronger:** Improving life in modern cities

Mobile apps can connect citizens with transit schedules, road information and community alerts

Smart lighting lets maintenance crews remotely manage lighting systems, saving money for taxpayers and cities

closures, health

city







*"5G mobile connectivity will be vital to support and complement both connected and automated vehicles...[W]e'll work to continue delivering safe, highly secure, and efficient solutions to ultimately bring automated vehicles to life."  
- Mike Troiano, Vice President, AT&T IoT Solutions*

**14M+** Connected Cars in  
the US and abroad\*



**10%** Of vehicles in the U.S. will be  
driverless by 2026\*\*

\* As of Q2 2017

\*\* World Economic Forum

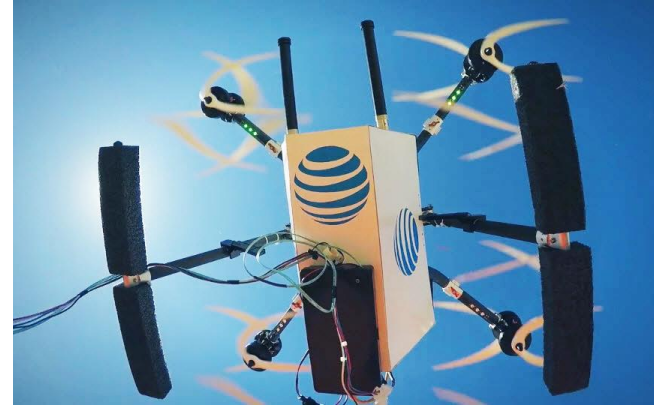


# The sky is the limit when it comes to drones

Drones enable cell tower inspectors to safely identify network updates or repairs before sending a crew up the tower



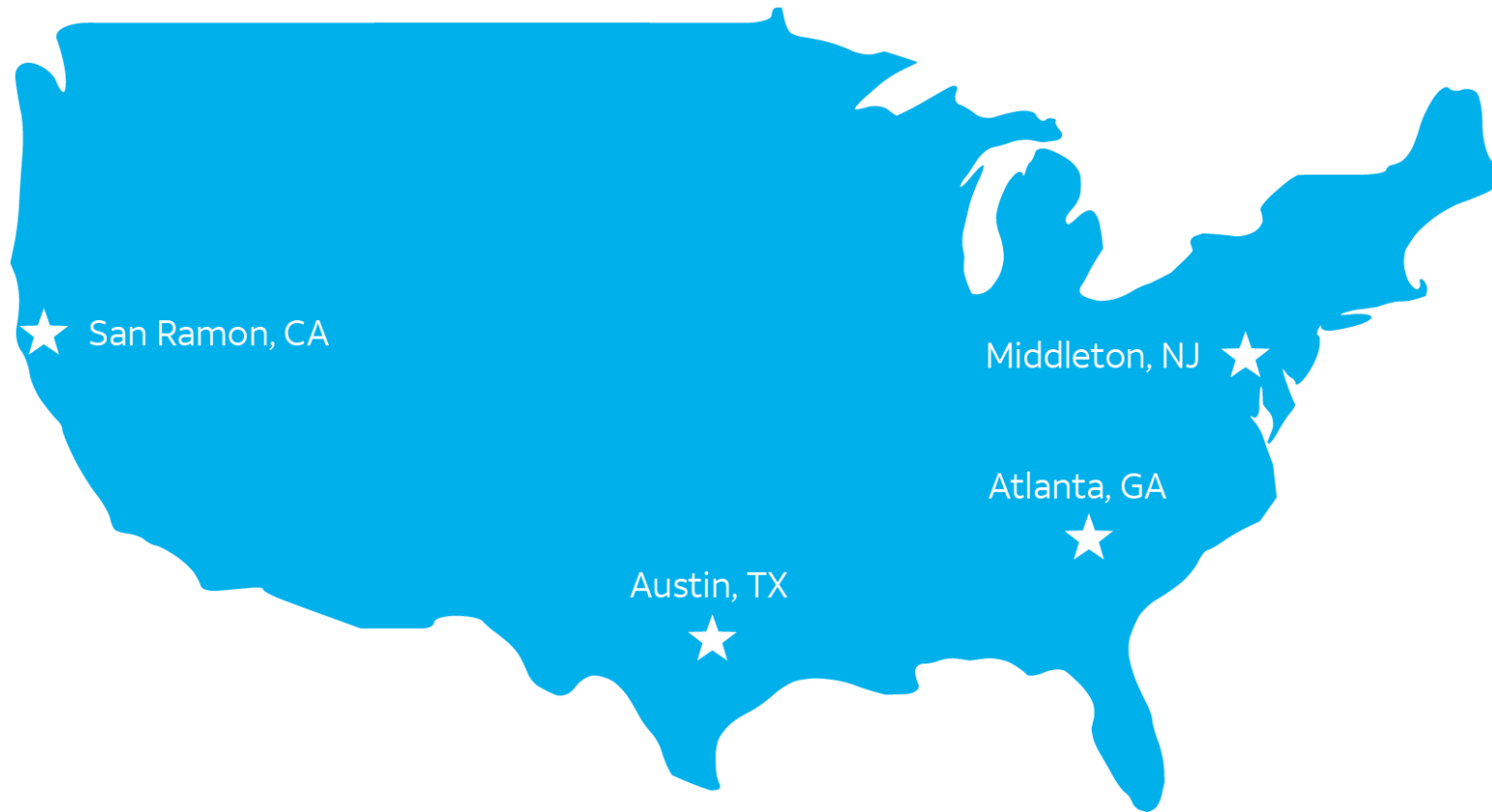
Flying CDWs can enhance network coverage during large events or in emergency situations requiring rapid response





5G – It's not a DAY, it's an EVOLUTION.





AT&T tech trials help pave the way for future industry standards for 5G, and allow AT&T to deliver fast speeds and high network performance.

Trials test mobile and fixed wireless solutions operating in mmWave spectrum.



