



# 2G Network Sunset:

## What it Means and How it Affects You

A look at the future of cellular technology and what it means to the subprime automotive market

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### ➤ Executive Summary

To begin, let's get some perspective on the topic. **If you are using a GPS device** to track assets for repossession and recovery, your device likely uses cellular technology. That is, it operates in a similar way to a cell phone, communicating over a wireless network. Consequently, changes made by wireless carriers can and will affect your GPS devices – and **there are some important changes coming.**

GPS tracking devices are considered "machine-to-machine" or M2M devices. That means one machine (the GPS device) is communicating with another machine (computer servers hosting a website).

Most M2M devices, including GPS tracking systems, utilize the 2G cellular network. Based on the need for more advanced 3G or 4G capacity, **the 2G network's end is in sight**, and depending on your carrier, may have already begun.

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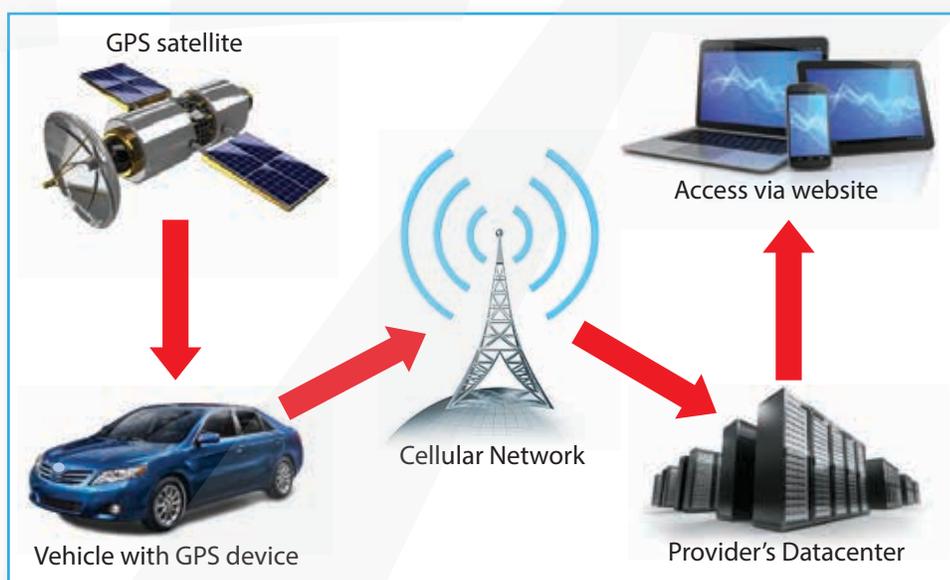


## ➤ Let's take a look at how a **GPS** device works in general

The GPS device in the vehicle searches for GPS satellites on a continuous basis. When a location is requested, the latitude and longitude coordinates are determined based upon the location of the satellites and the vehicle. The device then sends those coordinates over the cellular network to the manufacturer or device provider's datacenter.

That datacenter takes the coordinates and populates the provider's website with the information which is displayed (typically on a map) in a website the customer can access.

As you can see, the cellular network is a vital piece of this equation, allowing the information from the device to be sent to the datacenter in order to be accessible through a website.



satellite  
**GPS** devices  
 cellular network  
 data-center  
 software interface  
 are all required for your  
 complete solution.



## ➤ Cellular Technology

In the United States, there are two primary technology standards for cellular networks: GSM and CDMA. Global System for Mobile Communications (GSM) and Code Division Multiple Access (CDMA) are two competing standards in cellular service. The major difference between the two technologies is how they turn voice data into radio waves and how the carrier connects to the phone. Other differences include the coverage area and that only GSM uses SIM Cards. Currently, GSM (2G, 3G, 4G) is used by AT&T and T-Mobile, and **CDMA is used by Verizon and Sprint.**

G S M	2 G	2G, or 2nd generation wireless cellular technology was first introduced in the United States in 1992. It marked a change to digital technology from analog used in earlier technology (1G networks). 2G was the first technology to offer data services, such as text and picture messages. <b>Nearly all commercial GPS devices</b> in the subprime automotive industry today <b>operate on the 2G network</b> , as well as many other machine-to-machine (M2M) industries including home alarms and electronic metering. All these industries have adopted 2G technology for its board network coverage and price point.
	3 G	3G, 3rd generation wireless cellular technology was first launched in the United States in 2002. This successor to 2G offers faster speeds which allowed additional services such as video calls and mobile internet browsing and downloads. 3G technology was also seen integrated into laptops, tablets and other devices as a way to access the internet on the go. While 3G offers faster speeds, the price point and smaller initial footprint made it less appealing than 2G for the GPS device industry.
	4 G L T E	As you can likely guess, 4G comes after 3G and offers even faster data speeds. 4G and 4G LTE speeds in many cases are comparable to traditional internet connections which allow the technology to be used in cell phones, computers, tablets, etc. in order to browse the internet, stream video, watch television and other functions which require high data speeds not available with earlier technologies.
C D M A		CDMA is a different mobile communication standard than GSM (2G, 3G, 4G LTE). CDMA is used by Sprint and Verizon and has various evolutions and generations itself. CDMA, historically, has not been used in GPS solutions due to higher price points. However, prices have come down recently for CDMA and opened up this 2nd standard as an option for GPS providers. Current CDMA networks are estimated to outlast GSM 2G.



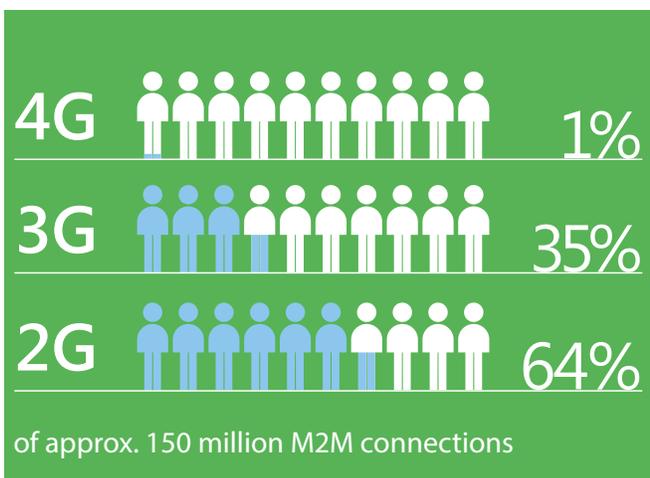
## ➤ GPS Devices Use 2G

Why? Well, primarily because it is the **least expensive and currently has the most expansive network**. As you have now learned, 2G technology has been around for more than twenty years. As with most technology, equipment for 2G technology has come down in price over the years, which allows you to purchase a GPS device these days for \$100-\$200, usually including at least a year of airtime. **Compare that to the cost of your 3G or 4G cell phone which probably runs you \$80 to \$100 a month**. It is estimated that as of 2012, there were more than 150 million M2M devices connected and of those, 64% were on 2G.

Additionally, GPS based devices do not need lightning-fast speeds that are required to browse the web on a smart phone or to video chat. Sending and receiving location information does not typically require anything more than what 2G offers.

Low costs, wide coverage footprint, and adequate data speed make 2G a perfect fit for GPS tracking solutions, in addition to many other M2M industries, including applications for health care, electronic metering, home security and others.

**But, unfortunately, 2G's end is in sight.**



Data Source: Cisco® VNI Mobile Forecast, 2013 Image Source: RACO Wireless

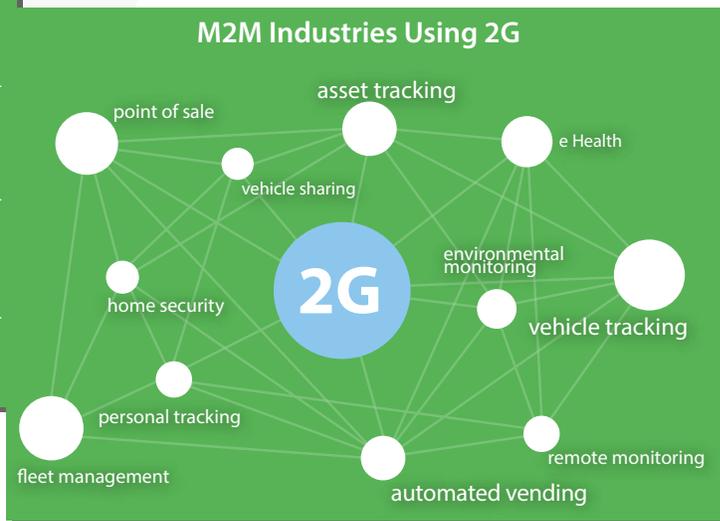


Image Source: RACO Wireless

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## ➤ 2G Sunset

As wireless carriers continue to build out their networks to support 4G/4G LTE and future technologies, 2G is getting more difficult to maintain. And in a few years, **cellular carriers will “sunset” their 2G networks.**

Based on what has been announced thus far, AT&T, which seeks to expand its available bandwidth spectrum, appears to be the most aggressive in pursuing a 2G sunset. Announced in 2012, **AT&T will have its 2G network completely shut down by the end of 2016.** The process began as far back as a year ago and depending upon the location, AT&T may have already taken down its 2G capability and “re-farmed” its towers for 3G & 4G. According to an AT&T press release in May 2012, networks in New York City were being reallocated for faster, more advanced networks. It is clear that 2016 is the END date for 2G and the network is already being taken down, piece by piece.

The **other carriers** have less aggressive timelines and have claimed they are maintaining their 2G networks for the foreseeable future, having mentioned dates of 2019 or 2021.

## ➤ So, what should you do?

If you are buying a device that operates on the AT&T’s 2G network, you may want to start looking into the situation-- especially if you are purchasing two or three years of airtime upfront.

But regardless of which carrier your device is on, the **end of the 2G network will be here before you know it** and it would be prudent to understand your provider’s roadmap to newer technologies.

### Steps to take now

Get informed!

Ask your device provider:

- What wireless carrier is my current device using?
- How long does the provider anticipate the current technology will work on the network?
- Am I purchasing airtime that exceeds the date the 2G network will be up?
- Most importantly: What is the provider’s technology roadmap and plan for the end of 2G?

PassTime, a leader and pioneer in the GPS and Collection Technology industry has a comprehensive technology roadmap, wireless carrier relationships and expertise to guide customers through this transition.

To learn more about the 2G sunset and PassTime’s technology roadmap, contact us:

