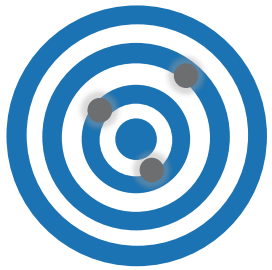
GEO-LOCATION

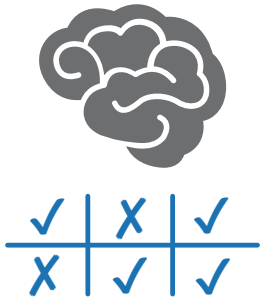
REFRIGERATION REFRESHED

It is the **mobile phone** that determines the location of any connected asset.

Location services technology is used by all IoT devices that require positioning. This guide tells you more about the way this works.

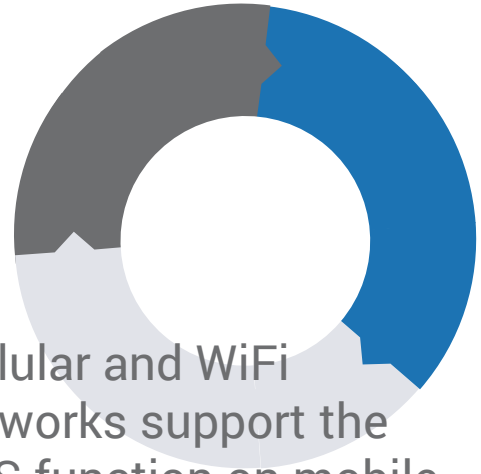


The quality of the location point is improved through repeat data collection: a number of data points can build a more precise picture



The Nexo algorithm continually assesses the accuracy of the location measurement. It will over-write a location when the accuracy improves

Nexo Discovery allows you to manage data collection frequency, which in turn ensures the best possible location for assets



Cellular and WiFi networks support the GPS function on mobile devices: a combination of these services is best

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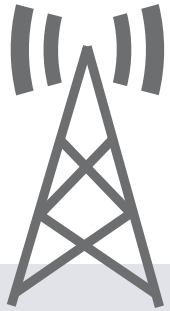
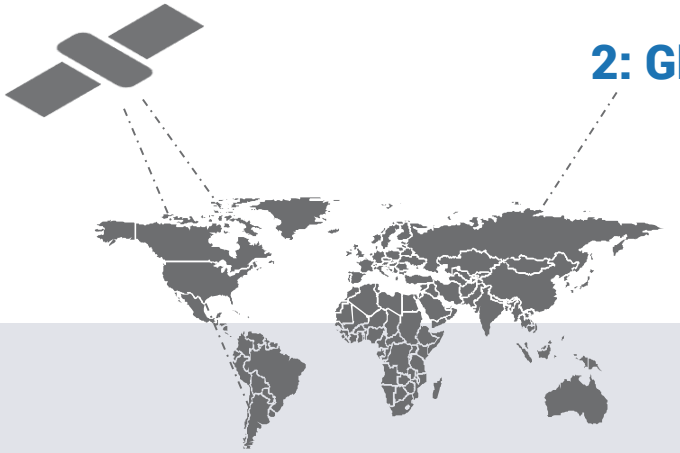


1: Mobile network



2: GPS

3: WiFi network

There are three main Location services

100m	RANGE	Less than 10m	RANGE	10-20m
Depends on density of network	PERFORMANCE	Does not work inside buildings	PERFORMANCE	Depends on density of network
Low battery consumption	POWER	High battery consumption	POWER	Low battery consumption

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How does cell tower triangulation work?

Cell tower locations are fixed. Their range reaches a limit: a sphere.

If the mobile device is within that range, you can determine the rough distance from the tower.

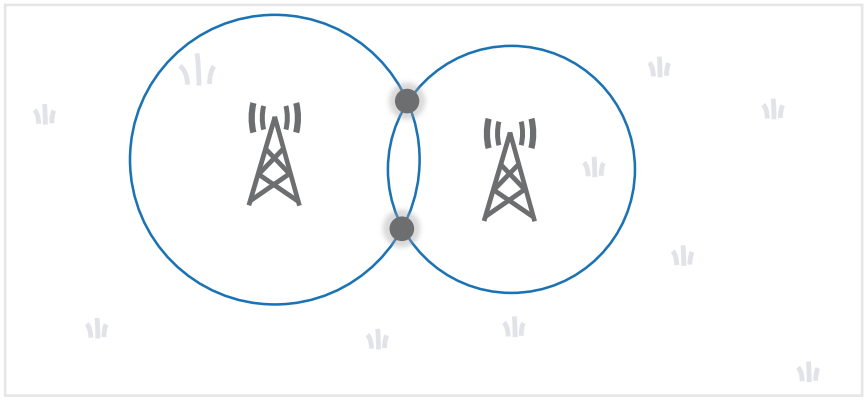

FIGURE 1

With **two** cell tower locations, you can conclude the device is at one of two location points (*Figure 1*).

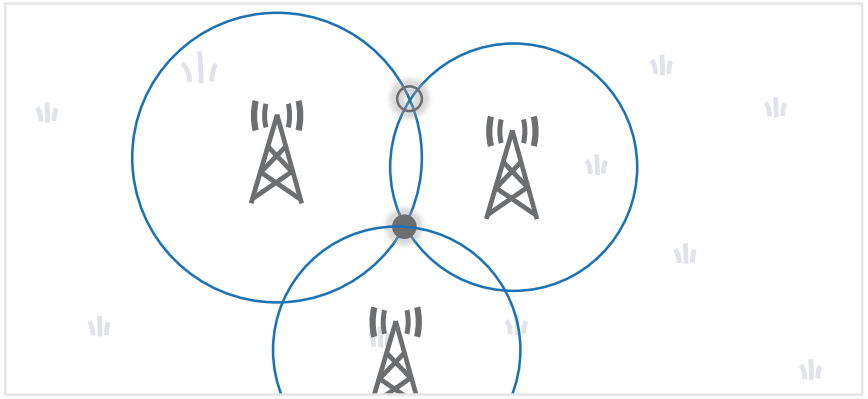

FIGURE 2

With **three** cell tower locations, you can narrow down the location to one of the points (*Figure 2*).

? Is it just cell towers that can pinpoint a location by using triangulation?

No, WiFi networks operate in the same way. We recommend switching on your WiFi services to aid location finding.

Tips for optimal mobile location accuracy

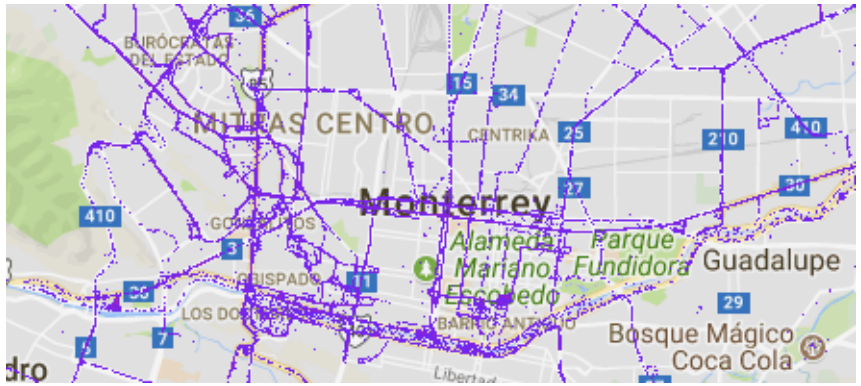

IMAGE: WIGLE.NET

Location is set at the time the controller is first commissioned. It will be set as blank if the location is not deemed of good enough quality. Check Nexo documentation for more information.

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The three services define the location. Ensure data collection devices have them switched on.

Ask your team to check the location on another mobile app, to understand the quality of location services in that specific area.

Check the density of WiFi networks in the area to aid your planning.

ACTION PLAN

- [x] Synchronize coolers frequently
- [x] Monitor the Location Management dial to aid prioritization of data collection
- [x] Test a combination of the three location services for your area(s)
- [x] Check local services such as WiFi network availability using Wigle.net
- [x] To grow confidence, find the location of the device using a second app such as Google Maps

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NEXT STEPS: GEO-LOCATION