# sensize

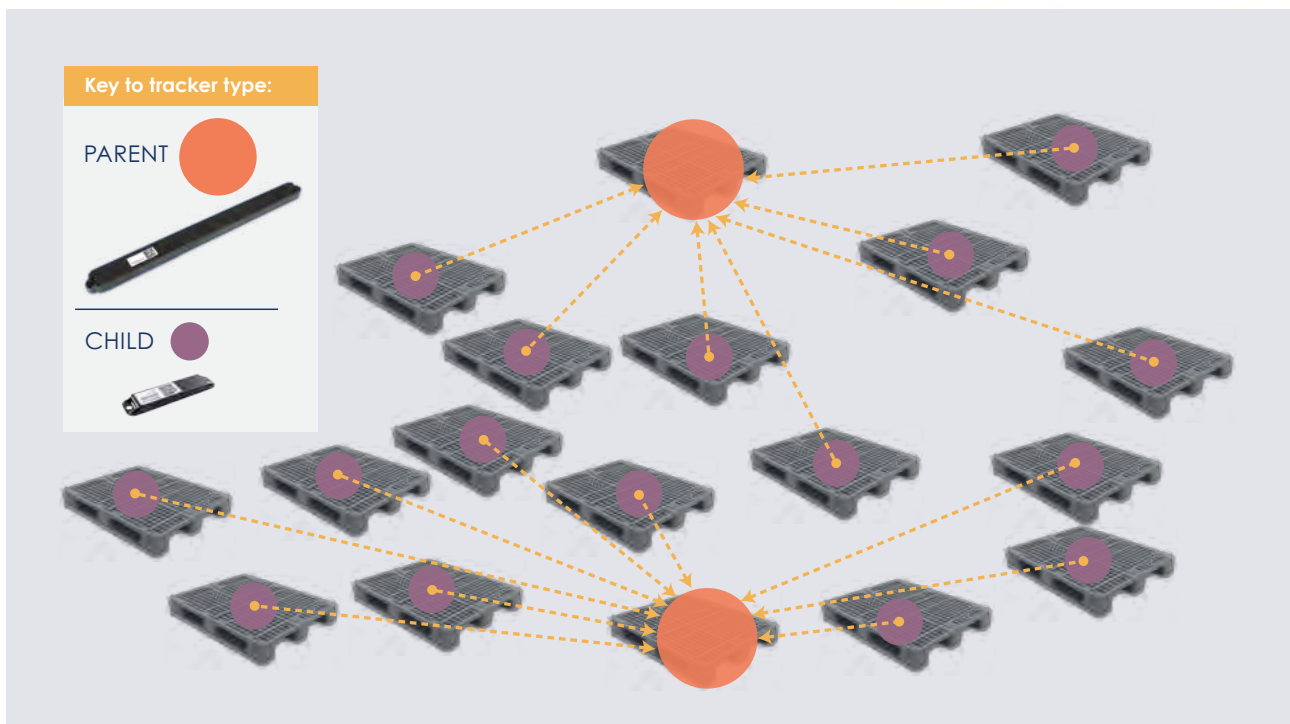# Parent/Child Networking

**Why Sensize uses a multi-technology, collaborative approach to track reusable assets in the supply chain**



**Key to tracker type:**

PARENT

CHILD

Parent/Child networking is a collaborative mesh system that allows ultra-low-cost Bluetooth tags to perform like full GPS trackers. Unlike conventional Bluetooth solutions, it requires no fixed infrastructure, making it the most cost-effective way to deploy active tracking on pallets, crates, totes and roll cages.

**The system uses two types of tracker: Parent and Child.** Parent trackers transmit data directly to the Sensize platform using the LTE cellular network. **Child trackers send their data to nearby Parent trackers, which relay it to the platform.** In effect, Parent trackers act as wireless hotspots for the Children, providing a gateway for their data.

From the user's perspective, it makes no difference whether an asset carries a Parent or a Child tracker – the tracking data is the same. So why go to the trouble of having two types of tracker?

**Parent/Child Networking**
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# Zero Infrastructure

If tag cost were the only factor, RFID stickers would win every time. RFID is a useful technology, but it cannot deliver true "GPS-like" tracking. An RFID tag is only detected when it passes within a metre or two (3-6 ft) of a reader capable of energising and scanning it. Even the most powerful RFID readers, like the one shown below, typically have a range of only a couple of metres. By contrast, a Sensize Child tracker transmits reliably over 50–100 metres, providing far broader and more continuous visibility.

While it is sometimes possible to install RFID infrastructure at a few key sites, there is no practical way to deploy it everywhere. A typical retail supply chain includes thousands of locations, often operated by different companies. The cost of visiting all these sites to install, integrate, and maintain readers is prohibitive, which limits RFID's usefulness as a wide-area tracking technology.

The same limitations apply to batteryless Bluetooth tag systems. The cost of purchasing, deploying, and maintaining the required reader infrastructure destroys the business case.

Parent/Child networking removes this barrier entirely. Sensize trackers do not require expensive reading gates, permissions from third-party IT departments, site visits for maintenance, or any of the costs and complexities associated with fixed infrastructure. The Parent trackers, mounted directly on the assets, do all the work.
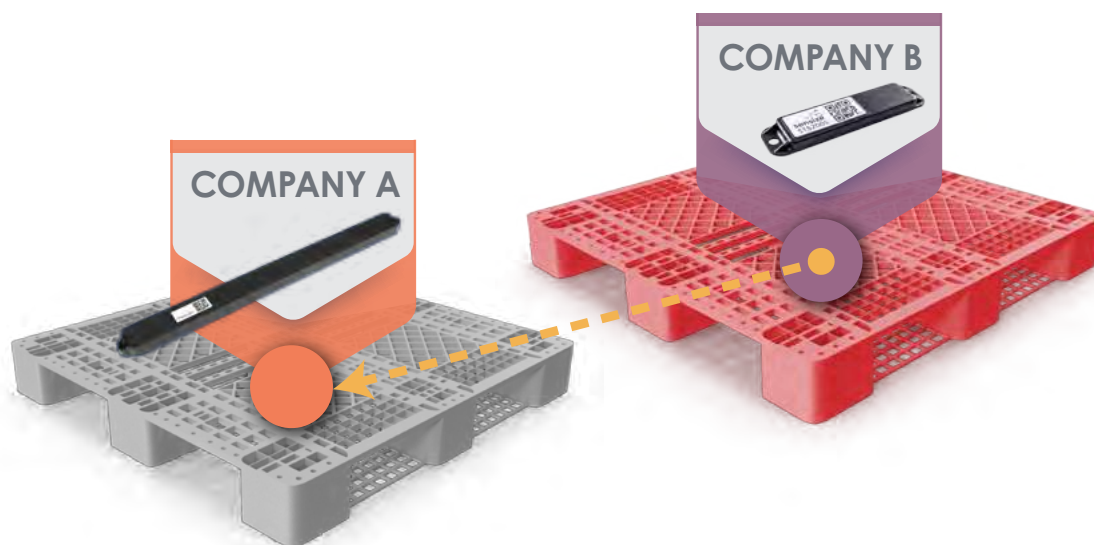
# Collaborative Networking

In a Sensize Parent/Child network, every Parent tracker can collect data from every Child tracker, regardless of who deployed it. The collected data is then routed securely to the owner of the asset.

A typical retail store, distribution centre or factory contains thousands of reusable assets owned by multiple companies. Some will already have Sensize trackers; others will add them over time. Parent trackers from all deployments work together, creating shared visibility across every corner of the supply chain.

No single company needs to carry the full burden of coverage. The result is lower deployment costs and faster, more accurate tracking data for everyone.

COMPANY B

COMPANY A

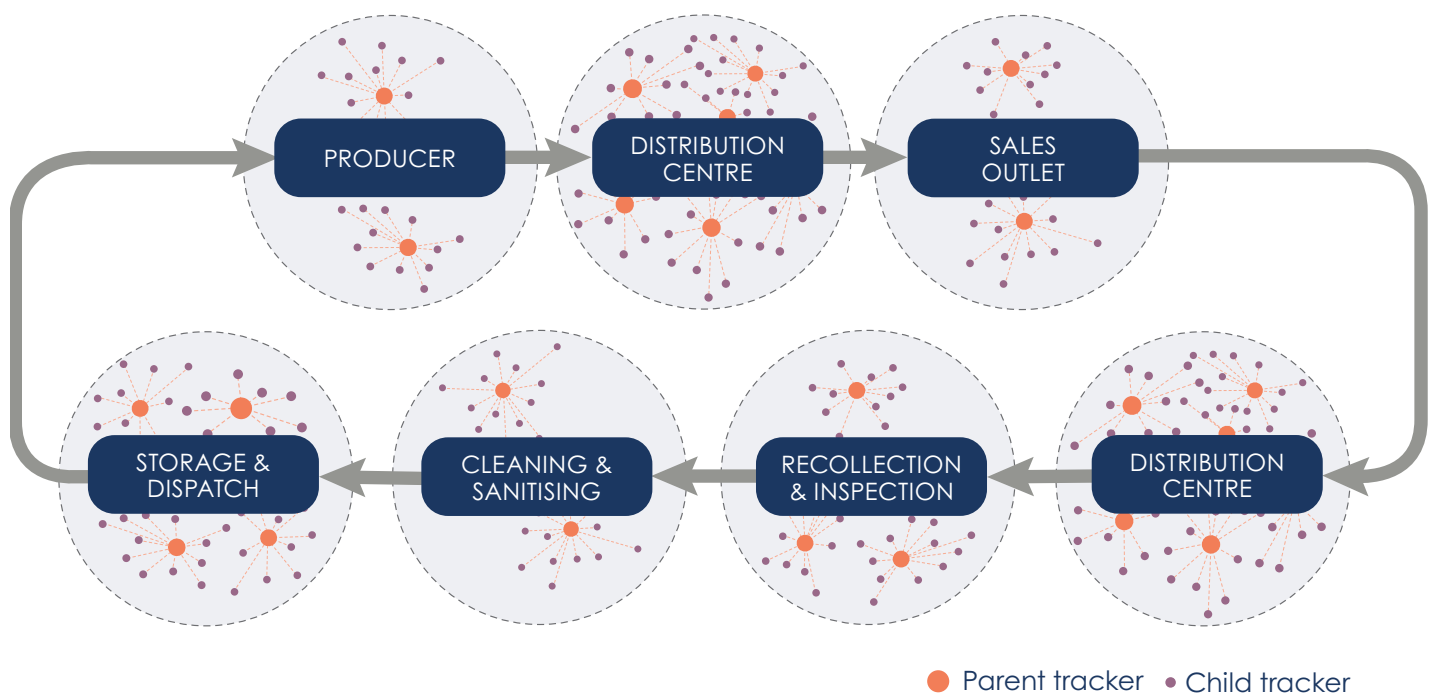# How Does Parent/Child Networking Work in Practice and how many Parent trackers do I need to install?

**Child trackers are around ten times cheaper than Parent trackers, so there is a clear incentive to use them as much as possible.** However, there must still be enough Parents in the fleet to collect data from every Child. So how do you find the right Parent-to-Child ratio?

The optimal ratio depends on factors such as the number of sites, how frequently data needs to be collected and the speed of the asset cycle.

Smaller deployments, such as pilot projects, require a higher proportion of Parents. **Many customers begin with 10% Parents and reduce this to 1% or less as their tracked fleet grows.**

It isn't necessary to get the ratio perfect at the start. The system will always generate useful data. Any gaps in coverage will quickly become visible. If gaps appear, simply add more Parents. Once you have enough Parent trackers to provide coverage, no further additions are needed, regardless of how many Child trackers are deployed.



PRODUCER → DISTRIBUTION CENTRE → SALES OUTLET → DISTRIBUTION CENTRE → RECOLLECTION & INSPECTION → CLEANING & SANITISING → STORAGE & DISPATCH

● Parent tracker · Child tracker

# Do I need to track all my assets to get valuable insights?

Do pollsters survey every citizen to predict an election? Of course not. They gather data from a small, representative sample and extrapolate the results. It isn't a perfect simulation of the vote, but it's accurate enough to forecast most elections.

The same principle applies to asset tracking. Monitoring a subset of assets can still generate powerful insights. **Tracking just 10% of a fleet, 9% with Child trackers and 1% with Parents, provides accurate inventory visibility at all but the smallest sites and quickly highlights loss points.** Even a limited number of tracked assets can reveal the root causes of misuse and prevent losses.

## Visibility that grows with the network

In logistics, uncertainty is inevitable. The art lies in designing systems that thrive on it. Parent/Child networking does exactly that, growing stronger as more participants join and more data flows through the network.

The beauty of the model is that it rewards collaboration over control; each new deployment benefits not just one operator but everyone connected to the system. In a world where assets never stop moving, Sensize's approach ensures that visibility never stands still.

Find out more about **Sensize** and get in touch to discuss your asset tracking needs.

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