

## A Truth Positioning System outage can cost an autonomous mine millions!

### Some Background

When an autonomous solution is deployed, there is the need for GPS based navigation. The Truth Positioning System (TPS) is used as a reference for the GPS Base Station that transmits the 'known' fixed location over a wireless network to the vehicles known as Autonomous Haulage Trucks (AHT's). The TPS at this iron ore mine, located in the Pilbara region of Western Australia, appeared to be the root-cause of a whole of fleet outage. This forces production teams to man dump trucks in order to keep the site operating. Manning dump trucks raises a whole raft of concerns, especially relating to safety.

### System Dependencies

Autonomous Haulage Systems rely on a GPS Base station and a Truth Positioning System for high-precision corrections, in addition to the GNSS receivers located on the actual machines themselves. In order for the AHT to travel its designated route, all of these independent systems need constant connectivity to the network in order to act as a synced, complete positioning system.

### Getting Productivity Back

The Integrated Management System (IMS) is used in these scenarios to filter the vast amount of data that is gathered and to monitor thresholds on critical data such as connectivity and latency. This is known in IMS as a *trigger*. These triggers allow the network administrator to define the criteria that prompts IMS to send alerts to the relevant parties via email or SMS.

Being a *single-pane-of-glass* style monitoring system, IMS distributes the alert of a TPS outage to the concerned people/parties across the operation.

The result in this case was that instead of having to man dump trucks, the on call technician could be contacted, given the exact information that IMS reported which results in them being able to make their way to the root cause of the issue, fix the problem and operations could start again.

Getting on the front-foot with monitoring of these critical AHS devices, gives peace of mind to not only the network administrators, but also to the mining manager, production superintendent and the whole operation.

