Unilode Rolls Out OnAsset Supply Chain Management Technology On A Massive Global Scale

Unilode Aviation Solutions owns and manages the world’s largest outsourced fleet of unit load devices (ULDs), which are containers and pallets used for the transport of freight, baggage, and mail on aircraft. It also provides ULD and in-flight food service equipment maintenance and repair services.

**ULD loss is an age-old problem in aviation.**

As the only aircraft part that leaves control of the airline and passes through various ground service providers, shippers and freight forwarders, ULDs are easily misplaced. With over one million ULDs in circulation globally, airlines have up to 200,000 ULDs in the wrong place at the wrong time.

A shortage of ULDs impacts an airline’s ability to meet customer needs and keep costs down. Replacement of ULDs and holding additional inventory due to inefficient processes cost the airlines millions of dollars a year.

Unilode recognized this problem and had the vision and commitment to apply OnAsset monitoring technologies to its vast fleet of ULDs spanning the globe. The results of its implementation have exceeded expectations. Asset availability is up and benefits are being passed on to customers. A true win-win.

**The Search For Solutions**

For years, Unilode sought solutions for improving its ULD fleet management and tracking customers’ cargo, but available options all had significant shortcomings. The two key, commercially approved technologies for tracking-in-flight included RFID and GPS.

**RFID/LORAWAN** was good in that it is low energy and inexpensive. But the infrastructure and readers necessary to support this technology on a global scale was not deployable and would have been met with large, expensive infrastructure needs. Unilode needed a custom built-to-scale product for its large ULD fleet and network, and broad base of customers. Not to mention, RFID and the frequency in which it operates is not approved in every country in the world, and Unilode’s ULDs travel to around 250+ countries.

**GPS** is approved in all areas except for China, which uses its own system. GPS was an accurate form of technology, but battery life was measured in days instead of years, and the mobile network costs are extremely expensive.
Unilode researched all technologies to help guide its decision to adopt an asset management solution for its fleet of approximately 140,000 ULDs. The decision to adopt OnAsset Intelligence was made in mid-2019 based on several key factors.

First and foremost, the fact that OnAsset's suite of technologies doesn't require a fixed-base reader network was a distinct advantage for a company with assets moving through a vast network of locations. Also, by this time, long-range Bluetooth was available, making it possible to significantly reduce the archaic fixed base reader footprint.

OnAsset's standards-based technologies made it easy to integrate within Unilode's existing systems. And an application programming interface (API) which met the requirements of 21 CFR Part 11 and Annex 11 for security was a huge benefit.

The flexibility to scan via a mobile app was another ease-of-integration selling point. There were no other hybrid solutions available, with multiple methods to scan equipment like OnAsset had to offer.

OnAsset's solution is fully compliant with the global and regional requirements for the operation of electronic devices on an aircraft.

Finally, as the OEM of the technology, OnAsset was uniquely able to work with Unilode to custom fit their solution into Unilode's pallets in a seamless way that didn't interfere with operations. The tags are retrofitted into the pallet's corner section or inserted into the hollow edge rail, protecting the tags. The digital tags can easily be installed (retroactively or in manufacture) in any container type.

In adopting OnAsset technology, Unilode wanted to:
- Reduce the number of missing or lost ULDs.
- Improve the data for monitoring ULDs.
- Automate manual processes.
- Improve ULD availability for customers.

Unilode assigned a special projects team to roll out OnAsset technologies. The team worked with 45 airlines. Securing approval from each of them was the first step. OnAsset has done extensive testing with airlines and was able to provide details on each test for airline leadership to accept. Unilode led the conversations and meetings with the airlines; OnAsset managed the technical aspects of testing with the airlines.

Meanwhile, on a parallel track, Unilode was negotiating contracts with companies that service the airlines on the ground to install readers in their warehouses. As the company worked through approvals with so many partners, it was laying the foundation for the actual rollout, starting in the areas of highest ULD fleet density.
Rollout On A Global Scale

With approvals in place, Unilode began tagging ULDs as they passed through airports. Unit tagging was underway as the team began establishing the SENTRY FlightSafe reader network, starting with the airports and areas with the highest concentration of Unilode assets.

Unilode’s extensive network of repair facilities helped expedite the tagging process. The tagging of assets kicked off at the end of 2019. With a three-year plan for tagging, and only a year-and-a-half into the roll out, the company is about half-way done. Ultimately, it aspires to tag 140,000 ULDs.

Customer Wins

With the network well-established, in addition to Unilode better managing its fleet of ULDs, its customers have insight into the shipments. Full-service customers have access to Unilode’s proprietary FAST web and mobile applications to monitor cargo movement, a benefit Unilode provides at no cost to customers. For an optional fee, they can access deeper-level sensor data made available through OnAsset tags, including temperature, shock/impact, light, and more.

At customer’s request, Unilode has gone on to install readers at customer sites and on valuable trade lanes so they have a complete view of the shipments, end-to-end. Shippers of high-end fashion, electronics and other valuable shipments are appreciating the insight to protect their products.

Results

Unilode tracks its network in real-time from its Operations Control Center. The outcome of the investment and effort has exceeded expectations. Even though deployment and tagging activities continue, Unilode and its customers have seen immediate improvements.

Digital signals have found, and made available to customers, 700+ more units on a consistent, monthly basis.

Since August 2020 digital signals have returned over 6,500 ULDs for service providers who had misplaced them.

Unilode’s 45 full-service airline customers are benefiting from digitally enabled ULD planning and management.