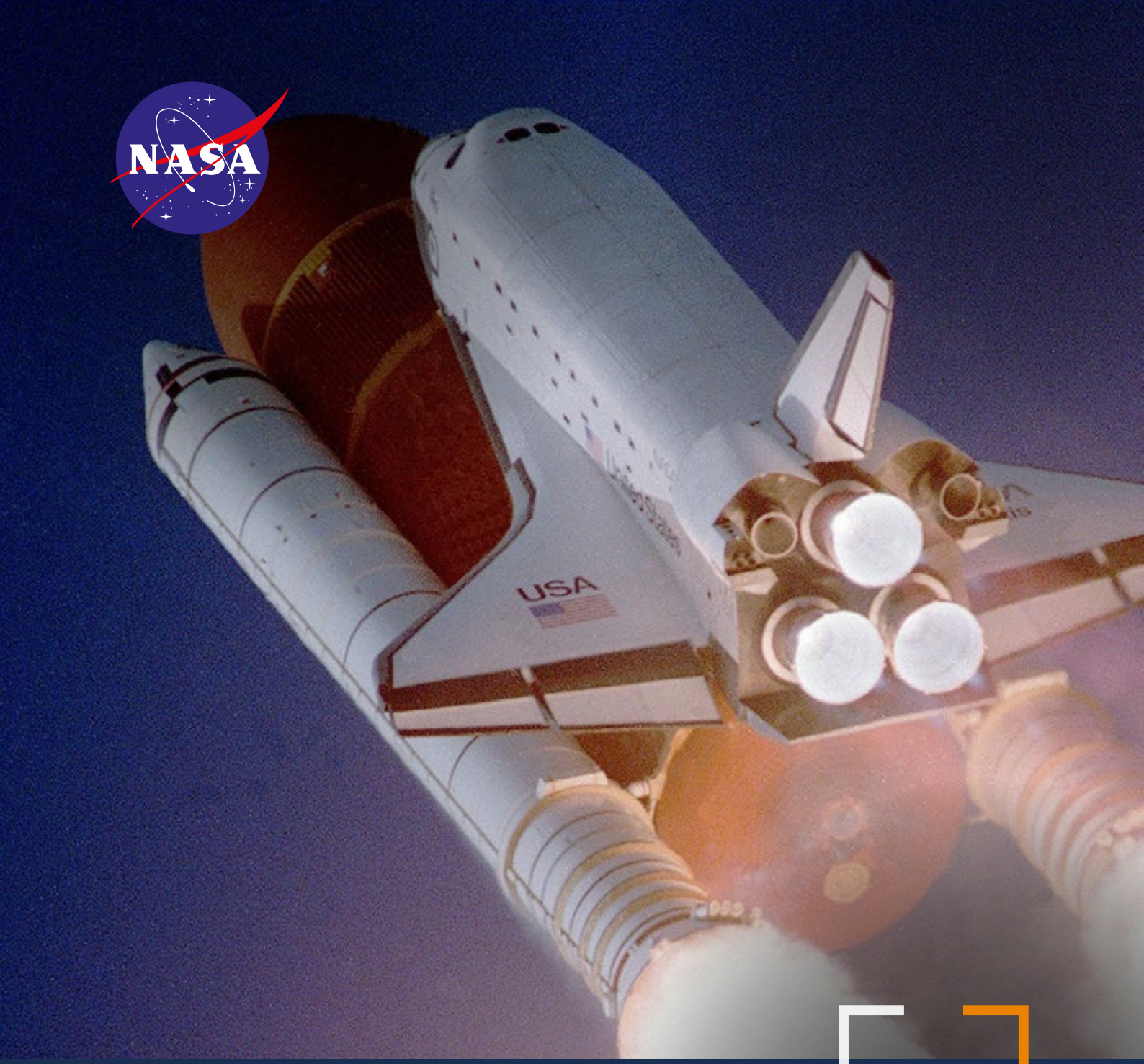

Case Study [Nasa]

Improving Inventory Time by 30%

An Agency-wide RFID Solution for America's pioneering space agency, NASA

Omni-ID
Intelligent Tracking & Monitoring Devices

omni-id.com

As one of the most high profile United States government agencies, NASA has studied space for over 50 years with the intention of using its learnings to make life better on Earth.

Industry

Government and Defence

NASA conducts its work in four principal organizations: Aeronautics, Human Exploration and Operations, Science and Space Technology. Spread across the country, the agency has ten field centers and a variety of installations that conduct the day-to-day work, in laboratories, on air fields, in wind tunnels and in control rooms.

Recognizing that the proprietary and mission-critical nature of the research being conducted in its facilities required an enhanced level of asset tracking, the NASA team turned to a highly reliable and flexible, RFID asset management solution to help ensure the security of its data and protect its high-value laboratory and testing equipment.

The Challenge:
Tracking and identifying

Government agencies and commercial companies face similar problems keeping track of and managing critical assets in their organizations. These assets are some of the largest investments that any business or organization will make and as such, require a better method for inventory management; NASA is no exception. The NASA teams are responsible for thousands of data center assets as well as the movement of costly laboratory and testing equipment between the various field locations.

Several existing challenges in tracking and identifying the data center assets pointed to the need for a new approach. The NASA team recognized that the physical, bar code based inventories they were conducting were costly, time consuming and often highly inaccurate. In addition, the bar code labels being utilized for tracking were not readily visible or often even readable, contributing to the inaccuracies. Additionally, this solution did not provide the ability to locate critical assets, across multiple facilities, on a more real-time basis. Finally, driving their decision to look at alternative options for tracking assets was the challenge NASA faced working in a very lean environment.

As Miguel A. Rodriquez, NASA HQ Equipment Program Manager, noted, "Under NASA's current conditions of reduced Center staffing for many support services, we needed a faster way to conduct and track our large and mobile asset population with fewer personnel."

NASA conducted a formal review process to evaluate options for a more efficient solution that fit their process and resources. As a government agency, they recognized that any solution they selected absolutely had to be best-in-class, providing them the necessary functionality, while at the same time, maintaining budget limitations and meeting compliance requirements.

Products used

A mix of Omni-ID's passive RFID tags would be required:

- Prox Label
- Fit 200
- Fit 210
- Custom Flex Labels

The Soluton:
Passive UHF RFID tags

After studying several options, NASA eventually selected the recommendation from DataSpan, a Dallas-based leading provider of Data Lifecycle Management solutions.

Their design employed passive UHF RFID tags from Omni-ID that would operate both on metal and non-metal assets utilizing handheld scanners integrated with a software platform providing inventory visibility and reporting capabilities.

An initial RFID Proof of Concept effort at Langley Research Center in Virginia was conducted to understand NASA's requirements and to provide them with a complete, customized end-to-end solution from design, hardware procurement, custom software installation, SAP integration services and operator training.

Based on the success of the Langley installation, NASA decided to expand the solution across twelve sites which included Space Centers, Research Centers and other facilities throughout the United States. Inventories included a wide variety of computer assets, vehicles, cameras, radios, lab equipment, calibration components, mobile tracking systems and specialized asset types unique to the NASA mission.

> **"Omni-ID's expertise and customer engagement were important factors in the successful deployment of this program."**
>
> Jim Ferguson, DataSpan

The challenge: determining the correct tag mix for each site since there would be a mix of assets at each location. In a typical customer installation, the majority of the assets being tracked are similar thus allowing for the same RFID tag to be used across assets. However, in NASA's case each location had a large mix of assets in multiple sizes, shapes and material. In fact, one site alone contained 50,000 assets! Stated DataSpan's Jim Ferguson, "Omni-ID's expertise and customer engagement were important factors in the successful deployment of this program. The size and variety of the number of assets would make this a daunting task for most tag manufacturers; however the reason we partner with Omni-ID is their full-service approach. They were able to take a holistic look at the entire scope of the NASA project in order to determine the ideal tag selection including custom encoding unique to NASA which would avoid any tag ID duplication throughout the life of this project."

To manage the tag distribution, individual site visits were conducted and an asset list was accumulated from each site. Adding to the challenge, each NASA site used a different procurement subcontractor each of which used differing asset descriptions across the sites with no real correlation among them. To solve this problem and ensure the right tag was applied to the right asset, Omni-ID employed an approach using unique keyword queries and word clouds against the lists. This allowed NASA to segment the assets for tagging and determine the correct tag mix by volume per site. With the experience gained from hundreds of installations and the backing of a vast product catalog, Omni-ID was able to readily recommend the optimal tags for each asset segment. While each of these tags possess unique characteristics that make it more suitable for a specific asset, as a group Omni-ID recommended them for the characteristics they share:

- Small form factor and low profile that won't interfere with the use of the asset
- Flexibility for on and off metal applications
- Average read range of 3' allowing for quicker, easier inventory counts versus previously used bar codes where a very close line of sight read range is required
- Easy deployment and integration into legacy system
- Splash resistant, resistant to handling – perfect for assets being held and moved often

> **"This RFID project is delivering the desired functionality and efficiency required by NASA and that the rollout is progressing on schedule and is exceeding NASA's expectations"**
>
> Nancy Shemwell,
> DataSpan's COO

The Results

Several years ago NASA established a uniform barcode-based inventory system which DataSpan was able to leverage using custom handheld scanner software to easily enroll Omni-ID tags into NASA's legacy SAP back-end asset inventory database with minimal effort.

During the on-site installation process, operator training was conducted with the primary project goal to ensure that NASA's asset management personnel were completely self-sufficient in the entire RFID lifecycle from tag enrollment, handheld and middleware software inventory operation to the SAP database integration process.

This fully integrated RFID solution has assisted in managing asset inventory and tracking, as well as creating some significant process efficiencies:

- NASA's Miguel A. Rodriquez notes," The final result has improved our time to conduct inventories by approximately 30% using passive, Gen 2 tags, readers and customized software."
- Over 250,000 assets have been tagged
- The solution can be scaled to multiple NASA sites, for multiple applications, based on these successes

"We realize the critical nature of NASA's Asset Inventory Management Solution to ensure smooth running missions and operations," said Nancy Shemwell, DataSpan's COO. "In step with our unwavering commitment to customer value, I am pleased that this RFID project is delivering the desired functionality and efficiency required by NASA and that the rollout is progressing on schedule and is exceeding NASA's expectations."

Designed

- High UV tolerance
- Label should adopt as little dirt as possible (slippery/low moisture absorption)
- Weight below 23 grams
- Label pull strength above 15kg
- If the label is removed, it should be visibly damaged and not be reusable
- RFID performance should be the same or better as with the red tag

Tested

- Water resistance (non emersion: exposure to rain and watering of plants)
- Resistant to solvent and chemicals used in agriculture grower and retail operation (like chloring solutions)
- Storing temperatures from -30 to +70, operating temperatures from - 10 to +60
- Material tested for the automotive industry

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Visit www.omni-id.com to learn more or email sales@omni-id.com for all product or technology inquiries and we will be pleased to get in touch.

Omni-ID is the leading supplier of passive, low-profile UHF RFID solutions. Through our patented technology, Omni-ID "cracked the code" to overcome the problems traditionally associated with RFID, enabling a broad range of new applications that improve accuracy and efficiency in asset tracking, supply chain management and work-in-process. Our family of versatile RFID tags works reliably in the harshest environments, including on, off, and near metal and liquids and excels in solving tracking and identification challenges with unprecedented accuracy. With offices in the USA, UK, Asia and India backed up by a purpose-built manufacturing facility in China, our mission is to drive the widespread adoption of RFID and wider IoT technologies as the optimal tracking and identification devices.