Solution Brief
ENDPOINT DATA TRANSFER TO EDGE AND CLOUD STORAGE

Managing Mass Data Collection in the Automotive Industry

Discover end-to-end architecture for data collection, transfer, and storage.

Challenge Summary

ADAS/AD development requires the collection of mass data and fast analyzation. It's critical to find solutions and workflows that efficiently and cost effectively bridge this data from the car to the data center/core where it can be analyzed ASAP.

Benefits Summary

- Compelling access to vehicle sensor data and network data
- High-speed mass storage array with ultra-high ingest rates
- Optimized cost with the ability to scale up or down
- Subscription-based solution for data transfer and storage

Seagate brings together an end-to-end architecture by combining NI data logging with Seagate Lyve Mobile edge storage and data transfer as a service for handling and moving data at the edge.

Time to Data. What are the best ways to transfer mass data collected by today's autonomous vehicles? That's the 100TB question. To get the most value out of this data, we first need more efficient ways to enable its flow. Every industry handling data of this magnitude—from 100TB to multiple petabytes—faces challenges around harnessing its full potential.

Seagate and NI have partnered to address this challenge by providing secure and affordable data capture, data movement, and global access to datasets for AI-based training, maps creation, and feeding data into Replay and HIL systems.

The Challenge

Autonomous vehicle algorithm development requires data from many vehicle sensors, including more than 12 cameras, infrared, lidars, radars, ultrasonic sensors, and other parameters which create 100TB+ of data per car daily.

There are a variety of ways this data is recorded and then transferred to data centers for algorithm development—from consumer-grade storage drives in large bays within the vehicle to integrated data loggers and storage devices. In both instances, security, scalability, and transfer cost is exceedingly expensive and challenging.

Solutions can cost more than $200K per vehicle to support the capacity required. For a fleet of 100 vehicles, that's more than $20M+ capex upfront to secure the required data storage. Additionally, these solutions require new capex purchases of storage components as technology continues to push boundaries towards fully automated vehicles.

Autonomous vehicle developers need a more cost-effective and scalable solution to gain access to more data, faster.

The Solution Approach

Today's autonomous vehicles require world-class, integrated algorithms for maximum performance and safety. The collected data needs to flow from vehicle to data center, where the required compute platforms are housed. Unfortunately for the tier 1s and car makers, this means becoming an IT expert in IoT and the edge/macro edge. That's why Seagate has partnered with NI—providing secure and affordable data capture, data movement, and global access to datasets.

Seagate Solution

Seagate Lyve Mobile edge storage and data transfer as a service offers cost-effective solutions exceeding 100TB, all engineered to withstand harsh, mobile environments and enabling in-vehicle data ingestion up to 6GB/s.

Specifically, Lyve Mobile Array is a portable, rackable solution that records AV data by securing to the trunk of the car via the Lyve Mobile Mount. The optional PCIe adapter can be used for an external PCIe port on your recording system or with enterprise-grade self-encrypting drives. Delivering high-capacity and high-performance data transfers, Lyve Mobile Array is built with industry-standard AES 256-bit hardware encryption and key management in a rugged, lockable transport case for superior data transport and security. Additionally, it's agnostic to data logger form factors and architectures.

Partner Solution

The current research and development for AD vehicle technology requires use cases for rapid prototyping, real-time vehicle testing, calibration and logging, and many more. NI is uniquely positioned to supply test and measurement solutions that conquer these challenges.

For in-vehicle data logging, NI's speedy datasets are offloaded to Lyve Mobile Array for high ingest rates and massive storage space. The arrays can then be put into copy stations using the Lyve Mobile Rackmount Receiver and injected into the customer's IT infrastructure or uploaded to a Cloud.

Total Solution

When combined, NI data loggers and Seagate Lyve Mobile enable data analysts and developers to focus on their work while the IT experts handle data flow and infrastructure. With the ability to collect data from different sensors in the vehicle, NI provides the PXI chassis with configurable and expandable components to fit any ADAS or AD data logging challenge. And with scalable solutions for collecting all vehicle data and moving it to data centers, Lyve Mobile brings high capacity and performance to the forefront through a subscription-based model that significantly reduces the upfront capital needed and includes overprovisioning, global support, and capacity upgrades.

In-Vehicle ADAS Recording

Conclusion

For tier 1s and car makers needing to jump start their workflow and infrastructure requirements with scalability and reduced upfront capital needs, NI and Seagate have partnered to provide trusted, powerful solutions backed by global leadership in data management, test and measurement, collaboration, and AD algorithm development.

Features & Benefits

- Best-in-class solutions offering global support from subject matter experts
- Subscription-based model reduces upfront capital expenditure requirements
- Provides end-to-end data collection and transfer, data center infrastructure, and global synchronization
- AES 256-bit hardware encryption and key management in a rugged, lockable transport case for superior data transport and security

Ready to Learn More?

Please visit **Seagate.com/products/data-transport/** to learn more about world-class, subscription-based data storage and transfer solutions.

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