Replay

Advanced AV replay service with GPU-accelerated capabilities that can deliver up to 72x faster performance, allowing you to quickly and efficiently test and validate your AV stack and DNNs on large amounts of driving data

Deloitte. | **NVIDIA**

THE CHALLENGE

- L3+ autonomy development can require large amounts of data
  - A 50-car fleet driving 6 h/day generates approximately 1.6PB of data per day
- There is growing demand for efficient and effective tools for training and validating autonomous driving models
- Current replay technology can struggle to scale and keep up with these large volumes of data, potentially taking a long time to replay and, hence, decelerate AV development cycle
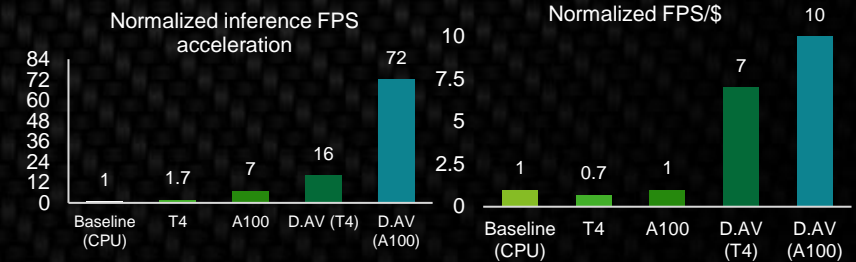- Integration of replay pipeline with existing CI/CD pipeline can be challenging

SOLUTION HIGHLIGHTS

- Providing up to 72x speed improvement to AV replay tasks by utilizing GPU-acceleration by leveraging
  - TRITON to handle perception DNN (multi-GPU) inference on data
  - DeepStream to handle encoding & decoding of frames or scenes
  - TensorRT compiler & runtime to help maximize throughput
- Seamless integration with your current CI/CD pipeline

VALUE PROPOSITION

- **Speed**: Accelerate AV replay runs by up to 72x
- **Cost savings**: Lower replay costs by up to 10x
- **Time savings**: Reduce the time required for testing and validation through data replay
- **Improved model training and validation**: Identify areas for improvement and help optimize your models for real-world performance
- **Integration**: With existing CI/CD pipeline
- **Scalability**: handle large amounts of data in shorter time
- **Enhanced safety**: Help identify and address potential safety issues beforehand

DIFFERENTIATION

Normalized inference FPS acceleration

	Baseline (CPU)	T4	A100	D.AV (T4)	D.AV (A100)
Value	1	1.7	7	16	72

Normalized FPS/$

	Baseline (CPU)	T4	A100	D.AV (T4)	D.AV (A100)
Value	1	0.7	1	7	10

OFFERING SUMMARY

	IMPLEMENTATION	OPERATION (AS-A-SERVICE)
Offering components	• Installation and configuration of necessary hardware and software • Integration with client's existing CI/CD pipeline • Training and support for clients to fully utilize the service • Implementation of robust data privacy and security measures • Customization of the service to meet specific client needs • Testing and validation of the service to ensure optimal performance	• Monitoring, troubleshooting, and maintenance • Providing updates and upgrades to the service • Ongoing training and support for clients • Reporting and analytics on the service usage and performance • Continuously improving the service by incorporating latest technologies • Regularly reviewing service performance and client feedback to make necessary adjustments • Data management and archiving
Pricing model	• Fixed price	• Subscription service (free trial)