DELL Technologies

Handout – Partner Document

Top 5 Reasons to Choose Dell EMC and EDAG for ADAS / AD

Dell EMC and EDAG BFFT Electronics (EDAG) are at the forefront of ADAS / AD, providing the technology that makes tomorrow's automobiles possible today. OEMs and Tier-1s face a multitude of complex choices related to data, analytic skill-sets, software stacks, analytic toolkits and infrastructure components. To bring an autonomous vehicle to market successfully, companies must choose the right partners for the right job. For ADAS / AD development, those partners include Dell EMC and EDAG. Our partnership is built on the philosophy of offering flexibility and informed choice across an extensive portfolio. Whether you're looking for drivers, AI data scientists, hardware architects, designers, or validation engineers, and of course the data center infrastructure to support them, we can help. The following are just a few reasons why Isilon and EDAG are the right choice at the right time for your ADAS / AD needs.

1 | End-to-End ADAS / AD / AI Engineering Services – HW & SW

Advanced Driver Assistance / Autonomous Driving (ADAS / AD) design requires many engineering specialists for platform level design (sensors and ECUs for sensors) and functional level design (detection & classification, sensor fusion, trajectory and maneuvering), to name a few. Whether you need engineers to augment your design teams, or are looking to outsource key designs, we have the staff and expertise to help. This can be particularly valuable when key functional expertise, like AI Data Scientists for Neural Network development, is in short supply. Even simple aspects of a project, like test fleet routing and real-world sensor data management can be challenging in some countries. Together with Dell EMC and EDAG, you have the flexibility to choose what your engineers focus on – leaving the rest to us.

2 | Proven ADAS / AD / AI Infrastructure Experience

A key challenge of any ADAS / AD project is data management. Throughout the life of your project, you can be assured that data will only grow. Many SAE-level 3 projects require over 100PB of storage today. SAE-level 5 projects are measured in exabytes. Such data growth must be planned for up front, at the beginning of any project, without making any common mistakes that can derail any project. Over 40 leading OEMs and Tier-1 automotive suppliers worldwide have chosen Dell EMC Isilon scale-out NAS storage to safeguard their valuable sensor data. With our ADAS-proven hardware and expertise, we can provide the consulting and expert guidance to bridge the gap between IT and data scientists and engineering.

3 | Sensor Data Acquisition and Utilization Services

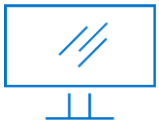
The heart of every Autonomous Vehicle project is sensor data. Whether real-world or synthetic, quality sensor data is key to ECU training and functional validation. With EDAG and Dell EMC, virtually any aspect of data acquisition can be managed. Test vehicle instrumentation and fleet planning (systems, routes, scenarios) as well as data logistics including sensor data ingest and metadata enrichment services can be delivered. EDAG engineering experts can also guide you through data utilization, including scenario development using real-world and synthetically generated data for Model-, Software- and Hardware -in-the-Loop (MiL / SiL / HiL) testing. We can even provide data enrichment services (example: Labeling services) to maximize the value of your raw sensor data.

4 | Sensor Data and MetaData Management at Exabyte-scale

The success or failure of many ADAS / AD projects can be traced to the robustness of the sensor data and sensor metadata management. Managing petabytes to exabytes of data in real-time is a daunting task for even the best Tier-1s and OEMs. Engineers depend on this data to train neural networks; launch thousands of concurrent MiL / SiL data streams to validate designs. HiL testing too depends on data. And accessing this data depends on metadata which must be searchable to build test suites. Isilon features Data Management System (DMS) – a sensor data and metadata manager that was developed specifically for our ADAS customers. With DMS, sensor data and metadata is tracked in real-time as data is ingested into central storage. Metadata tags, which are configurable for each project, are placed into a high-performance database making them searchable by your ADAS development tools. This allows development tools to automatically queue up tests for AI / ML / DL training as well as HiL/SiL/MiL testing.

5 | Scale to Exabytes with No Performance Compromises

The careful orchestration of 1000's of concurrent streams of data into and out of central storage doesn't happen by accident – it has to be architected. Hundreds of test vehicles must have their data ingested; 1000's of users must review and enrich metadata; high-performance data access for AI / ML / DL and tens of thousands of MiL / SiL / HiL jobs must all performance flawlessly. This requires a carefully designed and well managed data center with the prime focus on centralized storage. Isilon's scale-out architecture makes it ideal for ADAS / AD. Designed from the ground-up for massive concurrency, Isilon can scale from terabytes to 10's of Petabytes with no disruptions nor downtime - and is easy to manage as well. Isilon's DMS even load-balances sensor data across multiple storage clusters to assure consistent, predictable high-performance throughout the lifecycle of your project. Isilon is also Nvidia and Dell certified for AI / ML / DL workloads.



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