Migration and monetization

Automotive's highway to data value

Introduction

The automotive industry is on the cusp of a data explosion. As vehicles get smarter and smarter the need for technology solutions that can support large-scale, real-time data migration, data privacy and analytics becomes even more urgent. Effectively managing the availability and use of the data is vital to the success of the automotive value chain, whose revenue is increasingly dependent on new services.

Analysis and monetization of smart vehicle data can only occur with a solid technical foundation, enabling automotive businesses to leverage data knowledge to introduce new high-value services.

Besides data management needs, other trends are emerging in the use of vehicle data: Automotive industry executives want to better organize data use. They are advocating for a standardized data sharing framework that can be built into components in the supply chain. From the consumer perspective, obtaining consent for data use, and protecting their data privacy will influence the use of AI in smart vehicle analytics. AI is already under increasing scrutiny for potential compliance issues. Another challenge brewing is government attempts to legislate the use of smart components within vehicles. This will add more hurdles to monetization of vehicle data.

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Migrate vehicle data fast

IBM notes connected car sales overtook non-connected cars for the first time ever in 2022. The market is expected to grow at a CAGR of nearly 17% with the number of connected vehicles in service projected to reach 367 million globally by 2027.

Connected cars, literally every second, are sending and receiving terabytes of unstructured data for use in driving more safely, accessing information and entertainment options or getting software updates. The data can have an immediate urgent need for use like flagging road safety or sending alerts for flooding or road closures. In product development, the data is used to analyze driver behavior to refine safety and other components, and to develop new services.

To have value, this vehicle data must move when needed, to the destination of choice to be used for analytics, or in the case of safety issues, to help ensure driver safety. Large-scale data movement benefits from a fully automated solution that can accommodate large datasets even while under active change. For automotive businesses using a hybrid cloud/ on-premises infrastructure, it also requires real time replication that can maintain data in hybrid environments and transfer between locations as needed.

Use case #1: Autonomous vehicles

The ultimate connected car, the autonomous driving vehicle, has experienced slower adoption. However, McKinsey is optimistic the ADAS (Advanced Driver-Assistance Systems) and AD (Autonomous Driving) markets could generate between

$300 billion and $400 billion in the passenger car market by 2035.

More safety advancements are on the way, at the same time costs for sensors and high-performance computers are decreasing. These developments should help the auto industry to introduce more advanced features over time and to drive market adoption, McKinsey says.

To make this happen, technical solutions in network performance, cybersecurity and data reliability will need to be readily available and deployed. As McKinsey notes, communication with intelligent traffic systems, pedestrians and IoT devices must occur in a real time, safe mode. Data transmission requirements include the ability to transmit vast amounts of data in real time, with low latency. The most sophisticated autonomous cars can send dozens of gigabytes of data to the cloud every hour.

To support autonomous driving, automotive OEMs and their suppliers will need data solutions that can readily scale with the movement of terabytes of data, use automation to expedite data availability and accommodate changing data assets, all without disrupting existing systems that produce, store and use data. This level of modern data migration, at speed, is an essential element of the platforms used to develop autonomous vehicles that are able to respond to changes in the driving environment and support real time transmission of any changes that can affect safety and/or driving patterns.

Leverage data for monetization

Improved customer experience is the core reason for investing in technology and applications that better serve the vehicle driver. Whether for safety or other connected car services, auto OEMS and their suppliers want to gain market share with competitive consumer offerings and need data-driven customer intelligence to do so.

Data is the fuel for winning on customer experience. The ability to support the sharing of internet access and data with devices inside and outside the vehicle, in a secure, real-time transmission, is key to success. From there, automotive businesses need to leverage AI and analytics against large volumes of aggregated data to chart customer behavior, provide updated services and employ DevOps to innovate new service ideas.

Use case #2: A 'big 3' auto OEM powers customer experience services with Cirata Data Migrator

A leading automotive OEM is shifting further to a service-based revenue model. From basics like car maintenance insights, safety features, and personalized driver experiences, to more advanced e-commerce connections, the OEM knows its future will include subscription based, data-enabled, safety security and services, among other new offerings.

Delivering in-car services depends on tight integration between the OEM's on-premises storage where all the operational data from OEM branded vehicles lives, and its cloud, where the company activates the data using modern analytics and AI. Its goal was to replicate its on-premises data to Azure and maintain near-real-time synchronization between the two, so that any changes to the data on-premises would update to the cloud and vice versa, ensuring relevant and accurate analytics. Since the company plans to keep its on-premises infrastructure, this connection would need to stay active indefinitely.

Multiple attempts to transition from its initial approach of using batch uploads to near-real-time, including with Microsoft data mover technology, failed to deliver both accurate replication and ongoing synchronization between the data center and the cloud.

The Microsoft team working with the OEM introduced Cirata to the company's staff responsible for its cloud-data integration. Cirata documented the OEM's data movement requirements, developed, and successfully executed a proof of concept (PoC) with Cirata Data Migrator in the OEM's estate and an Azure test environment.

The early PoC was so effective the OEM entered into a formal partnership with Cirata, a Microsoft AI Cloud Partner, and Microsoft to enable two-way, near-real-time, ongoing data synchronization between on-premises data storage and the cloud for data activation using analytics and AI.

The first phase of the agreement has moved at least 3.4PB of data.

Power innovation with consumer data intelligence

Enticing the consumer with better pricing and value-add services is the auto OEMs' challenge as industry leaders say new-vehicle sales are forecasted to be mostly flat. "After four years of anything but normal, Cox Automotive expects balance to return to the U.S. auto market in 2024," the company said.

Competing for the vehicle purchase dollar, in a time of slower sales and high auto loan interest rates, requires OEMs to improve their services, notably their offerings in connected car services. Consumer surveys indicate the industry has a lot of work to meet customer needs. "Only 17 percent of all consumers say they are satisfied with their existing connectivity offers, which could potentially depress demand. These findings suggest that OEMs could benefit from continuing to refine their connectivity offerings and from identifying the features and services that consumers most value and use," McKinsey said.

Use case #3: Electric vehicles

Electric vehicles, plug-in hybrids, and hybrids combined are expected to account for almost 24% of the market, with electric vehicles alone accounting for more than 10% of total sales,

according to Cox Automotive. More models, incentives, and discounts in 2024 will help to spur sales but it won't be easy.

EVs are the litmus test for how effective connected car services can be in spurring sales. Drivers are looking for personalized and purpose-driven services, beyond the basic services OEMs have supplied. A survey by www.smartcar.com notes that drivers are turning to third-party applications for services like battery reports that compare their EV's battery condition with others, find available parking spots or manage EV charging. The survey says 51% of respondents would switch to a different brand for better car applications and services.

For OEMs to capture more of this service revenue they must start with a modern data platform that can handle terabytes, or up to petabytes of data generated by connected car customer behavior, automate the transformation of the data to the most common analytic formats, and do so seamlessly, without interruption to existing services and without any downtime. AI-powered analytics in the cloud, using machine learning, can determine behavioral patterns and support OEM prediction of what consumers and the customer base require from their vehicles. It allows them to provide clear insights to the development teams for product enhancement, and then it allows the monetization of the data that's coming back into the organization.

The result is heightened customer intelligence, and new service innovations.

Protect customer privacy

OEMs and their supplier partners face the classic double-edged sword when it comes to the use of unstructured connected car data. They need to plumb the data for real-time changes in environmental conditions to support customer safety on the road. They also need the data to provide deeper analysis into customer behavior that can lead to new revenue-generating services. At the same time there is increasing consumer and regulatory pressure to protect data privacy as OEMs are the recipients, partly thanks to AI, of unprecedented amounts of consumer data, some of which they resell to suppliers.

To improve control of, and adherence to privacy regulations, modern data migration and management has to be at the top of the list. Legacy methods of moving large data sets into data lakes or 'data swamps' present ripe opportunities for data privacy risks. Without clarity or organization of petabytes of data, it is possible to inadvertently share personal privacy information. The use of GenAI has escalated this concern.

As a first step, large volumes of data must be moved and organized into manageable chunks, and housed in various locations, whether in the cloud or on premises, according to division, department, or project. An advanced data migration solution can move this data at scale, fast, so each location is working with current data. It can move between cloud platforms and data centers and reroute data, when necessary, according to project or product development.

Once better organization is in place OEMs are accountable for executing security measures to protect privacy data, including data anonymization, encryption technology, VPNs, and authentication. They also need to stay up to date on regulations like GDPR and the California Consumer Privacy Act. Transparent communication with vehicle consumers is another imperative.

As connected cars have become mobile workspaces, data privacy must mirror the best device defenses available more closely in the market.

Connect with the future

Vehicle consumers, already using their phones as mobile workspaces, expect their connected cars to become as useful, and personalized. The OEMs who will capture the market in the future are the ones who can successfully examine petabytes of data for those nuggets of customer intelligence that spark exciting, innovative services.

To accomplish this, OEMs and their partners need a data migration solution that helps provide the organization the scale needed to analyze enormous sums of unstructured data. A cloud-agnostic solution, which can easily move between cloud and on premises environments, will give OEMs the flexibility they need to stay ahead of the fast moving, continuous data flow.

With billions in potential service revenue, it's a good strategy to build a modern data architecture that can support and leverage consumer data to achieve the monetization we know is possible.

Cirata's your partner to automotive excellence.

Contact us to learn more about Cirata Data Migrator and how we can help you move, integrate, and monetize your consumer data.

About Cirata

Trusted by global brands and industry leaders for more than 15 years, Cirata specializes in the migration of Hadoop data lakes into leading cloud platforms to enable game–changing Artificial Intelligence ("AI") and analytics. With Cirata, data leaders can leverage the power of AI and analytics across their entire enterprise data estate to freely choose analytics technologies, avoid vendor, platform, or cloud lock–in while making AI and analytics faster, cheaper, and more flexible. Cirata's portfolio of products and technology solutions make strategic adoption of modern data analytics efficient, automated, and risk–free. In addition, leveraging our patented technologies, including the Distributed Coordination Engine ("DConE®"), our DevOps solutions integrate effortlessly with your existing source code management to increase security, minimize risk, reduce latency, and improve collaboration across globally distributed development teams.

For more information on Cirata, visit www.cirata.com.

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