Ford Otosan pioneers 'four-wheeled computers' with Red Hat

FORD OTOSAN

Ford Otosan, Turkey's leading automotive company, operates as a publicly traded entity with equal partnership from Ford Motor Company and Koç Holding, Turkey's largest holding company. With operations in Turkey and Romania, and facilities in Kocaeli, Istanbul, Eskişehir, and Craiova, the company reported impressive financials in 2023, boasting net sales of $14 billion and exports totaling $10.2 billion.

Employing more than 23,000 individuals across two continents, Ford Otosan operates 5 facilities and stands as Europe's largest commercial vehicle manufacturing center for Ford. Its capabilities extend to engineering leadership in heavy commercial vehicles and powertrains, supported by one of Europe's largest R&D centers with 2,000 engineers.

Ford Otosan needed to improve its application development process and adopted a microservices architecture based on Red Hat® OpenShift® Platform Plus. OpenShift has been established as a strategic application platform at Ford Otosan as developers continue to develop new workloads on the hybrid cloud application platform to help the automotive pioneer produce even more advanced 'four-wheeled computers'.

A discussion with Giray Baha Kezer, Gözde Kömürcü Çelebi and Çağıl Yılmaz on behalf of Ford Otosan Platform Management Team.

Question: How have the business and technical environments changed for Ford Otosan?

Answer: The automotive industry is highly competitive. Companies in the sector need a more technological approach to meet customer needs. We are on a mission to be a pioneer among vehicle companies. Our catchphrase explains our mindset: 'We produce four-wheeled computers, not four-wheeled cars'.

At Ford Otosan, we must sustain our pioneering mission to keep up with the industry, but our legacy architecture would not allow us to do that. Maintaining that legacy architecture was quite a struggle. It had a dedicated host for each application, which was an unmanageable way to operate our workloads. It consumed an excessive amount of computing and human resources. Our system administrator, for one, couldn't work efficiently. So, we began looking for a more advanced way to operate.

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About Red Hat Innovators in the Open

Innovation is the core of open source. Red Hat customers use open source technologies to change not only their own organizations, but also entire industries and markets. Red Hat Innovators in the Open proudly showcases how our customers use enterprise open source solutions to solve their toughest business challenges. Want to share your story? Learn more.

Question: How has adopting a modern IT infrastructure helped?

Answer: Our digital strategy focuses on connecting our customers, suppliers, vehicles, and manufacturers. We needed to transform our IT organization and modernize our applications to align with that strategy. We decided on an open source approach because our industry recognizes open source as the path to advancement. Without open source, we would not have had the flexibility to advance as we wanted and would have been left behind.

Requirements were constantly changing, so we needed a microservices architecture. Containerizing applications would allow us to meet new technological needs. Containerized applications require orchestration, and orchestration involves automation. So, we adopted OpenShift Platform Plus to enable a microservices architecture, container orchestration, and automation that allows us to focus on application development and delivery.

Question: Tell us about your Red Hat journey.

Answer: We ran proof of concepts with several companies while searching for a security management solution. We realized that OpenShift Platform Plus would provide security management because it comes with Red Hat Advanced Cluster Management for Kubernetes (RHACM), Red Hat Advanced Cluster Security for Kubernetes (RHACS), Red Hat Quay, and OpenShift Pipelines. We could see how these advanced features would benefit our operations. That decision was a very good one—maybe the best decision we ever made!

Implementing OpenShift was much easier than we anticipated and didn't take up much of our time. It's an automated process driven by a single file, allowing us to easily bring up all the nodes and complete the installation in one rapid process.

We currently have 3 OpenShift clusters and 57 unique nodes running in a hybrid cloud environment. If there are no restrictions, we deploy to the cloud, which is our preference. Any workloads with data restrictions are deployed on premise. Our current workloads include digital business centers and digital business connectivity projects, and we have some blockchain projects running there, too. Mainly, these are newly developed workloads rather than migrations from our legacy environment.

Question: How has OpenShift helped your developers and administrators?

Answer: OpenShift benefits development and operations, providing automated processes for both teams. Our remarkable developers are increasing our use cases and workloads day by day. They found the transformation to OpenShift beneficial for all process phases, from development to deployment. Red Hat OpenShift allows them to work more efficiently and better manage application development, with OpenShift Pipelines benefiting every step of the GitOps process.

Thanks to OpenShift, our administrators can manage our clusters, run security checks on container images, and monitor our containers from one place. OpenShift also gives us more scalability and flexibility within our operations as the number of development projects—and thus demand—increases. Service Mesh horizontal pod autoscaler (HPA) allows us to scale our operations horizontally in line with demand. After all, scalability is an essential topic for the whole company. We need our projects to be sustainable, which means our cluster operations must be sustainable.

Question: How has adopting an enterprise-ready Kubernetes solution enhanced security?

Answer: RHACS provides container security, controlling and monitoring for vulnerabilities before containers are deployed. Red Hat Quay provides a single repository where we can easily manage all container images of all our clusters and conduct security checks to mitigate potential harm to our workloads. These tools make operations more secure and reliable in a way that wouldn't have been possible with our legacy security tools.

Additionally, our developers have adopted GitHub principles, making development, code review, and testing phases easier and workloads more secure. We also adopted DevSecOps principles to combine our security checks and testing processes into a single fully automated workflow that benefits developers and administrators.

Question: How has Red Hat supported you?

Answer: Red Hat Consulting here in Turkey has supported us through every stage of our journey: development, implementation, and deployment. Their guidance was excellent and helped us to advance our know-how. Their guidance has helped us create a more efficient process that makes workloads more manageable. It has also benefited our applications, ensuring higher availability in our workloads. They, for instance, guided us through using DevSecOps structures to do security checks before deployments. This strategy has enhanced security in test and production environments.

Red Hat Turkey and Red Hat Global are there for us whenever we encounter problems or situations that we need to address. They, for example, recently showed us how a service mesh architecture could help with some of our use cases and guided us through some OpenShift Service Mesh integrations.

Question: What's next for Ford Otosan?

Answer: According to the decision taken by the corporate management of company in 2024, all new applications should be run on OpenShift, so we'll be deploying more Red Hat OpenShift clusters at our development and disaster recovery sites. Our remarkable developers continuously develop new workloads to meet new sector needs. This means plenty of new use cases and workloads that we plan to run in Red Hat OpenShift: blockchain, big data, artificial intelligence, machine learning, and even autonomous vehicles.

Building on our Red Hat OpenShift foundation, we're also exploring how other Red Hat technologies, including Red Hat Ansible® Automation Platform, Red Hat Satellite, and Red Hat Enterprise Linux®, can help us. And Red Hat OpenShift AI opens up other possibilities as we expand our use cases.

About Ford Otosan

Ford Otosan (Ford Otomotiv Sanayi A.Ş.) is an automotive manufacturing company based in Turkey and owned equally by the Ford Motor Company and Koç Holding. The company was established in its current form in 1977, with original relations dating back to 1928.

Ford Otosan's operations are guided by 5 main business pillars:

▸ Commercial Vehicles: Leveraging over 5 decades of industry experience, Ford Otosan is Europe's largest commercial vehicle manufacturing center for Ford, producing over 750,000 units annually, including the Transit, Transit Custom, and Transit Courier ranges, alongside their all-electric counterparts.

▸ Engineering & Technology Development: Positioned as the global engineering lead for Ford Trucks heavy commercial vehicles and powertrains, Ford Otosan boasts one of Europe's largest R&D centers, driving innovation and development in heavy commercial vehicles sold worldwide.

▸ National Sales: Ford Otosan nurtures enduring business partnerships, fostering a thriving ecosystem for passenger and commercial vehicle operations within the Ford universe.

▸ Ford Trucks: Ford Otosan's heavy commercial vehicle brand, Ford Trucks, extends its presence globally, with sales and service centers spanning 30 domestic locations and nearly 50 countries across three continents.

▶ Growth & Smart Mobility: Committed to innovation and sustainable transportation solutions, Ford Otosan integrates connected vehicles and pioneering products, embracing growth models centered around autonomy, shared mobility, and electrification.

Ford Otosan produces 85% of the Transit product line sold across Europe, a testament to its engineering excellence and commitment to quality and safety.

As Ford Otosan looks ahead, its Yeniköy plant symbolizes the future of automotive manufacturing, embracing digital technologies and sustainable practices, and remains at the forefront of the automotive industry, poised to lead the charge in the electric and connected future under the Ford Pro banner.

About Red Hat

Red Hat is the world's leading provider of enterprise open source software solutions, using a community-powered approach to deliver reliable and high-performing Linux, hybrid cloud, container, and Kubernetes technologies. Red Hat helps customers develop cloud-native applications, integrate existing and new IT applications, and automate and manage complex environments. A trusted adviser to the Fortune 500, Red Hat provides award-winning support, training, and consulting services that bring the benefits of open innovation to any industry. Red Hat is a connective hub in a global network of enterprises, partners, and communities, helping organizations grow, transform, and prepare for the digital future.

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