

ADVANCED SOFTWARE ENGINEERING



WHY TREMEND?



17+ years

of software engineering



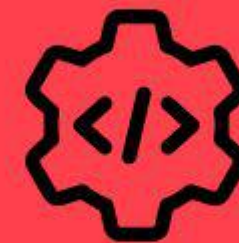
800+

projects delivered



20

countries on 4 continents
(EU, USA, ASIA, AUSTRALIA)



1000+

engineers

One of the **fastest-growing** software engineering players in Central and Eastern Europe headquartered in Bucharest
A trusted partner to **Global 500 customers** for their most complex and important projects
Culture of **technical excellence** with deep expertise in machine learning, fintech, UI/UX
World-class delivery with a relentless focus on **quality and operational efficiency**

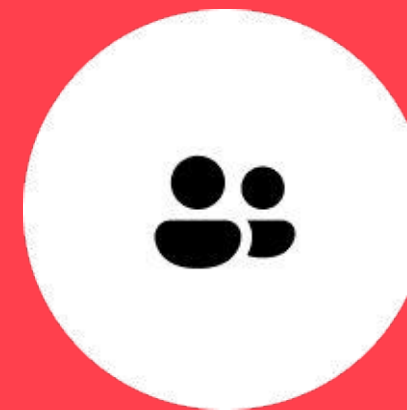
TREMEND HISTORY

2005	Company founded	<ul style="list-style-type: none"> · Internet of Things · Mobile · First client: Qwikker 	<ul style="list-style-type: none"> · 40 engineers · Automotive · Telecom · Enterprise SW 	Full size team: Orange
2010	1st infotainment SOP	<ul style="list-style-type: none"> · Full size team: Wind River · Automotive 	<ul style="list-style-type: none"> · Banking & Finance Industry · QA services, UI/UX · Full size team: ING 	
2015	Deloitte Fast 50 CE (1st place)	<ul style="list-style-type: none"> · INC 5000 · FT 1000 	<ul style="list-style-type: none"> · CloudMatix IoT Framework · Machine Learning, A.I., Microservices 	
2019	Acquires 648 Group - USA	<ul style="list-style-type: none"> · BVB League - IT Company of the Year · 360+ SW engineers, 400+ projects 	<ul style="list-style-type: none"> · Opening new department: Chip design and verification services · ASIC Design 	Business Partnership: Mellanox Technologies Financial Services Unit
2020	Impact Star Award - Deloitte Technology Fast 50 CE	<ul style="list-style-type: none"> · Deloitte Technology Fast 500 EMEA 2019 · ePartnership Award with Mastercard - eFinance Gala 	<ul style="list-style-type: none"> · New Products: observED, TORP · Salesforce B2C Commerce Certified for CEE 	Tech & Innovation Partner - European Commission and other EU institutions · R&D projects: HumanID, Graphomaly
2021	New office in Luxembourg	<ul style="list-style-type: none"> · TORP wins eSolution Of The Year Award - eFinance Gala 2021 		
2022	Tremend is acquired by Publicis Groupe			

INTERNATIONAL PRESENCE



TRUSTED PARTNER IN DELIVERY AND INNOVATION FOR FORTUNE 500 COMPANIES



60+ million people use
solutions built by
Tremend



10 banks, 2 Telecom, 5
Car manufacturers
chose Tremend



Worldwide and
regional firsts in
eCommerce,
Automotive and IoT

HIGH COMPLEXITY SOFTWARE SOLUTIONS

AGILE TRANSFORMATION	ADVANCED ENGINEERING	EMERGING TECHNOLOGIES
Build robust, scalable platforms for enterprise applications	Exchange in embedded, automotive, networking and IoT software	Bring practical uses of new technology to our customers
Omnichannel Customer Experience Microservices & Cloud Enterprise Content Management eCommerce & Marketplaces	IoT - End-to-end Infotainment ASIC design & Firmware ADAS & Functional Safety	Machine Learning & AI Anomaly Detection Blockchain RPA

TECHNICAL CAPABILITIES

Enterprise Solutions

- Cloud first: AWS · Azure · Google Cloud
- Enterprise Java · .NET
- Big Data - SQL & NoSQL · Hadoop · Kafka · BI
- Microservices · Docker · Kubernetes · OpenShift

DevOps

- Deployment: tuning & optimization · load balancing · high availability · auto scaling.
- Infrastructure: public clouds · private clouds · Provisioning & containers · 24/7 monitoring

Automotive and Embedded

- Infotainment: Android · Linux · VxWorks
- Functional safety · Security
- ECU and Device firmware
- Connectivity: Bluetooth · NFC · NB-IoT · LoRA

Mobile

- Native apps: Android · iOS
- Hybrid apps: React Native · Flutter
- Single Page Applications: Angular · React.js

Web Platforms

- Python (Django) · Node.js
- PHP (Symfony) · GoLang
- Salesforce · Magento · Drupal

ASIC Design

- Front-End Design (Verilog) · Verification
- FPGA · Analog · Back-End Design

QA

- Automated testing · Load testing
- Usability · Security
- Backend · API · UI · Mobile · Automotive

UX/UI Design

- User Experience consulting
- User Interface design

CASE STUDY CARREFOUR

A new ecommerce solution and a new marketplace

Client: _____

Carrefour is the second largest retailer in the world, with close to 1600 hypermarkets and operating on more than 30 countries.

Project description: _____

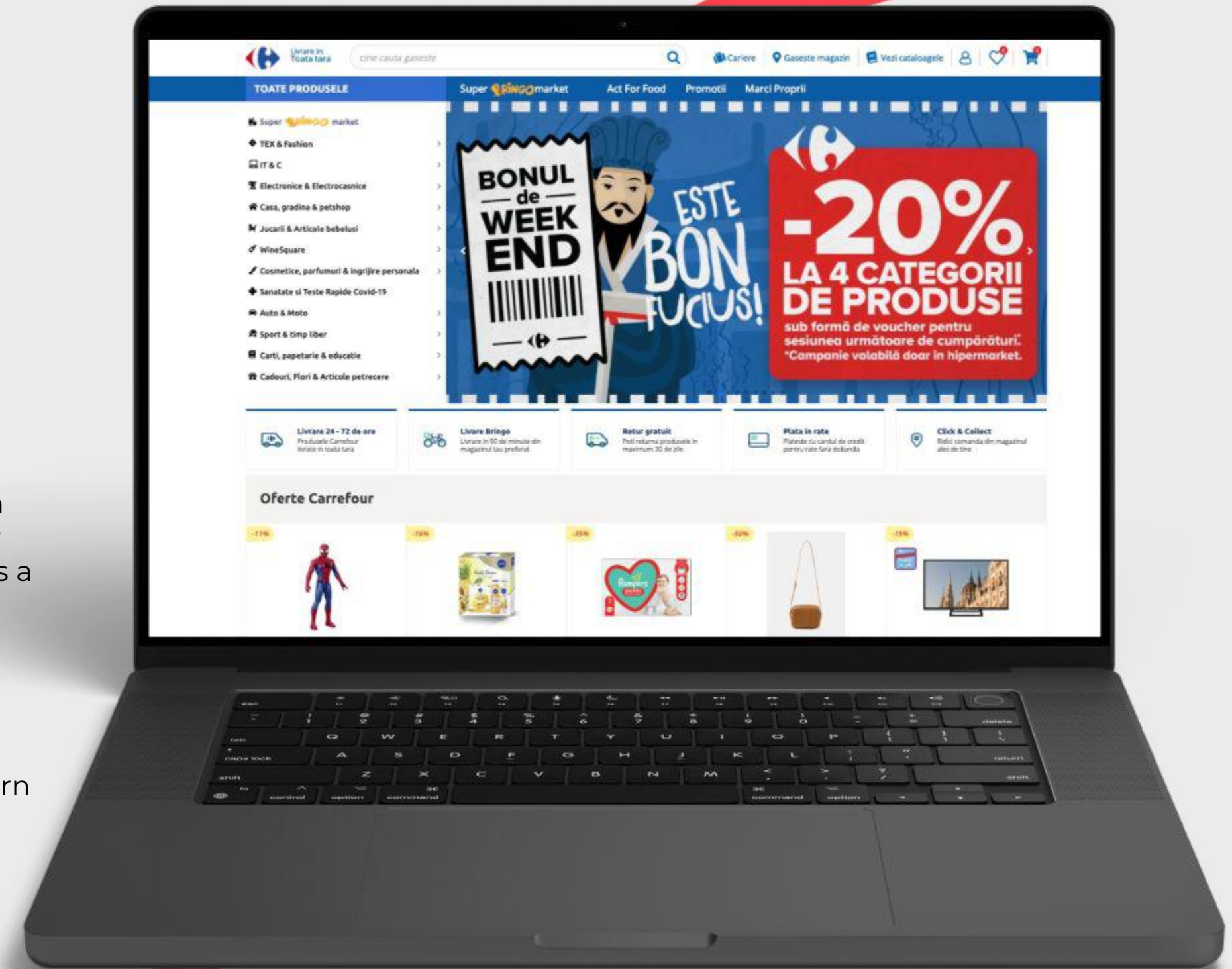
Biggest retailer in Europe builds a marketplace solution and upgrades its existing eCommerce solution to a new, user centric interface. The project involved over 40 engineers - project managers, developers, testers and devops engineers, all working on delivering the Magento2 implementation. With dozens of integrations, building the infrastructure as a code, with a focus on user experience and scalability, the delivery was a success and positioned Carrefour as a challenger against its already existing competitors.

Results: _____

99.95% uptime over the last 3 years. Black Friday load easily handled. Continuous increase in number of orders: Carrefour benefits from a newly modern eCommerce solution that Tremend has delivered and for which is currently operating a complex microservices based infrastructure with dozens of integrations

Technologies: _____

Kubernetes, Java, Node.js, Magento2, AngularJS 1.4.8, Angular Material 1.0, Symfony 3.0, Gulp Task Manager, Ansible, Docker



CASE STUDY ORANGE

Real time management of critical data for the company's over 10 mil. users

Project requirements:

A complex customer care web solution, providing data collection, organization, storage, processing and analysis, handling several million concurrent users during peak times, including essential features like electronic invoices.

Solution delivered:

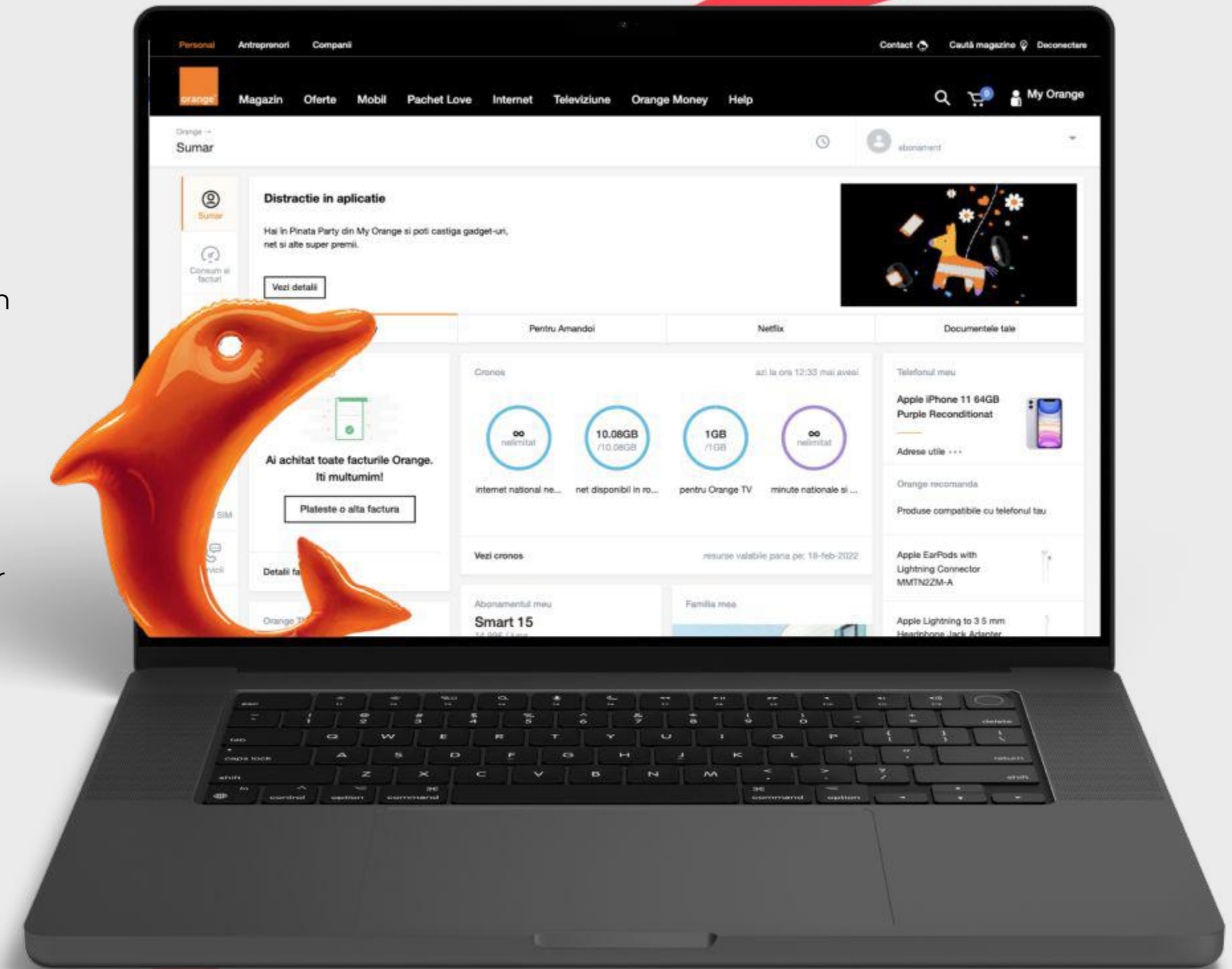
A modern and scalable solution, with a highly usable interface, built to handle more than 10 million users, integrated with several external components: Orange SSO - the Single Sign On services, Avangate ePayment - for recharge and invoice payment, Orange internal CRM, Various web services

Results:

With several releases per week the organization managed to change the perception of the customer care solution from slow moving to an agile delivery process allowing the business for faster answer to the market's needs.

Technologies:

Spring, Hibernate, Memcached, WebLogic, Oracle, JMS, Web Services, Apache JMeter



CASE STUDY RAINMACHINE

>40k smart devices, controlling irrigation
devices: 40.000

Client: _____

Forecasting rainfall for 7 days in advance and using real time temperature and wind data, the RainMachine product lines of smart irrigation controllers dramatically reduce water waste.

Solution: _____

Mobile applications, cloud connectivity to IoT products, two brand new next generation devices, as well as a completely refreshed firmware for their first generation of the forecast sprinklers.

Results: _____

#1 Best Seller on Amazon in its category, Top 7 in Fortune® magazine most useful smart home devices.

Technologies: _____

Android and Linux Kernel driver development, hardware consulting, device firmware (C++ and Python applications), server (Node.js on Amazon Cloud), applications (iOS, Android and Web).

Our services: _____

- Full IoT cloud solution development,
- iOS app and device firmware development
- Network operations
- L2 support



CASE STUDY **ING BAZAR**

**Real time filtering for 1 mil. clients and
+100 million transactions**

Client:

ING is a well known global financial institution and the world's 18th largest corporation by revenue.

Expertise required:

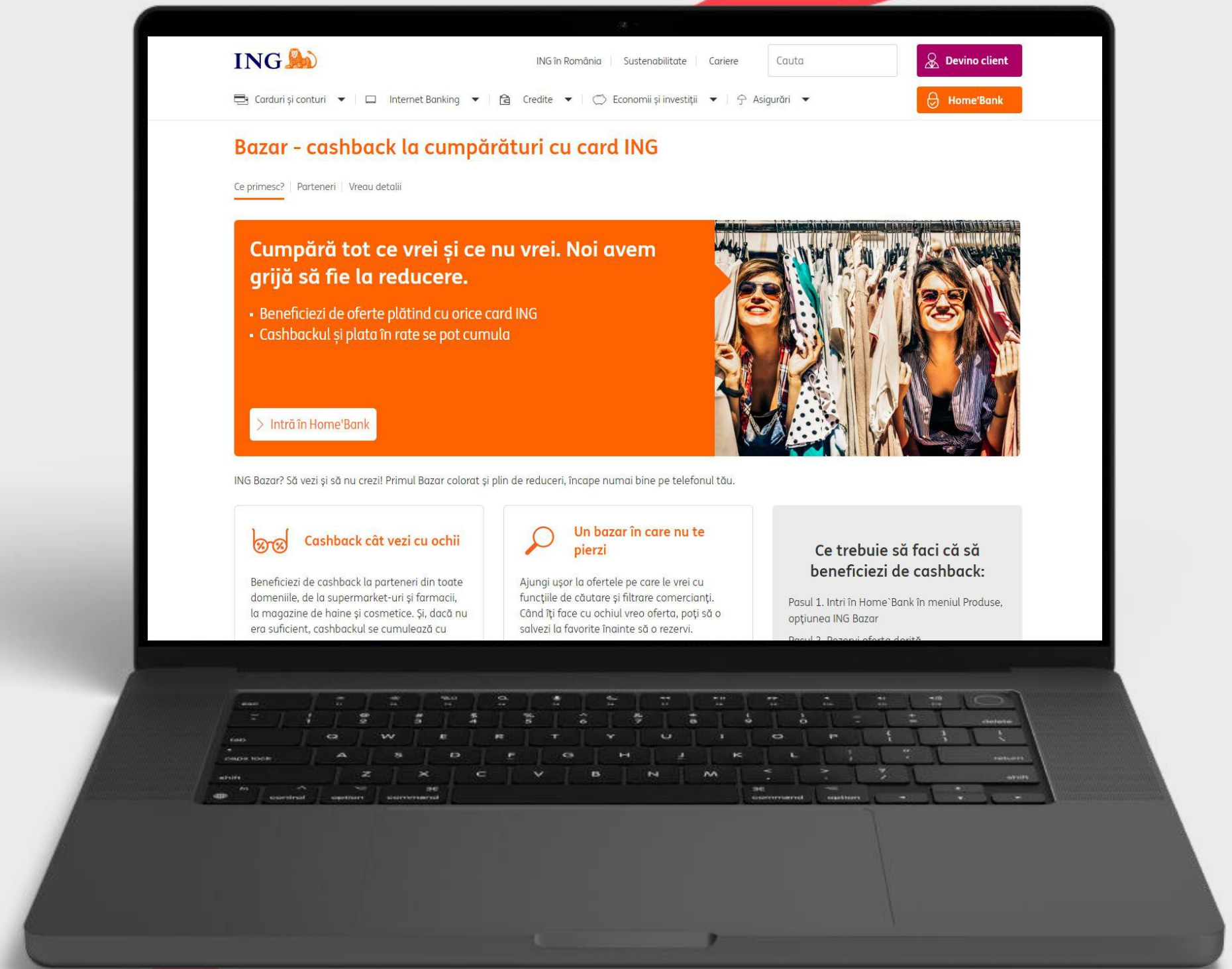
Big data, scalability, security auditing and proofing, system integration.

Project description:

Bazar allows customer segmentation for marketers to build their campaigns. With accurate user profiling based on demographics, shopping history and geolocation, Bazar allows targeting campaigns for specific user groups. Bazar has become a core system within ING and the real time filtering it provides has enabled adoption and integration with various other systems like the internet banking solution.

Technologies:

ElasticSearch, Redis, Varnish, HAProxy, PHP, Magento, Behat, Zend



CASE STUDY WIND RIVER

Automotive embedded systems

Client:

Wind River is one of the largest providers of embedded and automotive software in the world.

Expertise provided:

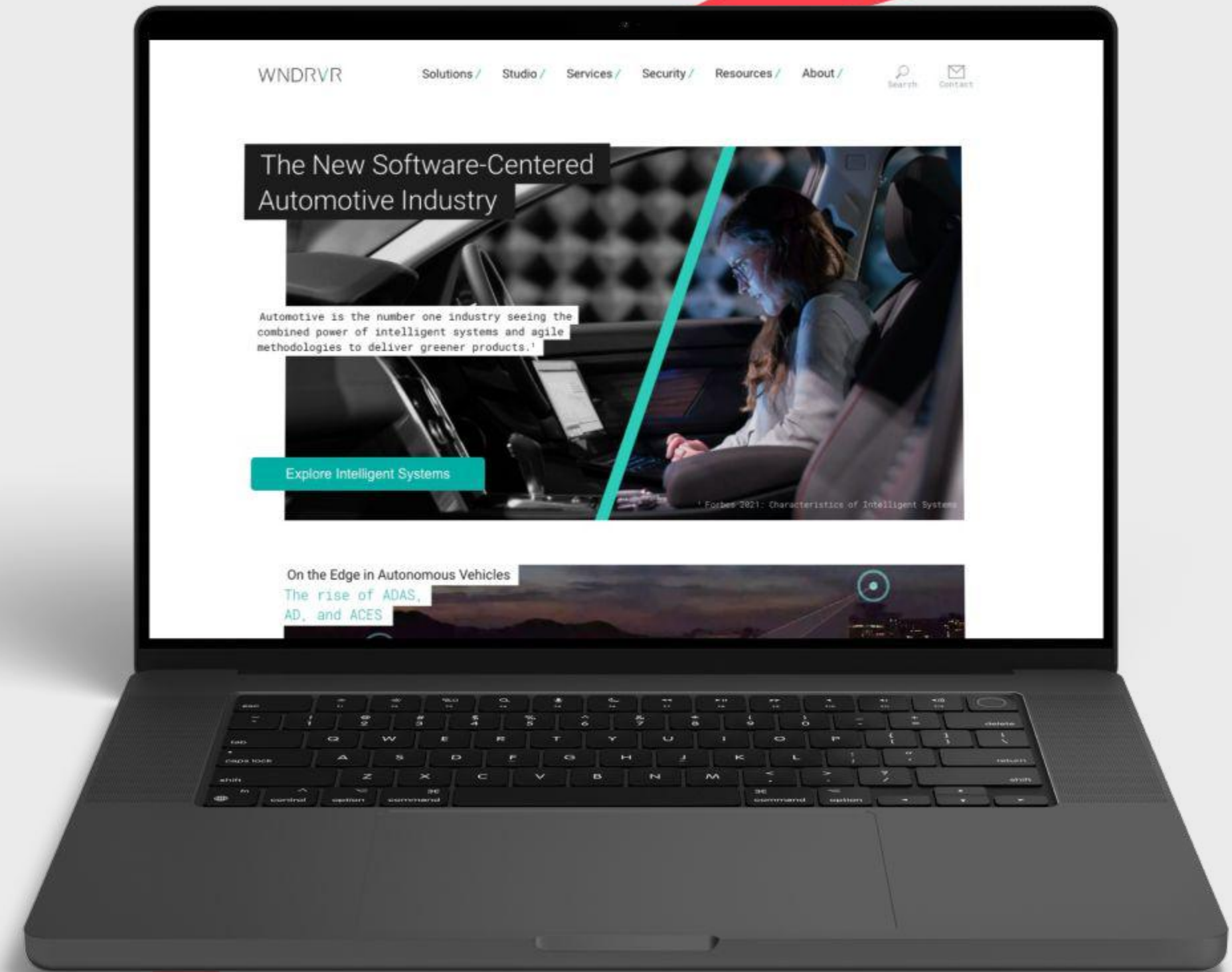
- Automotive Linux systems for infotainment (GENIVI)
- Android-based infotainment systems
 - Smartphone connectivity, Android Auto and Apple CarPlay
 - ISO 26262 functional safety software certification
 - Safe implementation of autonomous driving functions
 - PKI infrastructure and over-the-air software updates
 - Factory flashing and on board diagnosis
 - File system tuning and system boot time optimization
 - Android and Qt user interfaces
 - CAN / MOST / FlexRay car networking
 - Bluetooth and WiFi in-car wireless.

Operating systems:

5 global top car manufacturers using our software

Technologies:

Wind River Linux, Montavista Linux, Yocto, VxWorks



CASE STUDY **FUNCTIONAL SAFETY**

Highly Automated Driving

Tremend has implemented certified functional safety procedures and standards in developing code libraries for the automated driving software project of a leading OEM.

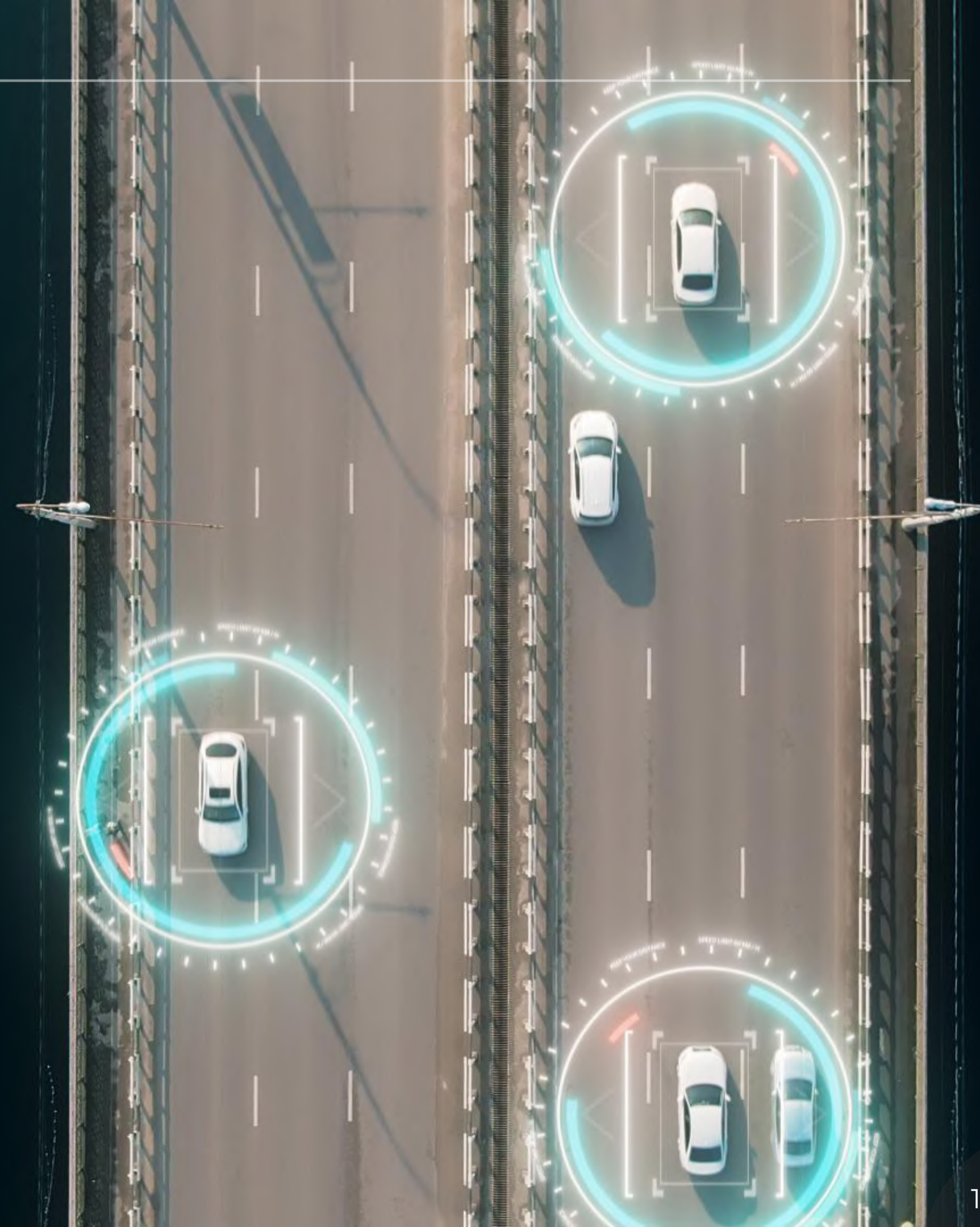
Software implementation follows a certified process of development and testing, using leading edge MISRA C++, Adaptive AUTOSAR C++14, and C++17 features.

Functional safety expertise is ensured by dedicated safety engineers

Agile methods, supported by an automated continuous integration process with static analysis and high MC/DC coverage testing, are incorporated into a V-cycle development model

Results:

ISO 26262 ASIL-D level functional safety software libraries that meet HAD and FAD requirements.



ENGAGEMENT MODELS



Dedicated teams

Scrum teams fully engaged in client's projects



Fixed price

Scope and specifications of the project are clearly defined.



Rapid prototyping

both a software development model as well as a way for Tremend to innovate for its customers before embarking on a large scale project.

HOW WE WORK

Unique methodology

Tremend has developed over 15 years a set of tools and practices that enabled the company to be the fastest growing in the region. This methodology provide unique insights in the delivery, superior to any other current developments.

Security

Tremend employs a Secure Software Development Life Cycle (SSDLC), largely based on the SAMM model from OWASP. Tremend has a delegated security architect (SA) that works closely with the project's technical leader (PTL) and the development team to apply the SSDLC.

Monitor and decrease technical debt

Best practices are supported and strongly encouraged through a variety of internal tools. This allows technical debt to be monitored and kept under control.

Quality assurance

Test plan is defined at project start, covering: testing deliverables, testing types and when they will be used, test automation and chosen testing frameworks, testing tools and programming language, entry and exit criteria (aligned with DOR and DOD for Scrum products), in and out of scope of testing, pass and fail criteria, bug severity levels, environments, test results reporting, measured QA metrics and QA risk analysis.

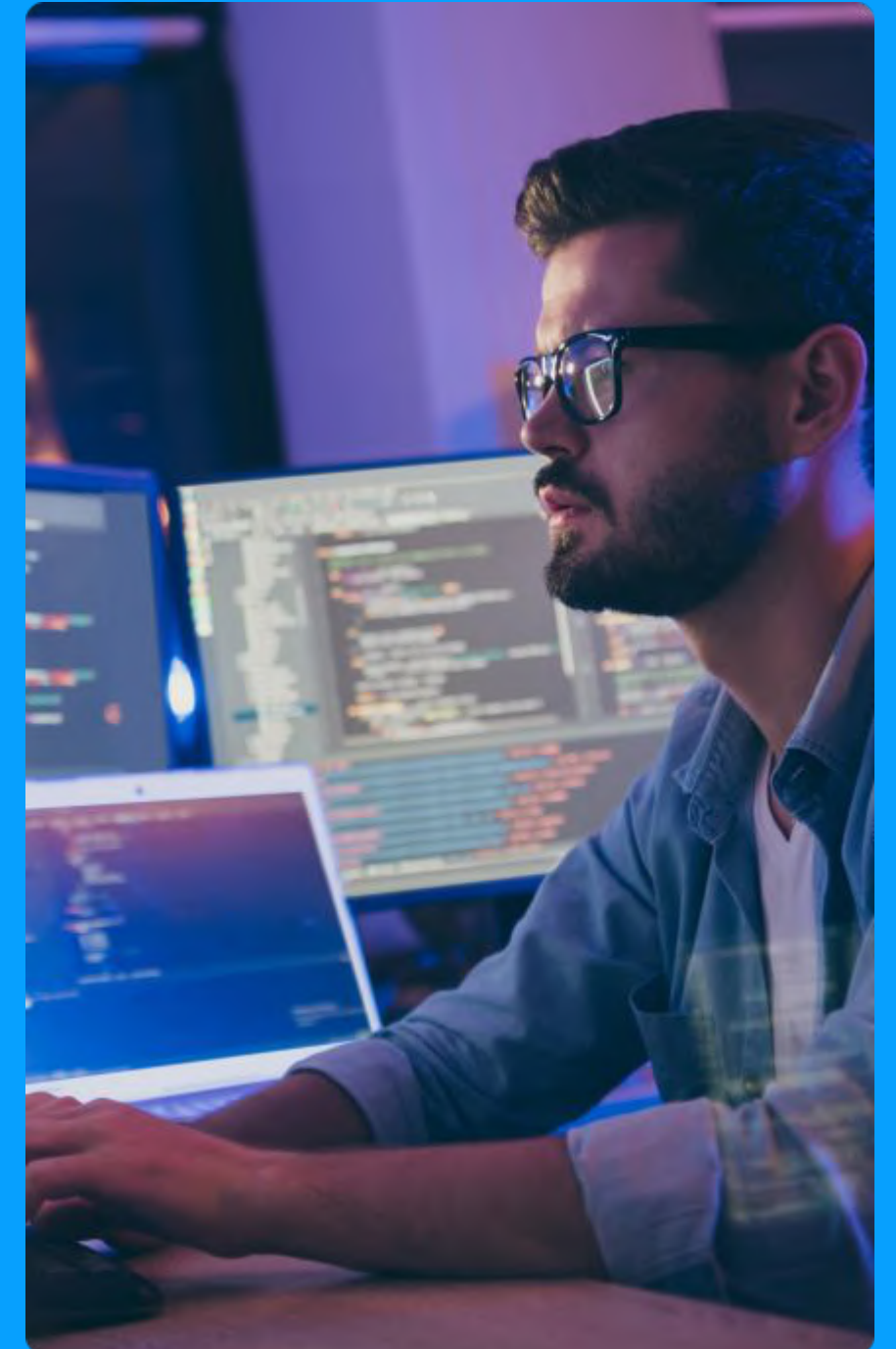
KEY SOFTWARE DELIVERY PRINCIPLES:

Frequent fully functional releases

- Automated end-to-end release processes, testing and multi-staged delivery
- Version control policies
- Code reviews and pull requests
- Well established Definition of Done & Ready for user story, epic, sprint.

TOOLS:

- Atlassian suite (Jira, BitBucket, Confluence) for task management, documentation and source control.
- TestRail for test case management.
- Jenkins - for automating processes and CI/CD pipelines.
- Video & audio calling, Slack, Skype - for communication
- Jira & Intervals for time tracking.
- Internal own written tool bridging processes between all of the above



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