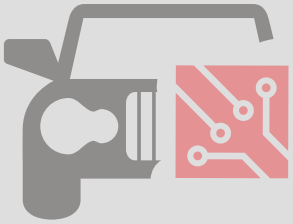
netscribes
RETURN ON KNOWLEDGE

Case Study



Hi-Tech

Exploring the industrial applications of AUTOSAR

Business Challenge

A global power and automation technology giant wanted to carry out a deep-dive analysis of the AUTomotive Open System ARchitecture (AUTOSAR) to explore the possible use of the AUTOSAR communication protocols in industrial applications, such as building, factory, and process automation and evaluate if these protocols befit the requirements of the mentioned industries.

Solution

Netscribes conducted an in-depth study of specific communication protocol requirements in building, factory and process automation domains and developed an appropriate research methodology to meet the client's requirement. The methodology encapsulated a combination of technology analysis, competitive analysis, and business research.

1. Technology analysis

Netscribes prepared a matrix of automation specifications against communication requirements. In light of the communication requirements, Netscribes understood the complete AUTOSAR architecture and developed a possibility matrix on the basis of the identified automotive communication protocols. We carried out a comprehensive review of relevant secondary and patent literature that involved the analysis of:

- Emerging technologies
- Technology roadmap of the top patent assignees
- Technological innovation
- Latest trends
- Preferred technology models

2. Competitive analysis and business research

This phase involved a detailed assessment of AUTOSAR-related products, both current and upcoming, by rival companies and the technologies/platforms used in their development. By analyzing secondary sources of information, such as patents, press releases, and research journals, we determined the demand for and the developments in communication protocols and applications that use AUTOSAR, commercial viability, and scalable standards/ protocols. Their compatibility with adjacent sectors such as building, factory, and process automation was assessed based on a need analysis and a corresponding communication protocol applicability matrix (automotive against building, process and factory automation).

Results delivered

Netscribes delivered a detailed report on the feasibility of implementing AUTOSAR in industrial applications, which explained:

- The relevant protocols, functionalities and possible applications
- The software aspects used in the key communication protocols
- Performance parameters such as the response times involved when a specific communication protocol is initiated in vehicular communication.
- The feasibility of implementing possible communication protocols in domains other than automotive

Sample Output

Fig 1

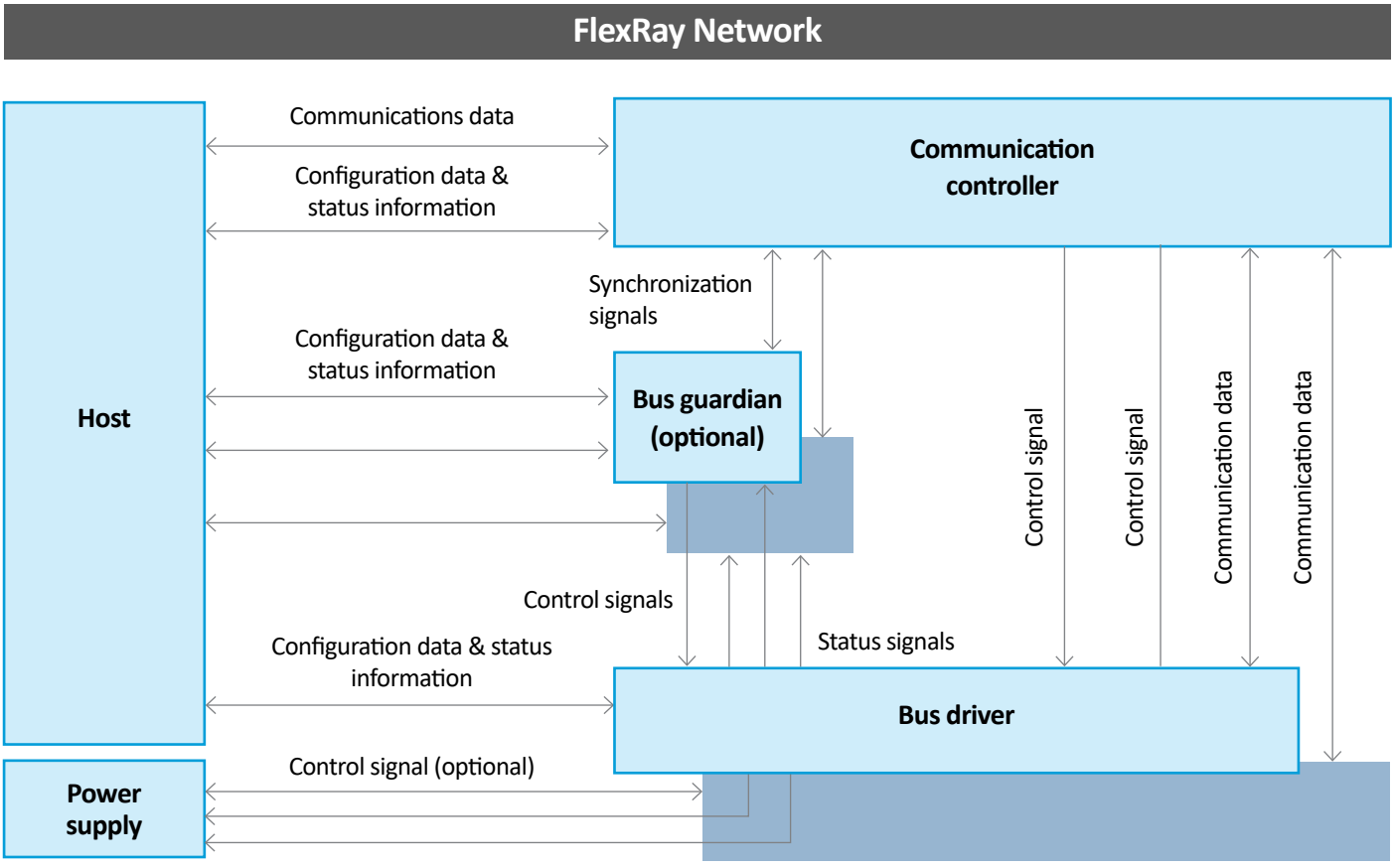


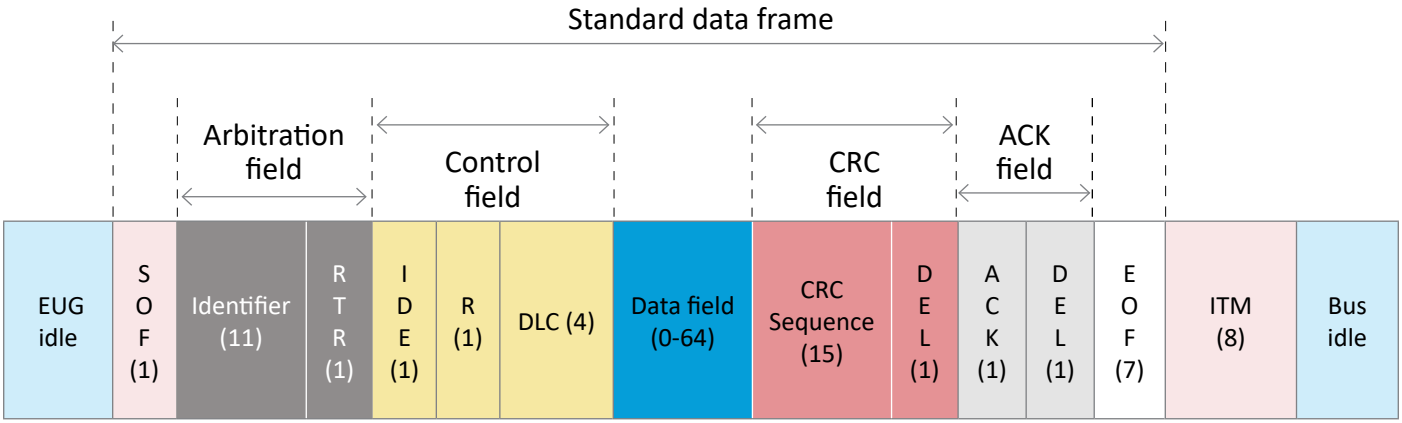
Fig 2

Possible interactions between AUTOSAR BSW layers

	System services	Memory service	Communication services	Complex drivers	I/O Hardware abstraction	Onboard device abstraction	Memory hardware abstraction	Communication hardware	Microcontroller drivers	Memory drivers	Communication drivers	I/O Drivers
AUTOSAR SW Components/ RTE	Y	Y	Y	Y	Y	N	N	N	N	N	N	N
System services	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y
Memory service	Y	Y	N	N	N	N	Y	N	N	N	N	N
Communication services	Y	Y	Y	N	N	N	N	Y	N	N	N	N
Complex drivers	**Restricted access**											
I/O Hardware abstraction	Y	N	N	N	Y	Y	N	Y	Y	N	Y	Y
Onboard device abstraction	Y	N	N	N	N	Y	N	Y	Y	N	Y	Y
Memory hardware abstraction	Y	Y	N	N	N	Y	Y	Y	N	Y	Y	N
Communication hardware abstraction	Y	N	Y	N	N	Y	N	Y	N	N	Y	Y
Microcontroller drivers	Y	N	N	N	Y	Y	N	N	R	N	N	R
Memory drivers	Y	N	N	N	N	N	Y	N	N	N	N	N
Communication drivers	Y	N	N	N	N	Y	N	Y	N	N	N	Y
I/O Drivers	Y	N	N	N	Y	Y	N	N	R	N	N	R

Fig 3

Data frame in CAN



Outcome

The study helped identify the most relevant AUTOSAR communication protocols and enabled our client to assess the feasibility of implementing AUTOSAR in specific business areas.

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