New Business Area

Embedded software development independent of the ECU hardware platform

ETAS has added RTA Engineering Services to its portfolio, establishing itself in the market as contract developer for high-quality, customer-specific embedded software. In the following interview, Dr. Simon Burton, Director Global Embedded Software Services at ETAS, discusses the background to Real Time Applications (RTA), changes in the embedded software market, and the ETAS solutions that help actively shape these changes.

Dr. Burton, by setting up RTA Engineering Services, ETAS has broadened its portfolio to join the ranks of contract development suppliers already in the market. Why should customers select ETAS as their preferred supplier?

Dr. Simon Burton: ETAS has been involved in the embedded software industry for over 20 years, developing embedded software components for real-time systems that are of the highest reliability and quality. Today, there are already more than 1 billion ECUs with operating systems and AUTOSAR runtime environments in operation on the world's roads, and that number is increasing all the time. ETAS has the know-how not only to develop the most reliable embedded software, but also to make products that meet the highest safety and security standards. We're now taking this expertise and using it to develop customer-specific embedded software application components.

What's behind ETAS' current desire to establish itself in the market as a provider of embedded software development services, and to extend its traditional portfolio of tools?

Dr. Simon Burton: RTA Engineering Services is our response to the way the value creation chain is changing in relation to embedded systems and specifically embedded software. We estimate that the size of the accessible automotive market in this segment lies between 0.5 and 1 billion euros per year. Back in 2011, it was still OEMs and Tier 1 suppliers who were carrying out the lion's share of software development (we estimate some 85 percent).

Nowadays, customers are increasingly ordering their embedded software solutions separately from their ECU hardware. It's very apparent to us that OEMs and their suppliers are pursuing strategic goals in doing so; they want to reuse their software on the one hand, while on the other keeping complete control over the intellectual property, the bulk of which is the software. As the value creation chain continues to divide and separate, the share of software development being carried out by service providers will increase to as much as 30 percent by 2020. We are responding to this trend by offering our customers specific embedded software solutions that are independent of their hardware platforms.

Where does this new service fit into the existing ETAS portfolio?

Dr. Simon Burton: RTA, which stands for Real Time Applications, originates in England. In 2003, ETAS acquired Live Devices, a company based in York. ETAS went on to establish its Center of Embedded Excellence at its York location, which is where our RTA expertise has its roots. York is the crucible in which we created the successful RTA-OS and RTA-RTE products, which are currently in use in millions of ECUs around the globe.

Our RTA Solutions business area now enables us to combine three elements to provide our customers with a complete portfolio of embedded software development solutions for their ECUs. The first

Dr. Simon Burton

studied computer science at the University of York before going on to obtain a PhD in "Verification and validation of safety-relevant systems" there.
He has gained professional experience in numerous sectors, including the telecommunications, aerospace technology, and automotive industries.
His main focus over the past eleven years has been on automotive embedded systems research and development projects, and he spent a large portion of this time at a major automotive manufacturer.
Dr. Burton also advised automotive manufacturers, Tier 1 suppliers, and service providers on how to increase their systems engineering competency, focusing on process improvement and functional safety.
In his role as Director of ETAS Embedded Software Services, Dr. Simon Burton has global responsibility for embedded software consulting and functional safety as well as for customer-specific embedded software development services.

of the three is our varied consulting portfolio; the second is the development services we offer through RTA Engineering Services; and the third is our range of embedded software products, which includes AUTOSAR Basic Software, operating systems, and configuration tools.

Are you still in the process of setting up this service or have you already completed your first customer projects?
Dr. Simon Burton: Over recent years we have built up a global network of embedded software consultants based in offices at our customers' locations. These hubs, as we call them, represent a worldwide network of experts with whom we are already carrying out series production projects for different customers in areas such as AUTOSAR Basic Software. Our customers greatly value their proximity to and close working relationship with our on-site contacts. We are making use of these existing structures to offer localized application software development and software integration services. Right now we are in the process of establishing further ETAS locations that will be dedicated to RTA Engineering Services. In spring 2014, we expanded our global presence via the addition of hubs in Chicago, USA, and Turin, Italy.

Different providers of software development services have different capacities and offer differing degrees of flexibility. Which project sizes are you capable to deal with?
Dr. Simon Burton: We have access to a comprehensive team of developers who are responsible for developing the embedded software for ECUs made by Robert Bosch GmbH. We dipped into this pool of expertise assembled by Bosch and used it to establish our own development resources, which we have located in India and Vietnam. It is important to note that in terms of intellectual property, this team functions absolutely independently of Bosch and is entirely at RTA Engineering Services' disposal. Having these development capacities backing up and underpinning our service portfolio means we can react flexibly and deliver projects on any scale.

Which domains is ETAS targeting with its RTA Engineering Services?
Dr. Simon Burton: Our services are aimed at anyone looking to develop high-quality embedded software that meets the highest safety and security standards. Traditionally we have been active across all vehicle domains; our many years of automotive industry experience have brought us expertise in areas such as powertrain, chassis system, body, and infotainment. We have also carried out successful projects in the off-highway sector, for instance in the field of agricultural and construction machinery technology. This area is experiencing very strong growth, and is one we will definitely focus on in future.

What is it that sets ETAS clearly apart from the competition? Why should customers choose ETAS to develop their embedded software?
Dr. Simon Burton: We are a global company that has been providing innovative solutions for the development of embedded systems for 20 years. As mentioned earlier, we offer our customers on-site support at their own locations all over the world. Our unique combination of localized expert assistance backed by our Center of Embedded Excellence and supported by the development resources in our offshore development centers allows us to offer a competitive pricing structure for our services. Our competitive prices are not just a result of having resources in India and Vietnam, by the way; they are also the result of our local expert hubs at our customers' locations. "Proximity to the customer" is what it's all about. Yet another of our unique selling points is that we offer a uniform standard of quality worldwide. Customers can be sure of the same high quality from our RTA Engineering Services that they have come to expect from ETAS products. I would also like to point out that our software is developed according to CMMI Level 3, and that we have years of experience of applying ISO 26262 and other safety standards to software development.