

IBM Podcast

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MATHENY: Welcome to this IBM Podcast, Getting real-time right, IBM selling INCHRON solutions. I'm Angelique Matheny with IBM. Electric and electronic components and systems with their embedded software are driving innovation in most of today's products.

IBM Rational and INCHRON, a leader in embedded system design solutions, are teaming to provide their comprehensive model and simulation based systems engineering solution which addresses many challenges within the electric and electronic components and systems.

The new agreement entitles IBM to resell the INCHRON tool suite. IBM can now offer its clients an integrated solution for model-driven development including timing and performance analysis and validation.

And here to join us in the conversation is Mark Lefebvre, Director, Systems Alliances and Integrations, with special guest Uwe Brodtmann, CEO of INCHRON. So, welcome to you both. Thanks for joining us today.

LEFEBVRE: Happy to be with you, Angelique.

BRODTMANN: Thank you.

MATHENY: Mark, I'm going to start with this. IBM Rational and INCHRON just announced that they're partnering in order to address the major challenges in the development of automotive in vehicle software and electric and electronic systems. Amongst others, it was stated that IBM will resell INCHRON solutions.

For the beginning of our podcast, I'd like to ask our guest, Uwe, could you please give us a short description about INCHRON and the INCHRON solutions?

BRODTMANN: Sure can, my pleasure. Well, a few words on INCHRON. The company was founded in 2003 based on research done at the University of Erlangen-Nuremberg in Germany that started in '96. So the founders of the company looked back at 15 years of experience in this field.

We are focusing our activities on solutions for the development and quality assurance of real-time critical software for ECUs and networks. So, for embedded systems and embedded systems networks.

And our claim is, think real-time, and that probably says it all. If you look at why the dynamic real-time behavior is important in embedded systems, have a look at, for example,

an airbag system in your car. Now, imagine the software does all the calculation right, but is a few milliseconds too late. The problem, or the error, is absolutely apparent.

Our solution -- so, our tools and our know-how -- enable our customers to manage real-time risks throughout the whole development process, and that is where we fit into the IBM solution package so very well, because we add something that the IBM solutions do not contain as of now.

MATHENY: So, Mark, how are these INCHRON capabilities integrated within the IBM offering?

LEFEBVRE: Well, to begin with, the IBM Rational software platform provides an integrated support throughout the electric and electronic systems and embedded software development lifecycle. With industry leading capabilities, Rational software can help our clients define, specify, model, implement, test and integrate in-vehicle electronic and electrical systems and software.

One of the best practices which we are providing with our platform is what we call Model-Driven Systems Development or the acronym MDSD. The Rational product offering Rhapsody allows engineers to model vehicle functions including the logical and technical architecture of in-vehicle electrical

and electronic systems as well as single component or what we refer to as ECUs or Electronic Control Units and the embedded software that's contained within these ECUs.

So, these models can be exported to the INCHRON toolset which use this information for simulation and validation of timing and performance requirements as Uwe just explained. Information about the structure of the system, its behavior as well as information about timing constraints and performance requirements, don't need to be specified twice.

The information is only created once within our MDS approach in Rhapsody and can be reused by INCHRON downstream and throughout the design and test cycle. But the INCHRON solutions are not only used in combination with IBM Rhapsody, our modeling capability. In addition to modeling, we also have timing requirements in Rational DOORS, test cases in the Rational Quality Manager, and also Rational Team Concert for collaboration.

Therefore, throughout all of these engineering activities, we have support by the Rational software platform and the INCHRON simulation and validation tools are tightly integrated into this platform.

BRODTMANN: Mark, maybe we should take a closer look at the integration with DOORS. DOORS is a de facto standard in

automotive and many other industries as well to manage requirements in general. And we now clearly see an industry trend towards integrating the management of real-time requirements as well.

Doing that, our customers and using our tools to test against these real-time requirements, our customers can get a better understanding of the timing effects of design decisions early in the development process that are based on timing requirements they have set up.

They can determine the feasibility of integrating new functionality if they have to. They find root causes of errors seen in the dynamic behavior of the real-time system.

And they can analyze the robustness of the system under average and extreme load conditions. And all that, again, and we see that as a very important point linked to real-time requirements that have to be specified early in the development process and then can be very well put down in DOORS and tested against in our tool suite.

MATHENY: The announcement included some statements from existing customers, namely from Continental and Hella. Both are well-known automotive suppliers. Uwe, is INCHRON only looking to the automotive market?

BRODTMANN: Well, INCRHON is very strong within the

automotive industry because when we developed the company, we were focusing on the automotive industry as they have very strong needs for real-time capable solutions. And obviously, starting activities in Germany, we have a very strong automotive industry in Germany.

However, we are now moving into other industries and other areas just like aerospace and defense, train, medical, electronics, telecoms, et cetera. And if we look at companies that are using our solutions, EADS is a big supplier, or even OEM, in aerospace and defense, is a very good example.

Assume or think about what is going on in an airplane in terms of electronics. It's probably very easy to understand what the real-time needs in that field are just as in automotive.

LEFEBVRE: This is Mark. I'd like to add that IBM has a focus, obviously there's a niche or a need in providing solutions such as this to our automotive customers; however, simultaneously we continue to work with clients and partners in other industries such as aero and defense and medical device customers...

So that clients within these industries, as Uwe mentioned, face very, very similar challenges around timing and

performance, and our approach is therefore suitable and of great value to these clients and these industries as well..

MATHENY: And our last question today, and I'll point this to you first, Mark. How would you both describe the benefits of the IBM and INCHRON modeling integration?

LEFEBVRE: Well, first of all, the Rational and INCHRON integrated solution, I think it's very clear to our clients that we can help them in all stages of system modeling. And so the value proposition begins with....

-- Discovering and describing what their electronic and electrical system should do; and then

-- Designing the systems architecture and evaluating alternatives;

-- Defining how that system will react on selected stimuli and events;

-- Specifying formal behavior and executing it to validate that behavior;

-- Integrating the timing requirements and constraints into these models; and then, finally

-- Validating the system performance and timing behavior.

As a result of this, manufacturers can now realize efficiencies in the development process and avoid time- and cost-intensive redesigns by detecting these functional, timing and performance issues earlier in the design phase and therefore have the opportunity to evaluate alternatives early in the design phase.

So, to kind of net it all out, with a tight integration between the INCHRON software capabilities and IBM's Rational software capabilities, users will gain a seamless development tool within which information between these electronic or electrical models and timing simulations are automatically exchanged. And maybe Uwe can add to this.

BRODTMANN: Yes, sure. Well, for example, if new timing and resource allocation information is added to the Rhapsody model, that information is automatically imported to be taken into consideration by chronSIM software.

This at the end of the day means that only one electric and electronic model includes virtually all required information, leading to consistent data and improved efficiencies, because all relevant information is kept within one model only.

Maybe an interesting information in that respect, we did a

survey just a couple of weeks ago within the automotive industry, and we're addressing Tier 1 suppliers and OEM with the question whether they thought that a higher level of integration of different tools in their tool chain would increase productivity.

Eighty-eight percent of all suppliers and even 89 percent of the OEMs stated that the higher level of integration would have a really high impact on productivity in their development process. And obviously as INCHRON was driving the survey, questions were related to the tool suite in terms of dynamic behavior.

So, we clearly have a statement from our customers that they see the need for higher integration, and that is exactly what IBM and INCHRON are going to provide, we're already having an absolutely unique value proposition for our joint customers.

LEFEBVRE: This is Mark again, and I'd just like to close by adding that this new reseller agreement allows us as IBM in partnership with INCHRON to resell the INCHRON solution so that our clients can benefit from an integrated solution from a single source.

So now as a result of this reseller agreement, IBM can offer our clients an integrated solution for model-driven

development which includes timing and performance analysis and verification, which is consistent with our stated strategy for the embedded systems and complex systems market.

MATHENY: Mark and Uwe, thank you so much for sharing your time today. Great discussion, and we really appreciate it.

BRODTMANN: My pleasure.

LEFEBVRE: Thank you for having us.

MATHENY: That was IBM's own Mark Lefebvre, and very special guest, Uwe Brodtmann with INCHRON, discussing Getting real-time right, IBM reselling INCHRON solutions, a new model-driven approach for performance simulation and validation.

To share this podcast with your colleagues or if you're interested in more podcasts like this one, check out the Rational Talks To You Podcast Page at www.ibm.com/rational/podcasts. We'll post a link to the white paper titled, Get real-time right, developing innovative automotive systems to help get you started. Check it out today.

This has been an IBM Podcast. I'm Angelique Matheny. Thanks for listening. Keep tuning in as Rational Talks To

You.

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