Meet Keysight EDA’s Master Software Architect: Q&A with Tom De Muer

Keysight’s EDA business runs on talented people like Tom De Muer, PathWave Software Solutions (PSS) Master Architect. To learn more about his software architecture vision, we spoke with Tom via Microsoft Teams from his home office near Ghent, Belgium.

**Q:** Let’s start with a bit about you – what got you interested in a tech career, where did you go to school, and what did you do before Keysight?

**Tom:** Since an early age I was curious about things I thought engineers would work on, like car engines, radio, TV. My parents bought me an IBM PC XT when I was 12. I started programming in BASIC. While still in high school, I wrote a custom reporting tool for the school district.

I earned a master’s degree in computer science and electronic engineering at Ghent University. I stayed studying acoustics for a PhD, working in the same lab with electromagnetics (EM) researchers. My project was environmental noise simulation tools – predicting where noise would happen, how people would react psychologically to noise. I’m proud that those tools are still in use by noise policy makers in Belgium now 20 years later. That taught me about constructing software for the long term, how it must serve some customer use or purpose. Then, I worked for one year at IMEC in the software branch looking into commercialization of some of my work before I joined Keysight.

**Q:** How long have you been with Keysight? What’s the most exciting thing you’ve worked on? How have you seen things evolve since you started?

**Tom:** I joined Keysight in 2006 with a cohort of new recruits tasked with reviving 3D EM simulation products and business. Our EM R&D team interviewed many customers worldwide. They asked us for tools that didn’t require them to become EM experts. So non-EM experts can achieve good results without knowing the depth and complexity of the simulator. At DesignCon 2016, after about 4 years of R&D, I helped launch PathWave SIPro and PIPro for high-speed digital design.

At Keysight EDA today, we are working on more than simulation technology advancements. We’re focused on making customers successful in end-to-end workflows. We spend just as much time thinking about solutions as we do about point products. We’re evolving from a toolbox for specialists to interoperable, multi-domain solutions.
**Q:** Tell us about your role as Master Architect for PSS, and how your efforts connect to the business.

**Tom:** It’s a mix of operational and strategic work, setting a consistent course for PSS. Day to day, I connect our broad product portfolio marketing and development teams together and with customers. I offer guidance and options for them to decide what to work on and how to architect it.

On a strategic front, I look out farther. We’re creating opportunities in adjacent markets. What’s the landscape look like in future years? Do we do individual solutions or platforms? How do we use cloud data? How do we continue sustaining our products with the right architecture for the next decade?

**Q:** Help us understand why software architecture should be important to Keysight’s customers. Why do they choose Keysight EDA technologies for solving their problems?

**Tom:** Software architecture is largely about the customer experience. Fundamental choices define how customers and systems interact with our product portfolio. One example is choosing browser-based delivery. Another is partitioning the user interface from the simulation back end, developing each separately for support of automation.

Defining the right software architecture helps Keysight products fit into a customer workflow. It reduces time to market, for us and them. It makes our software adaptable for adjacent markets.

Designers choose us for performance and accuracy in reaching fast, accurate answers. They want an easier to use workflow that doesn’t demand they be simulation experts. They get flexible solutions giving them more capability to adapt to their flow.

![Figure 1: PathWave Design integrated tool suite.](image)

**Q:** You were elected chair of the Computational Electro-Magnetics Workgroup (CEMWG) for NAFEMS (National Agency for Finite Element Methods and Standards). How does Keysight participate there?

**Tom:** The CEMWG works with vendors, industrial partners, and academia on a wide range of EM applications. Keysight brings deep experience in simulating high frequency EM behavior. We get back a lens into the industry with more perspectives and different ideas. We also get a broader view of simulation, data management, and virtual engineering trends across NAFEMS. Our goal is propagating EM simulation as a trusted tool for design and verification. We’re thinking all the way to where people sign off complex designs based on simulation results.
Q: You’re also involved with Si2 – the Silicon Integration Initiative. What are they up to?

**Tom:** Si2 is working the TITAN initiative, exploring interoperability across the EDA ecosystem. It bridges the OpenAccess and OpenStandards efforts to broader interoperability. Keysight wants a front row seat in shaping the TITAN specifications. We’re part of Ethernet standards, USB standards, and now it’s time for us to guide EDA software architecture standards.

Q: How does Keysight EDA fit in the corporate picture? How do you work with those teams?

**Tom:** Test and measurement is a given at Keysight. We have a healthy base of internal and external Keysight EDA customers, some long-term users. And there’s a growing space of designers facing complex system-level challenges who haven’t seen everything Keysight EDA is doing yet. We think EDA software and test and measurement hardware can do more working together for them.

I host regular meetings with architects in other Keysight business units. We discuss broader software architecture issues and sharing best practices across teams. We’re moving those efforts into Keysight-wide initiatives and we’ll be able to talk more openly soon.

Q: What do you think is lacking in EDA right now? How can Keysight address these opportunities?

**Tom:** We talked about interoperability. Walled gardens, siloed tools, and non-portable data sets are also problems. Workflow automation needs help, customers are left to solve too much.

Keysight is moving up the EDA stack, enabling higher level systems design and detailed component design. We’re also looking at “a day in a designer’s life,” challenging assumptions about how tools should work. The idea of simulation for design sign off is also a big opportunity.

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**Figure 2:** PathWave Design RF & Microwave design flow.
Q: In closing, if you had three wishes for transforming Keysight’s EDA software development and deployment process, what would they be?

Tom: One that comes to mind is better cross-pollination between Keysight divisions developing software. Another is adding more value for our customers through integration with some unique high value tools in their workflow – or acquiring those tools. I’ll save the third for later as our strategy unfolds.

Visit our web site to learn more about Keysight EDA’s leadership team.