In this interview, EPIC's CTO Jose Pozo talks to Hugues Tournier, a keynote speaker at the upcoming EPIC meeting on "Optical Communications: Coherent or Incoherent" to be held in Mainz , Germany in March 2019.

Background

After graduating with a BE in Electrical, Electronics and Communications Engineering and Business from University of Ottawa, in 1993, Hugues worked as a reflectometer designer for JDSU. This was followed by a period as a firmware and hardware designer for Bell Northern Research (BNR) and then a position as technical supervisor and designer of hardware PCB development at Nortel. In 2010 he moved to Ciena, where he is now Manager of Power and Signal Integrity, supervising firmware and hardware projects related to high speed transmission for transport at Ciena.

Hugues is also co-holder of three patents for an optical monitoring system, an active heatsink lid and a multi width wave guide.

JP: Ciena is shocking many people with the news that 800Gbps solutions are here. Are they available now?

HT: Yes, we will be delivering 800G solutions with WaveLogic 5 at the end of this year. It is certainly an impressive solution, but that's Ciena - once again redefining what is possible on today's networks.

JP: How long can we keep doubling?

HT: We will continue to push the limits of what's possible from a technology perspective. Right now, we're going at a fast pace following Moore's law for CMOS integration, and we will use a combination of innovative technology and networking expertise to address our customers' networking challenges.

JP: But are there any physical limitations: can we go to 1.6 or 3.2Tbps?

HT: While we can't predict if there will be physical limitations what we can say is right now we are focusing on delivering the industry's first 800G solution to the market and addressing our customers' challenges.

JP: I've noticed that Ciena, like other successful companies, has good connections with R&D and other companies in the ecosystem. How much of this is due to you being based in Canada?

HT: One of our many advantages is that we are a global company built on a strong foundation of innovation and industry relationships.

JP. Why is coherent technology emerging as a hot topic for 2019?

Coherent technology is not new. Ciena pioneered coherent technology for commercial optical systems in 2008. As operators are undergoing network transformation initiatives, they are

expanding the role of coherent technology across more areas of their network, to take advantage of capacity scale and ease-of-use benefits of the technology. We have a proven track record in industry-leading coherent technology innovation that has completely transformed the networking landscape…first to deliver 40G, 100G, 400G and now 800G.

JP: What about packaging issues? Coherent transceivers generate a lot more heat and consume more power and need integration of the electronics and silicon photonics. Do you think there needs to be more R&D on packaging?

HT: Yes, we need further R&D. We started with III-V materials and then indium phosphide and now integration with silicon photonics. It will never stop. We need to rethink packaging and manufacturing so that solutions can evolve to meet changing needs. Increasing R&D funding for packaging is critical.

JP: Could you say something about your activities on setting standards with COBO

HT: We reached an agreement on the 1.1 specification last year; this described the repackaging of an on-board optics solution. We have a range of different pluggables and now we're working on the co-packaging of on-board optics.

COBO has several benefits especially in the area of thermal dissipation. There are only a few existing standards today. Moving forward, we will need further packaging standards for 400G, 800G and 1.2 Terabits.

JP: Part of COBO's work is on coherent: what have you achieved in this area?

HT: We've worked together with the DCN working group to define the form factors that will allow the coherent DSP engines into the COBO form factor. We picked C-class, the longest form factor, which will enable the DSP engine and the optics to work together for both indium phosphide and silicon photonics. We've also completed the application notes that will be released soon. The application notes will provide guidance on integrating coherent DSP engines into COBO.

JP: What is COBO doing to reach out to the rest of the world?

HT: We currently have 70-member companies within the organization. Right now, we are working with our Marketing Committee to increase awareness, on a global scale, about our current and future plans. We're also offering guidance to organizations who want to use COBO in a transceiver.

If you would like to know more about the topics discussed in this interview, you can see Hugues Tournier in person at the upcoming EPIC meeting on "Optical Communications: Coherent or Incoherent" to be held on 21& 22 March, 2019 at HUBER+SUHNER Cube Optics, Eindhoven-Allee 3, 55129, Mainz, Germany

Registration and more info