

Q&A with Philippe Babin, CEO of Aeponyx Inc. developing Optical Chips using Silicon Photonics and Planar MEMS circuits to create Micro Optical Switches for Telecommunications and Data Center Applications that enable better and faster Video Streaming and Data Management



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CEOCFO: *Mr. Babin, according to the AEPONYX™ Inc site, you are 'moving the cloud at the speed of light.' What is happening at AEPONYX?*

Mr. Babin: We are developing optical chips using Silicon Photonics and planar Micro-Electro-Mechanical-Systems (MEMS) circuits to create micro optical switches for telecommunications and data center applications. This will dramatically increase the amount of data transmitted by fiber optics at lower costs with much lower power usage. In the telecom sector alone, this represents a \$1 billion market for our transceivers.

CEOCFO: *What are the challenges with an optical chip?*

Mr. Babin: The key challenge was to come up with a new, low cost technology to help our clients build next generation networks using their already deployed fiber, something they must do to satisfy bandwidth growth while offering universal access to homes, business and mobile, including the upcoming 5G network.

CEOCFO: *What is it that you understand about technology that is letting you do this, that is allowing you to come up with an appropriate product?*

Mr. Babin: Basically, the key invention, the novelty of AEPONYX, came from reusing existing technologies that were built to create very low-cost chips for any sort of application. For this, we are using MEMS (Micro-Electro-Mechanical-Systems) technology and processes that are used to build chips for mobile phones or automotive or to build sensors and gyroscopes. Using that low-cost technology as a starting point, we found a way to develop material properties capable of doing optical applications; the result, a micro optical chip. This approach enables us to increase the switching speed by a factor of 100, and reduce cost by up to 10 times.

CEOCFO: *Are many people working in this area?*

Mr. Babin: Yes and no. There are many people working on silicon photonics technology. You will see new products developed by companies like Intel and Cisco. They are all using traditional silicon photonics to create applications for data centers. This is a known world. Our novelty is to use a different material, silicon nitride, combined with the MEMS, to create a revolutionary solution. This is another area where we are coming up with a lot of new IP in technology.

CEOCFO: *What is it about this material that allows for a better, faster solution?*

Mr. Babin: The silicon nitride we use has lower losses than the silicon when it comes to transporting the light because it is a better conductor. That enables us to do longer distances and be able to support more power, which is exactly what the telecom industry needs.