

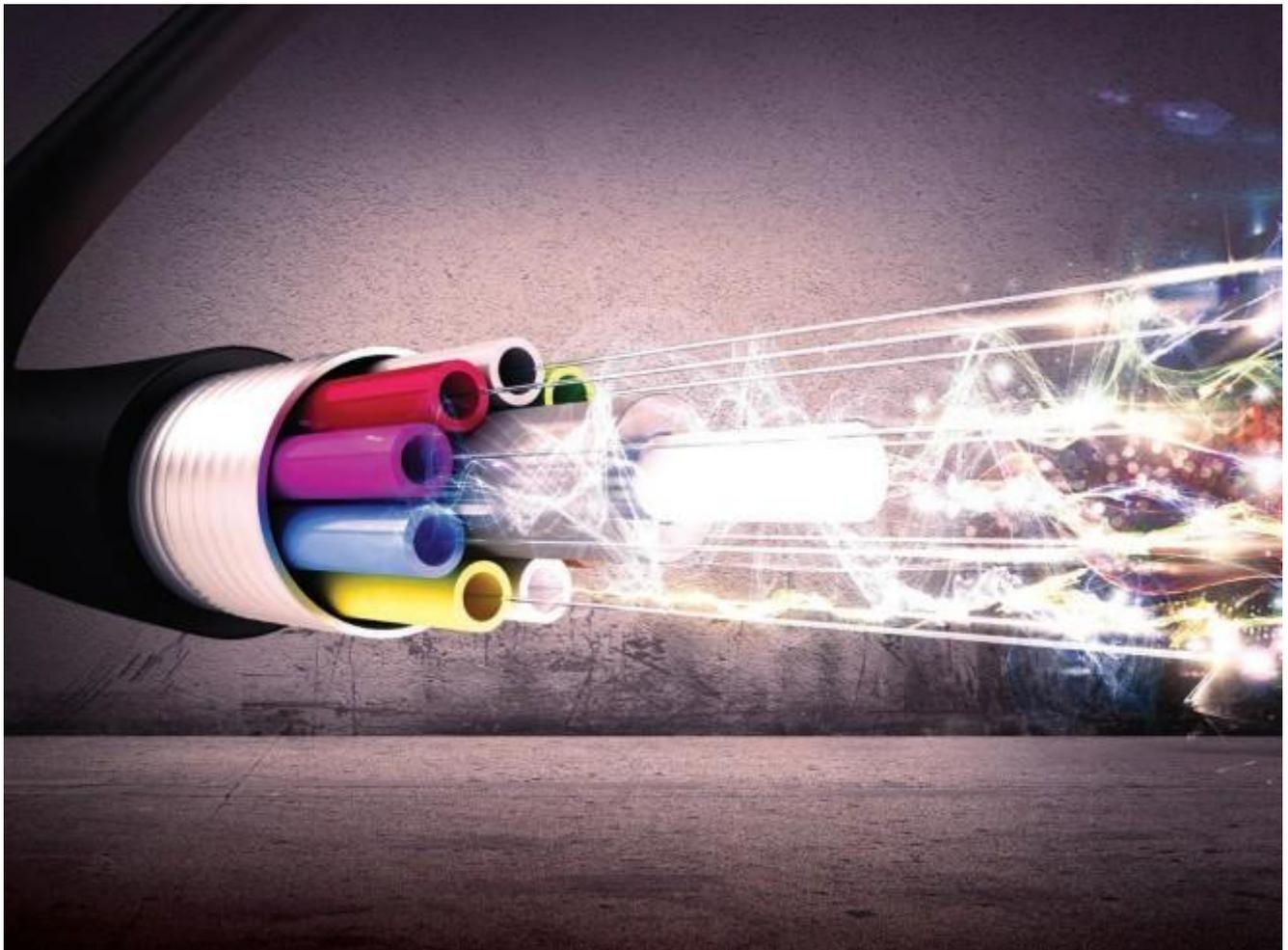


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Scalable optics: New lanes laid for the 'Internet of Things' super-highway

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Since I can remember, the digital world has always needed, or better, wanted more bandwidth. For the Internet of Things (IoT) to scale to two to three times the current size of connected devices over the next four to five years as forecast, major leaps in bandwidth will be needed. These leaps forward are indeed being taken – and they're big!

Thanks to the NetEvents IoT and Cloud Innovation Summit held in Saratoga, in late September, I visited the only company dedicated to designing and manufacturing large scale IP photonic integrated circuits (PICs), Infinera, based in the heart of Silicon Valley's Sunnyvale, California USA. Infinera has taken a US\$300 million stake in the game, having amassed over 500 patents since 2004. "We don't sell hardware or software – we sell networks" says David Welch, PhD, President and Founder.

"This is what I've seen as stunning when looking back" said Welch, "in the past decade we've seen a 24x increase in the bandwidth in the same watt per cubic centimetre footprint. I expect that instead of holding up two of our PICs that are doing 2.4TB, I expect in 10 years we will be doing 50TB coming out of something on the same size. In that sense, Moore's law in optics is alive and well!"

Listening to David Welch, it's easy to succumb to the charm of a technical genius. Welch simplifies the complex down to this, "Consider you have two axis to watch in driving more bandwidth onto an element and thereby drive cost structures down. You can put more wavelengths on, which is what we do, or you can drive your electronics faster. But if you drive your electronics faster you make it harder to take advantage of less efficient modulation architectures. Right now, the subsea bandwidth is being increased by deploying more new fibres in the trans-Atlantic to trans-Pacific architecture than has been in the last several decades...Click [HERE](#) to read full article.