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From the desk of Rouzbeh

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Hello,

There have been some interesting developments of late, as well as discoveries on new networking ideas so I began to think, futuristically: What If...

A new networking concept called Super-PON is a success?

What is the Super-PON proposal that was discussed at the recently completed IEEE 802.3 Ethernet Interim Session? For one it has the possibility to revolutionize our broadband infrastructure to support the ever -increasing communication and streaming needs of our populace

The existing 802.3 10Gbps PON has a reach of up to 20km with up to 64 end-points (optical network units or ONUs). The super-PON is said to extend the reach to 50km with up to 1,024 end points by using novel optical technologies such as optical amplifiers and dense wavelength division multiplexing. It is said to use fewer fiber strands, resulting in lower outside plant expense due to smaller cables, micro-trenching and less costly time-to-repair. This architecture has the potential to reduce the number of head-ends/central-offices needed to service large metro/suburban/rural areas, hence enabling a lower overall solution cost to the service provider. The architecture is particularly attractive in greenfield applications but can be used to retrofit existing fiber outside plant and consolidate the number of head-ends/central-offices into a fewer number to service the same number of end-points.

This architecture may be used to economically deliver the necessary capacity to enable current cellular services (which have been growing at a tremendous rate) as well as enabling emerging cost-effective 5G services. Every three or four decades a revolutionary technology emerges to improve the quality and availability of communications services — think back all the way to the postal service of early 19th century, followed by telegraph service in the late 19th century, to be replaced by telephone service in the early 20th century, then the Internet and Broadband Access in the late 20th century. Super-PON may represent a similar revolutionary technology leap that will result in ubiquitous global connectivity. This connectivity would facilitate deployment of 5G wireless, IoT, Smart Cities and who knows what else...

One can foresee a time in the future when broadband service providers are unwilling or unable to provide large streaming content providers like Netflix, Amazon and Google the service levels appropriate for their business models. The Super-PON distribution technology coupled with wireless pole to home connectivity could provide a lower cost means for an overlay network to existing service provider infrastructure. And with the repeal of net neutrality large content providers now have the ability to build their own lower cost networks using the latest broadband communication technologies designed for their specific business needs, but without the need to provide equal access. The rescission of net neutrality is viewed as a net positive by existing service

providers but might also create a "be careful of what you wish for" in their future as alternative streaming and internet service providers with faster and lower cost technologies jump in.

A model is developed to improve broadband connectivity at affordable rates?

Can universities and standards bodies help develop models for applications to ease use of and access to broadband like we access the electrical grid that we take for granted and to which we can connect all sorts of devices? The model would have to entail secure and intelligent ways for users to connect and then improve their quality of life. As can be seen In our white paper about the smart **CAMPUS**, this type of environment can become a basis for that kind of system

Regulation plays an important role in broadband today and going forward.

Regulation plays an important role in broadband today and going forward. Whether you favor a "hands on" or "hands off" approach to regulation, we have seen examples of both recently. First was the FCC deciding we don't need network neutrality (mentioned above). Then we had government floating a trial balloon for having the government in charge of running the 5G wireless networks of the future. Where we are going in broadband communications is hard to predict but one thing that is certain is that things will continue to evolve and grow. Additionally, there's the potential for large content companies to step up and rewrite ISP/content creation business models. A lot of "ifs" need to fall in place on that one. But then again in health care, we just witnessed the announcement by Berkshire Hathaway, Amazon and JPMorgan to team on creating an independent health care company for their combined 1 million employees. It could change the health care industry. The world is changing at a rapidly increasing rate and just when you thought you are the dominant player and your business model is safe something newer and better comes along.

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