

## Letter from the Editor

By: Tim Young

***“Every now and then a man's mind is stretched by a new idea or sensation, and never shrinks back to its former dimensions.”***

*- Oliver Wendell Holmes, Sr.  
The Autocrat of the Breakfast Tab*



There's a common misconception about the concept of evolution: that it has a purpose in mind, an end-goal. There's a notion that as organisms evolve they, by definition, improve and become more sophisticated. And in many cases, that's true, but not necessarily because of any grand design. At least not that we know of. Instead, we see a series of responses to external forces or environmental realities that, year after year, generation after generation, encourage change.

It's not perfect. In biology, there are countless examples of traits or features that persist in a species but that have been rendered useless or even problematic over time: the human tailbone, wisdom teeth, the appendix, male nipples. Vestiges, bereft of use but lingering nonetheless.

And in technology—especially in communications networks—we can find countless examples of these sorts of vestigial features, evidence of abandoned technology that remain long after they have outlived their usefulness. The network, after all, grows like an organism in many ways, difficult and expensive to rip and replace, and always growing to meet new demands or confront new challenges.

But the reason the Holmes quote above came to me when considering the topic of network evolution is that, unlike biological evolution, technological progress does have an aspirational quality. I still don't think it has an *aim*, per se, as we had no idea, a few decades ago, what our modern communications paradigm would look like, or what sort of behavior subscribers would exhibit. But our aspirations and our expectations of our networks expands with each passing moment, never to shrink back to its previous form.

In this issue of *Pipeline*, we discuss network evolution. We explore virtualization, examine the latest disruptive technologies, and discuss the impending dawn of 5G. We look at how CSPs are deploying SD-WAN solutions—and why—and discuss other ways that networks are becoming smarter and more agile. And we take a hard look at the notion that networks *should be* smarter, remembering that sometimes the answer *could be* to become just a big dumb pipe. We also discuss security, distributed antenna systems (DAS), and lots more.

Enjoy!

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