

Further Reading

Preface

This is very much a work in progress and suggestions/feedback are appreciated. ~~You can use this [signup link](#) to get mail about updates or send feedback.~~ Just use the [RSS](#) feed since I never did implement the email system.

Classic Essays

These are essays and writings that have endured over the years.

- [Beyond Limits](#). I wrote this in 1996 as a chapter in the [ACM](#) book [Beyond Calculation](#). In this chapter I explain that Moore's law is about particular market configurations and is not particular to semiconductors. More to the point you lose the power of hypergrowth when you tie it to a singular measure of success.
- [Rush Hour 1997](#). I wrote this in 1989 projecting a future of mobile connectivity. The date of 1997 was meant to be the far future. We're still not quite there.

My writings on ~~Connectivity~~ Opportunity

- [Neutrality to Opportunity](#). Shifting the conversation from focusing on the network to the larger issue of opportunity.
- [Frequently Asked Questions](#) about the Internet as Infrastructure.
- [Purpose Vs Discovery](#). I go into more detail about the counter-intuitive concept of how we get abundance by creating opportunity rather than presuming we are building solutions for well-defined problems.
- [From Broadband to Infrastructure](#). Looking beyond network neutrality.
- [Infrastructure for a Connected World](#). We need a **free-to-use** infrastructure so we aren't limited by rent-seeking intermediaries as we do now.
- [5G and ATSC Vs. The Internet](#). (See [column below](#))
- [Restructuring Consumer Electronics](#). This was my first column for the IEEE. In it I give a simplified view of how the Internet happened within the context of the pragmatic world of consumer electronics. I go into more of the issues in other columns.

- [Internet Native Policies](#). How the Internet is different from telecommunications and why "best efforts" means we can start with local efforts rather than relying on providers.
- [Connectivity Policy](#). This is the more detailed policy document that explains how the Internet is really about creating solutions which take advantage of the nature of software to redefine the world. I submitted it to the FCC as part of its inquiry on neutrality policy.
- [What infrastructure is needed for positively disruptive technology](#) A talk I gave to ISOC in which I explain how the Internet is a departure from traditional telecommunications.
- [The Internet: Missing the Light](#). By assuming connectivity is expensive we find ourselves justify connectivity with heavy duty products and big data rather than enabling the mundane applications that allow us to discover the future.
- [Zero Rating](#). The problem of applying telecommunications policies to the Internet.
- [Engineer's Dilemma](#). This is a work-in-progress and more a place holder until I do a formal version.
- [Spectrum as Farmland](#). Our current policies treat spectrum as if it were a physical thing like farmland. In fact, it is just a construct from the 1920's that limits our ability to communicate.

Talks

- [TEDx – The Internet and Abundance](#). November 2016. I trace my own history of learning about connectivity as a way to understanding how creating our own solutions leads the way to abundance.
- [Beyond Neutrality](#). October 2014. A talk I gave on the themes in this essay. Some might prefer a video.
- [Thinking Outside](#). January 2014. The evolution of digital connectivity and how the Internet is a discontinuity from the traditional of telecommunications.
- [A Software-\(re\)Defined World](#). June 2015. My talk at ICCE in Taiwan about how the Internet is a byproduct of the way we use software to create our own solutions.
- [Keynote ICCE 2015 Taiwan](#). The Internet and other consequences of software redefining our world.

IEEE/CE Columns

This is a list of the columns I've written for the [IEEE Consumer Electronics Societies](#) magazine:

2013

- [Refactoring Consumer Electronics](#). How the Internet is part of a larger trend that challenges the traditional framing of consumer electronics now that value is created in software rather than just hardware. (January 2013)
- [\(Not\) In Control of your Home](#). The challenges of home control. (April 2013)
- [The Internet of Things versus the Access Framing](#). Putting a border around The Internet prevents us from building connected devices. (July 2013)
- [Deconstructing "the Smartphone"](#). Today's smart phones may be more useful as building blocks than as devices in their own right. If only we could make their potential available. (October 2013)

2014

- [Life \(yet to be\) Scripted](#). The automation meme assumes machines will do what we want them to do not what we tell them to do. (January 2014)
- [HTML5](#) is become the new compute engine allowing us to start to take advantage of the capabilities in the devices around us. It's not just about the web. (April 2014)
- [\(Not\) Getting the Message Across](#). Why we need simple packet connectivity rather than smarter intermediaries. (July 2014)
- [Connected Things](#). Understanding the so-called Internet of Things. (October 2014)

2015

- [Putting it all Together?](#) Real life lessons in putting together those (potentially) connected things. (January 2015)
- [Deconstructing TV](#). (<http://rmf.vc/IEEEDeconstructingTV>) The business "Television" as we know it is very much tied to the accidental properties of 1930's vintage technology. We need to re-think very part of the technology and the industry. (April 2015)
- [API First](#). The importance of having programmatic interfaces rather than just focusing on the user interface. (July 2015)
- [The Internet is about Relationships](#). Rather than thinking in terms of wires need to think about the end points of relationships. (October 2015)

2016

- [A Hacker's Vacation](#). A relatively light piece about what I learned renting a Tesla and using technology as I traveled. (January 2016)
- [80/20 Consumer Electronics](#) I learn by doing and creating my own solutions. This gives me a chance to experience the future and see beyond the present. Join me in exploring the possibilities. (April 2016)
- [The Stories of Software](#). We tend to think of programming as an exact engineering practice. A better way to think about software is that it's a way we write stories that can take on lives of their own. (July 2016)
- [Mobile-Edge Computing Versus the Internet?](#) When we frame local computing as being at the edge of a network we lose the big ideas of connectivity by framing the Internet in terms of telecommunications. (October 2016)

2017

- [Site Insites](#). This past summer I decided my website need to be refreshed. Rewriting the site from scratch in JavaScript (actually TypeScript) gave me a chance look beyond the façade of the web and better understand how the Web works.
- [5G and the Internet: The Internet Versus Telecom](#). (<https://rmf.vc/IEEE5GATSC>) 5G is positioned as the next generation of wireless telecommunications. The approach of solving problems in the net providers a useful contrast for understanding the Internet's approach of solving problems outside of networks.
- [Whither Consumer Electronics](#). What is the future of consumer electronics as we shift from creating purpose-built devices in software to generic hardware platforms defined by software?

2018

- [Assembly Required](#). We used to connect devices using belts and pulleys. Today those connections are done in software.
- [Got API?](#) If your home control product doesn't have an open API, then it's a niche product and not part of the future of connected devices.
- [Broadband to Infrastructure](#). Based on my earlier article in Broadband Breakfast.
- [From Net Neutrality to Seizing Opportunity](#). We should be creating opportunity not just enumerated services.

2019

- [From Hi-Fi to CLI](#). The classic command line is returning to prominence because allows for scripting and a stable interface. It's no longer a relic of the past but rather a path to the future.
- [Seeing the Light - Properties of 400-800 Terahertz Radios](#). The Blue LED and software have allowed us to see light in, well, a new light. As a way to paint surfaces and create moods and so much more.

Note that the columns are also reachable as <https://rmf.vc/IEEECEEyyyyymm>. Where the months are 01, 04, 07, 10 as per the current publishing cycle through 2017. The cycle changed to bimonthlyⁱ (every two months) in 2018 – 01, 03, 05, 07, 09, 11

Legacy Works

These aren't necessarily classics but do reflect my thinking and writing from days of yore.

- [Operating systems: A relic of the past](#). A paper I presented at a workshop on operating systems in 1995 rethinking classic concept of an operating system (such as Windows or Unix)

ⁱ <http://www.getitwriteonline.com/archive/051401bisemi.htm>

Facebook Posts

[Facebook posts](#). These are mostly mulls and works-in-progress.

Additional Readings

To understand the design point of the Internet you can read the [End-to-End Arguments in System Design](#) paper. For those who won't past the title the term "end to end" is used in the sense of only depending the end points and not anything between.

[Railroaded](#) by Richard White. The comparisons between the history of railroad regulation and Telecommunications are striking.

It's also interesting to read about the history of [turnpikes](#) and how we moved from toll roads to public highways in the early 20th century.