

Pricing of interconnection and just about everything else

Andrew Odlyzko

School of Mathematics
and Digital Technology Center
University of Minnesota
odlyzko@umn.edu

<http://www.dtc.umn.edu/~odlyzko>

March 11, 2016

“Smart” telecom pricing

- “Holy Grail” of the industry for hundreds of years
- huge literature
- many disappointments
- is it really going to be different this time?
- *nota bene*: generally it has dominated transportation

Turing

Turing Pharmaceuticals

Martin Shkreli, (generic) Daraprim tablet price increased from \$13.50 to \$750, ...

Development of the economy:

- dominated by search for choke points
- minimal real investments
- assisted by confusology

Some instructive examples:

Verizon spokesperson, cited in *Bloomberg News*, Feb. 26, 2015, on high international roaming rates for data (up to \$20/MB):

It's a complex system; there's lots of different layers that determine rates, like regulatory and tax issues in different countries. Our goal, as always, is to provide the best value.

Some instructive examples (cont'd):

T-Mobile filing with the FCC, May 27, 2014:

- cost of delivering mobile data: \$0.002/MB
- T-Mobile wholesale prices to international carriers:

	price per MB
median	\$0.09
average	0.20
95th percentila	0.40

- retail rates: up to \$20/MB

Wall Street view of main issues in pricing:

P. de Sa et. al, *Bernstein Research* report, June 2014:
With the incremental cost of providing that extra minute of calling, or extra byte of data, close to zero, carriers generally try to price based on what they think they can get away with, constrained by competition, customer inertia (either voluntary or enforced by contracts), regulation (or threats thereof), and their execution capabilities.

Network costs not a significant factor in this view!

Development of the economy:

- threats to foundations of market capitalism
- engineering efficiency secondary or tertiary
- technical measures in pursuit of confusology, “damaged goods,” etc.

Modern market economy:

- not natural state for *Homo sapiens*
- historically and by nature, people care primarily about social relations
- both firms and individuals resent the cold discipline of the market; strategic games a la *Game of Thrones* much more natural
- modern technology and human psychology offer powerful tools to eliminate market discipline

Development of the economy:

- incessant search for choke points
- effective choke points hard to predict (as in case of Apple app store)
- skills at regulatory and PR games to be key to success

More information, papers, and presentation decks:

<http://www.dtc.umn.edu/~odlyzko/>

or just google or bing “odlyzko”