

Offset	Topic
00:17	<ul style="list-style-type: none"> <li>• <b>Intro</b></li> </ul>
01:57	<ul style="list-style-type: none"> <li>• Promo! <ul style="list-style-type: none"> <li>• Thanks to SusanZ and Biscuit from the Kulture Kast</li> <li>• <a href="http://kulturekast.com/">http://kulturekast.com/</a></li> <li>• AIF and high quality MP3 versions are available</li> <li>• <a href="http://media.libsyn.com/media/cmdln/tclp_promo_kulture.aif">http://media.libsyn.com/media/cmdln/tclp_promo_kulture.aif</a></li> <li>• <a href="http://media.libsyn.com/media/cmdln/tclp_promo_kulture.mp3">http://media.libsyn.com/media/cmdln/tclp_promo_kulture.mp3</a></li> <li>• The linked versions have no bed music, feel free to remix as you like!</li> </ul> </li> </ul>
03:07	<ul style="list-style-type: none"> <li>• <b>Word of the Week: content-free</b> <ul style="list-style-type: none"> <li>• <a href="http://www.catb.org/jargon/html/C/content-free.html">http://www.catb.org/jargon/html/C/content-free.html</a></li> </ul> </li> </ul>
04:12	<ul style="list-style-type: none"> <li>• <b>Rant: Impending Bandwidth Crunch</b> <ul style="list-style-type: none"> <li>• The problem <ul style="list-style-type: none"> <li>• <a href="http://www.techdirt.com/articles/20070917/010343.shtml">http://www.techdirt.com/articles/20070917/010343.shtml</a></li> <li>• Bob Metcalfe, inventor of ethernet, first proposed the idea in 1995</li> <li>• Coincides with opening of the internet to commercial, private use</li> <li>• Predicted it would collapse the following year</li> <li>• Instead, he recanted, literally ate his InfoWorld column</li> <li>• Same idea has resurfaced repeatedly since</li> <li>• Latest iteration is Phil Kerpen of Forbes based on Deloitte and Touch report</li> <li>• Report mentions network neutrality obliquely</li> <li>• Kerpen directly attributes neutrality with the problem</li> <li>• Cites it as chilling back bone build out</li> <li>• Argument is as specious as ever, competition problems have more to do with last mile</li> <li>• Masnick correctly points out that if there is demand for more capacity, businesses will be developed to serve</li> </ul> </li> <li>• Dark fiber <ul style="list-style-type: none"> <li>• Masnick mentions it in reference to the first internet bubble</li> <li>• In anticipation of demand, massive build out</li> <li>• Demand never really materialized, so extra capacity went unused, presumably losing money</li> <li>• According to Wikipedia, this is may actually be intentional</li> <li>• <a href="http://en.wikipedia.org/wiki/Dark_fiber">http://en.wikipedia.org/wiki/Dark_fiber</a></li> <li>• Real cost is rights of way for fiber</li> <li>• May be cheaper to clear and build out whether fiber is laid in or not</li> <li>• Wavelength-division multiplexing, a new technology, eroded demand by increasing capacity 100 fold on existing fiber</li> <li>• Turned out to be a marketable asset after inevitable shakedown</li> </ul> </li> </ul> </li> </ul>

## Offset

## Topic

- Failure modes of an edge-to edge network
  - Not how power networks fail
  - Mismatch of supply and demand causes electrical systems serious problems
  - Failures can cascade
  - For networks, under utilization just means idling, over means congestion, some are not served or all are served slowly
  - Failures rarely cascade, filigree of network naturally spreads imbalance in loads
  - Packet shaping is like power load distribution but incorrect shaping won't kill it
  - Most disastrous problems are when hardware fails outright
  - Replacement is usually straightforward
  - Knock on effects are less severe than power loss
  - Money interests using networks motivates quicker response
  - Except for certain critical junctures like MAE East or West, network is fault tolerant
  - Original design was meant to withstand a nuclear attack
  - Worst case scenario, network would perhaps fragment, not melt down
  - Before "Internet", disparate networks worked OK, could work fine again
  - Common sense understanding of broken water main, downed power line used to justify network discrimination
- Other fallacy in comparing internet to traditional utilities
  - Unlike power, water, networks can be soft upgraded to carry more load
    - Already mentioned WDM, two different techniques have been implemented, each yielding a bump on existing fiber
    - Gerald Butter's postulated a law similar to Moore's law
    - Fiber engineers seem to think increasing capacity of existing fiber is sustainable
    - Water, electricity not so much
  - Some free market advocates are suggesting metering to level usage, discourage over use
    - Utility metering is regulated, bandwidth metering would also need to be regulated
    - Otherwise, how do you know whether the meter is accurate?
    - Isn't regulation inconsistent with most free market advocacy?
    - How would regulating metering be practically different from measuring for and regulating discrimination?
    - Besides, don't under utilizing customers subsidize more growth?
    - ISPs have and enforce caps, but they don't enforce any idea of a floor

- I'd be willing to bet more subscribers pay for more unused bandwidth than completely saturate what they pay for
- Why would other services look to move toward flat rate price structures?
- What edge of utility innovation is there?
  - Maybe you can argue that products manufactured with water, electric are innovations on top of
  - Just doesn't seem the same as internet innovation where bandwidth is key
  - Network innovation drives demand more than average user
  - The real problem is carriers have a conflict of interest
  - Instead of better serving data services to innovators, competing on price
  - Carriers want a piece of services pie
  - Tend to agree strongly with recommendation to de-laminate the carriers
  - <http://www.hyperorg.com/misc/delamination.html>
  - Carriers drag their feet because network improvements would benefit competitors, too
  - Want more bandwidth but only for their own captive services
- This too will pass
  - Regulations will be passed, or not
  - If so, they may work well, or not
  - If not, then carriers will be too snarled fighting to block competition
  - Carriers would be criminally negligent if they truly let end users be under served
  - It will find an equilibrium that preserves a certain amount of innovation
  - Everyone enjoys their next killer app too much to see it go any other way
  - Best we can do is try to steer regulation to be best, least intrusive
  - Based on objective, empirical criteria coupled with real accountability
  - I don't think letting carriers choose for themselves to be neutral or not is wise unless they are barred from offering services beyond data
  - If they can do both, there will always be a conflict of interest
  - Is this kind of hyperbole a last gasp of the carriers, reason for optimism?

**• Outro**

- Contact me
  - Email to [feedback@thecommandline.net](mailto:feedback@thecommandline.net)
  - Web site at <http://thecommandline.net/>
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  - Listener comment line is 360-252-7284
  - [del.icio.us](http://del.icio.us) tag is "for:cmdln"

**Offset****Topic**

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