Max Meisler, Legislative Intern Testimony on Net Neutrality 2/15

- The Senate process:
  - Took the procurement route because they wanted a quick-touch, not light-touch, approach. Didn't want to dedicate the bandwidth to delve into net neutrality enough to create comprehensive legislation
  - Floor debate highlighted that no one vocally opposes net neutrality, or supports a free market internet. Rather, interest is in ensuring that all implicated parties are heard from and legislation is sufficiently thought out.
  - Governor's memo highlighted that the procurement option could lead to unintended, undesirable consequences; a heavier touch, like H.680, would circumvent some of those issues, leaving mainly the question of what happens if ISPs altogether discontinue service in Vermont: What to do with dark fiber infrastructure, if service is discontinued?
- Network architecture:
  - What is bandwidth, and why should it be differentiated from speed?
    - Fundamentally, the two mean the same thing. However, not as relating to Net Neutrality. Bandwidth is the capacity of the network infrastructure, in bits per second. The bandwidth of last mile, to the premises connections is what we refer to as speed. The speed of last mile connections is not an issue of neutrality, but of the capacity of the available technology. Bits travel at the speed of light, it's a question of how many at once.
    - But when bandwidth is referred to in regard to net neutrality, it is specifically in regard to the idea of fast lanes/slow lanes. In this regard, bandwidth is a limited resource that a content provider might pay to get priority use of over other traffic on the network. But fast lanes *do* already exist, and they do not look like this.
  - Whereas the ISP lobbyists have described network traffic as geographically distributed to find the least congested path to reach a single destination, the reality of network architecture is dispersed at the edges as well.
    - The speed of a content provider's offering is foremost (today) determined by the upload speeds for their servers to get on to the internet, large providers have Content Delivery Networks, located at numerous colocation centers (Verizon and Conexis are two operators of such data centers) that allow them to connect servers directly to numerous ISPs. Since CDNs are expensive to operate or lease, they act as fast lanes not only in that they increase the speed of those offerings, but also in that they serve as a barrier to new platforms
  - Given that Toronto and Montreal are major colocation centers—locations where large numbers of networks meet to exchange traffic and connect directly with CDNs—it is likely that there is substantial interstate traffic that passes through Vermont. Hearing from any Tier 1 (backbone) providers, like Cogent or Level 3, who operate networks in Vermont but do not provide service directly to Vermont residents would be important to hear.
  - Net neutrality violation on the residential consumer end: ISPs could switch to a model more similar to cable TV, where they offer packages including different services.
- The Internet geography

- While some of the concern around net neutrality is that ISPs might seek to launch their own content offerings and influence consumer behavior toward their own dominance, this is a concern that seems misdirected.
  - Internet firms have a unique business model; "platforms" face a primary question of how to become profitable, which is primarily achieved through attracting a large user base to maximize ad revenue. This maximization is achieved both because ads can be better targeted based on analysis of masses of user information, and because revenue is based on numbers of users reached
    - Because profitability relies on a large user base, fast lanes that bias consumers toward platforms that already dominate the market (& can therefore pay for CDNs or state of the art server hosting) make the Internet trend toward monopolization of services. This requires substantial investment in servers, which would only be made more expensive if paying for bandwidth priority became the norm.
    - Because a secondary question impacting entrepreneurial content providers (e.g., a Vermonter who wants to start an e-commerce business) is how to get internet users to find their site, platforms (like Etsy, Amazon, or Facebook) provide the answer. The Internet works best through centralization of control, allowing consumers to know where to look to find what they want. At the same time, this centralization raises concerns over what these firms do with the information of their users, and the potential for abuse (e.g., targeted fake news) the centralization of users creates.
    - As such, questions of privacy, security, and the appropriate uses of Vermonters' personal information and browsing habits should be kept in mind as key concerns for public policy.
  - Involved parties this committee should hear from:
    - Dominant cloud server providers, such as Amazon Web Services
    - Colocation center/Network-Neutral Data Center operators
    - Tier 1 ISPs, i.e., infrastructure owners who own the international-scale backbone infrastructure that local networks connect to.