Regulatory Governance & Policy for the Digital Economy

William Lehr  
MIT

Douglas Sicker  
CMU

8th Workshop on Internet Economics (WIE)

December 12-13, 2017  
UCSD

Problem may be Entertainment eating Internet


Agenda Setting: what we need Communication Regulation to do


Legacy regulation is big impediment to future policy
Communications Policy

- **Scope for communications policy?**
  - Can’t be everything, but BB/Internet impacts everything.
  - Role for National (independent, sector-specific) regulator?

- **Broadband & Internet related, but distinct**
  - BB platform for lots of services
  - Internet is e2e: ISPs, Edge providers (**GANFAM**...)

- **What are (some of) the questions?**
  - Prioritized policy agenda? *CommAct2021*
  - Is new CommAct2021 a dream? *Probably yes, but maybe not.*
  - What’s most important focus in near term? *Transparency*
  - (How much of this is result of Entertainment eating Internet?)
Broadband Platform

- **(1) Last-mile bottlenecks**
  - Reduce entry barriers to facilities-based competition: spectrum, empower edge-based alternatives (muni networks), access to ROW/conduit/pole-attachments, etc.
  - Regulate shared access to any true bottlenecks (and last-mile may not be only bottleneck...)

- **(2) BIAS not the only service using platform**
  - OTT is substitute and complement

- **(3) Broadband platform continues to evolve**
  - Mobile-fixed convergence
  - Video (CDNs)
  - Clouds (where should functionality live?)
Internet: what is bad behavior on e2e?

• **Internet regulation (if at all) has to be market-based....**

• **(1) ISPs not only players with market power – GANFAM**
  - Interconnection a market negotiation?
  - What are problems?
    - Congestion? (who should solve?)
    - Abuse of market power?
    - Mislead or misinform market: consumers? Edge providers?
    - Lack of level playing field? (is regulation needed to level field?)
    - (Coordination: interoperability? Connectivity?)

• **(2) What is good behavior?** (ISPs not only potential villains..)
  - Search/Routing: where is e2e? “find X” or “get me to IP add X.X.X”
  - Traffic management/Pricing? 2 sides of same coin
  - Consumer choice? informed behavior or alternatives choices?

• **(3) What to do about it?**
  - Regulatory reform: authority to regulate bad actors (not just ISPs)
  - Transparency...
Transparency

• **Who needs to know what?**
  • Consumers: Truth in Advertising…(do they actually read anything...)
  • Edge providers: What do they need to provision alternatives ??
  • Regulators: case-by-case w/ confidential disclosure...if have capacity

• **How should we learn?**
  • Measurement by 3rd parties: CAIDA et al. ➔ need platforms
  • Disclosure: mandatory

• **What information disclosed by ISPs would be most helpful?**
  What about “cloud” providers? (GANFAM, “darkening” Net?)
  • Capacity
  • Traffic flows
  • Contract terms (Business practices)
OTHER STUFF....
Digital Economy transformation disrupting *everything*

<table>
<thead>
<tr>
<th>Sector</th>
<th>ICT driven changes</th>
<th>Challenge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media</td>
<td>Streaming, a la carte</td>
<td>Entertainment eats the world. Fake news.</td>
</tr>
<tr>
<td>Banking</td>
<td>ePay, crypto-currency</td>
<td>Financial market stability.</td>
</tr>
<tr>
<td>Energy</td>
<td>Smart grids</td>
<td>Climate change, shift renewables</td>
</tr>
<tr>
<td>Services</td>
<td>Sharing economy (Uber, AirBnB, etc.)</td>
<td>Regulatory reform - Employment, Consumer protection, Sector specific rules</td>
</tr>
<tr>
<td>Fiscal</td>
<td>Footloose asset ownership</td>
<td>Eroding tax base</td>
</tr>
</tbody>
</table>

Etcetera ...

**Communications Policy?** *critical Digital Economy Infrastructure, new “PSTN”*
- Communications Policy is the *plumbing* policy for a world where *Information Policy* is what’s most important
- Refocused → Broadband Platform & (Open) Internet
- Light-handed, market-based (adaptive, dynamic, multi-stakeholder)
Proposal for a new...

Communications Act of 2021

Title I: FCC goals, scope, authority
- Define FCC goals, scope of jurisdiction, and authority
- Specify what national goals should be with respect to essential communications infrastructure, not what technology

Title II: Bottleneck facility regulation
- Replace legacy Title II Common Carrier regulation of Telecommunications Services and operators.
- Provide framework for (a) identifying bottleneck facilities; (b) enabling shared (open) access and interconnection to bottleneck facilities; and (c) structural remedies to protect against spillover of bottleneck facility regulation into non-regulated markets/services.

Title III: Competitive Communications Market Monitoring & Enforcement
- Provide framework for promoting healthy market competition and industrial policy goals for communications sector
- Enforce Powell's 4 Open Internet principles protecting consumer choice
- Enact Universal Service plan to ensure affordable access to minimum level of essential communications services for all
- Promote healthy ecosystem for data measurement, reporting and analysis to support evidence based decision-making and regulatory enforcement actions
- Provide inclusive process for evolving rules frameworks as conditions change

Title IV: Spectrum Management
- Transition to independent spectrum regulator focused on efficient management of shared access to spectrum resources, independent of other industrial policy goals

Title V: Public Safety and Critical Infrastructure
- Provide framework for management and interconnection of communication networks and services required for public safety, criminal enforcement, and for critical infrastructures

Title VI: Transition Plan
- Include here all regulations from legacy Act that are in process of being transitioned either to new framework under Title above or for sunset as part of deregulation
Entertainment/Smart-X Economic Convergence

- Entertainment: ~5% consumer expenditures; leisure time limited
- Smart-X: energy grids, infrastructure (cities, roads), healthcare, etc.

<table>
<thead>
<tr>
<th></th>
<th>Entertainment</th>
<th>Smart-X</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function</td>
<td>Entertain</td>
<td>Communicate, Control</td>
</tr>
<tr>
<td>Key Feature</td>
<td>Differentiate</td>
<td>Interoperate</td>
</tr>
<tr>
<td></td>
<td>Quality of Experience</td>
<td>Connectivity</td>
</tr>
<tr>
<td>Demand</td>
<td>Leisure $'s/Attention</td>
<td>Management</td>
</tr>
</tbody>
</table>

**Economics**

<table>
<thead>
<tr>
<th></th>
<th>Entertainment</th>
<th>Smart-X</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macro</td>
<td>Distribution</td>
<td>Growth</td>
</tr>
<tr>
<td>Micro</td>
<td>Windowing, IPR</td>
<td>Min. requirements</td>
</tr>
<tr>
<td></td>
<td>Market segmentation</td>
<td>Reduce costs, enhance capability</td>
</tr>
</tbody>
</table>

Pricing/Capabilities?
- Entertainment: distribution channel bundling/discrimination key
- Smart-X: reliability, security, privacy, & cost key