The views expressed are perhaps my own but certainly do not necessarily represent those of the FCC, any Commissioner, or my dog.
Consider This...

- The bumper sticker expression “The FCC does not regulate the Internet” fails to comprehend 35 years of jurisprudence.

- Layered Model of Regulation
  - Content
  - Application
  - Logical Network
  - Physical Network

- These are market based regulations - technologically neutral.
Internet Telephony...
FCC 101

The Federal Communications Commission (FCC) is an independent United States government agency, directly responsible to Congress. The FCC was established by the Communications Act of 1934 and is charged with regulating interstate and international communications by radio, television, wire, satellite and cable. The FCC's jurisdiction covers the 50 states, the District of Columbia, and U.S. possessions.

The FCC is directed by five Commissioners appointed by the President and confirmed by the Senate for 5-year terms, except when filling an unexpired term. The President designates one of the Commissioners to serve as Chairperson. Only three Commissioners may be members of the same political party. None of them can have a financial interest in any Commission-related business.
The Commission

Kathleen Abernathy
Republican

Kevin Martin
Republican

Michael Powell
Republican Chairman

Jonathan Adelstein
Democrat

Michael Copps
Democrat
The Communications Act

• Title I – General Provisions
  – Created FCC “[f]or the purpose of regulating interstate and foreign commerce in communications by wire and radio so as to make available . . . to all the people of the United States, without discrimination . . . a rapid efficient, Nation-wide . . . wire and radio communications service . . . at reasonable rates. . .”
  – Act applies “to all interstate and foreign communications by wire or radio” but generally not to “intrastate communications” by wire.
The Communications Act (Silos)

• Title II – Common Carriers
  - Gives FCC jurisdiction over “common carriers”
    “engaged in interstate or foreign communications
    by wire or radio…”

• Title III – Radio
  - Gives FCC jurisdiction over radio stations,
    television stations, satellite operators, wireless
    communications companies, and private wireless
    providers.

• Title VI – Cable Communications
  - Defines the regulatory authority of the FCC and
    local franchise authorities respectively over cable
    television companies.
Regulatory Process
Regulatory Process

- Petition*
- Notice of Inquiry*
  - Comments
  - Replies
  - Ex Parte
- Notice of Proposed Rulemaking*
  - Comments
  - Replies
  - Ex Parte
- Order
- Petition for Reconsideration
- Federal Court Review
- Implementation Enforcement

* Possible Starting Points
Administrative Procedures Act

- Notice and Comment
  - Notice of Inquiry
  - Notice of Proposed rulemaking
- Notice
  - Federal Register
  - Websites
  - Public Notices (i.e., FCC Daily Digest)
- Trade associations and other groups
Administrative Procedures Act

• **Comment**
  – Every Interested Party
  – Comments can take any form (very informal)
    • Meet Deadlines
    • Include Docket Number (or other identification)
  – Filing: Electronic vs. Paper
  – After Comment Period Closes
    • *Ex Parte* Presentations
Sending your comment is a 2-step process. The first step is to complete and send the coversheet below. After you send the coversheet you’ll need to choose one of the two transmittal methods: sending a file, or sending a short message that you type directly on this page.

**Cover Sheet**

1. **Proceeding** (required)
   - 
2. **Mail Correspondence To:** (required)  
   - Name  
   - Law Firm  
   - Attorney
3. **Name of Applicant/Petitioner** (required)
   - 
4. **Law Firm Name** (optional)
   - 
5. **Attorney Name** (optional)
   - 
6. **Email Id** (optional)
   - 
7. **Mailing Address For Correspondence** (required)
   - 
8. **City** (required)
   - 
9. **State** (required)
   - 
10. **Zip Code** (required)
    - 
11. **Ex Parte/Late Filed** (optional)
    - 
12. **Document Type** (required)
    - COMMENT

Send Cover Sheet to the FCC

**Send Comment Files to FCC (Attachments)**

File Description: 

File: Browse...

Select one of these file types or convert your file to one of these types: 

- 
- 
-
You Too Can Be a Washington Lobbyist
Comments: Style Points

• Be Succinct
• Answer the questions asked (but do not feel limited by them)
• Assume the reader is unfamiliar with what you are talking about
• Allegations are ok - but provide as much evidence as possible
• Be professional and courteous
Administrative Procedures Act

- Public Record
  - Available in public reference rooms or online
- Subject to the Freedom of Information Act
- Can Request Confidentiality
Administrative Procedures Act

• Agency’s Decision
  – Must review and consider all comments
  – Must provide rational explanation why accept or reject all comments
  – Agency’s love industry consensus

Running Code and Rough Consensus?
Administrative Procedures Act

- Judicial Review
  - *Chevron* Doctrine
    - Discretion granted to expert agency
    - Standard of review: Arbitrary and Capricious
      - Example: Failed to consider comments and provide rational explanation
  - Recent Decisions
Legacy of the Computer Inquiries
Today’s Questions

Computer III

Enhanced

Applications

ISPs

Basic

Dial Up

Internet over Cable

NPRM

Applications

Cable

Modem

Service

(Info Service)

Internet over DSL

NPRM

Applications

DSL ISPs

NPRM

Cable

(Telecom not

Telecom Service)

DSL

(Telecom?)
A Problem:

• Enhancement to basic service
• Dependent upon communications facility - potential bottleneck
• Competitive market
• Innovative
• Accounts for economic expansion

Enhancement

Conduit

• Communication facility
• Incumbent monopoly
• Traditionally regulated
• Built based on regulatory sanctioned monopoly, rate payer fees
• Provide basic service

1960s
Historical Context

Message Switched Network (Store and Forward) (i.e., Western Union)

Source: Dale Hatfield
Historical Context

Automatic Data Processing (Store and Forward) (i.e., IBM)
FCC and the Internet: The Computer Inquiries
In the Beginning...

- Computers that facilitate communications *versus* computers with which users interact?
- *Computer I* Notice of Proposed Rulemaking
Goals Computer Inquiries

- Promote and protect a vibrant, nascent, innovative, and competitive market
- Create level playing field when BOC enters ESP market
- Prohibit discrimination and cross subsidization
Remote Computer Access

1. Physical Transmission Network
2. Dumb Terminal
3. Logical Network
4. Content

IBM System 360 - 1964
Computer I 1966

- Data Processing Industry
  - Major and expanding force in American economy
  - Market competitive
  - Dramatic innovation
  - Dependent upon communications network
  - Substitutability of computer networks for regulated communications networks

First packets sent on ARPANet Oct 29, 1969.
First crash of ARPANet Oct 29, 1969
Issues Before the FCC...

- Computers that facilitate communications *versus* computers with which users interact?
- Jurisdiction of FCC
- Entrance of Carriers into data processing market
- Regulatory treatment of data processing
- Communication needs of data processing industries

**Problem:** Carrier as both a supplier and a competitor.

1966
In the Beginning...

24 Oct 76
2100
LOADAD - OP. PROGRAM CSK
BBV

22:30
Talked to SKR CSK
Host to Host

Lefttop in program CSK
Running after sending
a host dead message
to imp.

THE ARPA NETWORK
DEC 1969
4 NODES

FIGURE 6.2 Drawing of 4 Node Network
(Courtesy of Alex McKenzie)
The Great Fudge....

- Communications
- Data Processing
- Hybrid
Data Processing Services

- Find market to be competitive
  - no natural or economic barriers to free entry into the market for these services
  - no indications that any of these markets are threatened with monopolization

- In view of all of the foregoing evidence, we see no need to assert regulatory authority over data processing services
Communications Services

• Concerns
  – Cross subsidization of data processing services with communications revenue
    • Bad for data processing competition
    • Unfair to rate payers
    • Impair provision of communications service by carriers
  – Potential for Discrimination and anti-competitive behavior
  – Simultaneously essential supplier and competitor
Solution: Maximum Separation

- Separate Subsidiary Requirements (47 CFR 64.702).
  - all services pursuant to tariff
  - No discrimination
  - Operate independently
  - No joint marketing
- Applies to carriers > $1M
- AT&T Prohibited by Consent Decree
Computer / Legacy

- Concern over markets
- Separation of facility from enhancement
  - *Unregulation* of data processing
  - Affirmative regulation of carriers
    - to meet the needs of data processing
    - to promote innovation and competition in the data processing market
    - to assure equal access for computer service to essential communications services
- Open communications platform
Computer II 1976

• Rise of microprocessor technology and distributed computing

• Introduction of packet switching

• Trouble with the categories
  – FCC burdened by case-by-case analysis of hybrid situations

Vint Cerf and Bob Kahn publish "A Protocol for Packet Network Interconnection" which specified in detail the design of a Transmission Control Program (TCP). 1974
Distributed Computing

1. Physical Transmission Network
2. IBM 5100 Portable
3. Logical Network
4. Content

Application
Issues

• Clarify definitions
• Continued concern for
  – Dependence of computer services on communications
  – Potential anti-competitive behavior
• Revisit Maximum Separation
the offering of a pure transmission capability over a communications path that is virtually transparent in terms of its interaction with customer supplied information

services, offered over common carrier transmission facilities used in interstate communications, which employ computer processing applications that act on the format, content, protocol or similar aspects of the subscriber's transmitted information; provide the subscriber additional, different, or restructured information; or involve subscriber interaction with stored information

USENET Established 1979
Term “Internet” coined 1982
A Layered Model
Service Layers, Not Technology

- Applications
- ISPs
- Dial Up

Enhanced Services
Unregulated

Basic Service
Regulated

Real Media

1980
Layered Model of Regulation

Content
HTML HTTP
TCP IP
ATM Frame Telecom

Content
Apps, ASPs
ISPs
Telco

Content Services
Apps Services
ISP
Basic Service

Source: Werbach, Sicker, Lessig
Layered Model Applied
Protocol Processing

Protocol in the Network is converted 2 or more times, however, content received at the edge remains unchanged.

Protocol Processing is Basic.
Protocol Processing

Network protocol used for basic transmission is converted to new protocol for the benefit of the edge user (not the network). Still may have data transmitted back and forth unchanged in form and content.

Protocol Conversion is Enhanced.
Protocol Processing

**Rule:** Generally Protocol Processing is enhanced. This is where protocol processing is for the benefit of the edge users. Where protocol processing is for the benefit of the network, it is itself basic (i.e., communications between user and network, different protocols across network giving edge user same content).

Enhanced Services

- All facilities based carriers that offer enhanced services
- must unbundle basic from enhanced service and offer basic telecommunications service to other ISPs on same tariffed basis
Bundling

• CPE & Basic Service
  – Prohibit *carriers* from bundling telecom service and CPE
  – No packaged discounts
  – 47 C.F.R. § 64.702(e)
  – Bundling Rules currently under review
  – Restriction removed in 2001
• Separate Subsidiary Requirements (47 CFR 64.702).
  – Sep sub must
    • obtain all services pursuant to tariff
    • Operate independently
  – Carrier shall not engage in joint marketing
  – Must receive FCC approval of Cap plan
Adjunct Services

Directory Assistance?

Adjunct Services
Directory Assistance?

RULE: An adjunct service takes on the character of the service to which it is adjunct. An adjunct service facilitates the operation of the service and does not alter the character of that service.

Directory service takes on the character of the telephone network. It facilitates its use. But directory service would never alter the classification of the telephone network.

Basic v. enhanced services dichotomy
  - Bright Line
  - Amplification of separation of communications transmission from enhancement
Cost benefit analysis of structural separation
Continued concern to promote enhanced services industry
Affirm Open Communications Platform
Safeguards

ARPANET GEOGRAPHIC MAP, OCTOBER 1980

SATELLITE CIRCUIT

- IMP
- TIP
- PLURIBUS IMP
- PLURIBUS TIP
- C30

(Note: This map does not show ARPA's experimental satellite connections. Names shown are IMP names, not (necessarily) host names.

1980
Computer III 1985
Background & Issues

- AT&T divestiture of the BOCs
  - BOCs permitted to provision enhanced services in 1988

- Belief that cost structural separation outweighs benefit
Computer III
Non Structural Separation

- Integrated Offering
- Comparably Efficient Interconnection
- Open Network Architecture
- Appealed in 9th Circuit
- On Remand since 1994

1986
Computer III
Comparatively Efficient Interconnection

- CEI Plan must be posted on BOC’s websites
- 9 Parameters
  - Interface Functionality
  - Unbundling of Basic Services
  - Resale
  - Technical Characteristics
  - Installation, Maintenance and Repair
  - End User Access
  - CEI Availability
  - Minimization of Transport Costs
  - Recipients of CEI
• Basic Elements
  – Basic Service Elements
    • *i.e.*, Calling Number Identification
  – Basic Serving Arrangements
    • Fundamental tariffed switching and transport services
  – Complimentary Network Service
    • *i.e.*, stutter dial tone, call waiting, call forwarding, call forwarding on busy, hunting
  – Ancillary Network Service
    • *i.e.*, billing services, collection, protocol processing
Computer III
Open Network Architecture

- New Services Not Specified in original ONA Plans
  - BOC - amend ONA plan
  - ISP
    - Request service directly from BOC through a 120-day process specified in our rules
    - Network Interconnection Interoperability Forum (NIIF) of the Alliance for Telecommunications Industry Solutions (ATIS)
Discrimination
  – Letters of Authorization
  – Resale
  – Operations Support Systems
  – Nondiscrimination Reporting

Remember 47 U.S.C. § 202
Network Information Disclosure

- ILECs must provide public notice regarding network changes that affect competing service providers performance or ability to provide service.

- Must be disclosed non-discriminatorily

- 47 C.F.R. § 51.325
Cross Subsidization & Accounting Safeguards

- Common carrier may not use services not subject to competition to subsidize services that are subject to competition.  
  47 C.F.R. § 64.901

- Accounting Safeguard Rules 47 U.S.C. Part 64
  - Annual independent audit filed with FCC
  - Data can be found in FCC’s ARMIS database
  - FCC Cost Allocation Manual
Customer Proprietary Network Information

Except with approval of customer, carrier shall only use CPNI for provision of telecom service from which such info is derived, or services necessary to provision of such services. - 47 U.S.C. § 222

CPNI > List Information
(information in phone book)
• FCC Releases Interim Order
  – Concludes only ONA rules vacated
  – BOCs & GTE Bound by ONA Plans
  – BOCs must create CEI Plans to enter ESP market

• Release Further Notice of Proposed Rulemaking (pending) CC Docket Nos. 95-20, 98-10
  http://www.fcc.gov/ccb/ppp/Ciii/

• Broadband NPRM (pending)
Computer III Legacy

- Movement from structural to non-structural separation
- Continued emphasis on communications an open platform
  - Unbundling building blocks (ONA & CEI)
  - Expanded safeguards
- Continued concern for anti-competitive behavior
- An enforcement problem
## Where are we today?

<table>
<thead>
<tr>
<th>Issue</th>
<th>All Carriers</th>
<th>BOCs</th>
<th>ESPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structural CII or Non Structural Separation CIII (CEI)</td>
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<td>X</td>
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<td>Open Network Architecture</td>
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<td>Unbundling</td>
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<tr>
<td>Anti Discrimination</td>
<td>X</td>
<td>X</td>
<td></td>
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</tbody>
</table>
Conclusions

• “Internet” has been a part of FCC policy for 35 years.
  – Unregulation of enhanced service
  – Affirmative regulation of carriers
  – Open Communications Platform

• Layered Model to Regulation
  – Policy at different layers can be different
  – Market at different layers is different
  – Public interests at different layers can be different

• Policy is about markets
  – not technology
  – Worry about bottlenecks to innovation and markets
Access Charges 1983

- ESPs exempt from metered access charges
  - *As if* local
  - *As if* end users

- End users and ESPs continue to pay flat rate subscriber line access charges.
  - End users purchase 2nd phone lines

Network cutover from NCP to TCP/IP (1 January, 1983)
Computer Inquiry Legacy

Market

Technology

Policy
A Word About Jurisdiction

Applications

Enhanced

ISPs

Title I
(Ancillary Jurisdiction)

Basic

Dial Up

Title II
(Common Carrier)
Definitions

Computer Inquiries

- Enhanced Service
- Basic Service
Definitions
Telecommunications Act

- Layered Model of Services broken
- Telecommunications Service
  47 U.S.C. § 153(46)
  - Telecommunications
  - Offered to the Public
  - For a Fee
  - “or to such classes of users as to be effectively available directly to the public”
  - Regardless of pipe used
The Present
## Today’s Questions

<table>
<thead>
<tr>
<th>Computer III</th>
<th>Internet over Cable</th>
<th>Internet over DSL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enhanced</td>
<td>Applications</td>
<td>Applications</td>
</tr>
<tr>
<td>ISPs</td>
<td>Cable Modem Service (Info Service)</td>
<td>DSL ISPs (Info service)</td>
</tr>
<tr>
<td>Basic</td>
<td>Dial Up</td>
<td>Cable (Telecom not Telecom Service)</td>
</tr>
</tbody>
</table>
Internet Over Cable in the Wake of Brand X: The Perfect Broadband Policy Storm of '04
Internet Over Cable

- 2000: *MediaOne v. Henrico County, VA* (4th Cir)
  - It’s Cable
- 2000: *Gulf Power v. FCC* (11th Cir)
  - It’s Neither
- 1999: *AT&T v City of Portland* (9th Cir)
  - It’s a telecom Service
- 1998: *AT&T TCI Merger* (FCC)
Internet Over Cable

- Telecommunications Service
  47 U.S.C. § 153(46)
  - Telecommunications
  - Offered to the Public
  - For a Fee
  - “or to such classes of users as to be effectively available directly to the public”
  - Regardless of pipe used
Internet Over Cable

- 2002: Declaratory Ruling & Further Notice
  - It’s an Info Service
  - Regulatory Authority Title I
  - Not Title II
    - Not Common Carrier
    - Not Computer Inquiries
  - How Should CMS be Treated?

- 2000: FCC Notice of Inquiry

Applications

Cable Modem Service
(Info Service)

Cable
(Telecom but not Telecom Service)

Unregulated?
Internet Over Cable

Protocol Processing?
Internet Over Cable

- BrandX v FCC (9th Cir)
  - Stare Decisis to Portland
  - Vacated and Remanded to FCC
  - No Analysis of Internet over Cable
  - Motion for Rehearing Denied
  - Motion for Stay Granted
  - Appeal?
    - Appeal What?
    - DOJ & CALEA
    - NCTA
Internet Over DSL

- Appropriate Framework for Broadband Access to the Internet over Wireline Facilities Docket 02-33 NPRM *Pending*

- “Tentatively concludes the wireline broadband Internet access services - whether provided over a third party's facilities or self-provisioned facilities - are information services, with a telecommunications component, rather than telecommunications services. Information services include such services as voice mail and e-mail, which ride over telecommunications facilities.”

Unregulated?

Applications

ISP

DSL
<table>
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### The Future?

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<td>Dial Up</td>
<td>DSL</td>
<td>Fiber</td>
<td>Cable</td>
<td>Powerline</td>
<td>Wireless (unlicensed)</td>
<td></td>
</tr>
</tbody>
</table>

- **Apps**: Applications
- **ISPs**: Internet Service Providers
- **Dial Up**
- **DSL**
- **Fiber**
- **Cable**
- **Powerline**
- **Wireless (unlicensed)**
Pop Quiz!
Internet Telephony...
Functional Approach

Verizon
- Black Phone
- PSTN
- NANP

Vonage
- Black Phone
- PSTN
- NANP
Market Approach

Verizon
- Black Phone
- PSTN
- NANP
- Tied to Physical Network

Vonage
- Black Phone
- PSTN
- NANP
- Uncoupled from Physical Network
- Network Acquired from Third Party
Internet Telephony...
Telecom Service

- Telecommunications Service
  47 U.S.C. § 153(46)
  - Telecommunications
  - Offered to the Public
  - For a Fee
  - “or to such classes of users as to be effectively available directly to the public”
  - Regardless of pipe used

Voice

Information Services
(Enhanced Services)

Telecommunications

1996
Telecom Service

Telecom

- The transmission, between or among points specified by the user, of information of the user's choosing, without change in the form or content of the information as sent and received.

- 47 U.S.C. § 153(43)
VoIP Before the FCC
Steven’s Report
1998

- Spectrum
  - Computer to Computer VoIP: Info Service
  - Phone to Phone VoIP: Looks like a duck

- Steven’s Criteria
  - Holds itself outs as offering telephony
  - No special CPE
  - NANP
  - Transmission w/o change in form or content

- But we decide nothing here
  - Leave it to case by case analysis.
VoIP

Traditional Regulatory Concerns
- Market Power
- Anti Competitive Behavior
- Market Failure
  - Universal Service
- Essential Facilities

Social Regulatory Concerns
- Lifeline – 911
- Power
- CALEA
- Disability Access
Access Charges 1983

- ESPs exempt from metered access charges
  - *As if* local
  - *As if* end users
- End users and ESPs continue to pay flat rate subscriber line access charges.
  - End users purchase 2nd phone lines

Network cutover from NCP to TCP/IP (1 January, 1983)
VoIP Before the States
16 States Acting Total

- **California** – Letter to VoIP service providers directing certification
- **Minnesota** – Vonage (VoIP) is a telecom service (reversed in Fed Court)
- **Wisconsin** – Letter to VoIP service providers directing certification
- **Workshops**
  - Florida
  - Illinois
- **Investigations**
  - Pennsylvania
  - Ohio
  - South Carolina
  - Utah
  - Alabama
  - Colorado
VoIP Before the FCC

- Vonage Petition re Minnesota
- Pulver Petition that Free World Dial Up is an Info Service
- AT&T Petition that its IP Long Distance is an Info Service
- E911 Proceeding
- Universal Service Reform
- FCC Section 255 Notice of Inquiry
- CALEA
- Inflexion Petition
Pulver Petition
Free World Dial Up

- Sip Service
- Does not touch the PSTN
- Does not offer infrastructure network
- But CALEA!
• It’s not Wiretap Authority (ECPA or Title II)
• It is
  – A Pre installed black box
  – Cost Shifting
• FBI CALEA Petition RM-10865
  – Comments due April 12
  – Replies due April 27
  – CALEA Applied to all broadband access services and to applications
• 47 U.S.C. § 1001
Adjunct Services

Directory Assistance?

AT&T Petition

Protocol Processing?
- Phone to Phone
- PSTN
- Over AT&T IP Backbone
Other Issues

- Network Reliability
- SPAM
- Disability Rights
- Backbones
- ENUM
Washington Internet Project

Your source for information on regulatory and legislative initiatives that impact the Internet.
Thanks....

Robert Cannon
Senior Counsel for Internet Issues
Office of Strategic Planning and Policy Analysis
robert.cannon@fcc.gov