Improving FCC Data Reporting and Mapping to Address Rural Broadband Deficiencies

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Disclaimer

The statements and materials associated with this presentation are those of the author alone, and should not be construed as representing any official position of AT&T.

Because we are in the "quiet period" for the FCC's auctions of 24 GHz and 28 GHz spectrum, I cannot discuss specific issues related to these auctions, possible bidding strategies or any views about spectrum values.

I am indebted to my colleague Michael Lieberman for being the principal architect of this proposal and schooling me on it. All remaining errors are my own.

What is the problem?

Broadband is not yet ubiquitous – especially in rural areas

(FCC Form 477 data – June 2017)

	10/1 Mbps	25/3 Mbps
National availability	96.3%	92.4%
Nonrural availability	99.2%	98.3%
Rural availability	85.2%	70.0%

You can't develop an effective and targeted plan to address this deficiency unless you know the locations that are <u>not</u> being served

- Knowing where broadband exists is not especially helpful for universal service plans
- But current FCC Form 477 data focuses on where broadband already exists

Further, it is not clear whether all the data collected are completely accurate

- Results rolled up to the Census Block level
- Definition of "availability"
- Depiction of service characteristics

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Proposed solution method

Collect a database of all potential U.S. customer locations

Collected from available external sources (e.g. E911) and contributed to from broadband provider databases of all present and former customers

Deduplicate the database and geocode its customer locations

Performed on a consistent basis (or bases) by a centralized entity such as FCC or its contractor

Open the database for supplementation or correction

Performed by crowdsourcing or participation by other entities that did not originally contribute to the database

Remove from the database all customer locations that are presently served

Wired and wireless broadband providers to indicate the customer locations that they currently serve along with service characteristics

Develop policies to address the residual unserved locations

The hardest and most expensive of all the tasks – but thankfully not the subject of this talk ☺

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What are the complexities (1)?

What locations should be included?

- Habitable locations / housing units?
- Business locations?
- Other structures (e.g., barns, hunting cabins, shelters, etc.)

What is entered into the database to identify the geographical position of the customer location – noting that wireless companies commonly don't have accurate street information about their customers, and many customer locations in rural or tribal areas don't have street addresses (e.g., RFD route numbers or centralized postal boxes)

- Street address?
- Road segment?
- Lat-long?

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What are the complexities (2)?

Address standardization

- What format should be used?
- What constitutes a duplicate?

Units in some apartment complexes may have separate street numbers, or only separate unit identifiers, or no identifiers at all

Note that will be important in the ISP's determination of whether service is available at the location

How to deal with crowdsourced location offerings

Different entities may have different views as to what constitutes a qualified customer location – how to vet?

Multiple possible geocodes

- Different geocoding engines
- Different geocode goals
- Different intended geocode points

Different engines and their road databases may return different lat-longs for a particular address

Road segment or point on a road segment

Mailbox or driveway along the road, structure(s) that are set back from the road

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What are the complexities (3)?

What constitutes "service?"

- To what?

- How soon?

- What capability characteristics?

How to deal with wireless?

How to deal with shared facility congestion or exhaust?

To a point on the street frontage? To the side or center of the structure? To a specific unit inside the structure? Note that this choice may affect deliverable service quality

Standard has been 10 business days – whether or not construction is required

What is the speed minimum 10/1, 25/3? Latency level? Measured over what period?

Mobile wireless and fixed wireless are quite different their abilities to guarantee particular service levels

Should wireless be given more performance leeway because of its ability to more flexibly adapt to location movements?

Does this disqualify?

How frequently are availability checks to be performed?

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What capabilities should providers report?

Technology

- What granularity?

Speed

- Maximum speeds only?
- All available speed tiers?

Monthly usage allowance?

Latency?

Granularity of database public disclosure

- By individual address?
- By road segment or fraction thereof?
- By Census Block or fraction thereof?

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Conclusions

Improved broadband un/availability reporting is feasible, but it will require:

- Cooperative efforts
- Time
- Money

All parties need to appreciate the complexity of this effort

No measurements will be perfect

Tradeoffs will always exist