

# **The IP Interconnection Debate: What is it and Why is it So Important?**



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## **AT&T/Verizon**

- IP is an information service, not subject to 251/252 or good faith negotiations.
- Internet “peering and transit” contracts demonstrate that commercial negotiations will be successful.
- Regulation of IP interconnection will encourage international regulation of the Internet.

# The Contra-View

- The Act is technology neutral and section 251(c) interconnection rights extend to (at the least) managed VoIP.
- The Act provides for negotiation with safeguards: public disclosure, prohibitions on discrimination, opt-in rights and, where needed, arbitration.

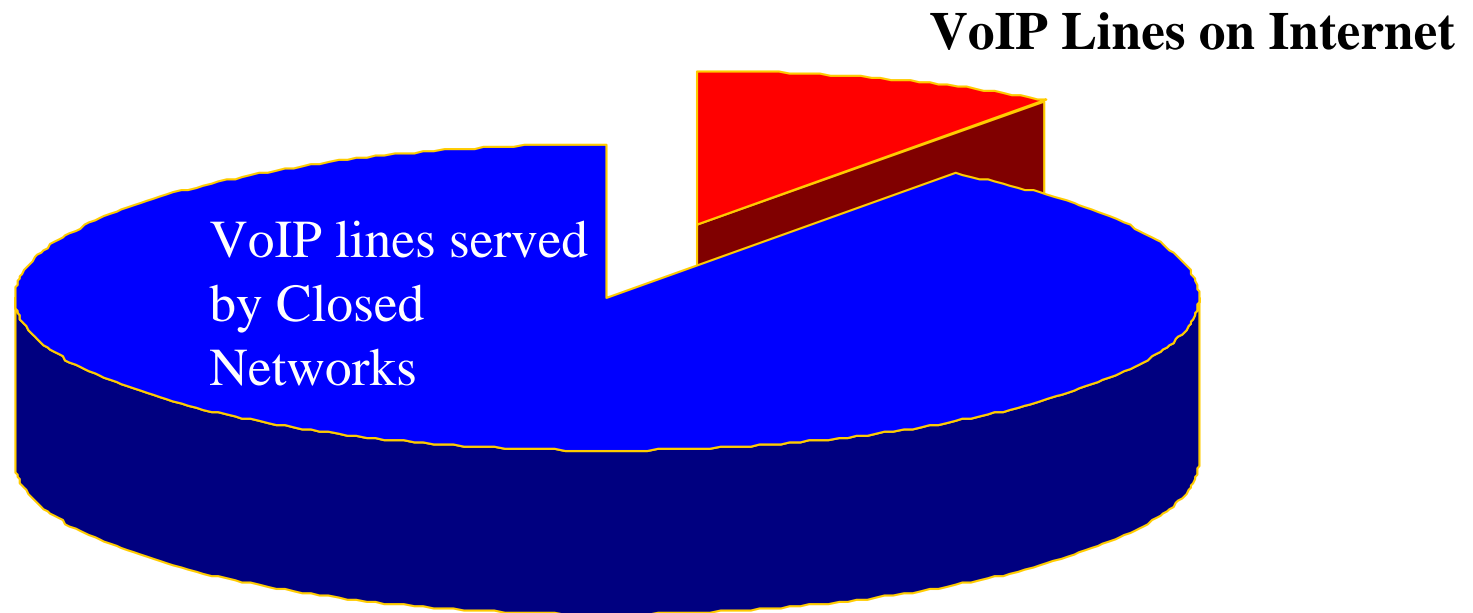
## Why is there an issue?

- If all networks were of the same size and market position, voluntary interconnection and traffic exchange should benefit all equally.
- Where one network is larger than another, the larger network views interconnection as providing greater value to the smaller network.

# First Point

➤ This is *NOT* the internet

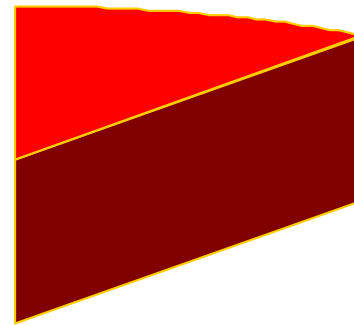
# Most VoIP Services are Provided over Closed (Managed) Networks, Not the Internet



Source: USTELECOM, "Evidence of Voice Competition and ILEC Non-Dominance Mounts," April 2, 2013.

# Managed vs. OTT VoIP

**Vonage is estimated  
to serve 75% of OTT  
subscribers**



Sources: USTELECOM, "Evidence of Voice Competition and ILEC Non-Dominance Mounts," April 2, 2013, at 8.

# FiOS and U-verse are not part of the “Internet”

“To understand the features and quality of FiOS Digital Voice, you first need to know that the service is not the same as the services you get with a little Internet adapter for your modem and phone, and it does not ever touch the public Internet.”

“AT&T U-verse Voice service is provided over AT&T's world-class managed network and not the public Internet.”

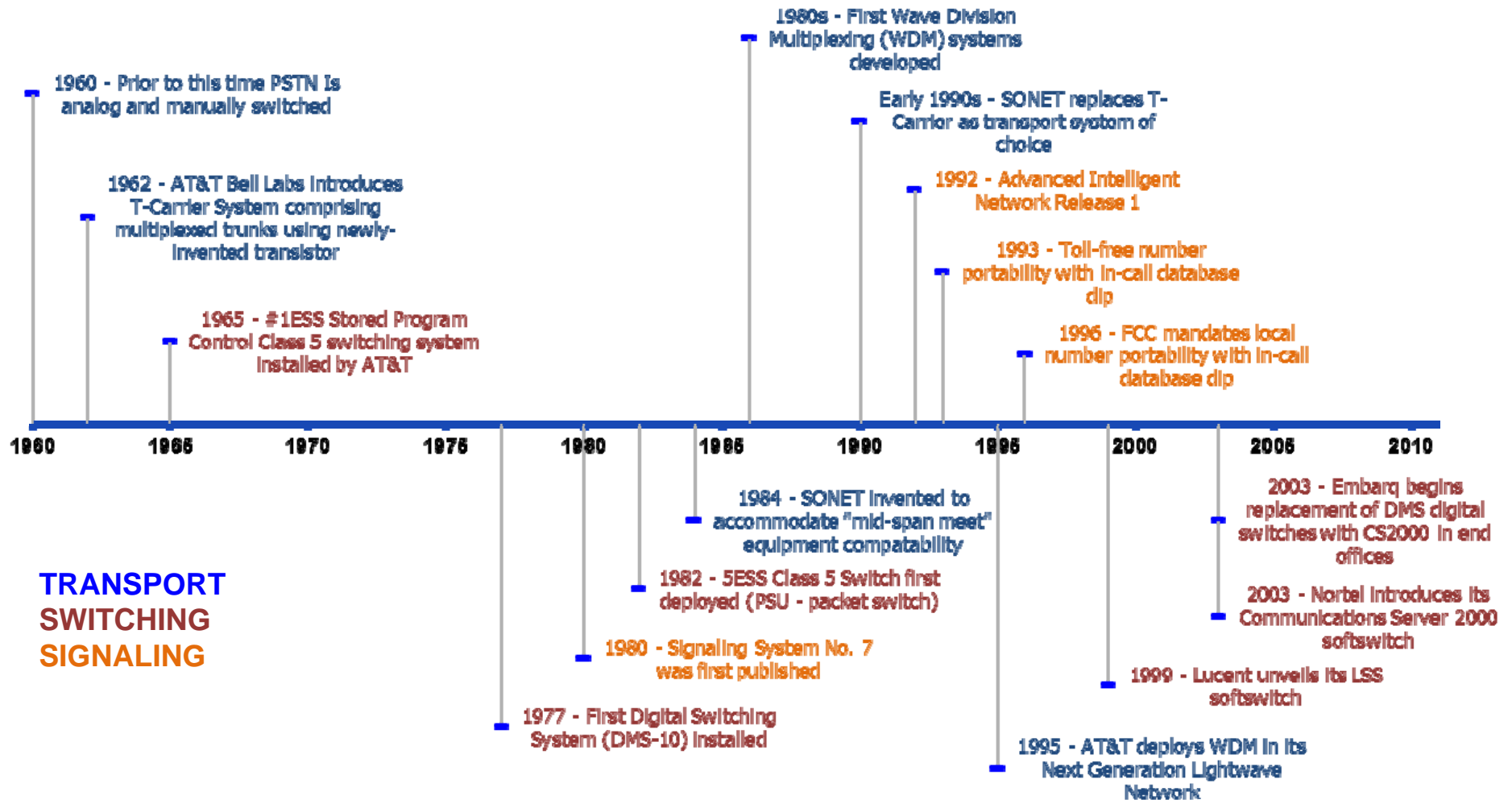
Sources: <http://newscenter.verizon.com/press-releases/verizon/2010/fios-digital-voice-heres.html>  
<http://www.att.com/u-verse/explore/home-alarm.jsp>.



## Second Point

- This is *NOT* the internet
- There have been technological transitions before.

# Technological Evolution in the Telephone Network is Commonplace



SOURCE: ETC GROUP, LLC – INTERNAL RESEARCH

## Third Point

- This is *NOT* the internet
- There have been technological transitions before.
- Interconnection obligations are technology neutral and apply broadly to all carriers.

# Interconnection Duties - General

- § 251(a) – All telecommunications carriers have a duty to interconnect.
- § 251(b) – Reciprocal compensation. All local exchange carriers have a duty to transport and terminate traffic under terms and conditions that provide for the mutual and reciprocal recovery of costs ...

## **ILEC Specific Interconnection § 251(c)**

- (A) for the transmission and routing of telephone exchange service and exchange access;
- (B) at any technically feasible point within the carrier's network;
- (C) that is at least equal in quality to that provided by the local exchange carrier to itself or to any subsidiary, affiliate, or any other party ...
- (D) on rates, terms, and conditions that are just, reasonable, and nondiscriminatory ... and the requirements of this section and section 252.

# Support for Interconnection Oversight of Telecommunications Remains Broad

- Rural and smaller incumbent local exchange carriers.
- Competitive local exchange carriers.
- Most cable-based providers of telephone services.
- Most wireless carriers.
- Consumer advocates.
- State public utility commissions.

## Fourth Point(s)

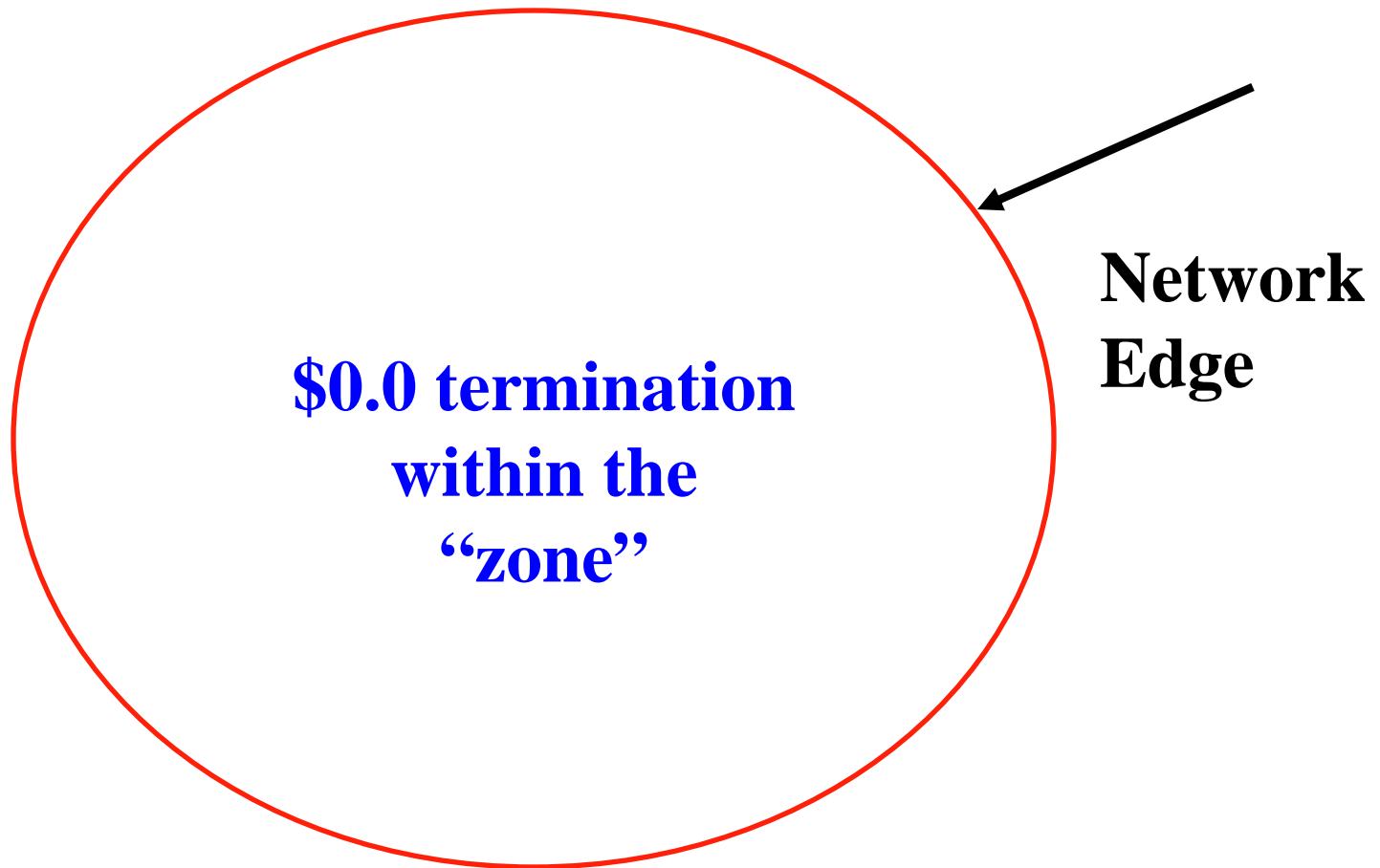
- This is *NOT* the internet
- There have been technological transitions before.
- Interconnection obligations are technology neutral and apply broadly to all carriers.
- The issues are all traditional – sort of.

# IP Interconnection Issues

- Where should there be interconnection?
- What should be the geographic scope of traffic exchange?
- Compensation



# The § 251(b) Framework



## Internet Interconnection: The Basics

There are two primary methods in which networks interconnect to exchange Internet traffic.

- **Peering:** an arrangement where two networks (autonomous systems) interconnect to exchange traffic between their customers on a settlement-free basis.
- **Transit:** a service whereby a network provides access to the entire Internet for a fee.

In addition to Peering and Transit arrangements, providers may exchange traffic over On-net Transit arrangements.

- **On-Net Transit:** an arrangement where a network provides access to only its customers for a fee.



# Internet Interconnection: Peering

## Peering

An arrangement where two networks (autonomous systems) voluntarily interconnect to exchange traffic between their customers.

- Commercially negotiated
- Barter transaction – parties' perceived value of arrangement is equal
- Settlement-free
- Usually includes criteria to ensure arrangement is equitable, which may include:
  - Interconnection locations, quantity and bandwidth
  - Comparable geographic scope of network
  - Traffic volume
  - Traffic balance
- Traffic is limited to that exchanged between each party's customers
  - "Customer" is broadly defined and includes:
    - Consumer broadband subscribers
    - Business broadband subscribers: small business, enterprise, hosting
    - Purchasers of Transit: ISPs, content providers, Content Delivery Networks



# Internet Interconnection: Transit

## Transit

Transit is a service whereby a network provides access to the entire Internet.

- Offered by backbone networks with extensive connectivity with other networks
- Commercially negotiated
- Market-based rates
  - Various pricing models; e.g. flat-rated capacity, usage, tiered
  - Charges are indifferent as to traffic direction
- Can interconnect in as little as one location
- Many more interconnection location options than peering
- Purchasers include:
  - ISPs
  - Content providers
  - Content Delivery Networks



# The AT&T Framework



**You buy a service for a fee --  
“zone” may be nationwide**

**Network  
Edge**

# IP Interconnection Issues

- Where should there be interconnection?
- What should be the geographic scope of traffic exchange?
- Compensation
- **How to guarantee service quality across multiple IP networks?**

## **Fifth Point**

- This is *NOT* the internet
- There have been technological transitions before.
- Interconnection obligations are technology neutral and apply broadly to all carriers.
- The issues are all traditional – sort of.
- States leading the way.

## **February 24, 2012**

“Verizon currently has one agreement in place covering its FiOS Digital Voice VoIP traffic, and we are negotiating others.”

## **February 25, 2013**

“Verizon currently has one agreement in place covering its FiOS Digital Voice VoIP traffic, and Verizon will continue to negotiate IP voice interconnection agreements in good faith and hopes to enter into more agreements for this traffic going forward.”



**June 26, 2013**

2 In compliance with that directive, Verizon MA submitted on May 30, 2013, its voluntary commercial agreement covering its FiOS Digital Voice VoIP traffic, which Verizon has referenced in certain FCC filings. That agreement is **\*\*\* Begin Proprietary\*\*\*** [REDACTED]

**\*\*\* End Proprietary\*\*\*** To the contrary, it primarily **\*\*\* Begin Proprietary\*\*\*** [REDACTED]

[REDACTED] **\*\*\* End Proprietary\*\*\*** Verizon MA also submitted an agreement that provides **\*\*\* Begin Proprietary\*\*\***

[REDACTED] **\*\*\* End Proprietary\*\*\***].

# Key States

- Massachusetts heads to hearing late April
- Michigan rules that 251/252 applies.

# **Final Comment – AT&T Experiments**

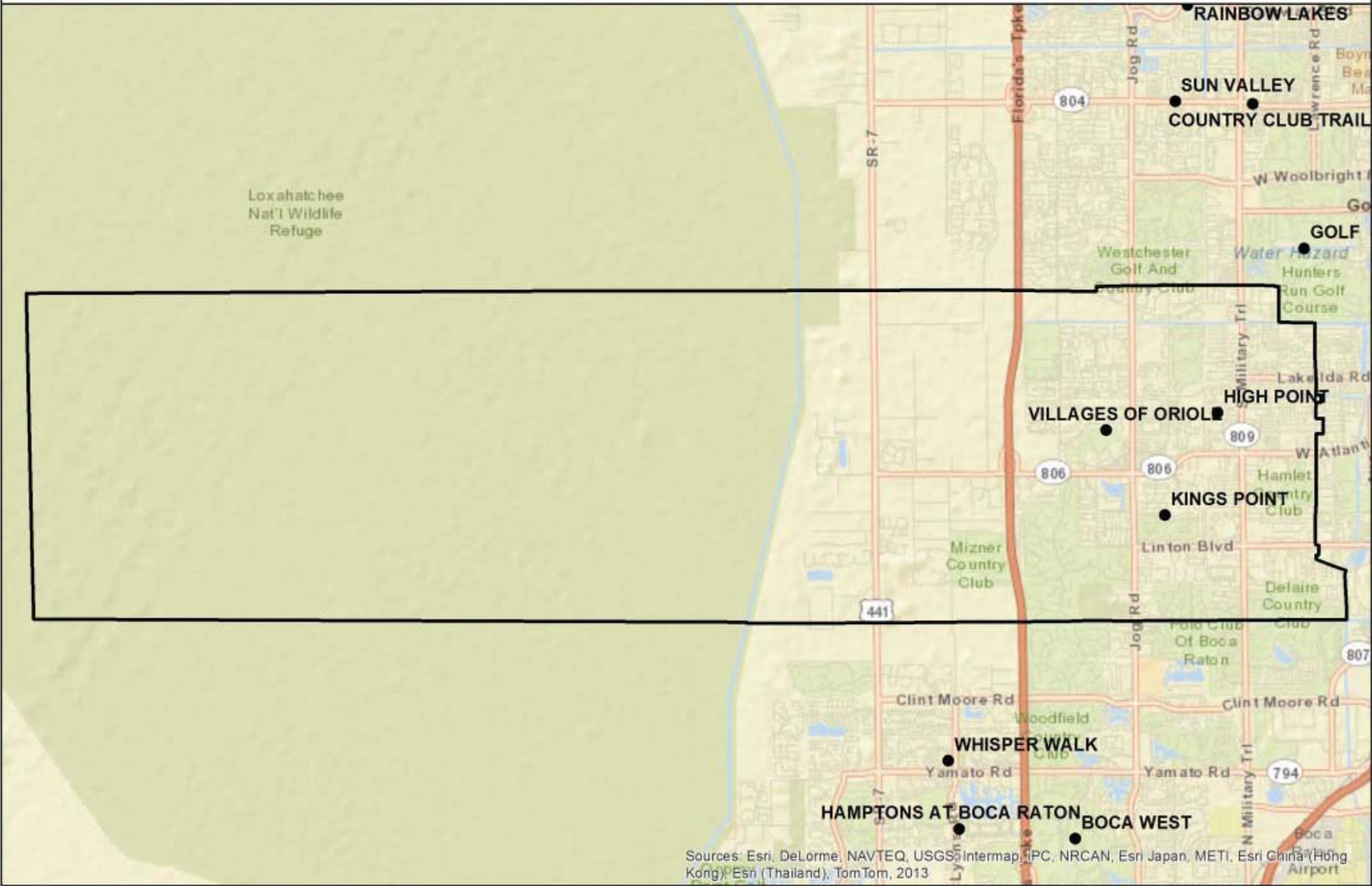
# AT&T's Many Hats



- Retail Provider
  - Residential Market
  - Business Market
  
- Wholesale Provider
  
- Co-carrier

Legend  
● City Points - All

0 1.5 3 6 Miles



Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, IPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013

# AT&T's Many Hats



- Retail Provider
  - Residential Market
  - Business Market ...well ... sort of, maybe
  
- Wholesale Provider
  
- Co-carrier