Robert W. Quinn, Jr.
Senior Vice President
Federal Regulatory and
Chief Privacy Officer

AT&T Services, Inc.
1120 20th St., NW, Suite 1000
Washington, DC 20036
T: 202 457.3851
F: 202 457.2020

June 7, 2012

VIA ELECTRONIC SUBMISSION

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW – Lobby Level
Washington, DC 20554

Re: *Special Access Rates for Price Cap Local Exchange Carriers*, WC Docket No. 05-25, *Pacific Bell Telephone Company Petition for Pricing Flexibility Under Section 69.727 of the Commission's Rules*, WCB/Pricing File No. 12-04, *Southwestern Bell Telephone Company Petition for Pricing Flexibility Under Section 69.727 of the Commission's Rules*, WCB/Pricing File No. 12-05

Dear Ms. Dortch:

On Tuesday, June 5, 2012, I met with Josh Gottheimer, Senior Counselor to Chairman Julius Genachowski, to discuss the Commission's on-going investigation of the marketplace for special access services and AT&T's pending pricing flexibility petitions. AT&T argued that as no one has challenged its showing that it has met the applicable triggers for pricing flexibility in the San Antonio and San Francisco/Oakland metropolitan statistical areas, it plainly is entitled under the Commission's current rules to the relief it has requested. As the Commission itself has recognized, until such time as the Commission finds, based on an "adequate evidentiary record" (which the Commission itself has acknowledged is currently lacking),[1] that the existing pricing flexibility rules (including the triggers) are inadequate and should be changed, its review of pricing flexibility petitions is properly confined to determining whether the applicable triggers are met.

Additional topics touched upon in our discussion are summarized on the attached materials, which I distributed at the meeting.

Pursuant to section 1.1206 of the Commission's rules, this *ex parte* notification is being filed electronically for inclusion in the record of the above-referenced proceeding.

Sincerely,

Robert W. Quinn Jr.

Attachments

cc: Josh Gottheimer

[1] COMPTEL, et al., United States Court of Appeals for the District of Columbia Circuit Case No. 11-1262 (filed Oct. 6, 2011) (opposing COMPTEL's request for mandamus directing the FCC to complete its special access rulemaking, inter alia, on the ground that "the Commission is still in the process of gathering data it needs to assess whether its special access rules should be revised").

ATTACHMENT 1

TDM-based DS1 and DS3 Are Legacy Services in Decline

"In any industry subject to significant technological change, it is important that the evaluation of competition be forward-looking rather than based on static definitions of products and services. Insight can best be gained by looking at product life cycles, the replacement of older technologies by newer ones, and the barriers facing suppliers that offer those newer technologies. In the case of broadband services, it is clear that the market is shifting generally in the direction of faster speeds and additional mobility." U.S. Dept. of Justice, Comments on Nat'l Broadband Plan, Jan. 2010

- ***The Special Access Marketplace has changed dramatically since 2010 with the irreversible marketplace shift to Ethernet services and other packet-based services***
  - Ethernet services are displacing legacy TDM services
    - AT&T sales of DS1s and DS3s to wireless carriers peaked in April 2011
      - By EOY 2011, wireless carrier purchases of DS1s declined by nearly 20%
  - The displacement of special access by Ethernet services is not limited to wireless customers
    - Report shows purchasers' allocation of their spending to DS3 and below declined from 68% in 2008 to only 36% in 2011
  - Comcast blogged on 5/3/12 that its internal survey results confirm the ascendance of Ethernet, describing the "'death of the T1. " It stated that "[a]ccording to the survey, Ethernet is the most common technology used by organizations today (65%) and overwhelmingly the solution that organizations plan to invest in over the next 12 to 24 months (57%)."

- ***Wireless Carriers are leading the conversion using numerous alternative suppliers***
  - **Sprint** RFPs for contracts to provide Ethernet backhaul to 40K of its ~ 45K cell sites
    - Has awarded contracts for 25K sites with 15K to be awarded in mid-2012
    - "will end up with 25 to 30 significant backhaul providers that will likely be a mix of incumbent LECs, cable MSOs, and alternative carriers, all of whom will be expected to deliver Ethernet predominantly over fiber"
  - **T-Mobile** has publicly announced that it is committed to using Ethernet backhaul for all of its 3G cell sites and has largely completed this transition
    - More than half of its connections for 3G-capable cell sites awarded to various cable operators, alternative fiber providers, and a wholly owned subsidiary of a utility company
    - Backhaul cost per megabyte reduced by 90%

- ***The Ethernet Marketplace is robust and intensely competitive***
  - There are 9 facilities-based Ethernet providers with $\geq$ 4% marketshare, including tw telecom, Cox, XO, Time Warner Cable, Level 3 and Cogent
    - No provider has > 24% marketshare
  - XO's network can provide Ethernet services to >10M businesses and approximately half of its enterprise customers are served via Ethernet
    - 70% of its new orders are related to Ethernet
    - XO also provides fiber-based wholesale services to large carriers, cable operators and mobile operators
  - Level 3 is a major supplier to Verizon Wireless

- Cable's Ethernet marketshare is projected to increase substantially over the next several years, from close to 25% to approaching 30% (Heavy Reading Insider July 2011)
    - For example, Comcast said on 5/2/12, "Metro-E and PRI trunk voice, which are now available in all of our markets are making an increasing contribution to the business services results."

➤ ***Competitive wireline provider announcements demonstrate business model evolution***

- Cbeyond announced long-term dark fiber purchases from Zayo and Fiberlight to connect more than 700 buildings, displacing DS-1 circuits purchased from ILECs (May 2012)
    - 75% - 85% of these buildings have not been previously served by fiber
    - Costs of $35K - $45K per building
        - Lower costs than prior estimates due to:
            - Proximity to existing fiber rings
            - Suburban locations cheaper to serve than "downtown high rises"
            - Latest generation technology costs continue to decline
    - Cbeyond's target is to "light" 1,000 buildings by EOY 2013
- tw telecom disclosed that "Strategic Ethernet & VPN" account for over 25% of their total revenues and grew by 23.7% in the past year (May 2012)
    - Wireless carrier revenues now account for 6% of twtc's total revenue
    - Two-thirds of revenue is fully on-net

➤ ***Competitive responses to the two voluntary data requests were limited, incomplete and inadequate to assess the availability of competitive alternatives***

- < 10 CLECs responded to the 1st data request
    - Many of those failed to provide fiber maps or mapping data
- Only 7 competitive providers responded to the 2nd data request
    - While cable companies have become major competitive providers, the sole cable respondent was RCN
- Only last October the Commission advised the D.C. Circuit Court of the shortcomings of data before it, saying "[u]nfortunately, the Commission has faced obstacles in its efforts to gather the data it needs to make an informed decision on special access. For instance, in response to the FCC's October 2010 request for special access data, fewer than 10 percent of petitioner COMPTEL's service provider members (7 of approximately 90) submitted data concerning their experience in the special access market."

➤ ***Special Access volume and term discounts are pro-competitive and voluntary***

- AT&T offers many discount plans, including term discounts with no volume commitment
- Customers may also choose discount plans with both volume and term discounts covering only a fraction of their overall volumes to those plans
    - This allows significant volumes that can be readily moved to competitive providers
- Suggestions that customers are somehow "locked-in" to AT&T services are false

- ***AT&T's unopposed pending petitions for Phase II Pricing Flexibility for end-user chan terms in the San Francisco/Oakland and San Antonio MSAs should be granted***
  - The Commission's pricing flexibility rules were designed over a decade ago, as one of the few mechanisms it has to consider changes in the competitive landscape and provide relief from pricing regulation
  - Since these rules were implemented, nine companies have been granted relief via 38 petitions covering 270 market areas
    - AT&T, specifically, has been granted relief via 25 petitions covering 150 market areas
  - AT&T's petitions before the FCC today show that 27 collocated competitors exist in the San Francisco/Oakland MSA and there are 17 collocated competitors in the San Antonio MSA
  - The FCC should grant this relief and not change course mid-stream as AT&T has met the competitive benchmark test that has been in place since 1999

- ***Sprint's filing is procedurally improper and thus should be stricken from the record***
  - Although the Bureau gave Sprint and other interested parties 47 days (more than 3-times the amount of time stipulated in the Commission's rules) to file, no party opposed during that extended comment period. Sprint waited until May 23rd (two and a half months after the opposition deadline) to file its opposition to AT&T's petitions.
  - Sprint fails to request a waiver of the filing deadline or offer any explanation why it failed to file within the generous 47 day filing period established by the Bureau.
  - Sprint's Opposition fails to advance a single argument or shred of evidence that Sprint could not have adduced within the deadline.
  - Sprint's late-filed Opposition makes a mockery of the Commission's pricing flexibility pleading rules and deadlines, as well as of the Bureau's notice seeking comment on AT&T's petition.
- ***Sprint's Opposition seeks relief that departs from and is fundamentally at odds with well-settled principles of administrative law and Commission precedent.***
  - Sprint does not allege that AT&T has failed to show that the pricing flexibility triggers are met. Instead, Sprint launches a collateral attack on the triggers themselves.
  - Sprint takes the position that merely *initiating* an investigation into *whether* the existing pricing flexibility rules are working as intended frees the Commission at any time to assume the conclusion that they are not – regardless whether it has even collected the data that would be necessary to answer that question – and simply refuse to comply with its rules.
  - The Commission itself recently acknowledged in its opposition to COMPTEL's special access mandamus petition that, "[t]he FCC has yet to draw any firm conclusions about the accuracy of its predictions regarding special access"[1] and "that, because it "[l]ack[ed] sufficient data to resolve this fundamental dispute,"[2] it "appropriately recognized that it should make no decisions about revising its special access rules before it ha[d] compiled and analyzed an adequate evidentiary record."[3]
  - As recently as 2010 the Wireline Competition Bureau rejected GCI's opposition to a pricing flexibility petition filed by ACS of Anchorage that raised arguments identical to those raised by Sprint here.

---

[1] FCC Mandamus Opposition at 17.

[2] That is, "whether its current special access rules ensure just and reasonable rates." *Id.* at 15.

[3] *Id.* at 19.

ATTACHMENT 2

Repealing De-Regulation: How Not to Build a Roadmap Towards an All-IP World

Posted by: Bob Quinn on June 5, 2012 at 7:55 am

The FCC has circulated an order that would undo more than 12 years of Clinton-era, deregulatory pricing policy on legacy non-packet services. The services in question are called "special access" services – 95% of which are slow 1.5 megabits per second (Mbps) TDM (think POTS) services. That is not a misprint. We are not talking about 100 Mbps connections – services we should actually be figuring out how to get to more people in more places. We are not even talking about fiber. We are talking about legacy, copper-based services that are so slow the services would not qualify for a single dollar of Universal Service Fund (USF) support if they were deployed to homes throughout rural America under the Commission's recent USF order.

We are concerned about the impact the proposed action is going to have for the overall transition to IP technology that the FCC had begun in that USF order. The transition to IP cannot happen fast enough. The industry needs to move to a more cost-effective, all-IP infrastructure if we are going to remain a globally competitive economic force. In regulatory time, that transition must occur with incredible speed. Once subsidies are removed from TDM/POTS infrastructure, carriers will need to nimbly move to retire that infrastructure to make way for an all-IP world. In the USF order, the FCC took a great step in that direction by declaring the obsolescence of TDM/POTS.

To make those investments work, however, there must also be a path away from the costs of the legacy infrastructure. AT&T itself is in the process of evaluating how we are going to address the overall rural investment issues in our own footprint. Today's announcement by the Commission will have a significant impact on those calculations and the feasibility of long-term rural investment. Simply put, if there is no clear path to migrate to an all-IP infrastructure, that investment calculation looks much more challenging.

The FCC should be creating a parallel path for these services like it created in the consumer market. In other words, we should be crafting a plan to retire these services and get businesses and competitive carriers on the path towards deploying fiber-based broadband services that are much faster than 1.5 Mbps.

Some competitors may argue that they can't build more fiber to businesses. But the reality is that many of them do exactly that. Level 3 says it has fiber within 500 feet of more than 100,000 "enterprise" office buildings. Sprint just conducted a huge RFP for fiber-based backhaul services and awarded contracts to between 25 to 30 different backhaul vendors across the U.S. all willing to build high-capacity Ethernet backhaul.

Cable companies have been aggressively competing for years by building out their own footprint. Verizon builds fiber to three homes in the hope that that one customer of three chooses to buy video, voice and broadband service from them. Clearly this is not a "natural monopoly" where investment is impossible.

With the right policies, we could have this type of significant investment in every area on the path to an all-IP world. That is what the Obama Administration called for in its mission to get high speed wireless broadband to 98% of Americans and its renewed call earlier this year to create jobs by upgrading the nation's infrastructure, including its communications infrastructure. And this is exactly the kind of wide-scale infrastructure investment that can create jobs, keep the economy moving and keep America globally competitive. The mission is clearly articulated and appears to have universal bi-partisan support – broadband infrastructure investment creates jobs. But we need a plan to get there and, unfortunately,

that does not appear to be the road the FCC has chosen to go down. The rhetoric is good, but at some point we have to walk the talk. Right now, it's all just talk.

So, what are we going to do instead? Apparently, we are going to go backwards and try to figure out the perfect way to price-regulate a technology that is fast becoming obsolete. The one thing guaranteed is that the stable pricing regimes that have been in place for 12 years will be challenged in litigation by competitive carriers across the country – all arguing for lower rates; none explaining how lower rates on yesterday's technology will actually spur investment in fiber-based IP technologies. Who will benefit? Those companies who are clinging to yesterday's technology so that they do not have to invest in America's future.

Instead of creating a path to fiber, significant infrastructure investment by all carriers, job creation and achieving the nation's broadband goals, we are going to instead pursue policies that will result in *less* fiber, *less* infrastructure investment, *less* job creation, and *less* broadband. It's not that we haven't pulled this kind of transformation before. We managed the move from horse and buggy to automobile and became the world's automotive leader in the process back then. But if we pursued policies early in the 20th century with the same game plan we are pursuing broadband policies today, we'd have a lot of cars still being pulled around by horses.

http://attpublicpolicy.com/broadband-policy/repealing-de-regulation-how-not-to-build-a-roadmap-towards-an-all-ip-world/

ATTACHMENT 3

Economic Policy Vignette 2012-6-4

Regulation in financial translation

The importance of current data in the FCC's special access proceeding

Anna-Maria Kovacs, Ph.D., CFA

May 2012

©Anna-Maria Kovacs 2012

Anna-Maria Kovacs is a Visiting Senior Policy Scholar at Georgetown University's Center for Business and Public Policy. She has covered the communications industry for more than three decades as a financial analyst and consultant.

GEORGETOWN UNIVERSITY
McDonough SCHOOL of BUSINESS
CENTER FOR BUSINESS & PUBLIC POLICY

Executive Summary

The importance of current data in the special access proceeding

- **Despite two comprehensive data requests and a workshop, the Federal Communications Commission (FCC) has said that it lacks adequate data to address special access pricing.**

- **There are conflicting claims in the docket, with retail customers asking for lower prices and wholesale customers claiming that they can't compete even now.**

- **Many claims in the record rely on 2007 ARMIS data, and on the GAO and NRRI reports. All of these were flawed even at the time and are obsolete now.**

- **Whatever the profitability of the ILECs might have been in 2007, their economics have deteriorated sharply since then, as they have lost subscribers in various market segments.**

- **The market for IP and Ethernet for enterprises and for wireless carriers is highly competitive.**

- **Both wireless and wholesale customers make it clear in their own presentations to investors that their networks are based on IP and Ethernet over fiber. They are likely to reduce use of DS-1 and DS-3 circuits sharply, if not to abandon them altogether.**

- **Thus, even at current prices, the profitability of the ILECs' DS-1 and DS-3 services will be reduced in 2012 and 2013 as a result of customer-penetration decreases.**

- **Before the FCC acts on special access, it needs data that will enable it to understand the market, particularly the fiber-based IP and Ethernet market that is evolving to replace the obsolete TDM world.**

What is special access and how is it priced?

Special access is non-switched--i.e., dedicated--access bought to satisfy communications needs such as large volume, or higher-than-usual network security or reliability. Communications links are sold individually or in various groupings. The links for a single purchase may be in one geographic area, or distributed around the U.S. or the globe. The customers may be enterprises or they may themselves be network providers of various sorts, seeking to supplement their own networks. Enterprises—financial institutions are typical—are large retail customers who seek a complex and secure network able to handle high volumes at the lowest possible price. Customers who are themselves network providers may be supplementing their networks for their own use—e.g. wireless providers seeking backhaul from their cell towers. CLECs may use special access from ILECs to supplement their own networks, to resell as part of their own special access offerings to the retail or wireless market.

Special access pricing is regulated under three levels of flexibility, depending on the degree of competition in a particular MSA, measured by the level of CLEC-collocation in central offices in the MSA.[1] These prices are available to both retail and wholesale customers:

- **Markets where ILECs offer only price-capped, tariffed "list prices"--i.e. rates available to all customers regardless of volume or term.**

- **Phase-I flexibility markets, in which ILECs can also offer tariffed discount plans. The discounts are offered via customized contracts which discount off the "list prices" based on term and/or volume commitments. The contracts are filed with the FCC and are also available to anyone who meets the specified contract terms and conditions. In Phase-I MSAs, ILECs can only lower their rates.**

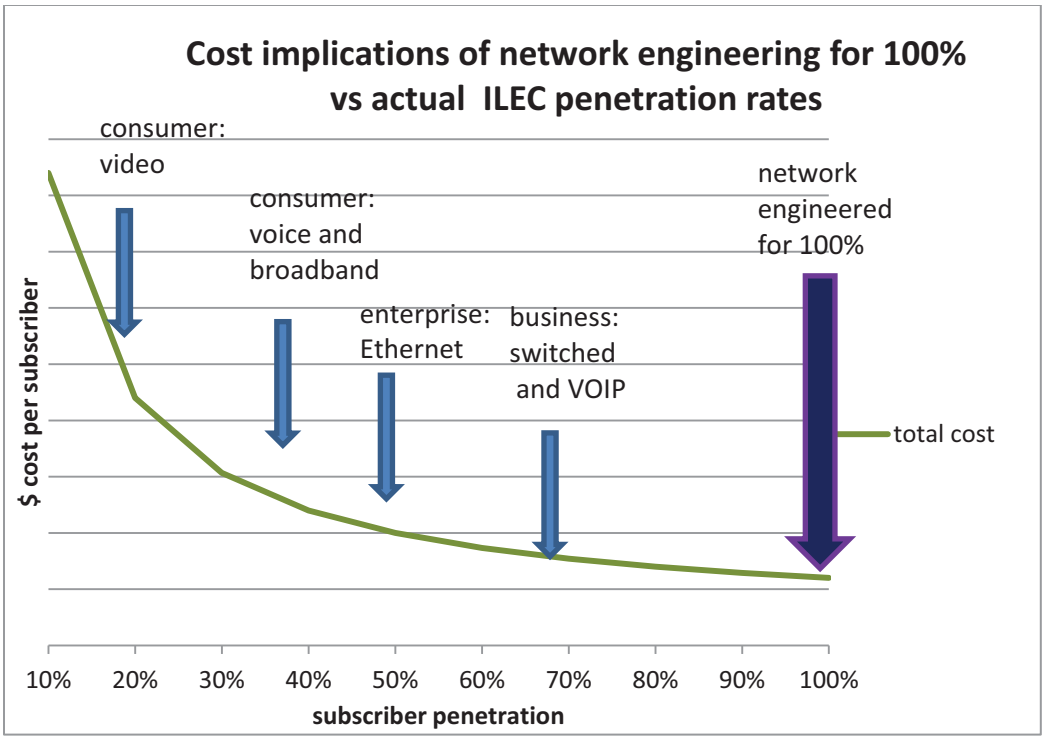
- **In MSAs with Phase-II flexibility, ILECs can either lower or raise rates. The "new list" prices must be filed with the FCC. Commercial contracts providing discounts off the new list prices can be offered.**

DS-1 and DS-3 links are the particular special access facilities whose pricing is in dispute in this proceeding. TDM-based and carrying 1.5 Mbps and 45 Mbps respectively, these are relatively low-capacity circuits based on an outmoded technology that is rapidly being displaced by much-higher capacity Gigabit-Ethernet or OCn links. One of the questions in this proceeding is whether DS-1s and DS-3s are overpriced, or whether they are now underpriced relative to the industry's current cost structure. The other key question is whether these obsolete facilities' survival will be artificially lengthened by pricing actions that discourage investment in Gigabit-Ethernet.

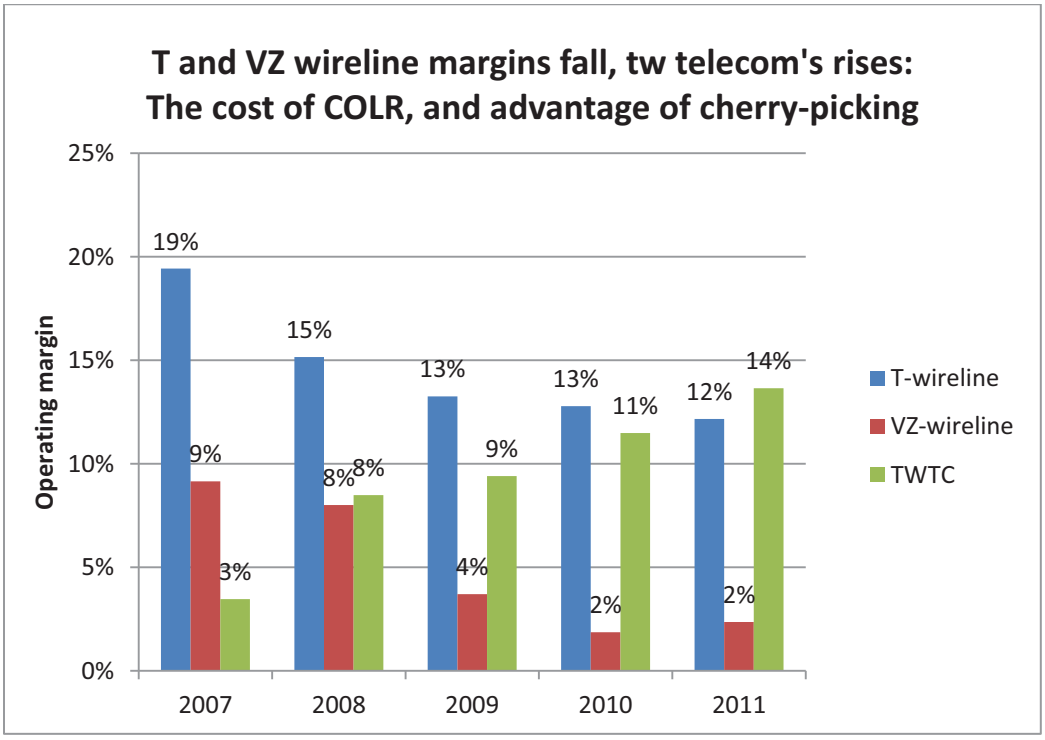
***The economics of fixed-cost networks*:**

In telecommunications networks, costs are largely fixed and shared. As customer penetration increases, that provides helpful scale economies. However, when customer penetration falls, those economies are reversed and the cost-per-remaining-subscriber increases, until it becomes asymptotic at low penetration rates. That effect is likely to be particularly marked if COLR obligations and inflexible service-quality standards force a network operator to stand ready to serve 100% of its original market at the original standards.[2]

[1] FCC, Fifth Report and Order and Further Notice of Proposed Rulemaking in CC Docket 96-262, August 5, 1999. Also see Mayo pp. 39-41 and GAO pp. 2-6.
[2] Sources for all figures in the executive summary are provided in the body of the text.



This has numerous regulatory implications. It cries out for a rethinking of the feasibility of maintaining COLR obligations, for one thing. In the context of the special access proceeding, it means that any cost-data the FCC relies on has to be current. Specifically, the 2007 ARMIS data that is frequently

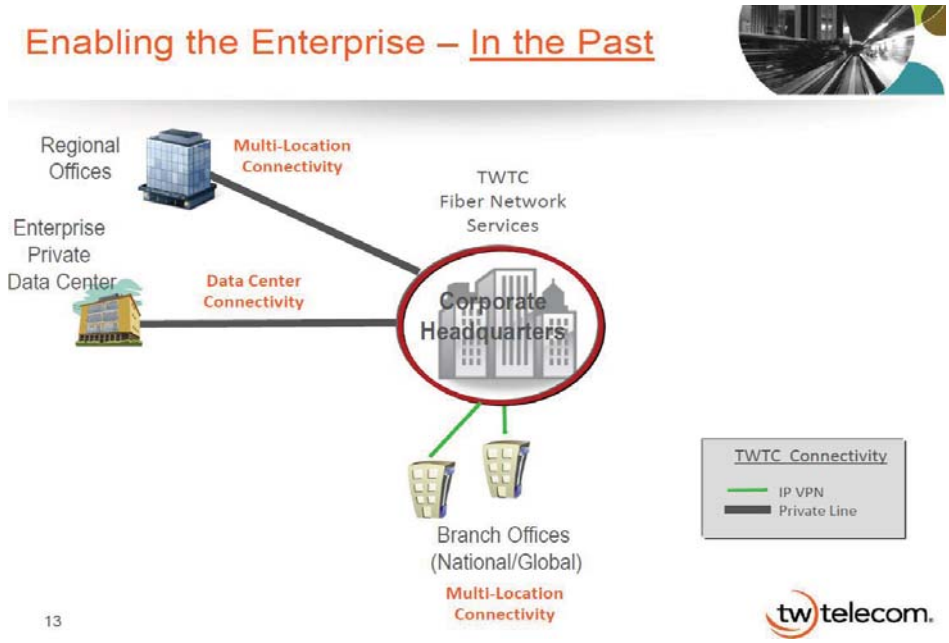


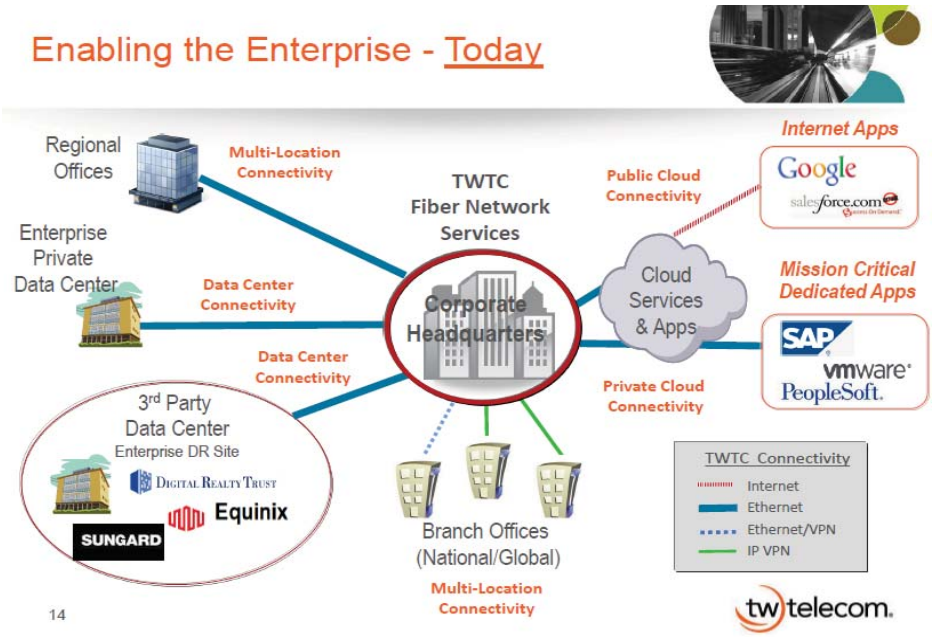
referenced in the record is likely to greatly overstate the current profitability of the ILECs in total, and the allocated-profitability of special access in particular.

As the figure above shows, AT&T (T) and Verizon's (VZ) wireline-operations' profitability has decreased sharply since 2007. Given that costs are shared between services both in reality and in ARMIS, the precipitous decline in subscriber-penetration in the consumer market as well as the decline in business-subscriber-penetration is likely to have resulted in lower profitability for various services, including special access.

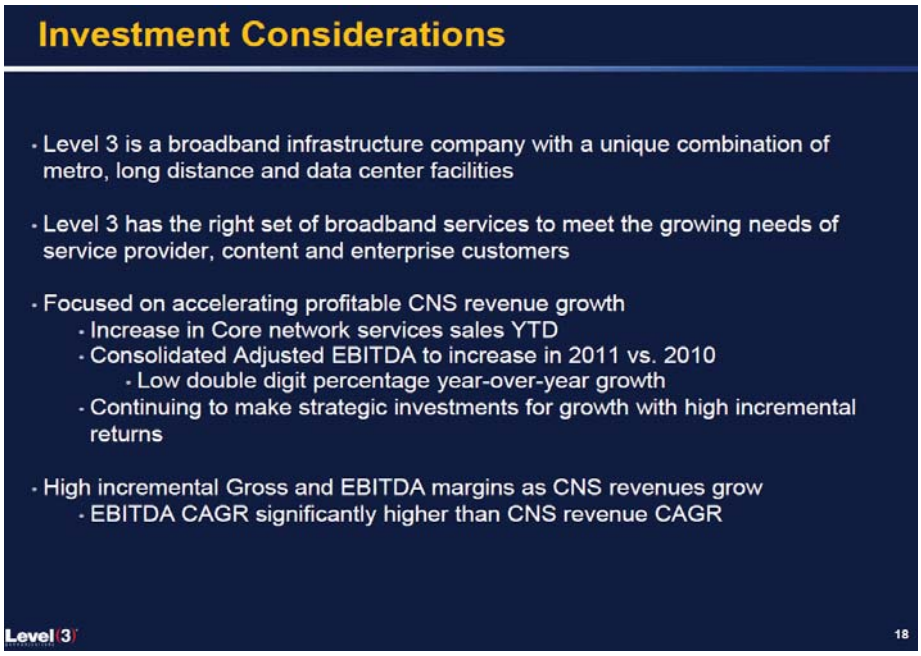
One can debate whether attempting to derive profitability at the level of a specific service such as special access is meaningful at all, much less at the more specific level of DS-1s and DS-3s. Indeed, we argue below that there are many more relevant questions that the FCC has asked in its comprehensive data requests. If it can actually get answers to those questions from all parties who have an interest in special access, it will have a much better understanding of the industry's competitive dynamics than if it relies on arbitrary accounting allocations. What is not debatable is that any information on which the FCC does rely in assessing this rapidly-changing industry has to be current.

What is also not debatable is the obsolescence of PSTN relics like DS-1s and DS-3s. When carriers like tw telecom (TWTC), Level 3, Sprint, T-Mobile—both wireless and wired—talk to investors, they talk about fiber, about IP, and about Ethernet. Wireless carriers, enterprise-network providers, data-center- network providers, and wholesale carriers all boast about their intelligent fiber networks and about their place in the Ethernet ecosystem. In tw telecom's investor-presentation slides, it makes the point very clearly: private line, i.e. special access, is "in the past," Ethernet is "today."



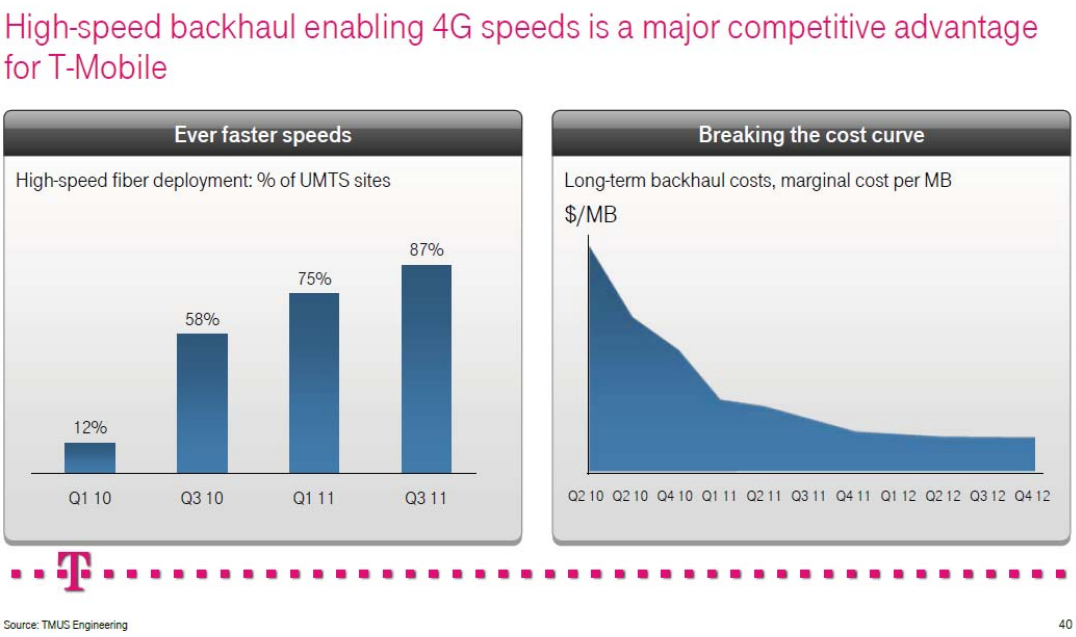


Level 3's September 2011 investor road-show described the company's broadband infrastructure and



services. Those are bearing fruit for the company, as Communications Network Services (CNS) is gaining revenues and enjoying high incremental gross margins and EBITDA margins.

T-Mobile and Sprint both plan to move to high-speed backhaul, and to complete that migration by 2013. The slide below from a January 2011 T-Mobile presentation explains both the need for bandwidth and the economics.



These companies' use of DS-1s or DS-3s is clearly temporary. And that is an important point, because it means that when they ask ILECs to provide new DS-1s or DS-3s, it is with the intent of abandoning those long-lives assets within a year or, at most, a very few years. Thus, those leasing ILEC special access are not just asking the ILEC to substitute its capital for theirs; they are asking it to invest knowing up-front that most of that investment will be stranded.

These customers have no incentive to make decisions that conserve ILEC capital. If the regulators allow it, they can force the ILECs to supply circuits that will never pay back the investment made in them. ILECs--who have to serve all who request service at prices that are either still regulated, discounted off those regulated prices, or renegotiated off those prices even where there is supposed upward flexibility--have to waste capital on facilities that are obsolete even as they are placed. That leaves less capital for the ILECs' IP-migration.

But the right that regulators give to the ILECs' DS-1 and DS-3 customers to waste ILEC capital also means that they are being encouraged to distort their own investment decisions. The best explanation of the problem comes from a company that decided to build its own network, independent of the ILECs. Cogent describes itself as a provider of optical Internet, serving businesses that range from small to Fortune 100 as well as Net-Centric customers, which include carriers, Internet Service Providers, and content providers. As unflattering to the RBOCs as it may be, Cogent's explanation of its success bears some thought:[3]

> **"Cogent was founded on the premise that bandwidth can be treated like a commodity—produce mass amounts and position it for sale based on price. Leveraging new technologies, we built our own IP data network independent of the traditional voice-based networks owned by the RBOCs (Regional Bell Operating Companies). By doing so, we believed we could reduce**

[3] Cogent website, overview of Cogent last accessed on May 30, 2012 at History

> **the cost of high quality bandwidth down to a level never before offered in the marketplace. Less than five years after lighting our network backbone, we have become widely recognized as one of the largest carriers of Internet traffic in the world."**

Cogent's list of key differentiators includes not only price, but diversity from traditional carriers that enables redundancy for customer data, and network-simplicity that allows rapid provisioning.

Thus, the most important questions the FCC has asked so far relate to the process by which customers decide to lease ILEC facilities rather than build their own. But even more important is the question, when does the forced provision of mispriced facilities become counterproductive? Why has Level 3 not yet built out to some of the 100,000 enterprise-buildings that are within 500 feet of its fiber network?[4] Is reliance on obsolete ILEC wholesale facilities retarding not only the ILECs' own migration to an all-IP world, but also that of their customers, including their competitors? If the FCC's goal is to move the U.S. to an all-broadband ecosystem as rapidly as possible, it needs to put the right investment incentives in place.

In their presentations to investors, the ILECs' special access customers have made it clear that DS-1 and DS-3 circuits are obsolete and are being rapidly abandoned. Thus, it is not clear that further study of the pricing of these TDM-circuits makes the best use of the FCC's limited resources. But if the FCC does want to move ahead in this proceeding, it has to do so based on the most current data available, and it needs to understand the impact of its actions on investment incentives and disincentives for all the parties in this marketplace.

[4] Level 3 investor presentation September 2011, last accessed on May 30, 2012 at Level 3 Communications

The importance of current data in the special access proceeding

The FCC prides itself on being data-driven, and nowhere has this virtue been better illustrated than in its recent conduct of the special access proceeding, in which the FCC is reviewing the pricing of DS-1 and DS-3 facilities. Since 2009, the FCC has conducted a workshop and made two voluminous data requests that would allow it to understand the competitive dynamics and economics of the special access business in great detail. It has asked questions that would help it understand:

- **The pricing as well as terms and conditions being offered by incumbents (ILECs)[5] in various markets.[6]**
- **The pricing, terms and conditions being offered by their competitors (CLECs).**
- **Where ILECs' and CLECs' facilities are located.**
- **The economics behind CLECs' decisions to build or lease facilities.**
- **The choices available to and the purchasing practices of the enterprises who dominate the buyers'-side of this market at retail.**
- **The investment incentives and disincentives the FCC's policies are creating for incumbents, their competitors in the wholesale special access business, wireless carriers who are ILEC customers but also competitors to some ILECs' wireless divisions, and enterprise customers.**

In other words, the FCC would not only be in a position to know whether there is competition in specific markets, but to understand why it does or does not exist in particular places:

- **It would be able to compare ILEC pricing in various markets. It would be able to relate that pricing to the level of competition in the market, judged on various criteria, including the availability of competitive facilities beyond central-office collocation.**
- **It would also be able to understand the behavior of other market participants.**
- **For example, it would be able to examine the dynamic between enterprise customers who exercise enormous purchasing power and the providers among whom they select their**

[5] All references to ILECs in this paper are to price-cap ILECs.
[6] For histories of the deregulation of special access pricing, see: John W. Mayo, "The Evolution of Regulation: 20th Century Lessons and 21st Century Opportunities," June 2011, pp. 39-45, and U.S. Government Accountability Office, "FCC Needs to Improve Its Ability to Monitor and Determine the Extent of Competition in Dedicated Access Services," November 2006, pp. 2-6.

vendors. It would have answers to questions such as: How do enterprise customers conduct their search for vendors? When, why, and how do they use multiple vendors? How do they leverage their buying power in one part of the market into another—specifically, how do DS-1 and DS-3 purchases fit into contracts that include many other network components, and cover multiple geographic markets?

- **It would understand what network configurations specific CLECs can build off their own networks, where they need to supplement those facilities with the ILEC's network, and when the decision is one of necessity vs. one of convenience. In other words it would better understand when CLECs, or wireless carriers, use ILEC facilities because self-provisioning is uneconomic, and when they use them to conserve capital for other projects with higher potential returns.**

- **Given the data, the FCC would also be able to understand whether its current policies are encouraging or discouraging migration by ILECs, CLECs, and their customers from an outdated copper-based TDM technology to fiber-based Ethernet.[7]**

The FCC's data requests have been comprehensive and designed to understand the competitive dynamics of the market from various perspectives. They have also been voluntary and less successful than is necessary. According to the FCC, the requests did not elicit the responses the FCC needs. In its October 2011 opposition to COMPTEL's petition for a writ of mandamus at the D.C. Circuit, the FCC detailed the efforts it has made to gather data and noted that: "Unfortunately, the Commission has faced obstacles in its efforts to gather the data it needs to make an informed decision on special access. For instance, in response to the FCC's October 2010 request for special access data fewer than 10 percent of petitioner COMPTEL's service provider members (7 of approximately 90) submitted data concerning their experience in the special access market."[8] When the Chief of the Wireline Competition Bureau addressed COMPTEL's conference, she indicated that the FCC still lacks adequate data to craft an order that can be defended in court. *TRDaily*'s April 26, 2012 issue quotes her as saying: "There is an incredible dearth of data" and "We need to be able to show that costs either do or don't relate to a market. We cannot do the analysis without the data."[9]

Lack of data is not a new problem with regard to this issue. There have been two prior attempts to evaluate this market by other entities with a quasi-regulatory interest in special access, both of which suffered from lack of response.

---

[7] GAO, p. 18 discusses that wholesale prices low enough discourage competitors from building facilities.
[8] Federal Communications Commission, "Opposition of Federal Communications Commission to petition for writ of mandamus," in re COMPTEL *et al* petitioners, in the U.S. Court of Appeals for the District of Columbia Circuit, filed October 6, 2011.
[9] Ted Gotsch, *TRDaily*, April 26, 2012, citing Ms. Sharon Gillett, Chief of the FCC's Wireline Competition Bureau.

***The GAO and NRRI attempts to study the special-access market*:**

The U.S. Government Accountability Office (GAO) assessed the market in 2006, but was able to get very little data from either customers or competitors of the incumbents. For its findings on pricing, it relied on data from some tariffs in some Metropolitan Statistical Areas (MSAs), as well as some data from the incumbents and from two commercial databases. It could not get data on the specific mix of components within commercial agreements, which are usually covered by non-disclosure. Thus, it did not have access to actual prices paid by specific customers, i.e., the effective discounts[10]. It attempted to compensate for that, by using ILEC average revenues in some MSAs.

GAO also attempted to identify CLEC presence in commercial buildings in 16 MSAs, by using databases from Telecordia and GeoResults. It found fiber-based competition in about 25% of buildings in MSAs with Phase I and Phase II flexibility, with a greater percentage in MSAs with Phase I than Phase II.[11] Since CLECs have no obligation to register with Telecordia's database, it is not clear how accurate the underlying information is. In the two test-samples it conducted, GAO found under-reporting in one case and over-reporting in the other. Thus, it is not clear whether GAO's results were accurate. If they were accurate, it is not clear whether the lower presence of CLECs in Phase II MSAs resulted from deeper effective discounts by the ILECs. As a result, despite GAO's efforts to collect granular data, its conclusions are open to question. Indeed, both the FCC and the ILECs raised questions about the study's methodology and conclusions.[12]

In 2009, NRRI was hired by NARUC (the association of state utility regulators) to study this market.[13] NRRI attempted to survey the industry, but gathered very limited actual information. Like GAO, NRRI highlighted in detail the flaws in the data it had gathered and noted laconically: "The limited data submissions constrained our analysis in some ways."[14] Despite two sets of data requests, it had limited responses from ILECs, very few responses from buyers, and only one from a seller-CLEC of special access. Responses were for different periods, different services, different MSAs, and were even more erratic on pricing than on circuit counts.

NRRI used buyer information to derive market HHIs for 50 MSAs. Of the five buyers who responded to the survey, three were CLECs and two were wireless carriers.[15] No enterprise-buyers were

---

[10] GAO p. 12,
[11] GAO, p. 10 and pp. 20, 21.
[12] For FCC comments, please see the letter from Anthony Dale, Managing Director of the FCC, to Mark Goldstein at GAO, dated November 13, 2006, and enclosed as Appendix III in the GAO study. GAO summarizes the ILECs' objections, which are based both on the market definition GAO uses and on the incompleteness of the data on which it based its conclusions, on pp. 46-47.
[13] Peter Bluhm and Dr. Robert Loube, "Competitive Issues in Special Access Markets," revised edition, National Regulatory Research Institute, first Issued January 21, 2009.
[14] NRRI, p. 37.
[15] NRRI, p. 36-37, lists buyers Covad, Sprint, T-Mobile, TW Telecom, and XO and details them in footnotes 142-146 and 149 (the latter for TW Telecom as seller).

represented in the survey, and the three CLECs are a small minority of all CLECs. The five self-selected buyers' responses covered different questions and time periods:

- **Some provided line counts for DS-1 and DS-3 circuits but some provided it for only one of those—or for different services in different periods.**
- **Responses on pricing were even more erratic--one respondent only covered 10 out of the 50 MSAs for which information was requested.**
- **Some of the respondents did not appear to understand some questions.[16]**

As far as we can tell from NRRI's description,[17] the only common ground for these five buyers was for circuit-counts for DS-1 and DS-3 in 10 MSAs purchased from three vendors in 2007. Four of them provided varied information for 40 other MSAs. Based on this fragmentary data and NRRI's <u>own</u> assumptions that markets were served by four sellers—the buyer self-provisioning, an RBOC, another ILEC, and a CLEC (representing all CLECs), NRRI proceed to calculate HHIs for the 50 MSAs and reach more general conclusions about the special access market.

NRRI also attempted to use the FCC's ARMIS[18] database to gauge the ILECs' profitability, after noting that the authors agree with the RBOCs'[19] view that the ARMIS figures are "virtually meaningless."[20] NRRI explains in some detail that the special access category post-2001 included actual revenues but frozen investment for special access, and also included DSL revenues (but not investment) for some (but not all) RBOCs. The NRRI authors state: "This imbalance has inflated ARMIS special access earnings reports and made them unreliable."[21] They attempted to correct for ARMIS' flaws by adjusting plant investment to reflect special access growth since 2000:[22] "Specifically, we increased 2007 special access investment totals so that they bear the same relationship to total investment that 2007 special access revenue bears to total 2007 regulated revenue." Their own attempt to adjust for ARMIS' failings is, unfortunately, also flawed by the unsupported assumptions that special access investment had increased in 2000-2007 in the same proportion as special access revenues, that DSL's investment/revenues ratio is identical to that of special access, and that allocations were accurate in 2000. It also does not, as far as we can tell, correct for the variations among companies in the treatment of DSL. NRRI did not adjust for the loss of switched lines, which would have changed cost allocations between switched and dedicated, had factors not been frozen. Beyond that, whatever this method may have said about returns on special access in general, it had nothing specific to say about returns on DS-1 and DS-3 facilities in particular.

The NRRI study's strength is its explanation of the difficulties of gathering data in this market, and its frankness about the inadequacy of the data it was able to gather. Its weakness is its decision to

---

[16] NRRI, pp. 37-38.
[17] NRRI, pp. 35-38.
[18] This is the database in which the FCC collects financial information about various ILECs.
[19] RBOC stands for Regional Bell Operating Company.
[20] NRRI, p. 70.
[21] NRRI p. 70.
[22] NRRI p 71.

overcome the data constraints with remarkable creativity--whether dealing with pricing, HHI calculations, adjustments to ARMIS--and to make recommendations that still haunt the special access record despite their admitted lack of statistical underpinning.[23]

GAO and NRRI had the luxury of making recommendations based on admittedly-bad data. Unlike NRRI and GAO, the FCC is not merely doing studies. The FCC's decisions have very real consequences on the choices available in the marketplace and on the profitability of the various companies that provide those choices. Its mandate is to assure just and reasonable prices, but it also has other goals, such as promoting broadband deployment by promoting investment. The FCC is accountable to the courts, which tend to overturn decisions based on admittedly-bad data. Thus, the FCC is not in a position to move ahead in the admitted absence of data, as NRRI and GAO did, and it is expected to make yet another data request. Of course, such a request will only be useful if the FCC can ensure compliance.

What is special access and how is it priced?

Special access is non-switched--i.e., dedicated--access bought to satisfy communications needs such as large volume, or higher-than-usual network security or reliability. Communications links are sold individually or in various groupings. The links for a single purchase may be in one geographic area, or distributed around the U.S. or the globe. The customers may be enterprises or they may themselves be network providers of various sorts, seeking to supplement their own networks. Enterprises—financial institutions are typical—are large retail customers who seek a complex and secure network able to handle high volumes at the lowest possible price. Customers who are themselves network providers may be supplementing their networks for their own use—e.g. wireless providers seeking backhaul from their cell towers. CLECs may use special access from ILECs to supplement their own networks, to resell as part of their own special access offerings to the retail or wireless market.

Special access pricing is regulated under three levels of flexibility, depending on the degree of competition in a particular MSA, measured by the level of CLEC-collocation in central offices in the MSA.[24] These prices are available to both retail and wholesale customers:

- **Markets where ILECs offer only price-capped, tariffed "list prices"--i.e. rates available to all customers regardless of volume or term.**

- **Phase-I flexibility markets, in which ILECs can also offer tariffed discount plans. The discounts are offered via customized contracts which discount off the "list prices" based on term and/or volume commitments. The contracts are filed with the FCC and**

[23] See Anna-Maria Kovacs, "Telecom Regulatory Note: Special Access Report from NRRI," Regulatory Source Notes, January 26, 2009.
[24] FCC, Fifth Report and Order and Further Notice of Proposed Rulemaking in CC Docket 96-262, August 5, 1999. Also see Mayo pp. 39-41 and GAO pp. 2-6.

are also available to anyone who meets the specified contract terms and conditions. In Phase-I MSAs, ILECs can only lower their rates.

- **In MSAs with Phase-II flexibility, ILECs can either lower or raise rates. The "new list" prices must be filed with the FCC. Commercial contracts providing discounts off the new list prices can be offered.**

DS-1 and DS-3 links are the particular special access facilities whose pricing is in dispute in this proceeding. TDM-based and carrying 1.5 Mbps and 45 Mbps respectively, these are relatively low-capacity circuits based on an outmoded technology that is rapidly being displaced by much-higher capacity Gigabit-Ethernet or OCn links. One of the questions in this proceeding is whether DS-1s and DS-3s are overpriced, or whether they are now underpriced relative to the industry's current cost structure. The other key question is whether these obsolete facilities' survival will be artificially lengthened by pricing actions that discourage investment in Gigabit-Ethernet.

***Conflicting claims in this proceeding*:**

Members of all three sets of customers are participating in the FCC proceeding, either directly or through their associations. Their claims are in conflict, which is one of the reasons good data is so important in this docket.

The enterprise customers are participating via the Ad Hoc Telecommunications Users' Group (Ad Hoc). Ad Hoc claims that special access prices are too high. Its various filings ultimately rely on 2007 ARMIS data that supposedly shows that the incumbent price-cap carriers are overearning on special access. As we indicated in the NRRI discussion, the 2007 ARMIS data is profoundly flawed and other ways to evaluate their claim would be useful. Enterprise customers are not expected to build their own networks, so in their case a key question is whether they have alternatives offered by competitive providers. To make their claim that they are overpaying because the market is not competitive, these large retail buyers of special access would have to prove that there are no alternatives available to them in the market. Were the FCC to grant their wishes, retail DS-1 and DS-3 special access prices would fall.

Some wireless carriers are also seeking lower prices for their backhaul circuits. These are network providers themselves, so there are two key questions in their case: why are they choosing to lease rather than build their own facilities and what backhaul alternatives are available to them? Were the FCC to grant their wishes, the price of DS-1 and DS-3 wireless backhaul would fall.

The CLECs are competitors of (as well as, in some cases, customers of and vendors to) the ILECS in the special access business. They lease ILEC facilities to fill out their own extensive networks, which they then offer to enterprises and/or wireless networks. In other words, they are often both customers of the ILECs and their competitors in the enterprise and wireless-backhaul markets. Collectively, they claim that:

- **They need the ILEC facilities in places where they themselves cannot provision economically.**
- **They cannot compete against ILEC retail pricing (encompassing list rates, discount plans, and potentially-further-discounted individual contracts).**
- **And/or they cannot compete against ILEC terms and conditions, particularly volume and term conditions.**

Were the CLECs to get their wishes, the ILECs would not be able to implement volume and term conditions, which would make it difficult to justify discount plans, and impossible to provide assurance of capital recovery on long-lived assets. As far as pricing goes, it is unclear what the wishes are, because there is a conflict between requests within this group for lower prices and complaints that prices are so low that CLECs can't compete.

In essence, while the retail customers (enterprise, wireless) are claiming that special access prices are too high, the CLECs are saying that retail prices are already so low that they can't compete. This is not necessarily a conflict—it is possible that there are good reasons why the CLECs are less efficient at providing special access than the ILECs, and it is also possible that CLECs can't leverage the volume of purchases they use from the ILECs to get lower prices out of current contract terms than retail customers do. But it is a very important potential conflict that the FCC has to explore before it decides to change pricing or terms and conditions in this industry.

The FCC needs to understand when it is economic for wireless carriers and CLECs to build their own facilities and when it is not. After all, the ILECs' facilities also require investment and operating costs, and in at least some cases there is no inherent reason why they would differ from those of the wireless carriers and CLECs.

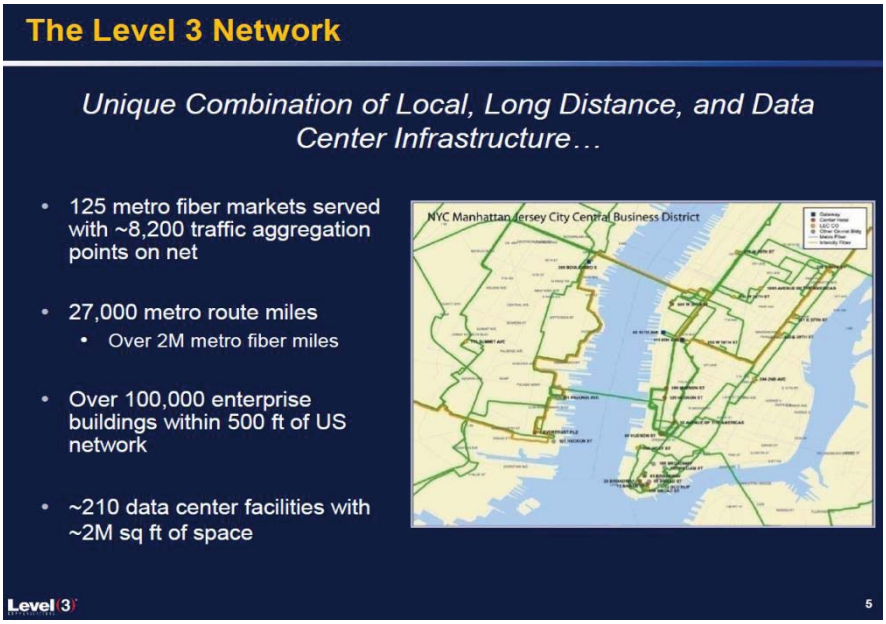
- **The simplest case is the greenfield case, in which both the ILEC and the CLEC/wireless carrier is building a new facility. There is no reason to assume in this case that the ILEC has a cost advantage. A relevant question in this case is whether the CLEC/wireless carrier is choosing to lease because the ILEC is actually providing the facility <u>below</u>-cost, below its own cost as well as the potential CLEC-customer's cost.**

- **The more complex case is where the ILEC has a facility to the site and the CLEC/wireless carrier does not. The ILEC is pricing DS-1 and DS-3 circuits based on the stranded cost of an obsolete facility. The CLEC/wireless carrier has no obligation to use the same obsolete technology. Here the question is whether there is a more efficient technology that could be used by the CLEC/wireless carrier to serve the available volume of demand. In other words, is the demand in this building/cell site available to the newcomer so low that leasing from the ILEC is the only economic choice, or is the ILEC pricing the stranded facility so far below cost that even more efficient technologies cannot compete?**

- **Another issue, relevant to cost, is the location of CLEC facilities. Level 3, for example, has told investors that there are 100,000 enterprise buildings in the U.S. within 500 feet of its fiber**

rings.[25] Enterprise buildings generally imply large-volume demand. 500 feet is much closer than most central offices are to most office buildings. Whatever Level 3's (or any other CLEC's) reasons may be for not using its own facilities to serve buildings miles away from its own fiber, or customers who only require a single DS-1, it's not clear why Level 3 would not be serving directly more of these enterprises so close to its fiber rings. It is at least worth asking whether underpriced special access circuits are encouraging it to distort its sales efforts as well as its capital.

Figure 1:

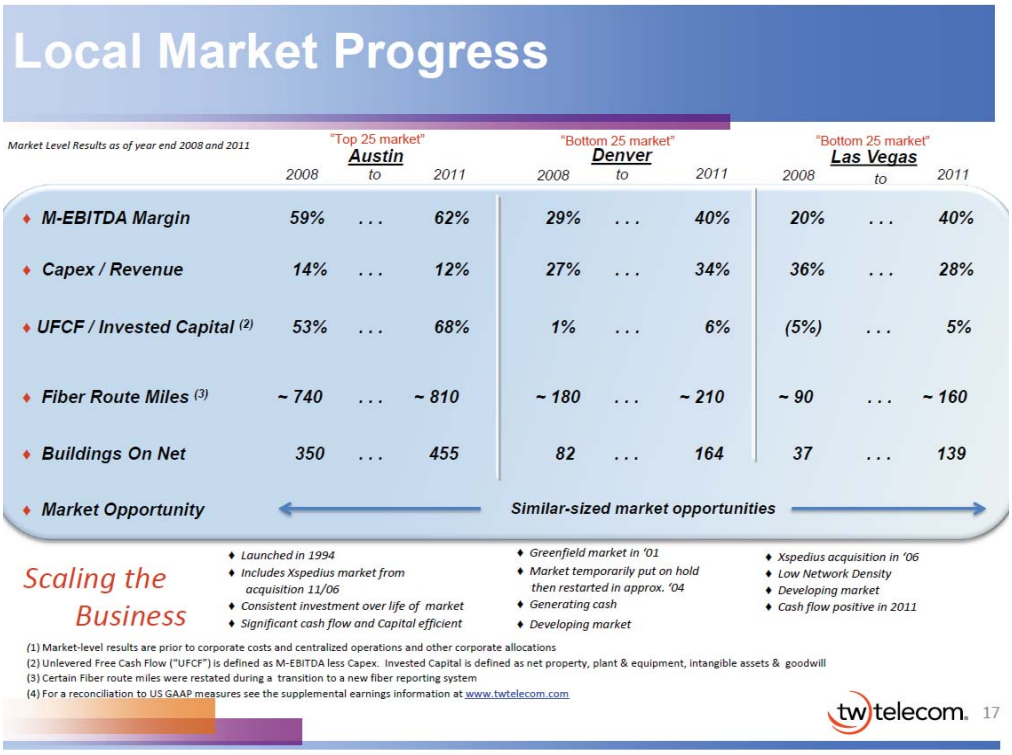


- **tw telecom's first-quarter 2012 presentation to investors includes a slide that shows the economics of three of its markets: Austin, Denver, and Las Vegas. Austin is listed as one of the company's top-25 markets, generating significant cash flow and capital efficient. On the other hand, both Denver and Las Vegas are in the bottom-25, with Denver listed as generating cash and Las Vegas as cash-flow positive in 2011.[26] What's interesting is that the statistics tw telecom lists for these cities—fiber miles and buildings on-net--do not explain the discrepancy in capital efficiency, i.e., in the capex/revenue ratio. Austin has 1.8 fiber miles per building, Denver 1.3, and Las Vegas only 1.2. Based simply on distance or efficiency of fiber-use, their capital efficiency should be reversed. The issue appears to be the ability to generate revenue in a given market, even one like Denver that has been on-line for a decade.**

[25] Level 3 investor presentation , slide #5 , last accessed on May 24, 12 at http://files.shareholder.com/downloads/LVLT/1888634866x0x502948/16cd1806-862d-416a-b3de-00dca35238dd/Informational%20Investor%20Roadshow%20Presentation_2011_Sept%202011.pdf

[26] tw telecom, Investor Presentation May 2012,listed on website as Investor Presentation for Q1 2012 Final, slide 17, last accessed on May 30, 2012 at Investor Presentations | tw telecom

Figure 2:



Local Market Progress

Market Level Results as of year end 2008 and 2011

	"Top 25 market" Austin 2008	to	2011	"Bottom 25 market" Denver 2008	to	2011	"Bottom 25 market" Las Vegas 2008	to	2011
M-EBITDA Margin	59%	. . .	62%	29%	. . .	40%	20%	. . .	40%
Capex / Revenue	14%	. . .	12%	27%	. . .	34%	36%	. . .	28%
UFCF / Invested Capital (2)	53%	. . .	68%	1%	. . .	6%	(5%)	. . .	5%
Fiber Route Miles (3)	~ 740	. . .	~ 810	~ 180	. . .	~ 210	~ 90	. . .	~ 160
Buildings On Net	350	. . .	455	82	. . .	164	37	. . .	139
Market Opportunity	← Similar-sized market opportunities →								

Scaling the Business

- Launched in 1994
- Includes Xspedius market from acquisition 11/06
- Consistent investment over life of market
- Significant cash flow and Capital efficient

- Greenfield market in '01
- Market temporarily put on hold then restarted in approx. '04
- Generating cash
- Developing market

- Xspedius acquisition in '06
- Low Network Density
- Developing market
- Cash flow positive in 2011

(1) Market-level results are prior to corporate costs and centralized operations and other corporate allocations
(2) Unlevered Free Cash Flow ("UFCF") is defined as M-EBITDA less Capex. Invested Capital is defined as net property, plant & equipment, intangible assets & goodwill
(3) Certain Fiber route miles were restated during a transition to a new fiber reporting system
(4) For a reconciliation to US GAAP measures see the supplemental earnings information at www.twtelecom.com

tw telecom 17

Bottom line, the FCC needs to understand the CLECs' economics. That would help it understand the calculations CLECs make about the economics of lease vs. buy, as well as to understand why/where the ILECs' prices may be too low as opposed to too high. The conflict between retail customers who claim prices are too high and wholesale customers who claim they can't compete at retail is not necessarily insoluble, but it does require careful scrutiny.

The FCC also needs to understand how pricing is done by all parties. While DS-1s and DS-3s are sometimes sold in isolation, they are often part of a much larger contract. tw telecom, for example, claims in its investor presentations to be very competitive in the enterprise Ethernet market.[27] How large a component of a network do DS-1s and DS-3s have to be for their pricing to actually matter in the pricing of a bid on such a network?

Another issue is the concern expressed by Level 3 about "lock-in." It would be helpful to understand terms and conditions in various CLECs' contracts to their own customers. Level 3's 2011 10K explains that it charges termination penalties "to settle contractually committed purchase amounts that the customer no longer expects to meet."[28] Its 10K also notes that "for contracts involving private line, wavelength and dark fiber services, Level 3 may receive up-front payments for services to be delivered for a period of generally up to 20 years…. At December 31, 2011, for contracts where up-front payments were received for services to be delivered in the future, the Company's weighted

[27] tw telecom, Investor Presentation for Q1 2012, e.g., slides #3-7, 13-15, 21, 33.
[28] Level 3 2011 10K p. F-12.

average remaining contract period was approximately 11.2 years."[29] Aside from the far longer contract term and the demand for up-front payments to cover the capital Level 3 is laying out on behalf of its customers, how does that differ from the provisions in ILEC contracts that Level 3 finds anticompetitive? tw telecom also tells investors that more than 60% of its total revenues come from contracts that are three years or longer.[30] If it is good risk management for CLECs to demand term commitments—or even up-front payments—when investing capital that could easily become stranded if the customer had no financial stake in a continuing relationship, isn't it also a good practice for the ILECs?

All of that raises the question: what evidence does the FCC have about cost and pricing in this market? As far as we can see in the record, much of which is redacted—leaving us also lacking essential evidence—the parties asking for price cuts are relying on the GAO report or on ARMIS data that goes back to 2007 (or on the NRRI report which also relies on ARMIS 2007 data). We have already discussed the problems with ARMIS, as of 2007. But the much bigger problem is the obsolescence of the 2006 GAO data, as well as the 2007 ARMIS data, or for that matter any data from that period.

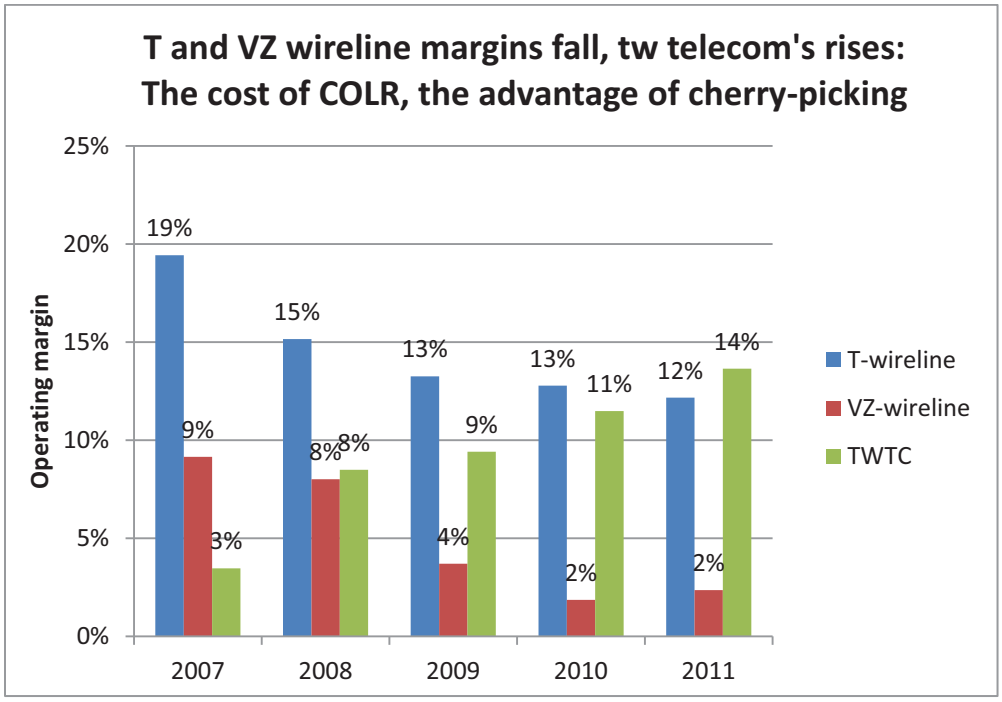
***<u>The need for current data</u>*:**

The industry has changed radically in the last four years, and even had the 2007 ARMIS data been perfect at the time, it would be problematic today. To understand how radically the cost picture has changed in the industry, one need only look at some industry financials:

- **Verizon's wireline operating margin (operating income/operating revenues) has fallen from 9% to 2% since 2007.[31]**
- **AT&T's wireline operating margin has fallen from 19% to 12% since 2007.[32]**
- **tw telecom's operating margin has risen in that time-frame from 3% to 14%.[33]**
- **Despite the ILECs' much larger size and supposed scale advantages, the profitability of the two largest ILECs is lower than that of tw telecom, which is a pure-play CLEC.**

[2929] Level 3 2011 10K, p FR-5.
[30] tw telecom Investor Presentation for Q1 2012, slide # 32.
[31] Calculations based on Verizon financial reports and on Jonathan Chaplin, April 25, 2012 Credit Suisse model for Verizon, wireline section normalized to exclude non-recurring items.
[32] Calculations based on AT&T financial reports and on Jonathan Chaplin, April 25, 2012 Credit Suisse model for AT&T, wireline section normalized to exclude non-recurring items.
[33] Calculations based on tw telecom financial reports.

Figure 3:



This graph raises some obvious questions, and the answer is equally obvious:

- **Why have AT&T and Verizon's margins deteriorated so much? They have lost substantial market share in a business that consists largely of fixed cost, and--because of their regulatory obligations--they can't shed variable cost the way an unregulated business would.**

ILECS <u>can't</u> right-size

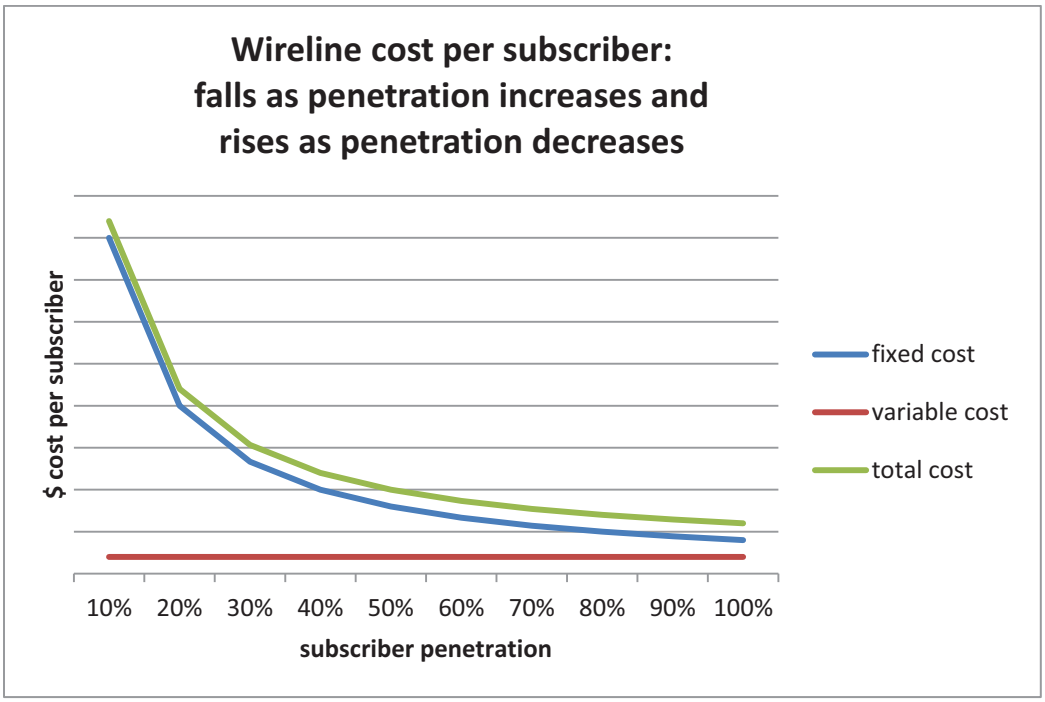
- **How can a small company like tw telecom have a better margin than AT&T and Verizon? It operates under different regulatory mandates. It can cherry-pick its market, choosing to serve only those customers it can serve profitably. It can also choose to use ILEC facilities rather than facilities of its own, when the ILEC facilities are more economic.**

CLECs <u>can</u> right size

AT&T and Verizon were built out to serve any customer who requests service in their geographic territories. They still have that carrier-of-last-resort (COLR) obligation, although they have lost many of their customers. Thus, they still have the cost of keeping the network in readiness for 100% penetration of the homes and businesses they pass, even though their actual penetration is much lower. That means that their cost-per-remaining-subscriber is rising precipitously on their pre-2007 offerings—e.g., switched voice and data to both the consumer and business markets. The new offerings they have added—e.g. video—have required new capital investment as well as new operating costs, have carried build-out requirements of their own (in this case from franchising authorities), and suffer from low subscriber penetration.

Key to understanding the changing cost positions in the telecom industry is understanding the cost structure of a network. As Figure 4 shows, the cost structure is dominated by fixed cost.

Figure 4:



A network operator has to build the network before it can take on customers. The trenches must be dug, the conduit laid, the fiber/copper/coax laid, the switch or router placed in the central office, etc. There are some variable costs—to some extent line cards can be added to switches as customers come on-line, and to some extent the drop to the customer may be added after the subscriber signs up. So there is some "success based" investment as penetration increases, but most of the costs are fixed. For any geographic market, profitability is largely a function of increased subscriber penetration. The trip from 0% share to 100% share is an exhilarating slide down the cost-curve.

Conversely, as subscribers are lost, the operator crawls painfully back up that curve. What makes it worse, however, is that not all costs that were variable on the way down are also variable on the way back up. Loops that were placed to homes that are no longer served cannot easily be reused. Switches may be excess now, but they have been bought. There is a tremendous amount of stranded investment that still has to be paid for—lenders want repayment and a company that values its future credit rating will pay them. What makes this situation particularly nasty for ILECs is their carrier-of-last-resort (COLR) obligation. They have to be ready to provide service to any potential customer in their service territory who might request service, however uneconomic it may be to provide that service. They are also held to very tight service standards. That means that plant has to be kept in good condition, even in areas where few or no subscribers remain. On the trip back from 100% subscriber penetration to 50% penetration and potentially to even 0%, there is little or no ability to shed what might—in a normal industry--be variable cost.

Not only is the ILEC's capital investment almost entirely fixed, but there is very little about its network operating cost that is variable. True, if there is no subscriber using a loop, it is not likely that there will be a service call if water infiltrates the drop. But if water infiltrates a bit higher up, in the cabling that is shared with still-existing-subscribers, a truck will have to roll. Network operating cost, depreciation of the plant in place, and interest on the debt that paid for the plant in the first place—these are not variable to any meaningful extent in a regulated business that combines COLR obligation with high service-standards. The postage on an individual bill might be saved, if it no longer has to be sent, but the rest of the billing system's massive cost is not variable, at least not in the short-to-intermediate term.

By contrast, tw telecom can cherry-pick the market, i.e., pick the most profitable market segment, and within that serve only those customers whom it can serve economically. Furthermore, it can do so using either its own facilities or those it leases from the ILECs (or others). It is not burdened by an obligation to serve consumers at all, much less universally. Neither does it have to build out to individual small businesses. It is not competing in the markets which are under extremely attack by wireless and cable. To get around its own network's fixed-cost characteristics, tw telecom can lease the ILEC's network, which to tw telecom is a variable cost. When it builds, it can select the lowest-cost areas and it can also select the markets in which it expects the best customer-penetration and avoid those in which penetration is likely to be low. Given the right to both cherry-pick the market and use ILEC facilities where those are cheaper than self-provisioned facilities, tw telecom can, indeed, enjoy better margins than its ILEC competitors.

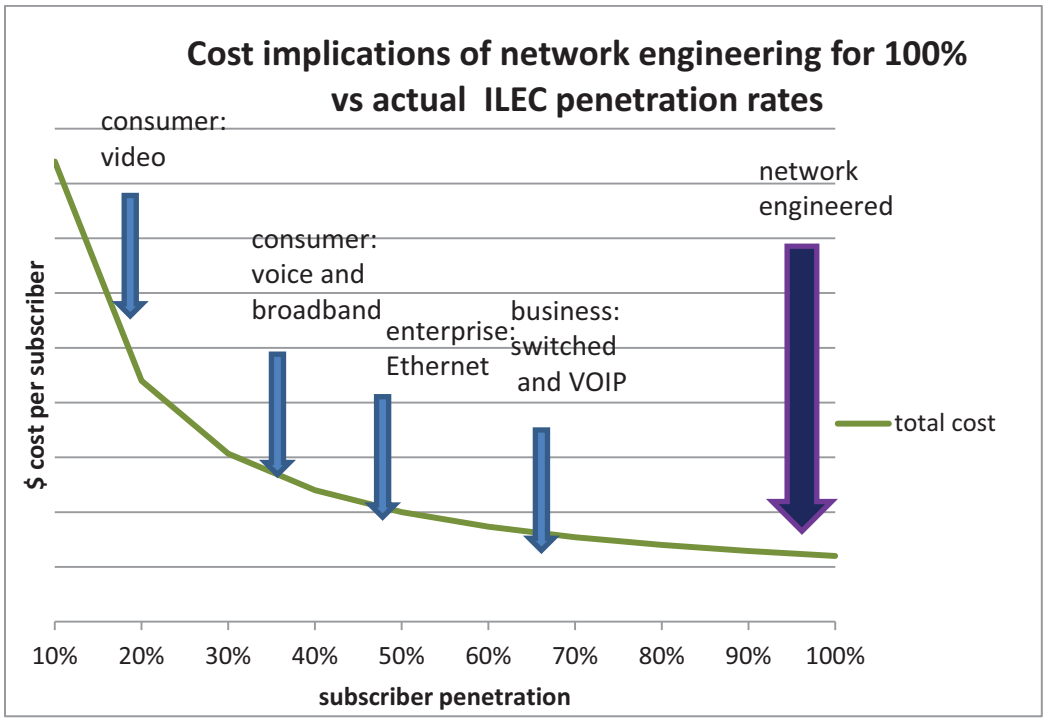
As tw telecom's May 2012 investor presentations point out, 80% of its capital expenditures are "success based."[34] In contrast, the ILECs' COLR obligation inflates their costs beyond what their actual customer base requires, and far beyond what any rationally-chosen customer base would require. In the four years between 2007 and 2011, tw telecom spent a total of $1.2 billion in capital expenditures. In return, it <u>increased</u> annual revenues by about $300 million, i.e., its revenues of $1.4 billion in 2011 exceeded its 2007 revenues of $1.1 billion by about $300 million. Thus, over the four-year period, TWTC spent a cumulative $4 of capital for every extra $1 of revenue that it <u>gained</u>. Over the same period, AT&T spent a total of $46.4 billion in capital while its revenues <u>fell</u> by $11.8 billion. And Verizon spent $32.3 billion in capital while its revenues <u>fell</u> by $8.4 billion—despite the fact that it did the only form of "right-sizing" the regulators allow and divested many of its rural operations (both capital and revenues are normalized for the divestitures).[35] Unlike tw telecom, which spent capital for revenue it gained, AT&T and Verizon spent $4 of capital for every $1 of incremental revenue that they <u>lost</u>.

Figure 5 below shows ILEC market share in various segments. What is obvious from looking at the places in the cost curve where the ILECs are now operating is that they have moved past the

[34] tw telecom Investor Presentation for Q1 2012, slide #25.
[35] Calculations based on tw telecom, AT&T, and Verizon financial reports and Credit Suisse models for AT&T and Verizon.

relatively-painless crawl up the cost curve from 100% penetration to 50%, and are now in the area where costs increase asymptotically.[36]

Figure 5:



This figure has many implications. It cries out for a rethinking of the feasibility of maintaining COLR obligations, for one thing.

In this paper, however, we limit ourselves to consideration of the FCC's special access proceeding. Looking at the incremental capital that AT&T and Verizon have invested since 2007 and at the incremental revenue that they have lost since 2007, it seems likely that under any relevant and current analysis, one would find the companies' returns greatly reduced.

They would obviously be reduced overall. Verizon-wireline is losing money in the wireline business once its interest costs are taken into account—and that's before taking massive writedowns into account. AT&T-wireline is certainly doing better than Verizon, but much less well than it did in 2007. There is no meaningful way to peel out the numbers for special access--much less specifically for DS-1s and DS-3s. The circuits run on cables that serve other customers, into buildings in which those shared cables probably serve far fewer customers today than they did in 2007. But even if one did attempt to do a service-specific analysis, the return on special access would probably be reduced, because the investment base consists largely of shared costs, and there are fewer other customers and less other revenue to which to allocate the shared investment.

[36] Sources for subscriber penetration are FCC Local Telephone Competition Reports for 2006 and 2010, Vertical Systems Group, and Credit Suisse models for AT&T and Verizon.

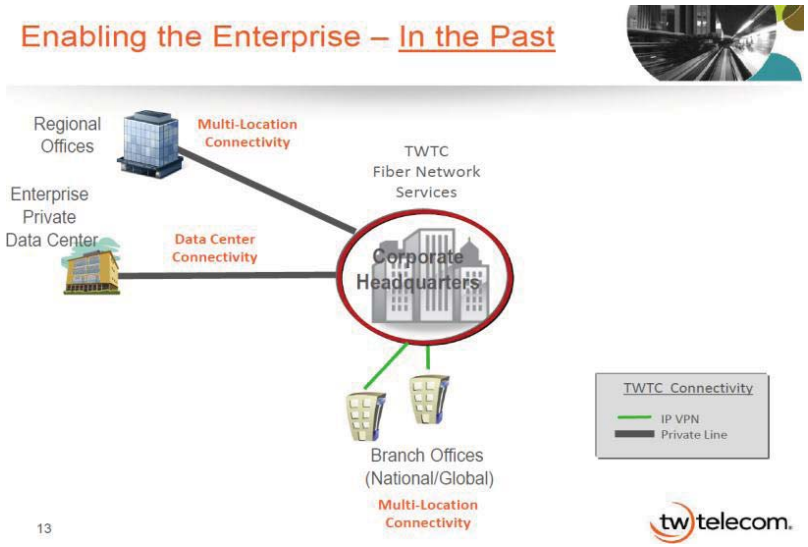
The current FCC special-access proceeding record relies very heavily on the 2007 ARMIS data which was defective at the time and has the insurmountable flaw of total irrelevance in 2011. But it is not merely the ARMIS data that has become irrelevant. A discussion focused on low-speed TDM links is irrelevant to the IP world in which all these companies actually operate.

***<u>CLECs attract investment via their fiber-based IP-networks</u>*:**

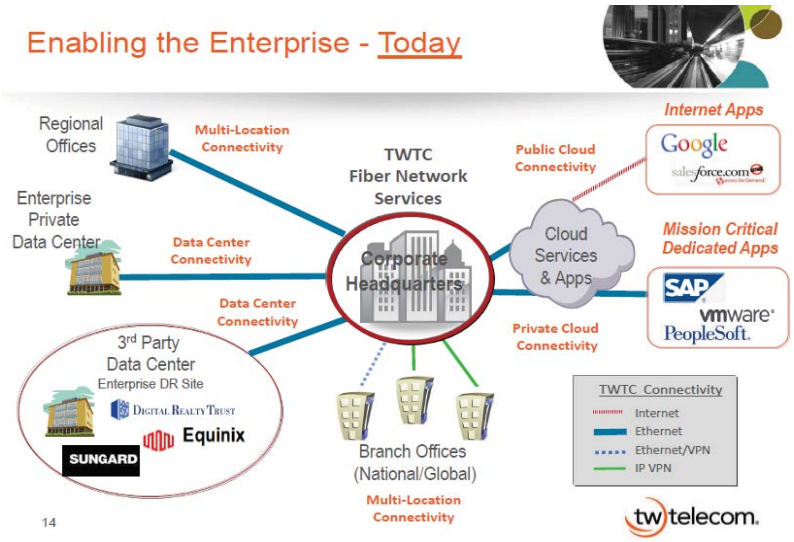
When one looks at investor presentations from tw telecom, Level 3, XO, Cogent, and even from Sprint and T-Mobile, what is striking is the extent to which they have moved into the IP world, into Ethernet over fiber, and done so over their own facilities.

tw telecom's Company Overview for investors, dated May 2012, highlights the company's goal of being a major player in the Ethernet ecosystem, based on a fiber network that spans 28,000 route miles and connects nearly 16,000 buildings on-net. "Today" the network is based in Ethernet, IP/VPN and Ethernet/VPN. Private line is "In the Past."[37]

Figure 6:



[37] tw telecom's May 2012 Company Overview investor presentation, slides 13 and 14.



Similarly, in Figure 1 on page 14 above, Level 3's September 2011 informational investor presentation described 27,000 metro fiber route miles, with 8,200 traffic aggregation points on-net in 125 metro markets. It highlighted that 100,000 enterprise buildings are within 500 feet of Level 3's U.S. network.

XO's description of the company is similarly focused on a super-high-speed, fiber-based, IP network:

Figure 7:

IP Network

The core of the XO IP network is a mesh of multiple 10 Gigabit (Gbps) circuits, connecting XO network nodes, peering POPs and XO Data Centers nationwide. The XO IP backbone runs across its own intercity fiber facilities, supported by terabit-capable core routing platforms and high-capacity peering interconnections. XO offers Dedicated Internet Access (DIA) and IP Transit customers enhanced Internet connectivity. This network design delivers maximum end-to-end throughput as well as high levels of protection, redundancy, and Quality of Service required to support XO Voice over IP services.

The XO IP network utilizes an advanced IP design, ensuring scalability as well as the ability to offer advanced future IP services plus the added benefit of no single IP point of failure past the customers' access port.

And since the XO IP network and market connections run end-to-end across XO facilities, XO can quickly resolve any problems that may occur, this eliminates many of the common failure points found in older network designs.

Metro Fiber Connectivity

Metro Area Networks (MANs) allow XO to control customer traffic and ensure an efficient data transfer to the intercity network. XO® metro-area networks are composed of enough metro fiber-optic cable to circle the globe more than 45 times -- 1.16 million metro fiber miles throughout 40 major US cities, including the largest 30 cities in the United States.

Unlike non-facilities based providers or long-haul providers, XO, with its MANs, has access to the end customer. The MANs enable XO to offer such dynamic products as Ethernet and SONET services that carry data faster and more efficiently than our competition.

In its description of its Metro Area Networks (MANs)[38], XO states that it brings 1.2 million metro fiber miles to 40 U.S. cities. It highlights its access to end customers, and says that its MANs enable "such dynamic products as Ethernet and SONET services that carry data faster and more efficiently than our competition."

Nowhere in this literature aimed by tw telecom and Level 3 at investors and by XO at customers is there any indication that they rely on something as slow and old-fashioned as a DS-1 or DS-3. tw telecom explicitly places those in the past. Not surprisingly, Vertical Systems Group, which tracks enterprise networks, indicates that Ethernet bandwidth surpassed aggregate legacy data-circuit bandwidth in 2011.[39]

Cogent goes a step further than its peers and explicitly ascribes its success to the fact that it does <u>not</u> rely on RBOCs:[40]

Figure 8:

Overview of Cogent

Cogent is a multinational Tier 1 Internet Service Provider consistently ranked as one of the top five networks in the world. Our primary service offering consists of Internet access and data transport, offered over our award-winning fiber optic, IP data-only network, along with colocation in any of our 43 Internet data centers. We service two customer segments: "Corporate" (small businesses to Fortune 100 companies) and "NetCentric" (Carriers / Service Providers and Application / Content Providers, whose businesses rely primarily on Internet access).

Our innovative, facilities-based network spans across North America, across the Atlantic throughout Europe, and across the Pacific to Asia. With over 56,200 route miles of intercity fiber and more than 19,800 metro fiber miles, we provide service to over 175 major markets and interconnect with over 3,940 other networks.

Cogent was founded on the premise that bandwidth can be treated like a commodity—produce mass amounts and position it for sale based on price. Leveraging new technologies, we built our own IP data network independent of the traditional voice-based networks owned by the RBOCs (Regional Bell Operating Companies). By doing so, we believed we could reduce the cost of high quality bandwidth down to a level never before offered in the marketplace. Less than five years after lighting our network backbone, we have become widely recognized as one of the largest carriers of Internet traffic in the world.

We stand apart from our competitors in many areas, but key differentiators include:

- Our customer connections are dedicated and non-oversubscribed
- Our prices are the lowest in the industry
- Our diversity from traditional carriers enables redundancy for customer data
- Our simple network structure allows for rapid provisioning
- Our 'self-healing' ring architecture design minimizes outages
- Cogent is Smart Business Internet

Cogent Communications is a public company trading on the NASDAQ under the symbol CCOI. Cogent is headquartered in Washington, D.C., United States of America.

In this company-overview on its webpage, Cogent describes its network—global, IP-based, serving 175 major markets with over 56,000 route miles of intercity fiber and more than 19,800 metro fiber miles

---

[38] XO's website, under: about XO, XO network, network details. Last accessed on May 30, 2012 at Network Details: Get some great knowledge about our capabilities | XO

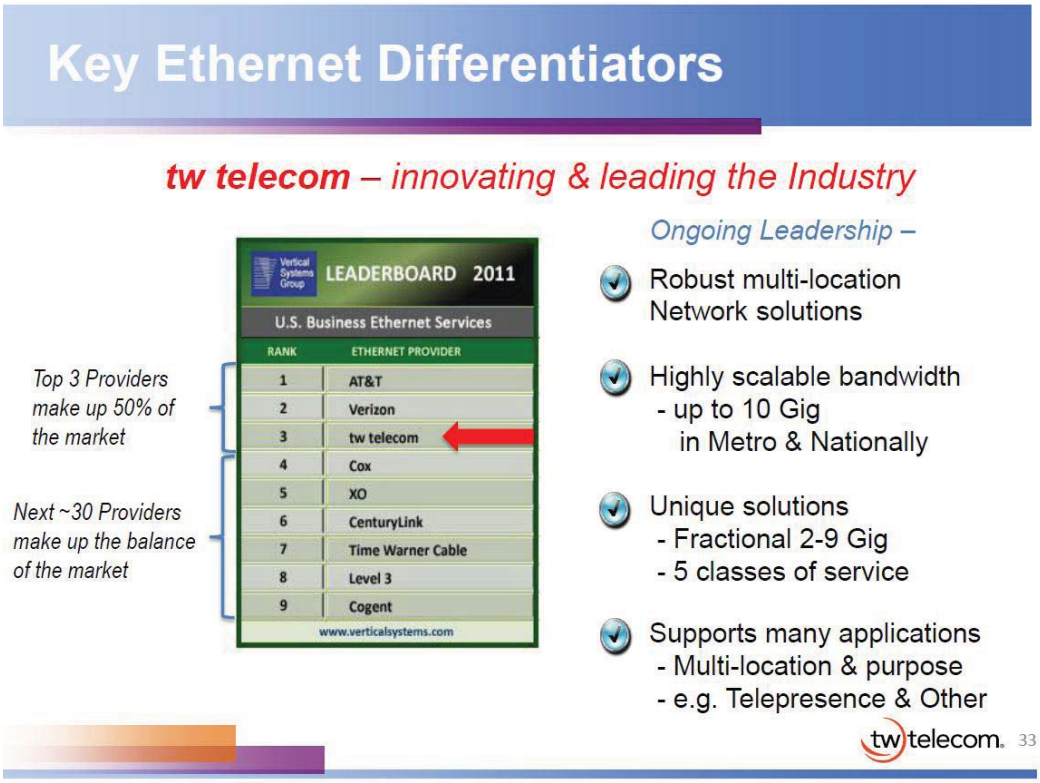
[39] Vertical Systems Group, "U.S. Ethernet Bandwidth Surpasses Legacy Bandwidth," stat flash, July 26, 2011. Last accessed on May 30, 2012 at StatFlash - July 26, 2011

[40] Cogent website, about Cogent. Last accessed on May 30, 2012 at Overview of Cogent

and interconnecting with 3,940 other networks. It then specifically attributes its success to its complete independence from RBOC networks. Cogent explains that it leveraged new technologies and built its IP-data network without relying on the RBOCs' traditional voice-based networks, which allowed it to "reduce the cost of high quality bandwidth down to a level never before offered in the marketplace." Among the key differentiators to which it attributes its success is: "Our diversity from traditional carriers enables redundancy for customer data."

That these companies are successful is clear from slide 33 in tw telecom's Q1 2012 investor presentation, shown below. Based on data from Vertical Systems Group, tw telecom shows that it has become a leader in the business Ethernet market. It is the third largest player in the market, behind AT&T and Verizon, who collectively have less than 40% of the market. Level 3, XO, and Cogent are among the six players who collectively serve the next 25% of the enterprise-Ethernet market.

Figure 9:



***<u>Wireless backhaul</u>*:**

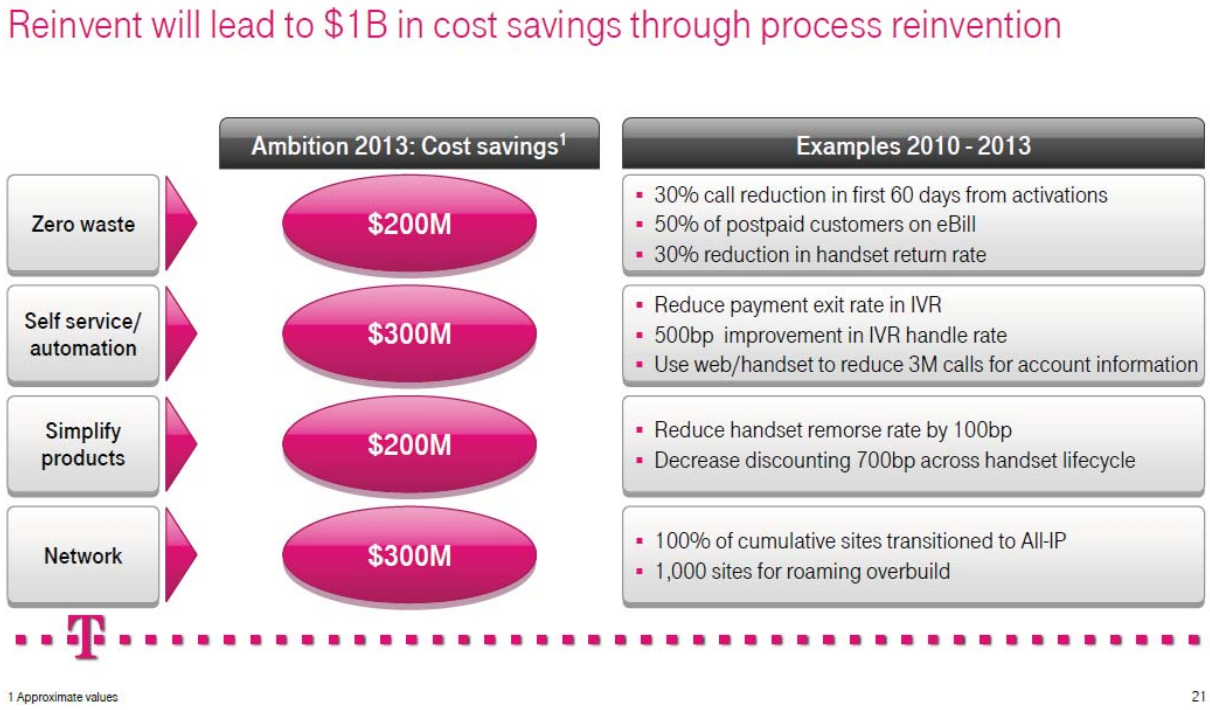
The wireless world, like the metropolitan-area-network world, is driven by the need for bandwidth. Cisco VNI projects that average mobile connection speed in North America in 2016 will be 11 times faster than it was in 2011, a compound growth rate (CAGR) of 43%. Much of that growth is attributed to the expected penetration of 4G. Cisco expects 6% of North American customers in 2016 to use 4G, and it expects them to generate 36% of mobile data traffic. In the aggregate, Cisco VNI projects that

North American mobile data traffic will grow at a CAGR of 75% between 2011 and 2016. That means that the bandwidth used in 2016 will be 17 times as much as the bandwidth used in 2011.[41]

Not surprisingly, wireless carriers are moving toward IP and Ethernet over fiber backhaul.

T-Mobile laid out the plan at its January 2011 Investor Day. [42] As Figures 10 and 11 show, T-Mobile's plan is to transition all of its cell sites to all-IP by 2013.

Figure 10:



As far back as March 2010, T-Mobile had been planning to save capital by moving away from DS-1s. It described to analysts an alternate backhaul strategy that would move to high-speed backhaul provided by alternate backhaul providers.[43] As Figure 11 below shows, it expected to reduce long-run backhaul costs by 90% via this strategy, and to accomplish most of this work within 2011, by bringing alternate backhaul providers to 75% of its 3G cell sites. As Figure 10 above shows, the plan is to complete the job by 2013.

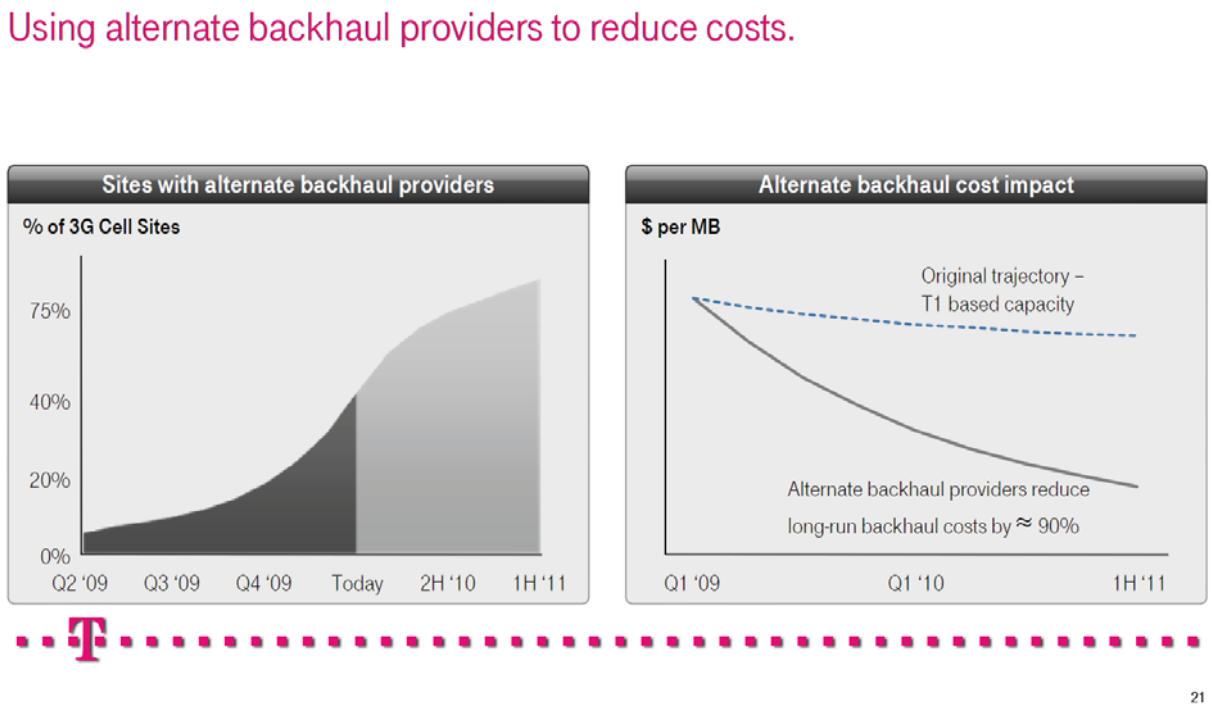
---

[41] Cisco VNI, last accessed on May 30, 2012 at http://www.cisco.com/en/US/solutions/collateral/ns341/ns525/ns537/ns705/ns827/white_paper_c11-520862.pdf

[42] T-Mobile Investor Day, January 20, 2011, slides 21 and 40, last accessed on May 30, 2012 at Deutsche Telekom: Presentations

[43] Deutsche Telekom Investor Day, March 18, 2010, slide 21, last accessed on May 30, 2012 at Deutsche Telekom: Presentations

Figure 11:



Sprint's strategy is similar. Carol Wilson's article in *Light Reading* on October 5, 2011 cites Paul Schieber, Sprint's VP of Roaming and Access Planning, as saying that Sprint will award backhaul contracts for a total of 40,000 cell sites by mid-2012, with 25,000 of those done by late 2011: "Schieber said Sprint will end up with '25 to 30 significant backhaul providers' that will likely be a mix of incumbent LECs, cable MSOs and alternative carriers, all of whom will be expected to deliver Ethernet predominantly over fiber for Sprint's new multi-mode network, which will combine the CDMA, IDEN and WiMax networks it uses today…. Sprint could still build its own backhaul facilities, where alternatives presented don't meet its requirements, including in some less populated areas. But to date, he is pleased with the way industry has stepped up."[44]

All of this is part of Sprint's Network Vision project, which ultimately plans to take the network to a combination of CDMA and LTE, and includes the complete phase-out of the iDEN network Sprint bought from Nextel. In Sprint's first-quarter-2012 analyst call, Steve Elfman, Sprint's President of Network Operations and Wholesale, told analysts that Network Vision is on track. He expects to have 12,000 LTE cell-sites up and running by the end of 2012, and is satisfied with the 600 sites that are operational: "For sites on air, we're seeing improved performance of radios, antenna and backhaul, all of which are meeting our performance objectives." At the same time, Sprint plans to

[44] Carol Wilson, *Light Reading*, October 5, 2011.

decommission 9600 Nextel cell sites by the end of third quarter 2012, with a complete shutdown of the Nextel network in 2013.[45]

Bottom line, both Sprint and T-Mobile expect to complete the move to high-speed backhaul by 2013, and plan to use numerous backhaul providers. They are both fulfilling plans they announced to investors in 2010. Whatever reliance either has on DS-1 or DS-3 circuits from ILECs is temporary, and likely to end in 2013. What that means to the ILECs, of course, is that the DS-1 and DS-3 facilities they built to Sprint and T-Mobile cell sites will become stranded within the next year, leaving them with wasted capital past the point when their contract-terms expire.

***Summary*:**

From the FCC's perspective, it is good news that wireless carriers are deploying mobile broadband rapidly, and that they are enjoying the benefits of competition in the backhaul market. It is also good news that CLECs are moving to IP and Ethernet over fiber, and are competing intensely with each other.

In view of these companies' moves away from DS-1 and DS-3, and in view of the competitive dynamics and low prices in the new markets, it is not clear why the FCC should spend its resources on the special access proceeding. If the FCC does feel the need to continue, then it must do so carefully and with a thorough foundation in current data. It needs to understand the rapidly evolving dynamics of the market to ensure that it will create the right investment incentives for the ILECs, for their wholesale customers/competitors, for wireless carriers and for enterprise customers to continue the process of upgrading our nation's communications networks for today's and tomorrow's broadband services.

[45] Sprint first quarter 2012 analyst conference call, April 25, 2012, transcript by Thomson Reuters, p. 6 and presentation slides last accessed on May 30, 2012 at Sprint Nextel Corporation - Investor Relations - Corporate Profile