

ViaSat (VSAT)

Falling Back to Earth

ViaSat considers itself a leader in satellite technology, capable of producing bandwidth economics competitors can't match. For the sliver of revenue generated from delivering broadband to an airplane, that may be true. For the 70% of EBITDA that comes from delivering broadband to homes and small businesses, it is not. ViaSat provides inferior technology in a hyper-competitive market. The company's main business is selling satellite-based basic home internet service to U.S. consumers. Unfortunately, its technology is no match for terrestrial internet providers today, let alone over the next few years as terrestrial competitors dramatically increase speed, capacity and coverage through rapid technological advancements. For ViaSat, forced to compete against terrestrial by launching satellites that exhaust capacity in 2-year cycles, U.S. residential broadband is a terrible business destined to fail.

Longs believe ViaSat is insulated from robust competition by its focus on rural households. They believe ViaSat should thrive in a large addressable market of underserved homes, using leading satellite technology to take share against legacy telco and cable operators. Once ViaSat-2 is operational, subscriber trends will meaningfully improve – that's when a stock stuck in neutral for nearly 4 years will finally lift off.

Every part of this bull thesis is critically flawed.

Based on both speed and capacity, the company's value proposition has lost every shred of commercial viability since its last satellite launch. Sell-side estimates that call for a tripling of gross subscriber additions, stable churn (customer disconnects), rising margins, and continued inflated ARPU growth are wildly unrealistic. Investors underappreciate the magnitude and timing of technology improvements in competing terrestrial networks that directly impact ViaSat's target market. VDSL, G.fast, DOCSIS 3.1 and fiber roll-outs are dramatically improving the capability and coverage of landline networks. Wireless 4G LTE is ubiquitous, unlimited data plans are offered by all four major carriers, and massive increases in spectral efficiency are fueling exponential gains in mobile speed and capacity. The changes in technology are not science fiction nor progressing slowly over many years. The competitive advantage that drove ViaSat's subscriber performance with the launch of ViaSat-1 five years ago no longer exists. ViaSat-2 will not drive substantial subscriber growth and ViaSat-3 will have stranded capacity.

Satellite consumer home internet – like pagers, Blackberries, pay phones and VHS players – will soon become nearly extinct in the United States, a tiny footnote in the technological landscape with products owned by a negligible fraction of households.

Like many technology businesses facing near-term obsolescence, ViaSat uses non-core products and misleading reporting metrics to disguise its doomed principal business. One particular aggressive tactic has been to use classic telecom gimmicks to inflate average revenue per user (ARPU). For the past 3 years, ViaSat has been jamming customers with commoditized add-ons like VoIP for \$29.99/mo., "priority access" customer support for \$5.99/mo., and anti-virus for \$2.99/mo. These temporary ARPU contributions will erode under competitive pressure, just like charging for caller ID, voicemail, and call-waiting did for legacy wireline carriers. ARPU forecasts across the Street do not properly account for the high level of non-bandwidth revenues that are unsustainable in a competitive environment. When ARPU inevitably declines, so will EBITDA estimates and DCF-driven price targets.

To add insult to injury, while ViaSat waits *9 more months* for its next satellite to be operational, EchoStar's new Jupiter 2 is in the market now, poaching the few final adopters of satellite home internet. ViaSat is currently slashing prices to avoid losing a tenth of its customers before the end of the year.

Amid this deteriorating competitive position, the company is burning cash and tapping the capital markets for external funding. Since becoming a satellite services company, ViaSat has *never* generated positive free cash flow. The last time the company needed funding, it sold \$500m of equity (14% dilutive) at a price near current trading levels. ViaSat needs the capital markets for another \$1bn+ of capital over the next few years, which it will then invest in a business – satellite consumer home broadband – that will have mostly disappeared in the United States within 5 to 10 years. The company withholds disclosures required to accurately assess the health of the consumer broadband business, downplays the unit's eroding competitiveness, and inflates metrics used in valuation, all to retain necessary access to the capital markets.

ViaSat is not an innovative company taking share from legacy telco – it *is* legacy telco. Subscriber metrics will woefully underperform expectations and it won't be long until the market realizes that satellite-based residential internet is a business in terminal secular decline. We place fair value at \$35, or 50%+ downside.

Disclaimer: As of the publication date of this report, Kerrisdale Capital Management, LLC and its affiliates (collectively, "Kerrisdale"), have short positions in the stock of ViaSat, Inc. (the "Company"). Other research contributors, and others with whom we have shared our research (collectively with Kerrisdale, the "Authors") likewise have short positions in, and/or own option interests on, the stock of the Company. The Authors stand to realize gains in the event that the price of the stock decreases. Following publication, the Authors may transact in the securities of the Company. All expressions of opinion are subject to change without notice, and the Authors do not undertake to update this report or any information herein. Please read our full legal disclaimer at the end of this report.

Table of Contents

I. INVESTMENT HIGHLIGHTS	4
II. SITUATION OVERVIEW	8
ARPU Will Decline.....	9
ViaSat-2 Will Not Drive Meaningful Subscriber Growth.....	19
Reported EBITDA is Overstating Profitability While Investors Fund Increasing Technology Risk.....	21
Lack of Economic Returns.....	24
The Addressable Market is Much Smaller than Bulls Believe and Shrinking Fast	27
The Low-Speed DSL Market	30
Churn Expectations Bear No Resemblance to Historical Trends and Competitive Reality	35
International Opportunity Will Require Substantial Investment.....	36
III. TECHNOLOGY IS FUELING CAPACITY GAINS FASTER THAN SATELLITE CAN MATCH	39
LTE is Disrupting Competitive Landscape.....	39
5G Technology is Incremental Threat	40
LTE Home Broadband	41
Metro Fiber Hub Build-Outs Enable Coverage & Capacity Gains Well Beyond Just Wireline	42
IV. COMPANY DESCRIPTION	45
Background	45
Satellite Services.....	46
Commercial Networks	49
Government Systems.....	49
V. VALUATION	50
VI. CONCLUSION	51
APPENDIX I – VIASAT-2 IRR ANALYSIS	52
FULL LEGAL DISCLAIMER	54

I. Investment Highlights

ARPU will not inexorably rise as forecast by the Street. It will decline. A key assumption in Wall Street models and valuations is that average revenue per user (ARPU) will continue to rise off current inflated levels.¹ This view is flawed because it ignores how fragile ViaSat's ARPU has become. After years of bandwidth constraints, **40% of ARPU is now derived from charging for commoditized equipment, non-core services, and add-ons.** This weak foundation to ARPU is poorly understood by investors because of the company's inadequate disclosures. The company's ability to continue charging for non-core services will erode as competition continues to intensify.

- Beginning in 2014, in the wake of a strategic mistake that left ViaSat without additional bandwidth to sell, the company began emphasizing the sale of non-bandwidth "value-added" services.
- Commoditized offerings such as VoIP, Wi-Fi modems, anti-virus protection, and even better customer care began to increasingly drive ARPU growth – a trend that noticeably accelerated in the last twelve months (+13% in the most recent reporting period).
- The ability to charge extra for services that are included by competitors will eventually result in margin attrition as these highly profitable extras are ultimately included in basic service. The loss of these non-core service revenues will lead to lower overall ARPU.
- The company inflated ARPU for 3 main reasons, none of which are sustainable:
 1. Without additional satellite capacity, the company has aggressively pursued a rate versus volume strategy over the past 3 years. ViaSat has systematically allowed lower-value subscribers to disconnect, while selectively retaining and targeting subscribers to whom they can upsell add-on products. This is not the strategy that will be employed when they attempt to move upmarket with ViaSat-2.²
 2. EchoStar, their main satellite competitor, has also faced capacity constraints during the past 18 months. In other words, ViaSat has not had to defend its subscriber base against EchoStar and has been able to get away with uncompetitive pricing actions. That changed a few months ago when EchoStar's Jupiter 2 became fully operational.
 3. The company needs cash to fund ongoing satellite development and acquisitions, and so must demonstrate near-term revenue growth to win over investors. With subscriber levels getting worse, the only way to show growth in consumer broadband was to find contrived ways to grow ARPU through non-bandwidth related products. ARPU rose +11% in the September quarter of last year, driven by the introduction of non-bandwidth products. Ten days after earnings, the company announced a \$500m equity offering to help fund their next satellite program. It inflated a metric the Street relies on, without providing granularity, so that analysts would believe growth was more sustainable than it truly is. In the most recent quarter, the company tempered Street expectations for growth in consumer broadband, stating that revenues would be closer to flat due

¹ Post the November 2016 equity offering, several bulge bracket investment banks initiated coverage of ViaSat. We found none that projected a decline in ARPU. Street estimates range from +2-9% ARPU increase in FY2018.

² The primary source of current satellite capacity is ViaSat-1. ViaSat-2 was launched on June 1, 2017 and is slated for operational service beginning in 1Q18. See Section II – Company Overview for more details.

to continued subscriber losses and ARPU that only “may” compensate for continued subscriber declines.³

- **Forecasts must recognize the inevitability that ARPU will fall and the impact to valuation will be significant.** 75% of forecasted EBITDA growth over the next 3 years is driven by consistent increases of a metric inflated by products and services with no enduring value. The primary valuation method employed for all satellite companies is a DCF, which in ViaSat’s case is mostly based on the terminal value given the company’s lack of free cash flow well until the next decade. Even small changes in ARPU drives a meaningful decline in valuation. This risk is not priced correctly in the stock.

Despite new, larger satellites, the company continues to lose competitive ground. Bulls focus on comparing ViaSat-2 to ViaSat-1 in formulating subscriber forecasts. The more critical analysis is how ViaSat-2 will be positioned versus terrestrial operators in 2018 and how the once favorable competitive landscape has decidedly moved against them. Whether comparing speed or capacity, satellite-based residential broadband is being rendered obsolete.

- In 2012, ViaSat offered a compelling speed/value proposition of \$50 for 12Mbps download speeds. In bandwidth economic terms, it sold speed for \$4 Mbps/mo., a substantial *discount* to DSL (\$32 Mbps/mo.) and even cable (\$8 Mbps/mo.).⁴ Wireless was not a realistic home broadband solution.
- In 2018, when ViaSat-2 will become operational after a year-long delay, the company will likely offer speeds of 25Mbps-50Mbps priced at \$50-\$75 a month – a *premium* speed/value proposition. Even wireless is now compelling on a speed/value basis, making it a ubiquitous, viable home broadband solution that will get dramatically better in the near future with advancements in spectral efficiency.
- ViaSat-2’s positioning on data capacity is even worse. In 2012, the company initially capped data at 10-15GB (1/3 of average US household consumption at the time). ViaSat-2 will likely double the level at which data restrictions will apply, but average household consumption since ViaSat-1’s launch has quadrupled to 190GB per month. Cable and DSL have kept up with ease and wireless is now unlimited. ViaSat will still have to provision capacity on a per subscriber level well below average consumption.
- The speed and capacity improvements of ViaSat-3 U.S. (the first of a planned 3-satellite constellation scheduled to launch in late 2019/2020) will not match the advancements that will have been achieved by terrestrial competitors by the time the satellite is launched. ViaSat’s upcoming satellites are not closing the gap or facilitating any move upmarket. They are evidence of the company’s increasing irrelevance in residential broadband.

The addressable market is much smaller than bulls believe and shrinking fast. Target addressable market estimates of 13-14m+ homes are built on faulty and outdated assumptions. The true figure is far smaller and contracting quickly.

- Many analysts cite a 2016 FCC report on the number of homes that lack 25Mbps download speed without recognizing that the figure fell -40% year-over-year.⁵

³ F4Q17 earnings call.

⁴ Speed/value figures taken from the 2012 ViaSat Analyst Day presentation.

⁵ 2016 FCC Broadband Progress Report released January 29, 2016.

- Broadband availability and broadband adoption are two very different things. The number of Americans who can and would be willing to pay for broadband internet is the relevant statistic, not simply the number of Americans who do not have it. Layering in socio-economic factors, housing statistics and adoption rates yields a substantially lower addressable market. The pool of economically attractive, underserved customers available to ViaSat is rapidly shrinking.
- Bullish views on the addressability of the “low-speed” DSL market fail to account for how poorly ViaSat has historically competed against DSL, the advancements in DSL technology, and the meaningful discount at which DSL is priced. ViaSat may offer an attractive speed offering (to a rapidly dwindling number of homes) but DSL subscribers do not value speed in the same way as other subscribers – they are attracted to plans that are priced -30-40% below ViaSat’s cheapest offerings.
- ViaSat’s subscriber acquisition costs prevent them from meaningfully discounting price to a level that would entice DSL customers.
- Bullish shareholders fail to recognize how the erosion in ViaSat’s speeds clearly illustrates the company’s inability to add anywhere near the millions of subscribers that the company touts as its addressable market, even with multiple terabits of additional capacity. ViaSat-2 and ViaSat-3 will never meaningfully challenge the DSL market.

Reported EBITDA is overstating profitability. Reported EBITDA has increasingly captured material amounts of equipment-related lease revenue without any corresponding cash expense.

- We conservatively estimate reported EBITDA includes \$120m in consumer broadband-related equipment revenue that has no appropriate level of costs netted against it. The proper way to represent the true cash profitability of the company would be to include an adjustment for the depreciation expense related to these equipment sales. Adjusting EBITDA in this manner to arrive at “cash EBITDA” is standard practice in the telecom industry and used by equity research analysts in deriving valuation. In the case of ViaSat, it would reduce reported FY 2017 EBITDA by -18%.
- We believe the company has deliberately structured its subscription and add-on plans in specific ways to take advantage of accounting rules to flatter its primary valuation metric, EBITDA. On an EBIT and FCF basis, it’s clear the company is not highly profitable and is significantly overvalued.

The company has never generated a decent ROIC. Bulls believe that the ROI for ViaSat-1 (touted as meeting expectations by the company but without any granular verification) and ViaSat-2 justify the worthiness of the business model. Their beliefs are flawed.

- The target ROI on VSAT-1 was achieved because the company dramatically increased ARPU through selling commoditized products. As competitive intensity increases, charging installation fees equivalent to 3 months of service, requiring 2-year contracts, and charging extra for modems and customer service is not sustainable.
- The project ROI on ViaSat-2, pegged conservatively by some on the Street at 16% does not include all associated ground network expenses – a figure estimated at \$75-\$100m by a satellite expert we spoke with and verified as missing from the \$600-\$650m in capex by individuals familiar with the project.
- Satellite development costs are unlikely to ease. While management has stated the reason to take more operations in-house was done to preserve IP security, another primary goal was to quicken the payload development cycle down to just 12-18 months.

This elevates capex for longer and increases the risk the company will develop capacity without accurately assessing market conditions.

Investors are cash funding increasing technology risk. ViaSat has never generated free cash flow and will require constant access to the debt and equity markets to fund \$1.4bn in cash burn needs over the next four years.

- The most recent \$500m equity round priced at \$69, close to current trading levels, conveniently after reporting then-record high ARPU growth and despite the CFO stating the company's leverage position was "very low" just 9 months prior.⁶
- We estimate leverage of 4.0x by the end of 2020 (assuming cash burn is funded solely from future HY bond taps – historically the mix has been 50/50 debt/equity).
- ViaSat is burning hundreds of millions of dollars of cash annually, without any demonstrated ROIC, trying to achieve an undefined level of scale, all amid unprecedented technological change.

International Expansion Will Require Substantial Investment and Partnerships. ViaSat at its core is an engineering company; when it comes to *selling* the capacity, it suffers significant disadvantages.

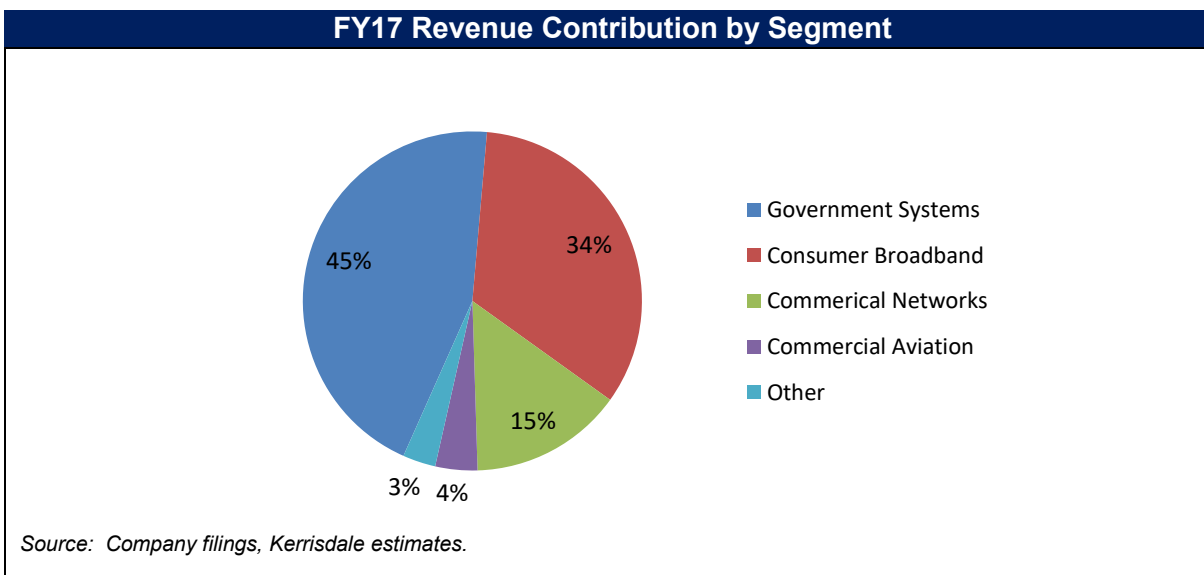
- U.S. retail capability was gained through the acquisition of WildBlue. As per multiple industry sources, ViaSat has no experience with retail operations in Europe. The company possesses even less in terms of infrastructure, experience, and partnerships everywhere else. This lack of global operational experience is in stark contrast to their ambitions of global satellite coverage.
- The lack of global presence has led the company to sign a poorly structured, unfavorable agreement to gain a foothold in Europe.

⁶ F3Q16 earnings call.

II. Situation Overview

Capitalization and Summary Financials									
<i>Fiscal Year End March 31st</i>									
<i>\$ in Millions, except per Share Data</i>									
Capitalization		Summary Financials							
Share Price	\$71.63	Revenue	FY 2015	FY 2016	FY 2017	FY 2018E	FY 2019E	FY 2020E	CAGR
Diluted Shares Outstanding	58		1,383	1,417	1,559	1,607	1,750	1,872	6.3%
Market Capitalization	\$4,128	EBITDA (Inc. SBC)	188	283	285	284	344	427	17.9%
FY 2017E Net Debt	718	EBIT	83	41	37	17	47	102	4.1%
Net Debt Adj. for Cash Burn ⁽¹⁾	2,224	Free Cash Flow ⁽²⁾	(70)	(154)	(174)	(312)	(459)	(412)	NM
ETL JV @ Cost	(145)	Multiples							
Current Enterprise Value	\$4,701	EV / EBITDA	25.1x	16.6x	16.5x	16.6x	13.7x	11.0x	
Adj. Enterprise Value (FY20E Net Debt)	\$6,207	Adj. EV / EBITDA	33.1x	21.9x	21.8x	21.9x	18.0x	14.5x	
<i>Source: Company filings, Kerrisdale estimates.</i>									
1. <i>Net Debt Adj. for Cash Burn reflects Kerrisdale estimates of additional financing required to meet projected cash burn through 2020E.</i>									
2. <i>Free Cash Flow defined as: EBITDA less: Cash Interest, Capex, Cash Paid for Patents, Licenses and Other Intangibles, and changes in Working Capital.</i>									

The level of interest aviation broadband generates among investors is out-sized relative to the business unit's contribution to total revenue (only 4%). Residential broadband is a far more important driver for the company and represents the second largest contributor to revenue and an estimated 70% of reported EBITDA. 70-80% of the capacity on the company's upcoming satellites is devoted to residential broadband. Though the company's disclosures have grown murkier over time, the business unit is driven by the same building blocks of any telecom model: ARPU, gross subscriber additions, and churn (the level of disconnections as expressed as a monthly average percentage of the subscriber base). Faulty assumptions and poor disclosures have led all three to be modeled far too optimistically.



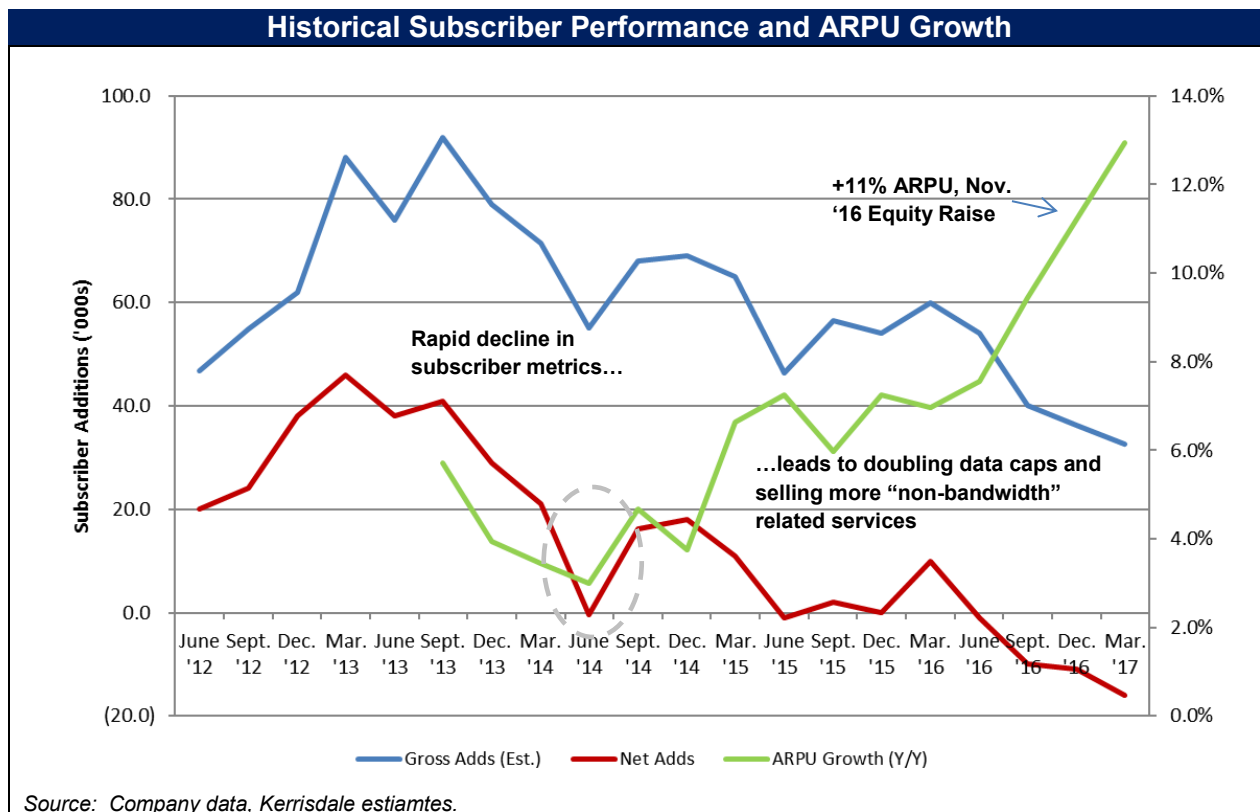
ARPU Will Decline

Ever-increasing ARPU is embedded in Street forecasts and bullish investor expectations. Without the benefit of granular disclosure into what comprises ARPU, the Street has simply taken the company at its word in believing the metric's remarkable increase over the past two years is sustainable. But what exactly is now in ARPU and why should investors be concerned?

*“ARPU is growing as a result of strength in our retail distribution, which accounts for a growing proportion of the subscriber base; higher-value, higher bandwidth service plans; **and especially more recently, the introduction of value-added subscription features that aren't bandwidth dependent.**” [emphasis added]*

— Mark Dankberg (CEO of ViaSat, November 8, 2016)

A criticism often levied at the company is that ViaSat-1 came up well short of original subscriber estimates. The satellite reached capacity constraints at under 700k subscribers less than 3 years post-launch, rather than over 1m subscribers as originally guided by the company. The criticism is valid but rings hollow among bulls, partly because while the company did indeed fail to achieve targeted subscriber volumes, they were able to make up the revenue shortfall by increasing ARPU (i.e., they traded volume for price). Some bulls cite this trade-off as a strength of the company. It's a clever piece of revisionist spin without understanding the true implications of what is now embedded in ARPU, and how it has serious implications going forward.



In the summer of 2014, after several quarters of rapidly falling gross and net subscriber additions, ViaSat had to pivot. The company had not properly anticipated the level of data demand per subscriber and customers were fleeing because they had paid for what they

thought was terrestrial-like internet service, but instead found themselves running into onerous data caps and overages. Monthly churn was just shy of 3%, a horrendous level of performance. It implies turning over the company’s entire subscriber base every three years. To stop the bleeding, the company had no choice but to double the data caps without raising price. Below are screenshots from when the change took place:

August 2014		September 2014																									
<p>EXEDE 12 PLAN</p> <table border="1"> <tr> <td>DATA PLAN</td> <td>10 GB Month</td> <td>15 GB Month</td> <td>25 GB Month</td> </tr> <tr> <td>PRICE</td> <td>\$49.99 Month</td> <td>\$79.99 Month</td> <td>\$129.99 Month</td> </tr> <tr> <td>PLUS</td> <td colspan="3">All Packages Include 10 Email Addresses with more than 10 GB of storage per address + First 3 months of F-Secure Anti Virus/ Anti-Spyware Software</td> </tr> </table> <p><small>Details and Restrictions</small></p>		DATA PLAN	10 GB Month	15 GB Month	25 GB Month	PRICE	\$49.99 Month	\$79.99 Month	\$129.99 Month	PLUS	All Packages Include 10 Email Addresses with more than 10 GB of storage per address + First 3 months of F-Secure Anti Virus/ Anti-Spyware Software			<p>EXEDE 12 PLANS</p> <table border="1"> <tr> <td>DATA PLAN</td> <td>20 GB* Month</td> <td>30 GB* Month</td> <td>50 GB* Month</td> </tr> <tr> <td>PRICE</td> <td>\$49.99 Month</td> <td>\$79.99 Month</td> <td>\$129.99 Month</td> </tr> <tr> <td>PLUS</td> <td colspan="3">All Packages Include 10 Email Addresses with more than 10 GB of storage per address + First 12 months of F-Secure Anti Virus/ Anti-Spyware Software (\$2.99/month thereafter)</td> </tr> </table> <p><small>Details and Restrictions</small> * For the first six months in selected areas</p>		DATA PLAN	20 GB* Month	30 GB* Month	50 GB* Month	PRICE	\$49.99 Month	\$79.99 Month	\$129.99 Month	PLUS	All Packages Include 10 Email Addresses with more than 10 GB of storage per address + First 12 months of F-Secure Anti Virus/ Anti-Spyware Software (\$2.99/month thereafter)		
DATA PLAN	10 GB Month	15 GB Month	25 GB Month																								
PRICE	\$49.99 Month	\$79.99 Month	\$129.99 Month																								
PLUS	All Packages Include 10 Email Addresses with more than 10 GB of storage per address + First 3 months of F-Secure Anti Virus/ Anti-Spyware Software																										
DATA PLAN	20 GB* Month	30 GB* Month	50 GB* Month																								
PRICE	\$49.99 Month	\$79.99 Month	\$129.99 Month																								
PLUS	All Packages Include 10 Email Addresses with more than 10 GB of storage per address + First 12 months of F-Secure Anti Virus/ Anti-Spyware Software (\$2.99/month thereafter)																										
<p>Source: Internet Archive: Wayback Machine, Archive.org/web, Exede-sales.com screen captures from April 2014 and September 2014.</p>																											

The move paid off and stabilized subscriber trends at levels that continue to this day – but it created a new problem. The large increase in data allocated to each subscriber left the satellite without meaningful additional capacity. So how does a satellite broadband company grow revenue and achieve a targeted ROI without any actual broadband to sell? Unlike a terrestrial provider of bandwidth, ViaSat’s inventory is finite – it is the fundamental flaw in the business model versus terrestrial.

Indeed, in the satellite internet business there’s pressure to maximize returns in initial years post launch because economic yields degrade over time. Capacity is finite, yet each household uses more bandwidth year after year. The satellite therefore reaches a point where there is no way to continue to deliver the same amount of speed to each customer. So speeds slow down, pricing power declines, subscriber levels begin to erode – therefore, the economic yield of a satellite declines. In trying to serve burgeoning consumer broadband demand, ViaSat has witnessed the point when yields decline occur earlier and earlier in the useable lifetime of a satellite. Thus, as the CEO once explained, “you got to make your money upfront.”⁷

So, picture the board room of this supposedly innovative hybrid between Silicon Valley and the satellite industry trying to figure out how to demonstrate a viable business model in order to raise more cash for future satellites, when they are out of inventory after only 2.5 years. The answer: time-tested telecom bill-padding. Get customers to pay \$29.99/mo. for VoIP, a low-bandwidth voice application which rides over the internet connection. Remember that VoIP is provided for *free* by Google and for much lower prices than ViaSat by other providers. Charge \$5.99 *per month* to have service restored and the right to speak to a customer representative in a timely manner (imagine how predatory that really is for a customer with limited options and a service that experiences periodic outages related to weather).

⁷ MoffettNathanson Conference, May 18, 2016.

Current Exede “Value-Added” Products

NEW! Add wireless with the
Exede WiFi Modem

Only **\$5/mo**

Reliable, fast wireless networking to connect all the devices in your home.

Satellite TV

- Bundle with Exede Internet and save **\$10/month** for 12 months.
- Get great service and channel lineups from a top satellite TV provider.

EasyCare
AN EXTRA LEVEL OF SUPPORT

- Includes any required service calls and priority access to customer phone support
- **FREE** for your first 3 months!
- Add to any plan: **\$5.99/mo**

Exede Voice
HOME PHONE SERVICE

- Bundle with Exede Internet and save **\$10/month** for 6 months.
- Unlimited local and long distance
- Add to any plan: **\$29.99/mo**

Source: Exede-sales.com

Below is a list of ViaSat services that have become increasingly embedded in ARPU, none of which are associated with its core value proposition of selling internet bandwidth:

- **EasyCare:** Better customer service for \$5.99/mo.
- **ExedeVoice:** VoIP for \$29.99/mo. (\$11/mo. more than wholesale partners)
- **Anti-Virus Protection:** \$2.99/mo. (automatically billed after initial free period)
- **Installation Fee:** 1x \$149.99 or \$99.99 installation fee (included in ARPU as non-recurring service revenue)
- **Equipment Fee:** \$9.99/mo.
- **Modem Fee:** \$5.00/mo.
- **Boost 25:** \$10.00/mo. to 2x speed if you buy the newest built-in Wi-Fi Modem (equipment revenue disguised as service ARPU)
- **Termination Fee:** \$15.00 x the number of months remaining on contract (minimum contract length of 24 months)

All telecom and cable operators collect fees and charge for add-ons, but embedded in ARPU for ViaSat is a significant amount of *over-charging* for products that are unsustainable as it tries to move upmarket. In the expanded addressable market ViaSat wishes to penetrate, there is *plenty* of competition and those operators will give away or heavily discount all of these services.

We asked a veteran telecom consultant familiar with carrier billing practices about the level of fees and his shocked reply was, “So exactly how much are they able to charge for internet service?” Good question – the company has never quantified the non-bandwidth contribution to ARPU; they’ve simply acknowledged it has increased materially.

We spoke to a wholesaler of ViaSat services to gauge what the contribution of VoIP and other ancillary fees might be for the company. He described a sophisticated program the company uses to screen customers. In the areas where capacity still exists, the company targets premium customers with an estimated high receptivity to non-bandwidth add-ons and willingness to pay a higher installation fee. That is a good way to increase ARPU, but it is not a successful mass-market strategy. According to the wholesaler, 30-35% of his rural customers take a VoIP bundle. The wholesaler’s company sells VoIP for \$19/mo. as an add-on. When told ViaSat charges \$29.99/mo., his response was “Yeah, they print money on VoIP.” The market for VoIP and wired voice in general is in well-documented secular decline. The majority of all U.S.

households no longer have a landline voice connection due to wireless substitution.⁸ Charging \$29.99/mo. for VoIP is over-earning on a dying low-bandwidth product.

Based on the wholesaler’s comments, we conservatively assumed a 25% take rate for ViaSat VoIP and lay out our estimate of what currently comprises ARPU.

What Does ViaSat Actually Charge for The Internet?				
Est. F3Q17 Retail ARPU	\$70			
		Contribution		
Less:		to ARPU	Take Rate	Price
VoIP	(7.5)	11%	25%	\$29.99
EasyCare	(1.2)	2%	20%	\$5.99
Anti-Virus Software	(1.5)	2%	50%	\$2.99
WiFi Modem Fee	(1.0)	1%	20%	\$5.00
Boost 25	(2.5)	4%	25%	\$10.00
Equipment Fee	(10.0)	14%	100%	\$9.99
Installation Fee (\$100/24mo.)	(4.2)	6%	100%	\$99.99
Total Non-Bandwidth ARPU	(\$28)	40%		
Core Bandwidth Service ARPU	\$42			
% of Total	60%			

Source: Published pricing for Exede products and services from Exede-sales.com, ViaSat customer agreements and disclaimers. Take-rate (penetration of the subscriber base) estimates based on Kerrisdale research.

The significance of these fees and add-ons should not be overlooked. The diminishing ability to charge extra for these services will eventually result in lower overall ARPU and margin attrition as highly profitable extras are included in basic access.

This kind of ARPU erosion has taken place in the telecom industry for 30 years. Carriers charge early adopters for high-margin “convenience-oriented” features – voicemail, call-waiting, and email – that then erode under competitive pressure. In fact, it’s happened to ViaSat before, although one had to be paying close attention to notice. The only time in the last 16 quarters that ARPU declined slightly quarter-over-quarter (F3Q 2015), the company offered the following explanation:

“The lower left chart shows blended consumer ARPU on a year-over-year and quarter-over-quarter basis. The decline in the non-recurring revenue component in this quarter led to total consumer ARPU being sequentially essentially flat.”
[Emphasis added]

— Mark Dankberg (CEO of ViaSat, February 10, 2015)

Non-recurring revenue is telecom code for activation charges, installation fees, and other one-time add-on fees. After reviewing the disclaimers from the time, we found the company lowered the installation fee from \$149.99 in F2Q15 to \$99.99 in F3Q15.

⁸ Center for Disease Control data from 2H16. [More Than Half of Americans Have Cut Landline Phone Service.](#)

It won't take long to see how ARPU erosion will play out because ViaSat is *already* reacting to competition in the manner we are predicting. The company recently slashed prices on their highest plan by 33% while increasing data to match EchoStar's newest plans (see HughesNet pricing plans below). Sure enough, EchoStar is including installation and a modem with built-in Wi-Fi in their plans.

Despite all their talk of expanding the addressable market and taking share from terrestrial, the largest block of ViaSat's customer acquisitions typically comes from trading subscribers back and forth with EchoStar's HughesNet. Using its recently launched advanced satellite, EchoStar is aggressively marketing plans that mimic what ViaSat aims to offer *nine months from now* (assuming ViaSat-2 is operational by the end of 1Q18).

Exede Plans in October '16			Current Exede Plans		
<p>LIBERTY 10</p> <p>10 GB Priority Data</p> <p>Liberty Pass</p> <p>\$59.99/mo</p> <p>Speed: 12 MBPS Download / 3 MBPS Upload</p> <p>Liberty Pass 1 - 5 Mbps download speeds (morning/daytime) after Priority Data used</p>	<p>LIBERTY 18</p> <p>18 GB Priority Data</p> <p>Liberty Pass</p> <p>\$99.99/mo</p> <p>Speed: 12 MBPS Download / 3 MBPS Upload</p> <p>Liberty Pass 1 - 5 Mbps download speeds (morning/daytime) after Priority Data used</p>	<p>LIBERTY 30</p> <p>30 GB Priority Data</p> <p>Liberty Pass</p> <p>\$149.99/mo</p> <p>Speed: 12 MBPS Download / 3 MBPS Upload</p> <p>Liberty Pass 1 - 5 Mbps download speeds (morning/daytime) after Priority Data used</p>	<p>LIBERTY 12</p> <p>PRIORITY DATA 12 GB</p> <p>INCLUDES Liberty Pass 1-5 Mbps download speed Morning/Daytime after priority data used</p> <p>Free Zone 3 am to 6 am daily</p> <p>\$50/mo</p>	<p>LIBERTY 25</p> <p>PRIORITY DATA 25 GB</p> <p>INCLUDES Liberty Pass 1-5 Mbps download speed Morning/Daytime after priority data used</p> <p>Free Zone 3 am to 6 am daily</p> <p>\$75/mo</p>	<p>LIBERTY 50</p> <p>PRIORITY DATA 50 GB</p> <p>INCLUDES Liberty Pass 1-5 Mbps download speed Morning/Daytime after priority data used</p> <p>Free Zone 3 am to 6 am daily</p> <p>\$100/mo</p>

Source: Internet Archive: Wayback Machine, archive.org/web, Exede-sales.com screen capture from October, 2016 and current.

Current HughesNet Gen 5 Pricing Plans			
\$49.99	\$69.99 \$49.99	\$99.99 \$69.99	\$129.99 \$99.99
10 GB	20 GB	30 GB	50 GB
Perfect for casual Internet users	Good for small families with kids	Ideal for big families with multiple devices	Maximum data for connected households
<ul style="list-style-type: none"> ✓ FASTER SPEEDS* ✓ BUILT-IN WI-FI MODEM ✓ DATA-SAVING FEATURES* ✓ BONUS ZONE ✓ NO HARD DATA LIMITS* 	<ul style="list-style-type: none"> ✓ FASTER SPEEDS* ✓ BUILT-IN WI-FI MODEM ✓ DATA-SAVING FEATURES* ✓ BONUS ZONE ✓ NO HARD DATA LIMITS* 	<ul style="list-style-type: none"> ✓ FASTER SPEEDS* ✓ BUILT-IN WI-FI MODEM ✓ DATA-SAVING FEATURES* ✓ BONUS ZONE ✓ NO HARD DATA LIMITS* 	<ul style="list-style-type: none"> ✓ FASTER SPEEDS* ✓ BUILT-IN WI-FI MODEM ✓ DATA-SAVING FEATURES* ✓ BONUS ZONE ✓ NO HARD DATA LIMITS*
Learn More	Learn More	Learn More	Learn More

Source: HughesNet.com

Consensus estimates call for ARPU continuing to increase +2-9% off of these unsustainable levels. It's a forecast at odds with reality that is enabled by the company's lack of disclosure. ViaSat will not have additional capacity for nine months and they're confronting aggressive competition from EchoStar this second. The practices that helped grow ARPU to current levels only work when *narrowing* the target market to "premium" customers, not when trying to broaden addressability. Overcharging for non-core services is unsustainable and forecasts need to account for the inevitability that ARPU will decline.

New Satellites are Losing Ground to the Competition

"We feel if we can raise our speeds as fast or faster than other technologies, we feel like we have an enduring market."

— Mark Dankberg (CEO of ViaSat, November 29, 2012)

Held at the end of ViaSat-1's first year in service, the 2012 ViaSat Analyst Day emphasized many of the competitive advantages enjoyed by the company at that time. CEO Mark Dankberg highlighted the "speed/value" advantage of ViaSat's Exede-branded offering vs. competing technologies. The metric used to describe this advantage is a tortured one. "\$ per Mbps per Month" is effectively the monthly bill divided into the speed delivered. It's conceptually flawed because subscribers don't just pay for the speed of data, they pay for an amount of it as well. ViaSat customers in 2012 only received a fraction of their typical desired capacity. But management didn't want to draw attention to the onerous data caps of a measly 10GBs on the Analyst Day, and so the discussion around competition focused on one thing: speed.

That said, in 2012 \$50 a month for 12Mbps download speed (\$4.17/Mbps/mo.) was an attractive, differentiated, speed/value proposition versus all of the alternatives (except fiber). It was orders of magnitude better than DSL and wireless. Speed, rather than capacity, formed the crux of ViaSat's go-to-market strategy. Below, examine the screen capture of ViaSat's main Exede-banded service from November 2012. Notice something missing? There wasn't a *single* mention of a data cap in their deceptive marketing for the first year of ViaSat-1. Emphasizing speed is what helped generate a large ramp in subscriber gross additions.

Exede Online Marketing in Nov. 2012. - No Mention of Data Cap



Ready for super-fast satellite Internet service?

Now you can do everything online faster with Exede™ Broadband

- Get up to 12 Mbps download speed
- Download at up to 4x faster than average DSL speeds*
- FREE Standard Installation
- FREE Shipping and Handling
- Starting at just \$49.99/month

One-time setup fee of \$149.99 applies.

Imagine what you could do with that! [Get started now](#)

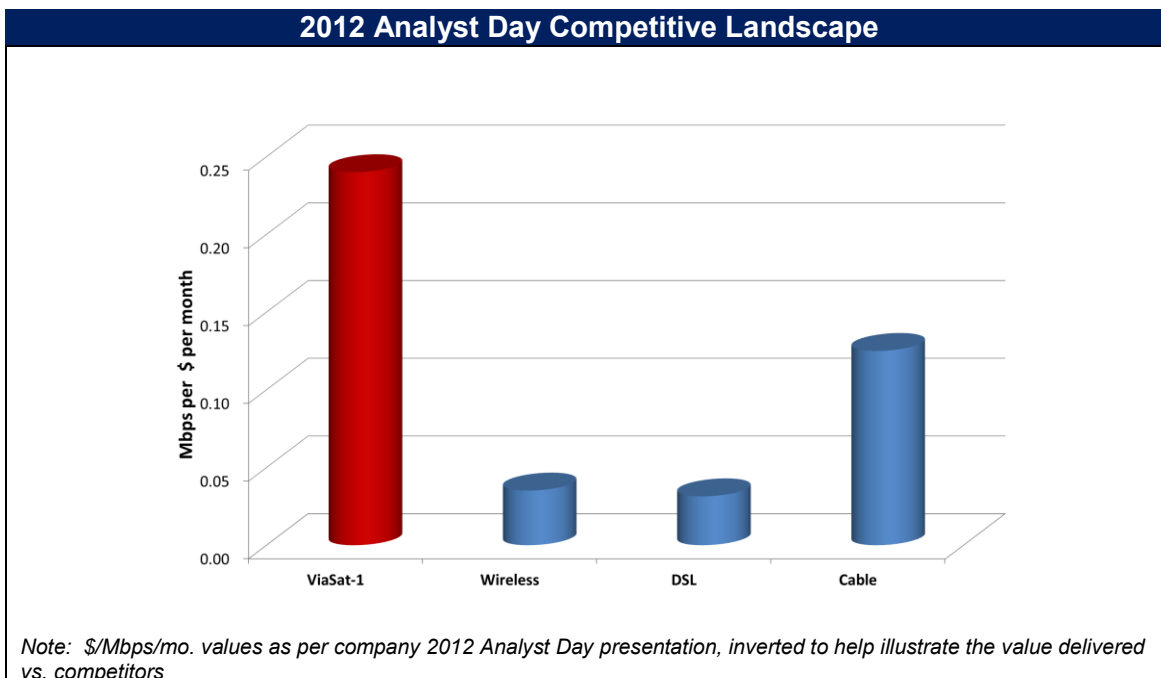
[Exede Plan Selector Tool](#) [Packages and Prices](#)

Limited Time Offer Get low cost Broadband Internet from exede™ and the U.S. Recovery ACT. Call us today to get started!
 1-866-989-3105

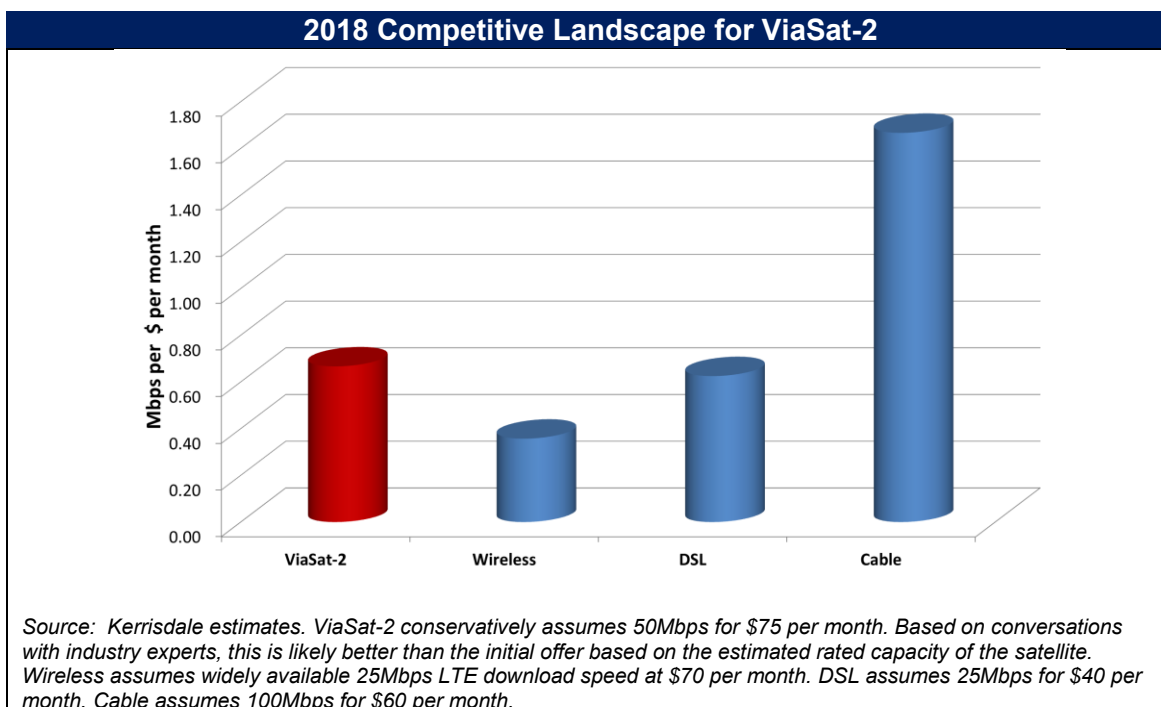
The Incredibly FAST New Broadband Internet Service

Source: Internet Archive: Archive.org/web, Exede-sales.com from November 2012.

Below is a reproduction of data from a chart from the company's 2012 Analyst Day that described its competitive speed/value advantage. We've inverted the depiction to show Mbps per \$ per month for ease of comparison. ViaSat delivered significantly more speed per \$ than its main terrestrial competitors.



Now review the chart of the competitive landscape that will confront ViaSat-2 in early 2018. ViaSat-1's sizable previous speed/value advantage against its main competitors – DSL, Cable, and wireless – has evaporated.



As alluded to previously, evaluating broadband competition on speed alone is incomplete; one must factor in data consumption. In 2012, ViaSat sold plans in tiers of 7.5GB/15GB/25GB of data per month (if you read the fine print). This was at a time when average US household consumption was roughly 45GB per month.⁹ ViaSat's current mid-tier offering is 25GB per month. ViaSat will increase data caps meaningfully with ViaSat-2 but even assuming that provisioning on a per subscriber basis triples, it still leaves them woefully uncompetitive.

Based on data from [Cisco](#) and echoed by [DSLReports](#), average U.S. household broadband consumption is currently a staggering 190GB per month. Terrestrial operators meet this demand with ease. If ViaSat tries to compete with terrestrial and increase the capacity provided to each customer, then the increased amount of gigabytes per month of data consumption will result in accommodating fewer people per satellite. It's the same set of circumstances that led to downward revisions to subscriber forecasts for ViaSat-1.

The company has claimed "virtually unlimited" data will be available with ViaSat-2.¹⁰ Once again, it's important to read the fine print. Nothing is ever unlimited on a satellite. What "virtually unlimited" really means is the company will provision and sell data at a level they anticipate a typical consumer will not exceed (their track record is not stellar in that regard), and that unlike with ViaSat-1, they will no longer cut off customers once they hit their monthly allowance. ViaSat will however throttle the customer to speeds that will make the internet exceedingly slow and encourage subscribers to use "unlimited" data when the company can provide it – like at 4am – not when users may want it.

A preview of these restrictions can be found in EchoStar's newest offerings. EchoStar reduces speeds to 1-3 Mbps once the monthly plan data is reached (the highest of which is only 50GB, a quarter of current average consumption). ViaSat currently has plans that allow continued data usage beyond the monthly limit but throttled to 1-5 Mbps speeds until 5 p.m. From 5 p.m. to 2 a.m., speeds drop "possibly below 1 Mbps." ViaSat warns customers that have an interest in using a lot of data in the evenings (i.e., nearly everyone who streams Netflix) that the plan "may not give you the best experience." One can upgrade the amount of "priority data" before being hit with slower speeds but at a cost of roughly \$10 per GB.¹¹

So let's assume one wanted to actually replicate a normal terrestrial experience with ViaSat-2 technology and "virtually unlimited" price plans. Assuming a very generous \$100 for 100 GB (it will probably be half that) still leaves the customer dealing with throttled speeds midway through the month. The customer can now begin setting her alarm clock for 2:00 a.m. to catch up on House of Cards or she can pay \$5 more per GB (assumes half of the current incremental cost) to lift the restriction. Because she is still 90 GB short of what her household consumes per month, this would cost her an additional \$450. Terrestrial providers don't bother to advertise how much data your monthly bill includes – their customer base assumes data is unlimited. Even wireless customers have come to expect data should come without restrictive conditions.

⁹ Cisco estimated North American consumer traffic in 2012 was 6.5PB per month, divided into census data for US and Canada population and 2.4 persons per household returns 45GB per month. A NorthWestern study from September 2013, "Usage-Based Pricing and Demand for Residential Broadband," which used a sample of 54,801 cable subscribers across 4 different markets found the May 2012 average monthly consumption to be 40 GB.

¹⁰ MoffettNathanson Conference, May 17, 2017.

¹¹ See www.exede.com/liberty for the company's approach to "virtually unlimited." Liberty Plans provide subscribers with a set amount of "Priority Data" after which internet consumption may continue at drastically reduced speeds depending on the time of day.

“Virtually unlimited” from ViaSat is just the latest example of the games satellite providers play because of the limitations of their technology.

Below we assume a more generous than likely improvement in data restrictions for ViaSat-2 and the comparison still underscores how poorly positioned the company is when it comes to data capacity. Doubling or tripling speeds versus ViaSat-1 is immaterial when ViaSat-2 is still the only broadband technology that does not provide a level of data capacity that is in line with consumer habits.

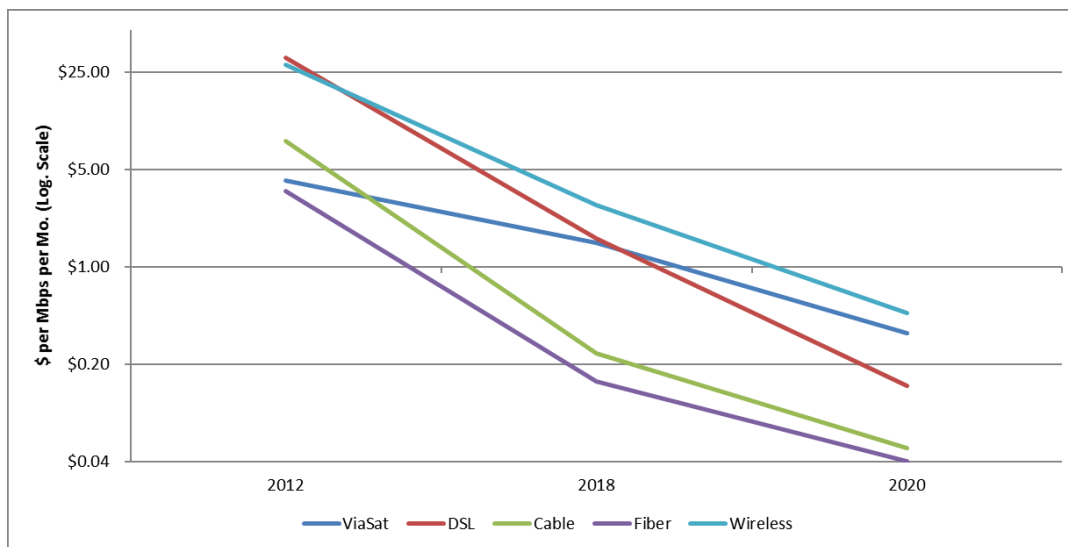
ViaSat-2 vs. Competitors – Bandwidth Economics									
	2018 Competitive Comparison								
	VSAT-2			DSL	Cable	Fiber	Wireless		
Monthly Price	\$60	\$75	\$100	\$40	\$70	\$75	\$70		
Speed (Mbps)	25	50	100	25	100	500	25		
Data Restrictions (GB/Mo.)	50	75	100	500	1,000	1,000	200		
\$ per Mbps per Mo.	\$2.40	\$1.50	\$1.00	\$1.60	\$0.70	\$0.15	\$2.80		
\$ per Data Restriction GB	\$1.20	\$1.00	\$1.00	\$0.08	\$0.07	\$0.08	\$0.35		
Avg. Household Consumption (GB/Mo.)	195	195	195	195	195	195	195		
\$ per GB Consumed	\$1.20	\$1.00	\$1.00	\$0.20	\$0.36	\$0.38	\$0.35		
Data Caps vs. Average Monthly Usage	26%	38%	51%	256%	512%	512%	102%		

Source: Kerrisdale estimates for ViaSat-2 based on the company's disclosures regarding the doubling of nominal capacity versus ViaSat-1 and conversations with industry experts. DSL projection is based on widely available internet-only plans from CenturyLink, WindStream, and Frontier. Cable and Fiber are representative of internet-only plans from Comcast, Cox, Spectrum, and Verizon. Wireless represents the cost per line to add 2 lines to an Unlimited Data plan from Verizon.

What about ViaSat-3 in 2020? It will be more of the same – the new constellation will continue to offer less than what consumers will demand, and trail terrestrial competitors. ViaSat-3 represents a jump to 1 Tbps of capacity. Based on conversations with satellite experts and industry participants, ViaSat-3 will likely charge \$75-\$100 for standard speeds of 100Mbps and provision data at roughly 100-150GB per customer.¹² In 2020, Cisco projects data consumption will be 278GB per household. ViaSat will be selling the worst residential broadband solution money can buy. In the following charts we project the competitive positioning of ViaSat-1, ViaSat-2, and ViaSat-3 versus terrestrial.

¹² Consistent with comments from the company on the F2Q17 Earnings Call. CEO notes ViaSat-3 class satellite will improve bandwidth economics and peak speeds by almost a factor of 4 compared to ViaSat-2.

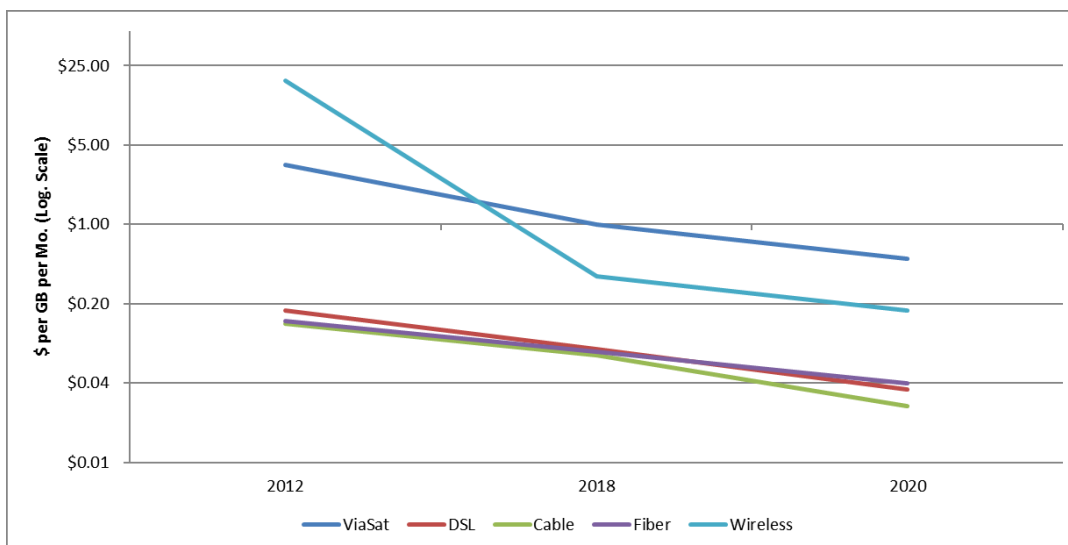
ViaSat is Increasingly Uncompetitive on Speed...



Source: Kerrisdale estimates. 2012 figures taken from ViaSat's 2012 Investor Day.

- 2018 estimates: ViaSat-2 assumes \$1.50 per Mbps based on \$75 for 50 Mbps, DSL assumes \$1.60 per Mbps based on \$40 for 25 Mbps, Cable assumes \$0.70 per Mbps based on \$70 for 100 Mbps, Fiber assumes \$0.15 per Mbps based on \$75 for 500 Mbps, and Wireless assumes \$2.80 per Mbps based on \$70 for 25 Mbps.
- 2020 estimates: ViaSat-3 assumes \$0.33 per Mbps based on \$75 for 225 Mbps, DSL assumes \$0.14 per Mbps based on \$35 for 250 Mbps, Cable assumes \$0.05 per Mbps based on \$50 for 1Gbps, Fiber assumes \$0.04 per Mbps based on \$80 for 2 Gbps, and Wireless at \$0.47 per Mbps based on \$70 for 150 Mbps.

...and Losing Further Ground on Capacity, Including Against Wireless



Source: Kerrisdale estimates. 2012 uses pricing for each service based on ViaSat's 2012 Investor Day presentation and assumes data restrictions of 15GB for ViaSat, 200 GB for DSL, 300 GB for Cable, 300 GB for Fiber, and 2 GB for wireless.

- 2018 estimates: ViaSat-2 assumes \$1.00 per GB based on \$100 for 100 GB, DSL assumes \$0.08 per GB based on \$40 for 500 GB, Cable assumes \$0.07 per GB based on \$70 for 1,000 GB, Fiber assumes \$0.08 per GB based on \$75 for 1,000 GB, and Wireless assumes \$0.35 per GB based on \$70 for 200 GB (unlimited fair use cap).

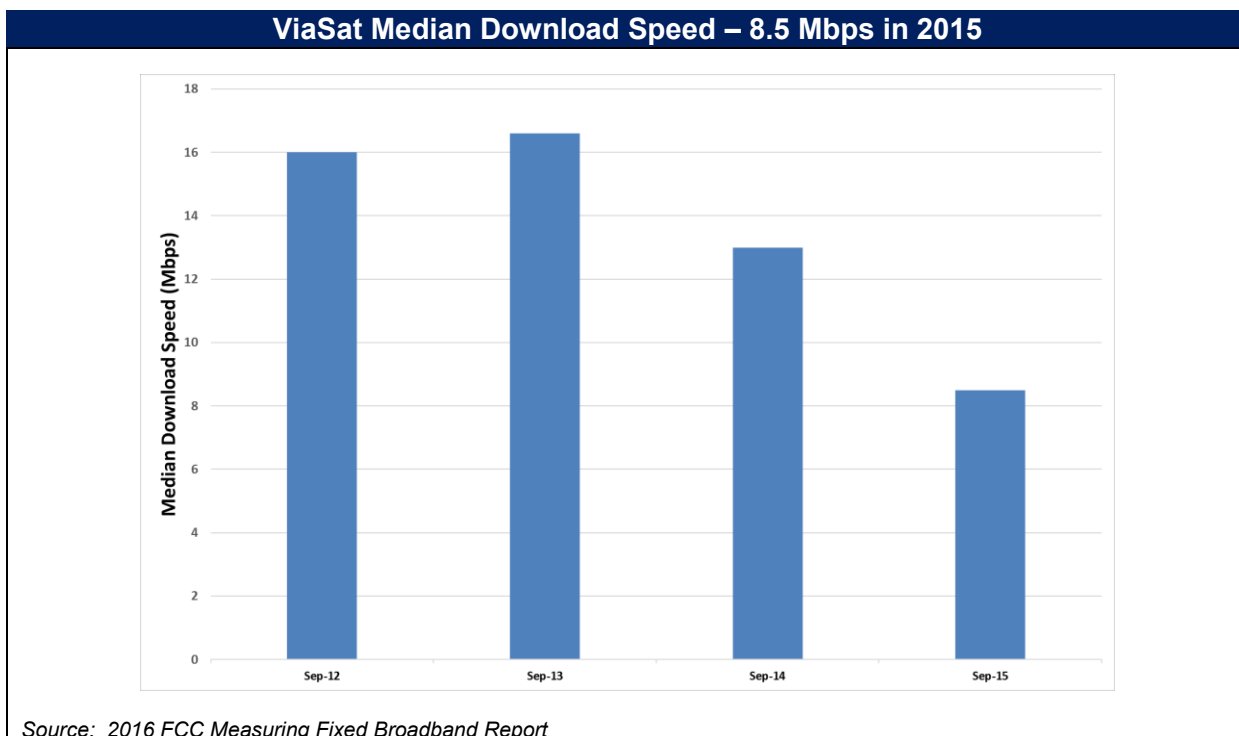
- 2020 estimates: ViaSat-2 assumes \$.50 per GB based on \$100 for 100 GB, DSL assumes \$.04 per GB based on \$35 for 1,000 GB, Cable assumes \$.03 per GB based on \$70 for 2,000 GB, Fiber assumes \$.04 per GB based on \$80 for 2,000 GB, and Wireless assumes \$.18 per GB based on \$70 for 400 GB (unlimited fair use cap).

ViaSat-2 Will Not Drive Meaningful Subscriber Growth

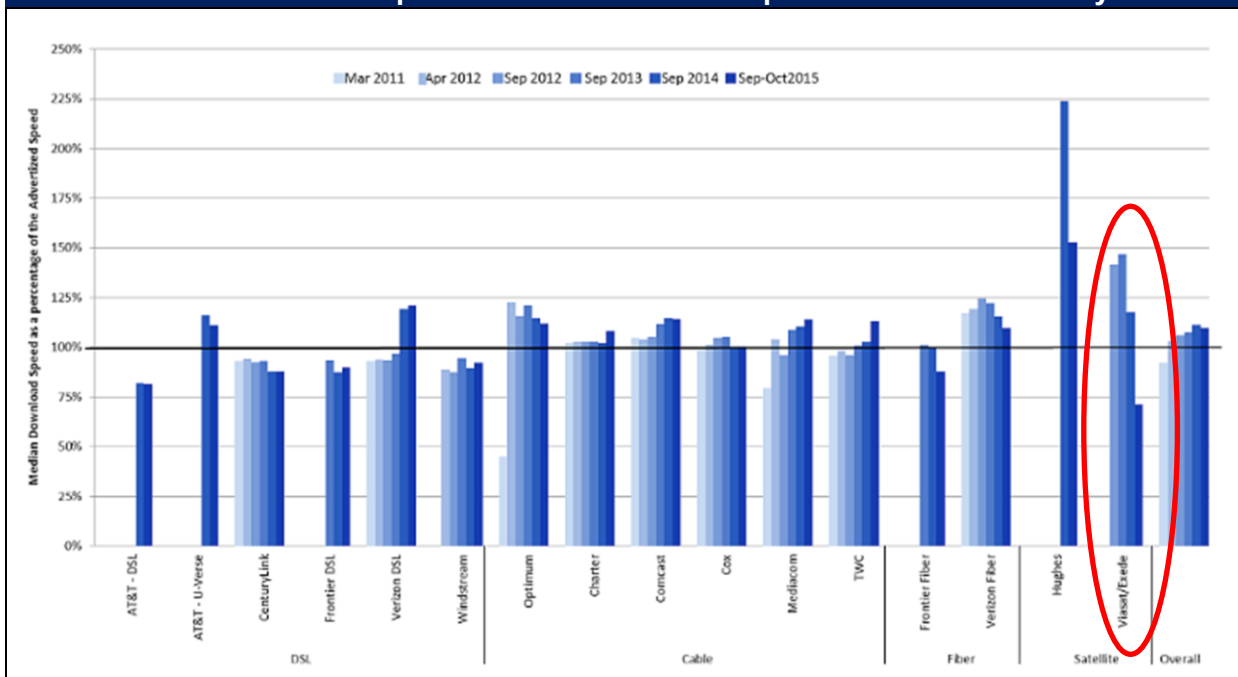
The analyses above conservatively assume ViaSat delivers what they promise – something the company (and satellite broadband in general) does not do consistently. In the most recent FCC Measuring Broadband report, the commission found ViaSat to be the worst broadband provider in the nation when it comes to download speed as % of advertised. Even more concerning is the magnitude of year-over-year decline in observed median speeds. The latest FCC report found ViaSat’s median download speed was only 8.5Mbps in 2015, down -50% from 2 years prior.

This decline in performance is due to a fundamental disadvantage of satellite technology in providing residential internet. In space, there are no inexpensive small cells, no new spectrum bands to deploy, no fiber or software upgrades. There is no way to meaningfully augment capacity to keep up with demand except to launch another satellite. Each individual satellite, therefore, always sees performance decline as subscribers are added to the satellite and more data is consumed by each subscriber.

The more aggressive the subscriber forecast, the more severe the decline in speed will be for each subscriber. This is precisely why ViaSat subscribers who paid for 12 Mbps speed at launch began receiving only 8.5 Mbps 3 years later. Historically, terrestrial networks have also experienced declining performance as demand for bandwidth increases but according to industry sources, that no longer is a meaningful occurrence relative to prior times. Terrestrial operators have become proficient in adjusting network planning, investing in “hotspots” by upgrading software at the edge of the network, or using small cells – satellite technology can not take advantage of any of these paths to upgrading capacity.



FCC Median Download Speed as % of Advertised Speed – ViaSat is Industry Worst



Source: 2016 FCC Measuring Fixed Broadband Report

In formulating subscriber estimates for ViaSat-2 and ViaSat-3, longs do not properly consider the inherent trade-off in performance that occurs as satellites fill up. It's incorrect to assume that because ViaSat-1 and Wildblue have 700k subscribers, ViaSat-2 with double the capacity will be able to have 1.4m subscribers. Or that ViaSat-3 with 6x the capacity can have 4m subscribers. ViaSat-1 saw subscribers decline -2.4% sequentially last quarter, which translates to a subscriber decline of -10% annually. Its median speeds, as measured by the FCC's Measuring Fixed Broadband reports, continue to materially decline. The median speeds of its terrestrial peers, in contrast, continue to materially increase.

All of this means that ViaSat-2 is not providing capacity for *new* customers in more competitive markets – it's providing just enough improvement in service to their *existing* customers so that these existing customers don't switch at the first sight of a terrestrial alternative. ViaSat-2 is twice the capacity of ViaSat-1, which is precisely why it won't drive significant subscriber growth because in the time it took ViaSat-2 to launch, the speed provided by primary competitors increased 20x and average data consumption increased 4x. Because consumer bandwidth demand continues to grow rapidly, and terrestrial alternatives have proven able to meet that demand growth and provide better and cheaper alternatives to satellites with each passing year, step-function increases in satellite capacity will continue to translate into relatively modest subscriber gains. ViaSat-2 is not about growth, but simply a way for ViaSat to delay the death of its consumer home broadband business by a few more years.

ViaSat could try to achieve subscriber growth by slashing price and offering a value service, but as we show later, ViaSat's subscriber acquisition costs – let alone corporate and R&D expenses and capital investment requirements – are too high to make lower prices economic. Rather, ViaSat will likely do what we believe motivated the decision to bring all satellite R&D in-house: build a 2 Tbps ViaSat-4... then a 4 Tbps ViaSat-5... at 18-month intervals. If ViaSat tries to keep up with the competition, the company will remain on an unsustainable never-ending cash-

flow burning treadmill. If it stands still, it will fall further and further behind in its ability to match the speed and capacity offerings of terrestrial peers.

Reported EBITDA is Overstating Profitability While Investors Fund Increasing Technology Risk

We are not the only ones who have serious concerns regarding ViaSat's true profitability:

“One of our concerns is that, while the company appears profitable (growing EBITDA), the growth has not been matched by profitability further down the P&L, or indeed in cash terms.”

— Wilton Fry (RBC Capital Markets, January 25, 2017)

Charts that describe impressive looking growth in EBITDA and cash flow from operations are a constant presence in quarterly earnings presentations. While technically accurate, neither of these metrics reliably depict the company's true level of profitability or cash generation. For starters, investors must adjust the company's reported EBITDA figure to account for significant amounts of equipment lease-derived revenue sources. But even more importantly, satellites cost money to build and have finite lives, so any true measure of profitability must account for the recurring nature of satellite capex in ViaSat's business model.

With respect to equipment lease revenue, a material amount of ViaSat's revenue per customer within consumer broadband comes from installing and leasing customer premise equipment (CPE). CPE refers to hardware such as modems, routers, VoIP handsets, and satellite dishes. Precisely how much the company generates from leasing customer equipment rather than actual broadband services is unclear. Unlike telecom carrier peers, the company has delayed adoption of accounting standards and disclosure requirements (ASC 606) that would clearly delineate these sources of revenue and the impact that items such as installation fees have on reported ARPU.

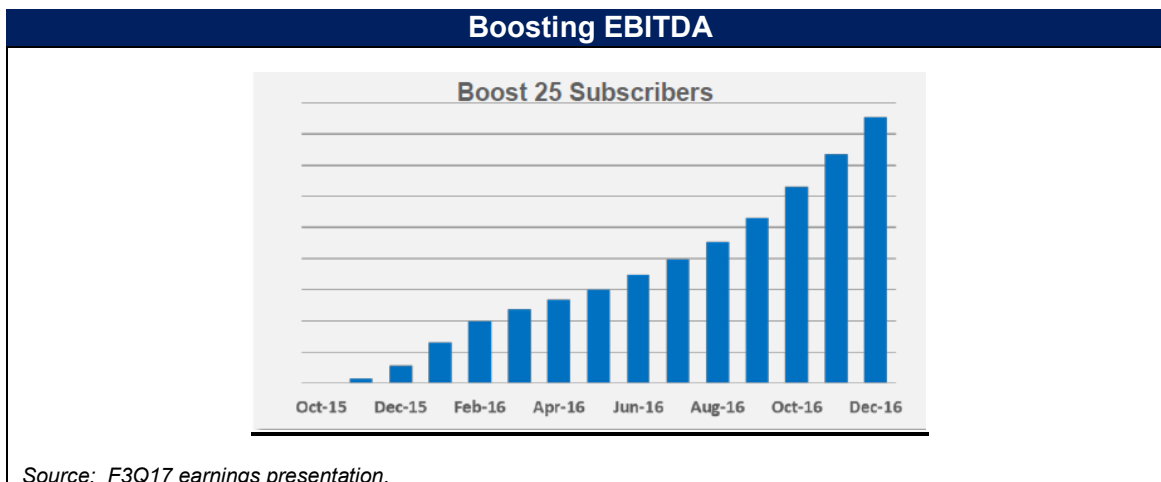
There are several concerning issues with the company's non-bandwidth sources of revenue:

1. The impact on reported EBITDA is highly distorted because equipment lease revenue is not offset by a commensurate level of expense. CPE expenses are not captured in cost of sales on the income statement. As per company filings, CPE costs are capitalized in investing activities on the cash flow statement. The only impact on the income statement is captured in depreciation expense. Therefore, what is captured in reported EBITDA is high levels of equipment lease revenue without an expense offset.
2. ViaSat's failure to adjust EBITDA for CPE expenses runs counter to industry best practices. When leases or installment plans undermine the validity of EBITDA as a proxy for cash profitability, telecom companies often provide disclosures so that the investment community can make an appropriate adjustment. Telecom analysts are aware that Sprint for example, has a large handset leasing program. Sprint discloses handset depreciation lease expense and this amount is then commonly deducted from reported EBITDA to form the basis of a lower “cash EBITDA” or “real EBITDA.” To illustrate the point, here is an excerpt from a recent J.P. Morgan report on Sprint, “We model Sprint EBITDA of \$11.04b in F2017...and \$11.48bn in F2018...subtracting handset depreciation to get to a proxy for a “real” EBITDA number gets us to \$7.26bn in F2017 and \$7.77bn in F2018.

- (emphasis added).” Examine any detailed sell-side model for DISH and one will find EBITDA on a reported basis as well as EBITDA less an amount associated with capitalized CPE.
- ViaSat has withheld adequate disclosure of revenue sources as well as a host of other critical inputs needed to evaluate the health of the consumer broadband segment. ViaSat does not report gross adds, churn, subscriber acquisition costs, or retail service ARPU. Once adopted, new accounting standards will bring changes in revenue recognition and new guidelines for “collectability criteria” (i.e., churn), among a host of other reporting changes. How might ARPU change when an installation fee equivalent to 3 months of a customer’s service plan is excluded? How will Street models adapt to a true service ARPU that is materially lower than a figure distorted by non-bandwidth equipment charges? How can one assess churn, a metric not even provided, when there is no meaningful disclosure regarding the terms by which a customer is deemed “uncollectible”? For instance, unscrupulous telecoms in the past have chosen not to disconnect customers who’ve stopped paying their bills in order to reduce reported churn, and were able to do so because they were not held accountable to a standard for reporting customer departures / churn (just ask any Frontier investor if changes in customer churn policy can be material or not). These inputs are fundamental drivers of forecasts and their lack of disclosure represents significant risk the consumer segment is not properly modeled either on a historical or go-forward basis.

We believe reported EBITDA should be adjusted for the impact of equipment lease revenue to derive “real EBITDA”. After reviewing the company’s marketing plans, speaking with individuals familiar with product take-rates, and discussing our findings with an industry expert, we believe a conservative estimate of the ARPU associated with equipment leases alone is \$15-\$17 per month. This equates to over \$120m in revenue on an annual basis. As of March 31, 2017, the company reported a total cost and accumulated depreciation of CPE units included in net PP&E of \$272m. Assuming the midpoint of the company’s estimated useful life (4-5 years, which is above peers), annual CPE lease depreciation expense is roughly \$60m. This translates to a -\$60m adjustment to reported EBITDA. Applied against reported FY17 EBITDA of \$341m, this represents a reduction of -18% to arrive at a more representative \$280m of “real” EBITDA.

Not only is the level of distortion high, it is clearly rising – fueled by the company’s ongoing push to sell more commoditized equipment disguised as “value-added services.” Take, for example, “Boost 25.” The company provided a chart in a recent earnings presentation to highlight the service as a strength, but omitted any numbers on the Y-axis:



The company has described Boost 25 as the single most popular value-added service. But what is Boost 25? It sounds like the company is doubling bandwidth for that customer. As always with ViaSat, one needs to read the fine print. Boost 25 is really a \$10 per month surcharge for a new modem. It's another equipment lease. We don't know how many Boost 25 subscribers there are – the entirety of the company's disclosure on the subject is captured in the above chart. Based on how the company has described its popularity however, we are certain the product is contributing to an increasingly overstated level of EBITDA.

Given the company's capital-intensive satellite development activities and its eagerness to capitalize a significant percentage of its CPE expenses, it is hardly a surprise that depreciation and amortization is a very large expense. D&A expenses have grown rapidly, yet EBIT growth has been stagnant. ViaSat's growing EBITDA has not meant growing free cash flow, and a large component of that EBITDA growth has come from ever-increasing D&A.

Reported EBITDA Growth is Meaningless						
Fiscal Period Calendar Period	F 2013 Mar. '13	F 2014 Mar. '14	F 2015 Mar. '15	F2016 Mar. '16	F '13 - F'16 Change in \$	Contribution to EBITDA Growth
Reported EBIT	(20)	3	42	41	61	
Less: SSL Settlement	0	0	(13)	(28)		
Consolidated EBIT Adj. for SSL	(20)	3	29	14	34	29%
Depreciation & Amortization	157	185	221	242	85	71%
Reported EBITDA (net of SBC, Less SSL)	137	188	250	256	119	
Depreciation & Amortization as % of EBITDA	115%	98%	89%	95%		

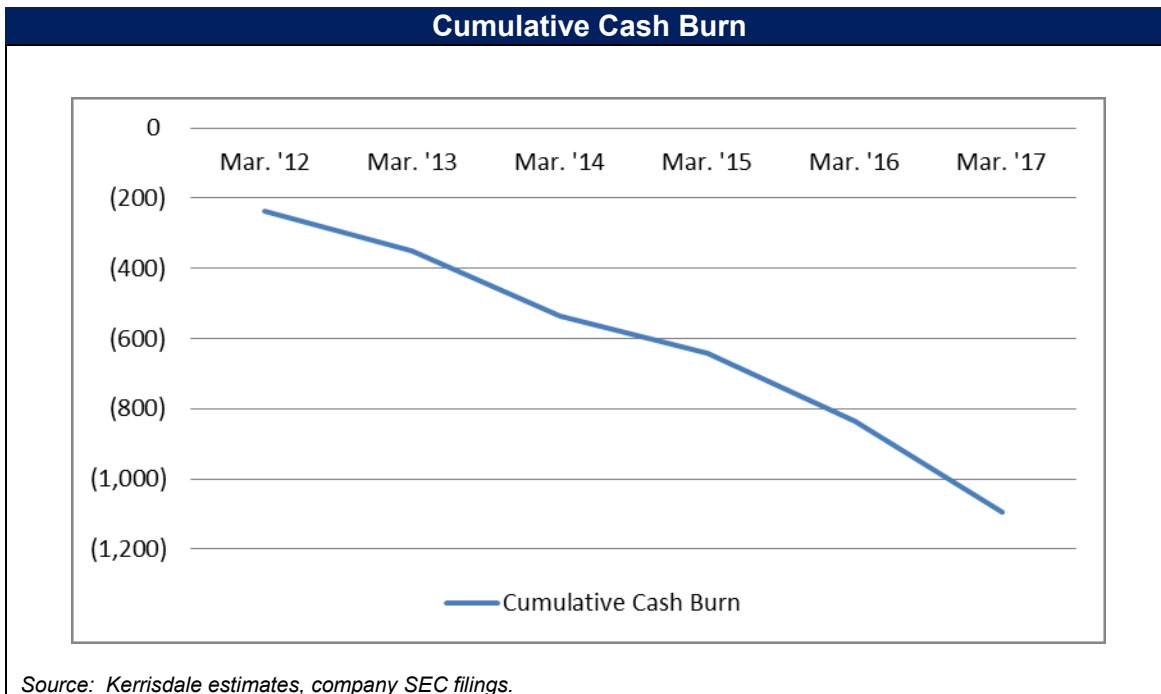
Source: Kerrisdale estimates, Company SEC filings.

We start with reported EBIT and then deduct the settlement payments received related to the Space Systems/Loral (SSL) patent infringement. From fiscal 2013 to fiscal 2016, EBIT from the company's core operations increased by a total of \$34m. Reported EBITDA however, (adjusted by the same SSL settlement) increased \$119m. 71% of the increase in EBITDA was driven by adding-back higher levels of depreciation & amortization, which as just described, reflects capitalizing many of the costs needed to drive growth. This is perfectly acceptable GAAP accounting (for now) but it renders an unadjusted EBITDA figure completely unreliable from the perspective of trying to ascertain the company's cash flow.

The disconnect between the revenue ViaSat generates on the income statement and the true cost of those sales found on the cash flow statement is increasing. EBITDA will of course continue to increase if one doesn't include the proper amount of costs incurred to actually generate revenue growth. The company is presenting to investors and analysts a manufactured and increasingly distorted EBITDA figure to prop up its valuation and hide the obvious flaws in its business model.

What we believe is a reliable indication of the viability of the business model – or lack thereof – is the company's consistent lack of free cash flow. Since 2012, ViaSat has issued \$700m in high yield debt and \$780m in equity to offset \$1.1bn in cumulative cash burn. The most recent equity

round of \$500m priced at \$69/share will likely be exhausted within the next 18 months, requiring the company to return to the capital markets sometime in 2H 2017.



We recognize that the company is in a period of investing for growth and don't claim that the lack of FCF generation in and of itself is an indication of a low-quality business. A host of industries that do not generate FCF are rightfully judged to be fine businesses – MLPs, towers, fiber companies, *et al.* But these are businesses that do not carry the level of operational, technology, or competitive risk that ViaSat confronts in trying to provide consumer broadband from outer space to a shrinking addressable market. MLPs and towers have proven, long-lived assets that require minimal capital to augment. They do not have the significant risk of competitors regularly overbuilding a target market. ViaSat is caught trying to attain undefined scale, while requiring constant access to the markets, all amid unprecedented technological change. Investors are underwriting enormous risk which is not properly captured in the current stock price.

Lack of Economic Returns

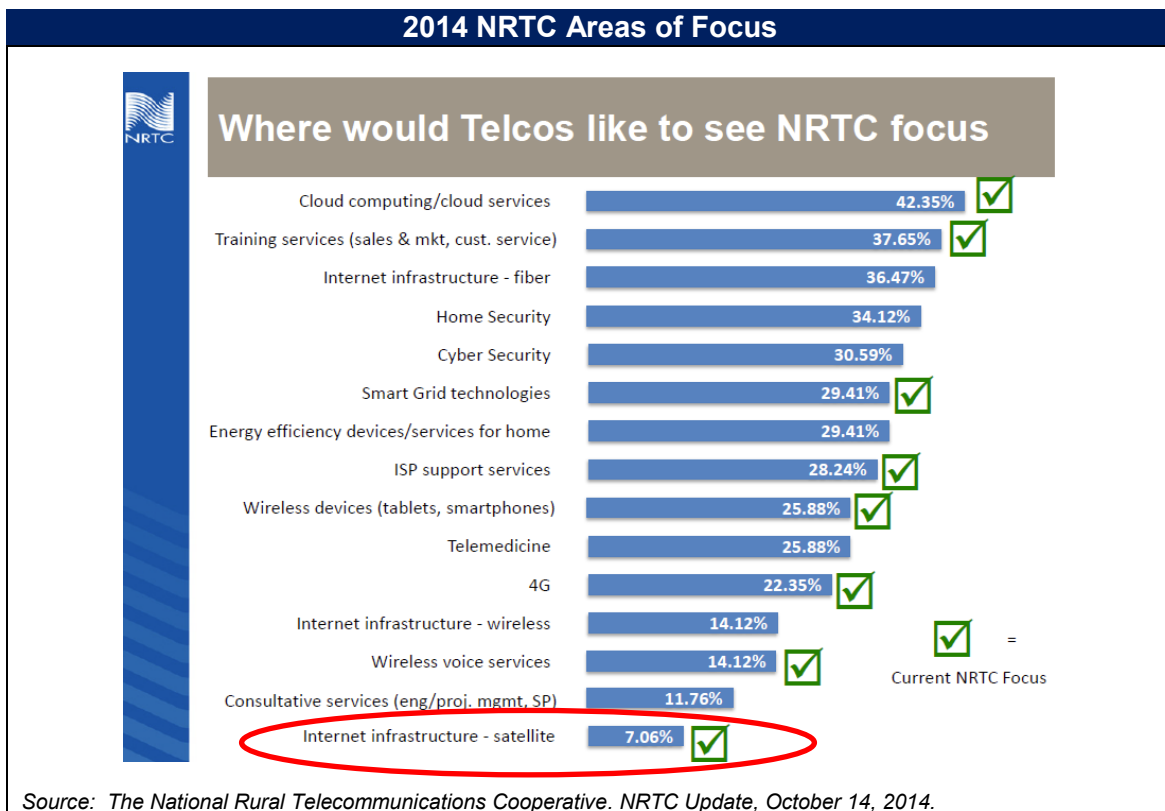
Investors should ask themselves: can there really be a return on capital if replacement cycles are every 4 years? Would cable be a good business if it had to build a new network every 4 years to increase capacity? Cable technology standards and wireless 3G-4G-5G wireless cycles are roughly 8-10 years. If investors think cash will gush and returns will materialize once the pace of satellite launches slow, prepare to be disappointed. There is no end to this lack of returns within the investable horizon. The company has deliberately become more vertically integrated to build ever larger satellites at ever shorter intervals. The views of an individual familiar with ViaSat's project development should concern those with DCFs where satellite costs and capex intensity decline meaningfully post ViaSat-3:

“I don’t see a break in the short term and Mark Dankberg doesn’t either. That’s really why he outfitted the Phoenix ViaSat team with a high bay where we can assemble, do final assembling, test – it’s large enough to work on 3 satellites all at once. So, certainly with ViaSat-3 and near-future ViaSat satellites, the plan is to compress the time between satellites. We talked about, you know, sort of like a year-and-a-half as a goal. That’s still a goal, I don’t think we’ll see that with ViaSat-3...but that’s kind of the goal they’re shooting at – have a payload ready every year to year and a half...”

You can have Boeing continue to assemble these payloads but, just the delay in communication between ViaSat folks and Boeing folks – you know, if you just eliminate that entire layer of communication in-house, you can turn around things much faster. That was one of the primary aspects – not only to protect intellectual property which was what Mark was primarily selling why we were doing things internal. But the other goal was to speed up the rate of turning out satellite payloads. I think you know, after suing Loral, I think any company that would get ViaSat business would be hyper-aware that ViaSat isn’t afraid to take you to court if you’re gonna give away the satellite secrets. So, that’s a good excuse for bringing it in house but that’s sort of like a red herring, it’s not really the real reason – the real reason is to speed things up in terms of turning out payloads.”

Longs try and point to individual project IRRs to overcome the fact that corporate-level ROICs are non-existent. Recall however what really happened with ViaSat-1. IRRs for the satellite were achieved (allegedly) because of a pivot toward over-charging for non-bandwidth services in the wake of the company having an insufficient amount of data to provide to its customers. ViaSat-2 will once again fall short of providing customers with enough data, but the circumstances that helped ARPU rise in the past cannot be duplicated.

A mix shift to selling services directly to subscribers (retail) versus a wholesale model used by legacy WildBlue helped ARPU rise ~7-10% in the initial years post launch. When ViaSat first acquired WildBlue in 2009, wholesale distribution through DISH Network and NRTC (National Rural Telecommunications Cooperative) was WildBlue’s main sales channel. In 2011, EchoStar bought Hughes and in short order, DISH switched almost all satellite broadband sales to Hughes. By 2014, NRTC’s constituents ranked satellite internet infrastructure the area of development *least* worthy of focus:



As a result, ViaSat subscriber growth over the last several years has been driven by direct retail sales. ViaSat owns the customer relationship, incurs all the acquisition costs, and captures a much higher ARPU, including equipment leases. We estimate retail ARPU is ~\$73 (we have to estimate because the company does not disclose retail versus wholesale ARPU). Based on numerous industry conversations, wholesale ARPU is approximately 50% of retail, less the terminal lease, so roughly \$27-\$30. Thus, a required mix shift to a retail-heavy model had a pronounced effect on increasing ARPU up until 2015. The shift is no longer a key driver of ARPU growth because ViaSat's subscriber activity has been predominantly retail-focused for years. Any pickup in the wholesale channel with the launch of ViaSat-2 would dampen ARPU. Over the past 2 years, ARPU has risen a further 18% by selling products that can't be charged for in an increasingly competitive environment. The core drivers of historical ARPU growth cannot be relied upon going forward and that leaves the company without levers should subscriber growth disappoint. What's plan B when ViaSat-2 hits capacity constraints after only modest subscriber growth? Double the price of EasyCare?

We provide our own take of ViaSat-2's project IRR in Appendix I, but the truth is that the exercise is purely theoretical. There are no true discrete IRRs; a satellite is part of a network. When the company describes the IRR for their current workhorse satellite, ViaSat-1, they exclude the invested capital that went into acquiring WildBlue's retail subscriber base and related infrastructure. The IRR therefore captures a scenario as if \$600m was spent on a satellite that appeared in the southern sky ready to sell high-margin Boost 25 and EasyCare all by itself. Cable Wi-Fi and wireless will continue to plunder ViaSat's addressable market and erode the unit economics of each subscriber. Project IRRs will continue to decline.

No Track Record of Generating Acceptable ROIC

ViaSat

ROIC & ROE Analysis

Fiscal Year End March 30th

(\$ Millions Except Per Share Data)

	2012A	2013A	2014A	2015A	2016A	2017E	2018E	2019E	2020E
Revenues	864	1,120	1,351	1,383	1,417	1,559	1,607	1,750	1,872
EBIT	2	(20)	3	83	41	37	17	47	102
EBIT Margin	0.3%	-1.8%	0.2%	6.0%	2.9%	2.3%	1.0%	2.7%	5.4%
Tax Rate	38%	38%	38%	38%	38%	38%	38%	38%	38%
Net Operating Profit After Tax (NOPAT)	1	(13)	2	52	25	23	10	29	63
Current assets (ex. cash)	391	439	473	496	479	485	483	525	557
Non-Interest Bearing Current Liabilities	235	245	273	268	280	326	311	339	356
Net working capital	156	194	200	228	199	159	172	186	200
Net PPE	881	914	1,053	1,180	1,385	1,649	2,056	2,586	3,057
Goodwill & Intangible Assets	74	58	51	59	51	42	42	42	42
Total Invested Capital	1,036	1,108	1,253	1,408	1,585	1,808	2,228	2,772	3,257
Total Assets Employed	1,111	1,166	1,304	1,468	1,635	1,850	2,269	2,814	3,299
Average total tangible assets	965	1,072	1,180	1,331	1,497	1,696	2,018	2,500	3,015
Average total assets employed	1,048	1,139	1,235	1,386	1,551	1,742	2,060	2,542	3,056
Equity	888	903	941	1,039	1,129	1,735	1,842	1,927	2,039
Avg. Equity	864	895	922	990	1,084	1,432	1,788	1,885	1,983
Reported Net Income	7	(41)	(9)	40	22	24	(32)	(25)	(1)
	2012A	2013A	2014A	2015A	2016A	2017E	2018E	2019E	2020E
ROIC (NOPAT/Avg. Total Assets Employed)	0.1%	-1.1%	0.2%	3.7%	1.6%	1.3%	0.5%	1.1%	2.1%
RONTA (NOPAT/ Avg. Total Tangible Assets)	0.1%	-1.2%	0.2%	3.9%	1.7%	1.3%	0.5%	1.2%	2.1%
ROE (Net Income/Avg. Equity)	0.9%	-4.6%	-1.0%	4.1%	2.0%	1.7%	-1.8%	-1.3%	-0.1%

Source: Kerrisdale estimates, SEC filings.

The Addressable Market is Much Smaller than Bulls Believe and Shrinking Fast

The Unserved Rural Market

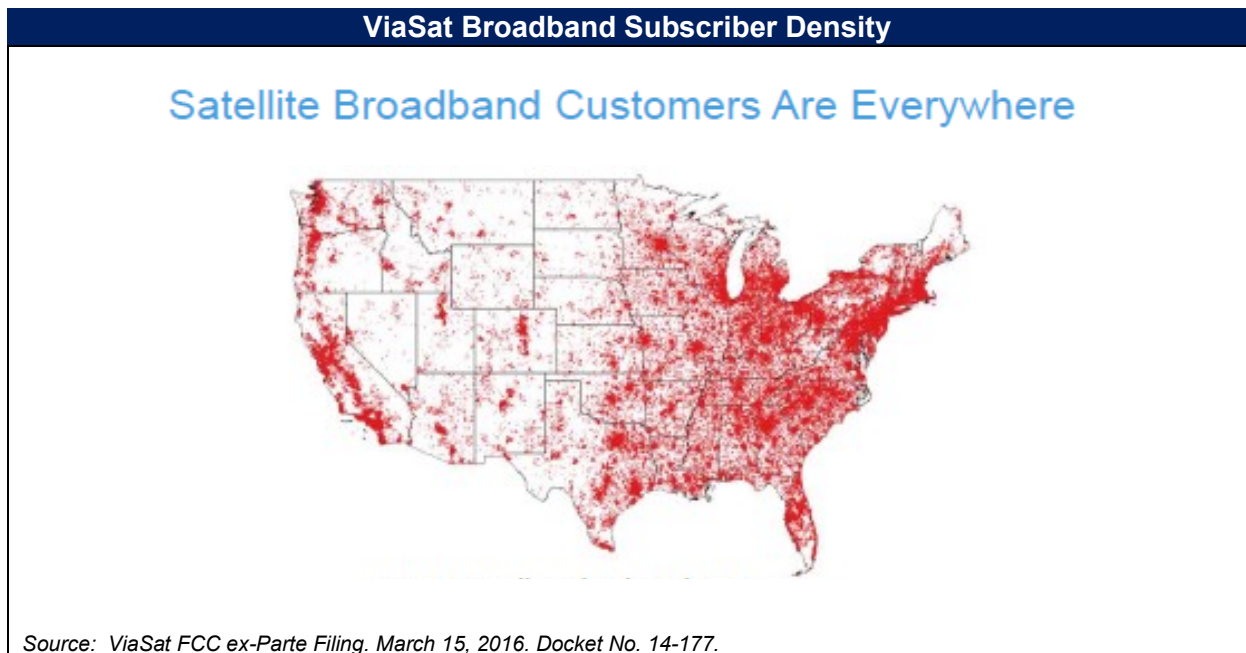
“We assume these 23m rural Americans comprise ~9m households (based on the Census Bureau’s estimate of 2.5 persons per household) and a total addressable market of ~\$7 billion in revenue (\$3 billion in EBITDA) – nearly 10x greater than our 2017 Satellite Services EBITDA estimate for ViaSat.”

— Bulge Bracket Initiation Report (April 4, 2017, Neutral Rating)

“I found that if I wasn’t getting [ViaSat] for free because I was an employee, I would not continue the service myself. There were a lot of times when the service was down or interrupted by weather. So, from a terrestrial user perspective, if you’re in a remote area, and that’s really one of the few options, you kinda have to go with what you have. But if you’re a metro or larger area that is being serviced by cable companies or more reliable internet service providers I would find it difficult for someone to really choose the ViaSat service.”

— Former ViaSat employee (April 21, 2017)

Because satellite-based residential internet would appeal only to those with limited options, analysts focus on rural households when sizing the addressable market. The approach is flawed as ViaSat's current customer distribution is not as rural as one would think – for one, it follows the general population density of the U.S. – and the company's clearly stated objective is to move upmarket with ViaSat-2, not further penetrate rural areas.

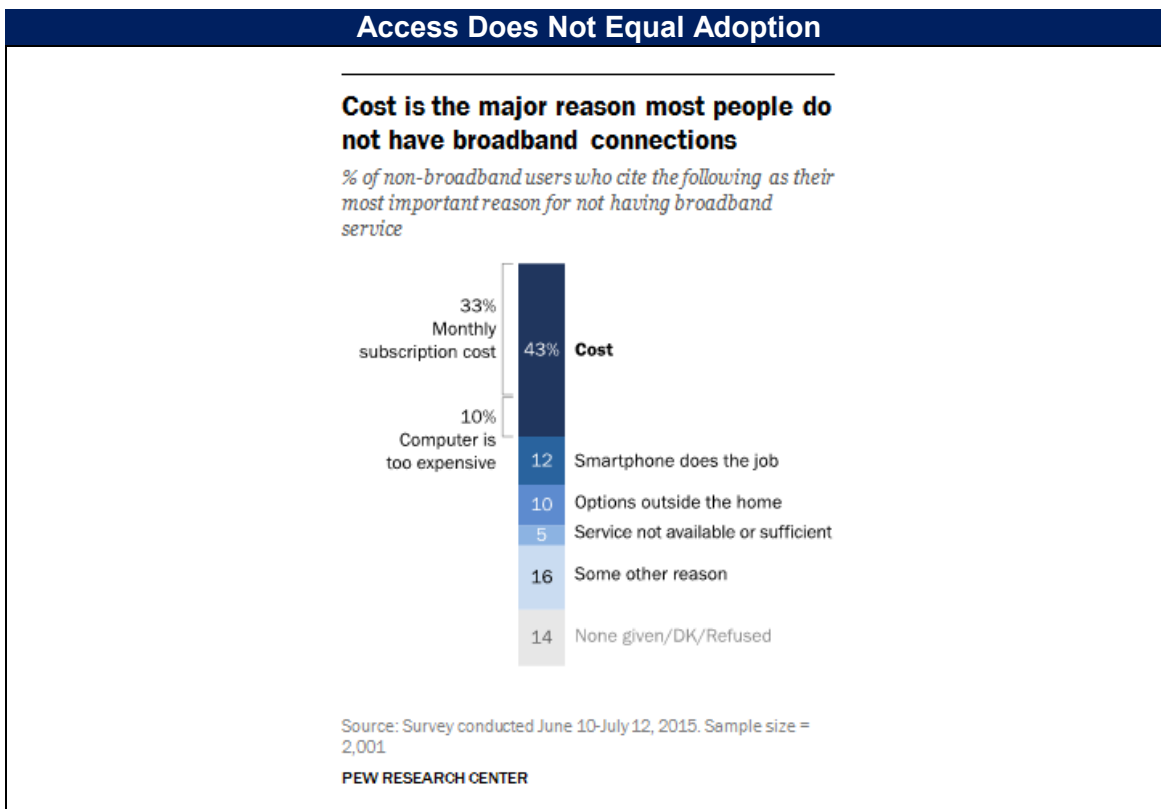


To appreciate the market challenges confronting ViaSat, investors need to focus on areas that are suburban and on the fringe of metro areas. Nevertheless, we address the rural competitive landscape here as well.

When sizing the rural opportunity, many analysts (such as the one quoted at the start of this section) rely on the 2016 FCC Broadband Progress Report estimate of 23m Americans that lack access to 25/3 Mbps download/upload speed. While a reasonable starting point for sizing the addressable market, it fails as a proper estimate because it conflates broadband *availability*, which is driven primarily by infrastructure costs and population density, with broadband *adoption*. *Adoption* of broadband is a function of a host of socio-economic factors.

In numerous Pew Research and academic studies over the years, the most prevalent answer for why individuals do not subscribe to an internet service has nothing at all to do with lacking access.¹³ The most commonly cited reason is cost. Other reasons cited more frequently than lack of availability include: irrelevance to a respondent's daily life, lack of having a computer, lack of knowing how to use a computer, and sufficient access outside the home (libraries, cafes, etc). Unless ViaSat intends to dramatically lower price, give away computers and provide computing lessons, the true addressable market is not anywhere close to 23m rural Americans.

¹³ *The Growth of the Broadband Internet Access Market in California, Deployment, Competition, Adoption, and Challenges for Policy*. Prieger, James E. April 11, 2016. Home Broadband 2015, [Pew Research Center](#)



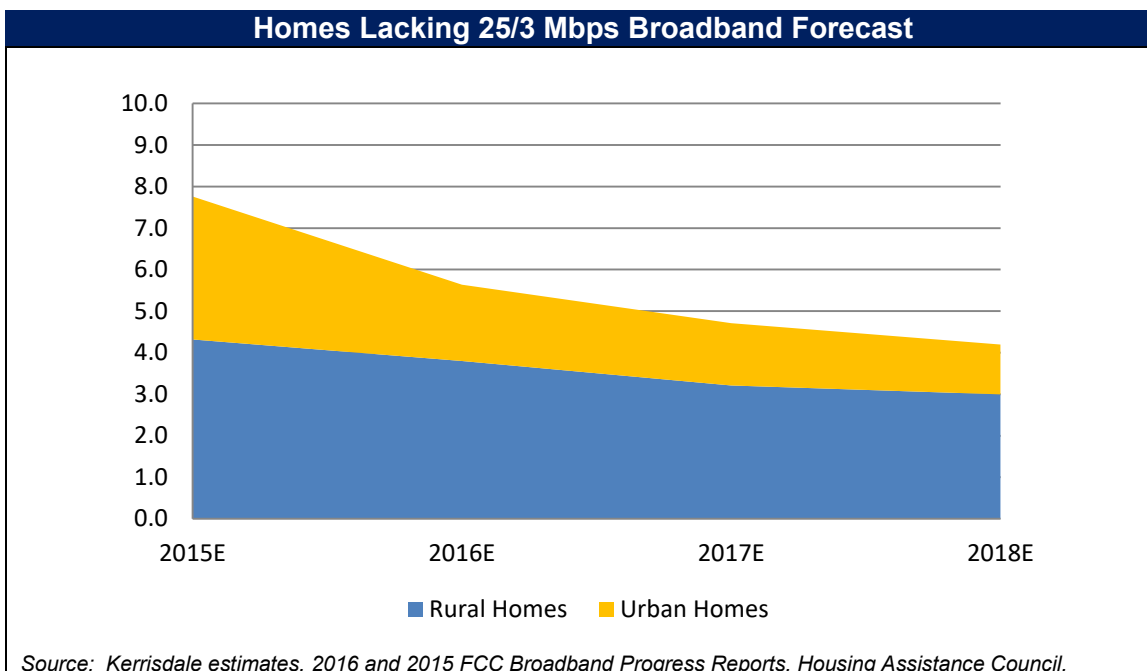
The lack of appreciation for the *rate* at which availability is improving is another critical error in sizing the market opportunity. Citing a report from 2016 in a vacuum is to treat the market as static when, in fact, it is witnessing meaningful change every year. The US Government has budgeted close to \$2bn a year in subsidies for improving rural broadband access.¹⁴ ViaSat is the only internet service provider without additional capacity – even smaller, low-end DSL and cable providers are accelerating the deployment of technologies that significantly enhance the capabilities of wired networks. A year in the accounting lifetime of a satellite may not be much but in the competitive internet service business, it is an eternity. Compare the 2016 FCC Progress Report to the 2015 edition – the total population figure of 34m who lacked 25/3Mbps represented a -40% decrease year-over-year. The lack of availability in urban areas was chopped by over half.

Conservatively, assuming an easing in the annual decline rate to -20% for rural households and -30% for urban, we estimate the number of rural homes without wired 25 Mbps availability will decline to 5m by the end of 2018.

An evaluation of the addressable market must also consider rates of actual home broadband adoption at various speeds. According to the FCC, in 2014, the overall adoption rate of 25/3 Mbps service was 40% in Urban Core Areas and 33% in Non-Urban Core Areas. Assuming adoption rates rise to 70% in non-urban areas trims the number of rural homes that may adopt 25 Mbps in 2018E to roughly 3.5m homes.

¹⁴ FCC Report and Order: Connect America Fund, released December 18, 2014.

One final piece to the exercise is to recognize that not all homes are created equal. To receive satellite internet, one needs a roof able to accommodate a satellite dish (97% of installations are to a roof) with clear line of sight to the southern sky. That’s a meaningful requirement as according to the Housing Assistance Council, 30% of rural Americans live in substandard housing with leaky roofs or inadequate plumbing.¹⁵ It’s also significantly harder to consider installing a satellite dish when you don’t own your property, or live in an apartment complex, or live in a mobile home. 14% of rural homes are mounted on wheels. Reviewing housing data from the Housing Data Council indicates that conservatively, 15-20% of rural and urban homes are structurally unlikely to be ever served by satellite – even if ViaSat was giving it away for free. This lowers the addressable market of unserved rural homes to roughly 3m – a figure in line with and confirmed by an industry expert.



Bulls focus on the company having just 700k customers as a sign of low penetration. But one of the defining qualities of ViaSat’s subscriber base is its high rate of monthly churn (2.5-3%). It’s equivalent to ViaSat turning over its entire subscriber base every three years. To retain the 659k net customers it currently has, ViaSat had to burn through 1.2m gross customer additions over the past 5 years. We estimate EchoStar, a direct competitor to ViaSat, has recorded roughly 2m in gross adds to achieve its current 1.2m subscriber base. As a result, over 3m people in the last 5 years have been tainted by satellite’s degraded speed, spotty reliability and constraining usage caps.

The Low-Speed DSL Market

A January 31st 2017 report from a bullish equity research analyst is emblematic of outdated analysis regarding the number of residential DSL connections “ripe” for competition. The analyst calculated 13.5m connections among the 5 largest DSL providers in the country were offering

¹⁵ All housing data referenced comes from the Housing Assistance Council’s [Rural Data Portal](http://RuralDataPortal) via Ruralhome.org

sub ~5-7Mbps download speeds in September 2015. If the analysis were updated today that figure has already declined by half. It's a trend consistent with the previously detailed -40% year-over-year decline in homes that lacked 25/3Mbps fixed line access. Assuming current levels of 20Mbps availability among the major DSL carriers continues to improve in a manner consistent with broader market trends, the number of DSL subscribers lacking access to 20 Mbps declines to roughly 5m by the end of next year.

Slow-DSL Market Forecast			
Company	DSL Subscribers w. <20 Mbps Speed		
	2015E	2017E	2018E
AT&T DSL ⁽¹⁾	2.1	1.1	0.8
CenturyLink ⁽²⁾	6.1	2.4	1.6
Frontier ⁽³⁾	2.4	2.6	1.7
Verizon ⁽⁴⁾	1.7	0.8	0.7
Windstream ⁽⁵⁾	1.1	0.5	0.3
	13.5	7.3	5.2
Change (Y/Y)		(46%)	(29%)

Source: 2015E data as per January 31st, 2017 equity research which details the number of DSL customers at 10Mbps as of September 2015. 2017E and 2018E columns reflect Kerrisdale estimates and public disclosures made by the Companies regarding current availabilities and build-out targets.

1. Sell-side estimate for 2017E non-U-Verse subscribers. 2018E assumes 20% y/y reduction.
2. CenturyLink has stated 60% of subscribers have access to 20 Mbps. Their strategic goal is 90% with 40+ Mbps by YE2019. 2017E adjusts the company's total number of broadband subscribers (5.9m) to show the current number without access to 20 Mbps. 2018E assumes a further 33% y/y reduction, consistent with broader broadband market trends.
3. Frontier has stated 39% of subscribers (4.3m) have access to 25 Mbps. 2017E shows an increase vs. the FCC figure given the acquisition of Verizon lines in Florida, California, and Texas. 2018E assumes a further 33% y/y reduction in subscribers lacking 20Mbps availability.
4. Sell-side estimate for 2017E DSL subscribers. 2018E assumes 10% y/y reduction.
5. Windstream has stated 54% of subscribers (1m) would have access by 1Q17. 2018E assumes a further 33% y/y reduction in subscribers lacking 20 Mbps availability.

Some bulls may still believe the company can take share among the dwindling last few million truly rural and/or slow-DSL homes that would find ViaSat speeds attractive. While ViaSat does have a compelling speed offering to go after this potential pool of customers, it's important to remember many of these customers are paying 30-40% below the lowest plans offered by ViaSat. Price is a vital determinant of subscriber addressability. A former VP of Marketing at a cable company explains:

“The reason we lose customers to DSL is, we may be \$49 for 60Mbps and theirs is \$39 for 3Mbps – and we’ll lose because they put zero value in speed above 3Mbps... there’s a certain group of customers that DSL has hung onto the longest that don’t value speed.”

DSL May be Slower (For Now)...but Their Customers Like Cheap and Unlimited

Internet Speeds to Smile About

Frontier has the speeds you need on a network you can trust.

Frontier Internet starting at

\$19.99^{mo.}
Per the terms of our service agreement. See our website for details.

Source: Screen captures of Frontier and Verizon DSL basic internet service offerings from May 2017.

Not only is DSL considerably cheaper on a monthly access basis, things like customer service, anti-virus, and a Wi-Fi router come standard and subscription plans don't require a 2-year contract. This is not a customer base that prioritizes higher speeds let alone paying for costly add-ons. Below are current terms offered by a large DSL provider, CenturyLink. ViaSat's current subscriber base predominantly receives 12 Mbps download speed and the lowest priced tier is 2.5x more expensive than what CenturyLink has available in all 50 states.

CenturyLink Offerings

Length of Contract:
One year contract

Type:
Broadband- 250,000-mile fiber network

Availability:
Available in 50 states

Centurylink Internet Standard Packages

Standard Internet Package:

- \$19.95 per month
- Price is locked in for three years
- 30 day satisfaction guarantee
- 12 Mbps download speed
- \$99.99 one-time modem charge, \$6.99 per month lease, or free if you already have a compatible modem
- \$14.99 one-time installation fee for guide if you self-install, or \$59.99 to have a technician install for one computer (\$99.99 for more than one computer)

High-Speed Internet Package:

- \$24.95 per month for internet
- Price is locked in for three years
- 20 Mbps download speed
- \$99.99 one-time modem charge, \$6.99 per month lease, or free if you already have a compatible modem
- \$14.99 one-time installation fee for guide if you self-install, or \$59.99 to have a technician install for one computer (\$99.99 for more than one computer)

Source: CenturyLink.com/home/internet

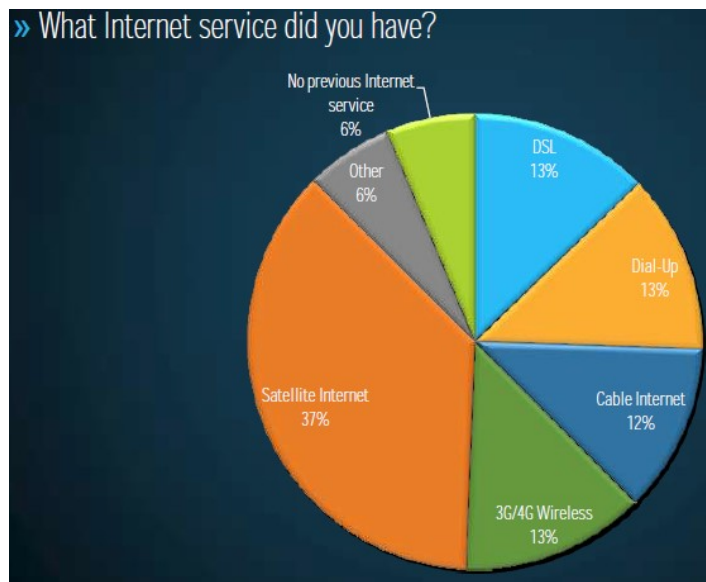
Of ViaSat's 659k customers, ~400k migrated as part of the company's acquisition of WildBlue. WildBlue customers wanted the benefit of dramatically better speeds provided by the new satellite. ViaSat-1 represented a 10x improvement in service plans versus WildBlue. ViaSat has stated they believe migrations when ViaSat-2 is launched will be "less pronounced than in the

past.” The company is downplaying this potential impact under the guise of saying ViaSat-2 is not as significant an improvement over ViaSat-1 as ViaSat-1 was to WildBlue. However, given the vastly improved competitive offerings available to a ViaSat customer now compared to when ViaSat-1 was launched, a customer that ViaSat does not proactively migrate is now far more susceptible to switching to more attractively priced DSL at the same exact speed and without any data caps. Furthermore, we suspect ViaSat downplays the potential impact of migrations because it knows the impact to margins would be negative. To facilitate a subscriber who wishes to move from ViaSat-1 service to ViaSat-2, the company will have to do a “truck roll.” This means the company will have to visit the customer premise of the subscriber and perform some combination of replacing old equipment and re-positioning the satellite dish to pick up the signal from the new satellite. That endeavor is costly. To recover the costs of the labor and equipment associated with the upgrade, ViaSat will have to charge the customer a fee of several hundred dollars. With the competitive alternatives available to that customer, this potential migrating subscriber will have leverage against paying that fee and many of the additional charges that have become embedded in ARPU. ViaSat will either have to absorb the cost of the migration or allow the subscriber to churn. Once again, to downplay the true competitive positioning of the consumer business, Dankberg has focused on the capabilities of ViaSat-2 in comparison to ViaSat-1 instead of the more relevant comparison: ViaSat-2 compared to terrestrial.

Despite all the talk about the opportunity to target DSL subscribers, ViaSat’s track record in getting DSL customers to switch has never been impressive. In a slide from their 2012 Analyst Day (and echoed in subsequent communications with regulators and investors), the company indicated 13% of their new customers came from DSL. Dankberg confusingly referenced this figure as a sign of success against terrestrial. It’s a misleading characterization. In 2012, DSL was a poorly positioned internet service and quickly losing its dominant 60% broadband market share to cable. That only 13% of new ViaSat customers came from DSL is not an achievement worth bragging about – it’s a sign of poor execution against the market incumbent with an inferior offering. Satellite was and still is an insignificant part of the residential broadband market. One must squint to see satellite’s contribution to the broadband market on a pie chart. And yet, 37% of ViaSat’s incoming customers came from the only other satellite internet provider, EchoStar. We asked a former satellite TV executive about this and his view was 37% may actually understate the level of switching because the statistic is dependent on customer self-reporting. Customers who switch back and forth in order to “game” promotions may choose not to disclose that they are a prior satellite internet customer.

The truth is when it comes to competing against DSL, ViaSat added far *fewer* subscribers than the considerable technology and coverage advantages they used to enjoy 5 years ago would suggest. The company was far more successful simply trading satellite customers who had no alternative back and forth with EchoStar. Today, DSL, cable, and wireless have all significantly improved their speed/capacity/value proposition versus the last time ViaSat had new capacity. There is far *less* that sets ViaSat-2 apart from the competition than when ViaSat-1 entered the market. Nothing about 25Mbps–75Mbps, data restrictions, extra charges for customer service, \$149.99 installation fees, and mid-tier plans that start at \$75 constitutes what a DSL customer is typically looking for: good value.

ViaSat Doesn't Do Particularly Well Against DSL



Source: 2012 ViaSat Investor Day presentation.

It's worth mentioning that the company's current subscriber acquisition costs (SAC) and churn profile do not allow for generating incremental value at DSL-like price points. Below we provide a basic customer lifetime value analysis at a \$28 retail ARPU. The analysis conservatively does not assign capex on an incremental basis and assumes \$650 in SAC. We have generously assumed only 2.20% churn for this low-end customer. The company simply does not generate a decent NPV on an incremental subscriber basis at discounted price points.

ViaSat Customer Lifetime Value at DSL Pricing

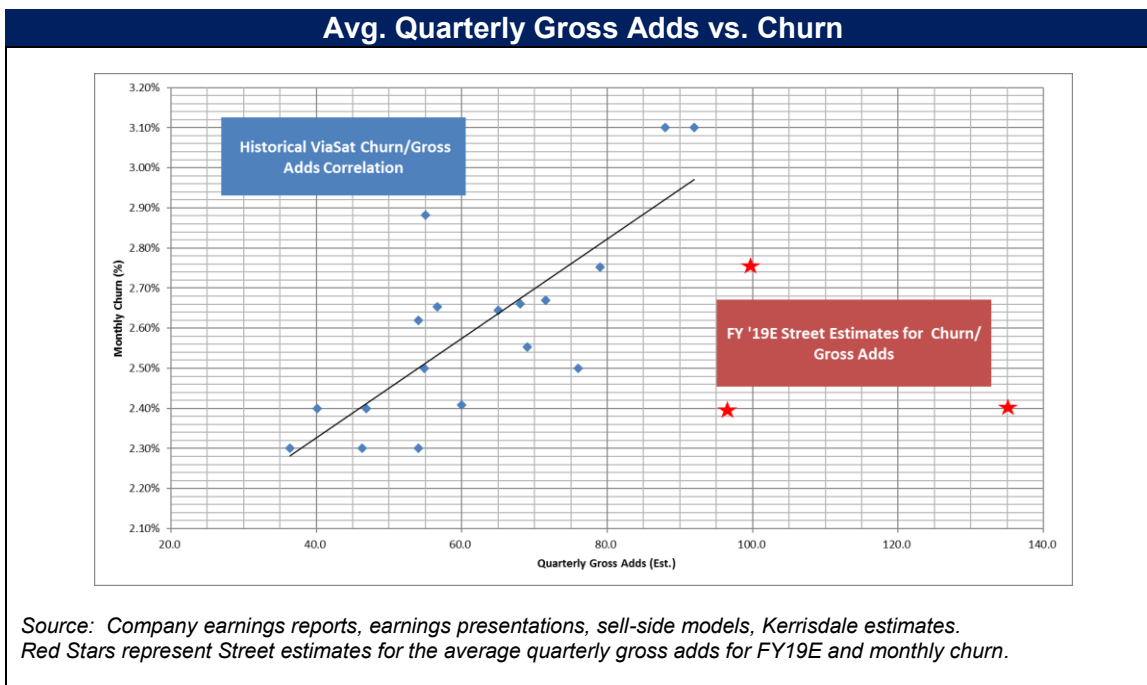
Churn ⁽¹⁾	2.20%
Lifetime (Months)	45
Estimated Subscriber Acquisition Cost ⁽²⁾	\$650
Retail ARPU ⁽³⁾	\$28
Customer Billing, Network Service & Support, Bad Debt ⁽⁴⁾	(\$10)
FCF per Sub per month (EBITDA only)	\$18
Discount Rate (Monthly)	0.8%
NPV per Subscriber	\$4

1. Kerrisdale estimate
2. Based on historical Company disclosures, sell-side research
3. Assumption for comparable DSL pricing
4. Kerrisdale estimate based on conversations with industry experts

The primary reason Street and company expectations for ViaSat-2 peak gross additions are set at ~100-110k per quarter is because a comparable level of performance was achieved by ViaSat-1. But ViaSat-2 is entering a vastly different competitive landscape than ViaSat-1.

Remember what the broadband market looked like in 2012: 48.3m Americans (~19m homes) lacked access to a speed (6 Mbps) that was half of ViaSat’s base offering. Even with adjustments for rates of adoption and housing, the addressable market was significantly larger and less competitive than what will confront ViaSat-2. DSL was a 1Mbps service that charged \$35 a month. Wireless as a possible home broadband solution was not even part of the conversation. ViaSat had technology that made sense at \$50 for 12Mbps. Data caps were a problem but also poorly understood – a phenomenon the company has admitted resulted in the service being sold to people who were not a fit. There was no other satellite provider that offered a similar level of performance. *With all that*, the company attracted 319k in gross adds in their peak year. The list of factors that were once in their favor have now all swung against them. ViaSat is not trying to move upmarket in residential broadband because they have an improving technology advantage; rather, the company is investing in expensive new satellites to retain existing customers in an attempt to outrun the shrinking number of Americans that would ever choose to receive the internet from outer space. But this truth is not a story the company can sell investors.

Churn Expectations Bear No Resemblance to Historical Trends and Competitive Reality



The correlation between gross adds and churn is common across telecom providers, not just ViaSat. Often, when a company takes measures to boost adds, higher churn follows. Even when ViaSat did provide a differentiated level of speed/value, they failed to keep churn in check as gross subscriber additions increased (see the correlation among the blue diamonds in the above chart). When companies try to aggressively grow customer additions, they increase marketing, offer promotions/discounts, loosen credit standards, and, in the case of ViaSat, gloss over details like data caps. Catching customers like this (gross adds) is the easy part, keeping them (churn) is the challenge. With ViaSat, churn only fell after capacity limits on ViaSat-1 were met and the company stopped trying to add new customers.

Current Street estimates reflect unreal expectations set by the company and enabled by a lack of disclosure. Consensus forecasts call for a combination of gross adds returning to peak ViaSat-1 levels, when the company was aggressively trying to fill capacity – paired with a level of churn in line with the company’s recent operating performance which reflects a strategy of deliberately *not* trying to add new customers.

ViaSat’s historical churn was particularly exacerbated by poor customer understanding of data caps. This is a structural challenge. As previously explained, ViaSat-2 will not offer much in the way of improved performance versus wired and wireless alternatives. There may not be a hard cap on data once ViaSat-2 is operational, but customers will be throttled to lower speeds well before many consume their desired monthly bandwidth. Thus, one of the primary sources of churn – the data caps – will still be a challenge. As the CEO once explained, there isn’t a lot that educating customers can really accomplish:

*“By far the biggest source of churn [is] people hitting the usage caps. Now, the usage caps are the way that we preserve the integrity of the speed. We try to be very up-front about ‘here is where they are and here is what they mean.’ **But still a lot of people don’t understand them. I think that is just a fact of life. We’re not going to educate people.**” [Emphasis added]*

— Mark Dankberg (CEO of ViaSat, May 19, 2015)

Furthermore, the company expects to increase gross adds and keep churn low while entering more competitive markets. While more recently the company has guided to a rosier outlook for churn, a few years ago, further removed from ViaSat-2’s service date, the company held very different views:

“We’d expect the churn rate for customers that are otherwise un-served to be lower than the churn rate for our customers that are in under-served category, which should be lower than customers who are classified as fully-served.”

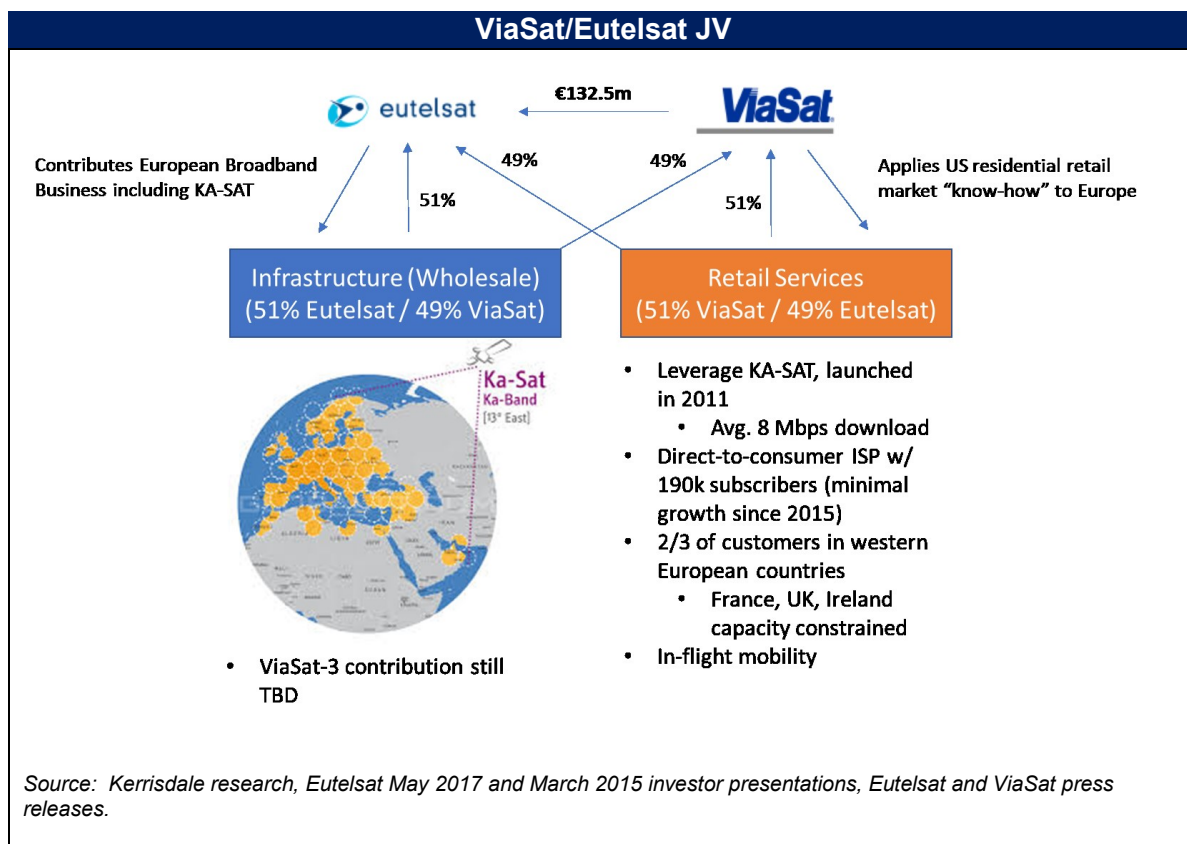
— Mark Dankberg (CEO of ViaSat, May 16, 2013)

ViaSat requires a minimum 2-year contract. Terrestrial competition often requires none (a Frontier Internet promotion states “Stay because you’re happy with our service, not because you have to.”) The termination fee (captured in ARPU) is \$270 if a customer is unsatisfied with service after 6 months. Policies like this suppress churn. The company can try to compete by removing contracts or lowering fees but these of course would result in higher churn and lower ARPU.

International Opportunity Will Require Substantial Investment

ViaSat-2 will bring increased terrestrial coverage to Central America, the Caribbean, and the northern fringe of South America. The 2nd ViaSat-3 class satellite will provide coverage over Europe and the Middle East. Bulls often cite attractive opportunities to reach underserved markets in these regions while ignoring the inherent costs and challenges. ViaSat has minimal resources outside the U.S. and will rely on partnerships and JVs to gain international access and defray investment costs. ViaSat is not negotiating from a position of strength and the lengths to which they may be required to go to secure distribution for ViaSat-3 class satellites internationally can be seen in their recently signed JV with Eutelsat.

In ViaSat’s bid to gain a foothold in Europe, they signed a deal regarded by many familiar with the company, industry observers and equity research analysts as convoluted and unfavorable. The JV agreement consists of two main entities: Retail Services (51% owned by ViaSat) and Wholesale (Infrastructure) Services (51% owned by Eutelsat). A diagram of the agreement is provided below:



In exchange for €132.5m, ViaSat acquired 49% of a wholesale satellite capacity entity whose primary asset is Eutelsat’s 6-year-old satellite, KA-SAT. ViaSat also now owns 51% of the retail broadband business served by KA-SAT, a unit with 190k customers, primarily in Western Europe. It is expected that the second ViaSat-3 satellite, aimed at Europe and the Middle East, will eventually serve as additional capacity for the wholesale business although terms of that part of the agreement are still being finalized. Eutelsat’s retail business operates under the Tooway brand, and offers a range of plans similar in nature to ViaSat’s operations in the U.S. though at sharply lower ARPUs of ~\$30-35. After 6 years, subscriber levels have stalled at ~190k despite an addressable market of 4m-14m households.¹⁶ Based on Eutelsat comments and industry checks, the retail business is currently capacity constrained in most western European markets. Most unsold capacity is currently in Eastern Europe and the Mediterranean where ARPU is even lower.

So, in sum, in exchange for €132.5m, ViaSat now owns 51% of a retail business that is not growing and 49% of a 6-year-old satellite that delivers 8 Mbps download speed and is capacity

¹⁶ 4m core market households with < 8 Mbps, 14m “broader” market households with < 30 Mbps per Eutelsat 2015 Capital Markets Day presentation.

constrained in most markets outside of Eastern Europe. Eutelsat can apply that €132.5m (\$148m) toward purchasing 50% of the second ViaSat-3 satellite and will own 51% of the economics of the wholesale entity to which it will be contributed. The total cost of a ViaSat-3 satellite is ~\$650m. In selling 49% of KA-SAT, a 90 Gbps satellite past its prime useful life, Eutelsat in effect received a massive discount toward half of a state-of-the-art 1 Tbps satellite. The remaining outlay may only be ~\$170m (\$325m, half of ViaSat-3's total cost, less \$148m that Eutelsat just received from selling KA-SAT). It's a terrific deal for Eutelsat.

What does ViaSat gain by all this? Access to Europe (particularly Eastern Europe it would appear) where they hope to learn about the market and improve upon Eutelsat's flagging operations. The company does gain capacity on KA-SAT for aeronautical, a noteworthy win. But it's all a very steep price to pay for what is ultimately market access and distribution. We asked someone familiar with ViaSat's Eutelsat relationship his thoughts on the JV. He was surprised a deal was ever signed. He confirmed that ViaSat doesn't know anything about retail operations in Europe. He thought that the idea that ViaSat could help Eutelsat with retail made little sense because "you need Europeans to sell."

A key takeaway is that ViaSat simply lacks critical infrastructure, relationships, investments, and experience outside the U.S. to effectively distribute capacity in foreign markets. ViaSat will have to rely on JVs and partnerships with large, incumbent satellite and telecom operators in markets in which it is unfamiliar – that is not a recipe for improving the company's nonexistent returns. Management has stated that Europe is the 2nd best market outside of the U.S – one should expect the costs and challenges become only further magnified in Central America and Africa.

III. Technology is Fueling Capacity Gains Faster than Satellite Can Match

“Our research together with compelling market data clearly indicates the cumulative impact of accelerated 4/5G mobile broadband deployment, nearly 400 MHz of incremental spectrum across 5 bands, performance gains from carrier aggregation, massive advances in copper technology, newly-developed wireless backhaul capabilities combined with network infrastructure virtualization, and the cost efficiencies of industry consolidation, all point to a seemingly insurmountable competitive threat for legacy satellite providers.”

— Bill Stueber (Managing Partner of Wireless Assets, May 16, 2013)

“What are our competitors going to do? They’ve got to dig trenches, they’ve got to string wires if they’re wireless, there’s not a whole lot more spectrum, they’ve got to have way more towers...And we look at LTE or LTE advanced, given that there’s not an enormous amount of more spectrum coming, the big metric is bits per second per hertz of spectrum, how much is that changing. Well it goes up by 30% in the next 4 or 5 years. We can deal with that.”

— Mark Dankberg (CEO of ViaSat, November 29, 2012)

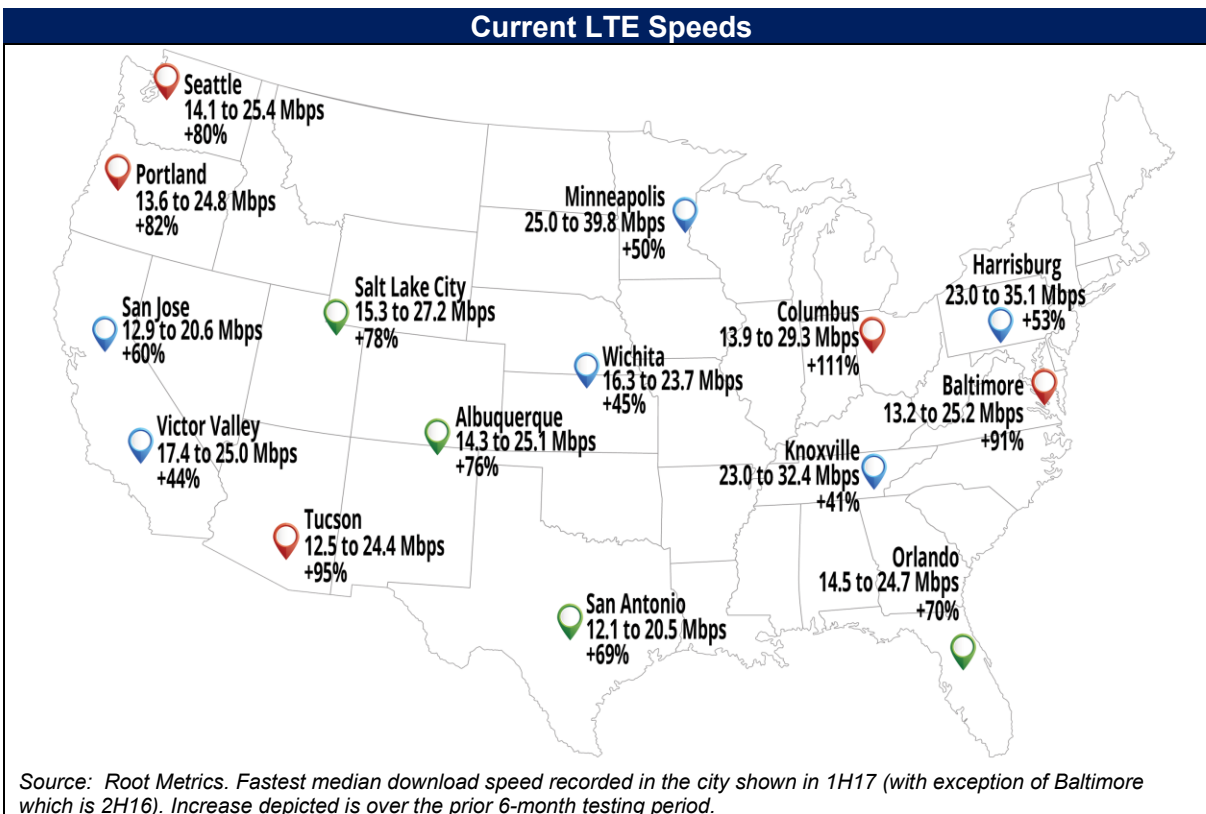
LTE is Disrupting the Competitive Landscape

Dankberg’s comments from 2012 proved to be a myopic assessment of the evolution of the broadband environment. A wide variety of technological innovations in the wireless world, including the proliferation of LTE, small cell technology, carrier aggregation and advanced MIMO techniques, have worked in concert to dramatically increase spectral efficiency, capacity, speeds and geographic distribution. The level of innovation across both wireless and wired networks has advanced such that satellite has no way of taking share while its historical rural market advantage, predicated on prohibitive infrastructure costs for competitors, is disappearing.

This obsolescence risk is downplayed by the company and not captured in the trading value of shares. In 2015, Dankberg said he would create separation from LTE overlays. We believe he was correct, but not in the way his comment was intended. The separation is created by LTE leaving satellite behind.

5 years ago, wireless was 10x slower and 6x less cost effective on a \$ per GB consumed basis than satellite. With unlimited 4G LTE, wireless now delivers satellite equivalent speeds at a significant *discount* per GB consumed. 99.7% of the U.S. population has access to 4G LTE.¹⁷ By 2020, wireless capacity will align with projected household demand, while satellite will be saddled with data limitations that cannot be resolved.

¹⁷ FCC Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless. September 16, 2016.



5G Technology is Incremental Threat

One of the biggest misconceptions regarding the myriad of technological threats confronting ViaSat is the timing and nature of 5G. There is a tendency within the investment community to treat 5G as purely a technology standards setting process that will not be finalized until 2020. That is a reductive and inaccurate view. 5G represents the continued evolution of a core set of LTE building blocks which are transforming wireless technology right now.

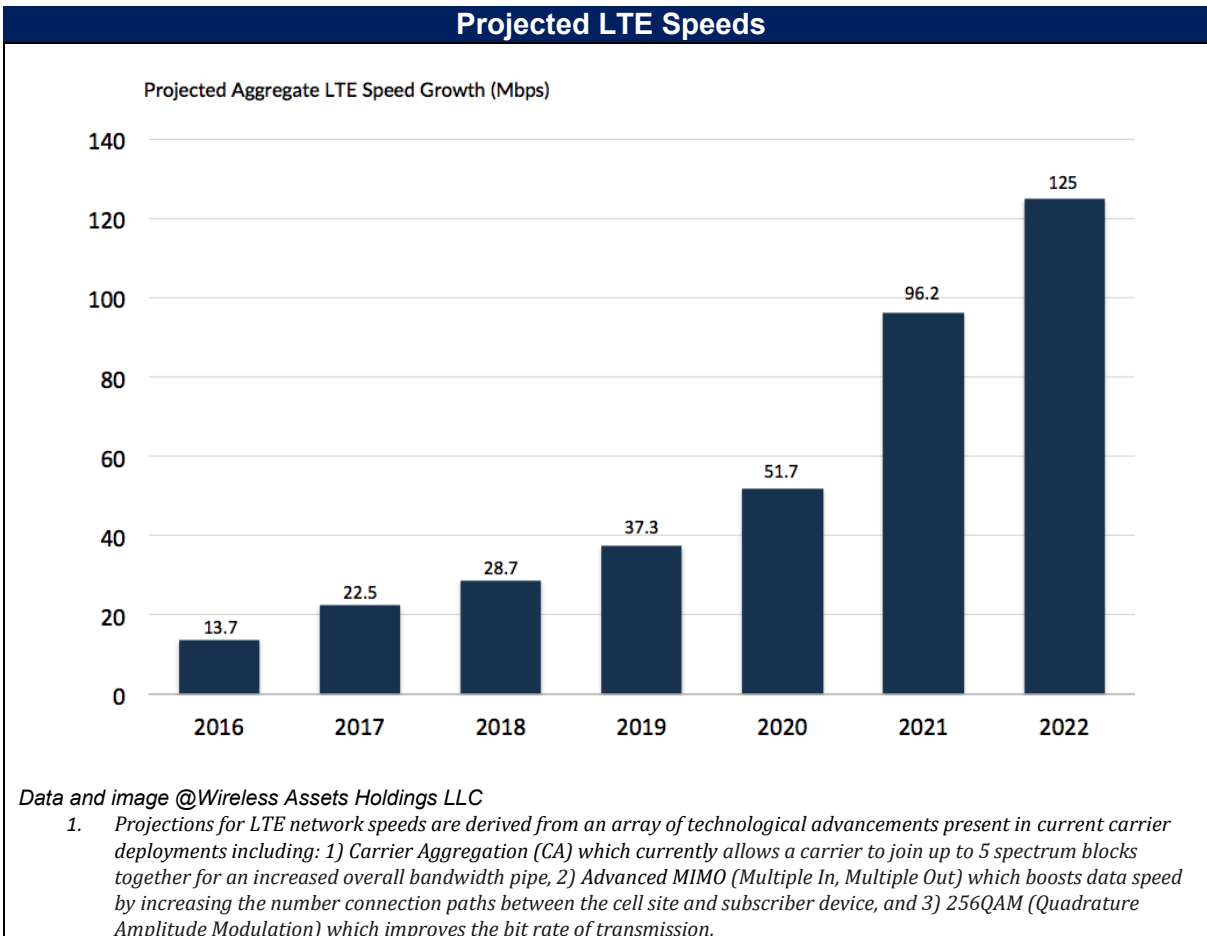
In many LTE markets across the country, wireless carriers have already achieved speeds greater than 25 Mbps, a 40-100% increase in just the past 6 months. Each of the 4 major mobile carriers is engaged in making 5G a reality well before formal “final” standards approval in 2020. AT&T will launch 1Gbps 5G trials in 20 metro areas while Verizon has already announced 11 – all *before* ViaSat-2 is operational. T-Mobile has made a commitment to offer nationwide mobile 5G by the end of 2020. Sprint’s aggregation of 800 MHz, PCS and 2.5 GHz is a functional equivalent.

Numerous component building blocks of 5G technologies are currently contributing to an exponential increase in spectral efficiency. The overall 5G standard performance benchmarks embedded into the target components of the final release include:

- Spectral Efficiency increases up to 1,000x maximum (30 bits/Hz downlink and 15 bits/Hz uplink)
- 4 ms latency (1 ms for Ultra Reliable devices)
- Minimum real-world device network speeds of 100/50 Mbps
- 1M user density for square kilometer
- 20/10 Gbps downlink data rate per base station

- Aggregated spectrum blocks of 100 Mhz

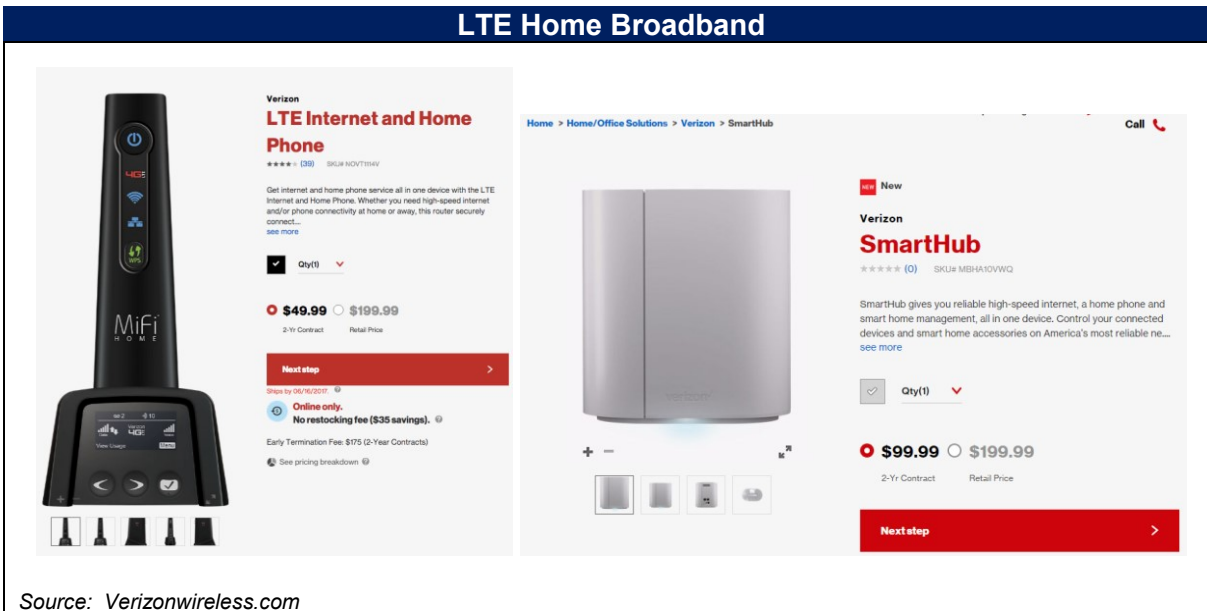
Based on estimates from proprietary research data provider Wireless Assets, even moderate advancement toward final 5G standards dramatically impairs ViaSat’s competitive position relative to incrementally compounding wireless network speed growth over the next 5 years (see below). This chart depicts the projected maximum observable LTE speed using conservative estimates for deployment of 5G technologies:



LTE Home Broadband

Wireless carriers have already begun to launch home broadband with LTE. For potential or prior satellite subscribers who previously lacked choice or were underserved by terrestrial wireline, wireless home broadband is more than a potential option. In many cases it’s faster and makes more economic sense. Verizon offers LTE home broadband devices (pictured below) as either a stand-alone offering or part of an *existing* subscriber unlimited data plan. Subscribers can purchase equipment for less than the average ViaSat’s installation fee.

Verizon’s data caps are set at a high 200GB, essentially designed to restrict abuse and bandwidth hogs. In contrast, ViaSat’s restrictions limit regular subscribers from using basic services like Hulu or Netflix, including customers who ultimately switch to the new ViaSat-2 in 2018. What’s more, advancements in 5G are taking place at such a rate that wireless home broadband is on a near-term path toward terrestrial, fiber-like capabilities while satellite continues to fall behind.



Source: Verizonwireless.com

Metro Fiber Hub Build-Outs Enable Coverage & Capacity Gains Well Beyond Just Wireline

An outdated belief among ViaSat bulls is that carrier fiber rollouts are isolated to dense metro areas and therefore pose a limited threat to ViaSat’s more traditional suburban target markets. This is decade-old thinking. Fiber is not a high-cost, low return investment anymore. De-emphasized by landline carriers two and a half years ago, metro fiber rollouts have returned in full swing because fiber doesn’t simply provide capacity to homes and businesses along the fiber optic route itself – it’s part of a broader ecosystem.

Fiber is an umbilical cord that fuels step-function improvement across every broadband delivery model in a market – wireless, cable, Wi-Fi, and copper. Fiber need not be connected to each individual household – instead, dense fiber hubs can be connected to co-location facilities and distribution points that then allow other delivery models to provide faster speeds as a result of being connected to the fiber hub. Copper technologies enhanced by fiber such as VDSL and G.fast produce dramatically better speeds as a result of fiber deployment. In townships of just 25,000-30,000 and in the fringes of metro areas, G.fast can upgrade lines to 25 Mbps on a 5,000ft loop length. In more densely populated areas, speeds up to 1GB are achievable. G.fast costs \$100-\$150 per sub line and is mostly modulation software installed into network end points. 250x increases in copper downlink capacity are achievable with only 50% of the technical standard for G.fast deployments according to research from Wireless Assets.

Evolution of Fiber Coverage in a Population Center

Below we illustrate how fiber is deployed in a population center and enables significant, incremental broadband delivery beyond just the route itself. In the top left quadrant, metro fiber is first brought to the city through what is known as a metro fiber hub. Note, we have shown an actual city, Memphis (the blue is the Mississippi River). In the top right, fiber is then connected to co-location facilities for wireline (the red and yellow blocks that denote DSL and cable) and wireless networks (blue blocks) that are closest to the metro fiber hub. In the bottom left, fiber is then distributed through the balance of existing legacy networks. Finally, in the bottom right, more remote distribution points (ViaSat's existing and stated target markets) receive the benefit of much greater speed and wireless licensed and unlicensed networks become lit. For Memphis, this would take place in an estimated 6-18 months.

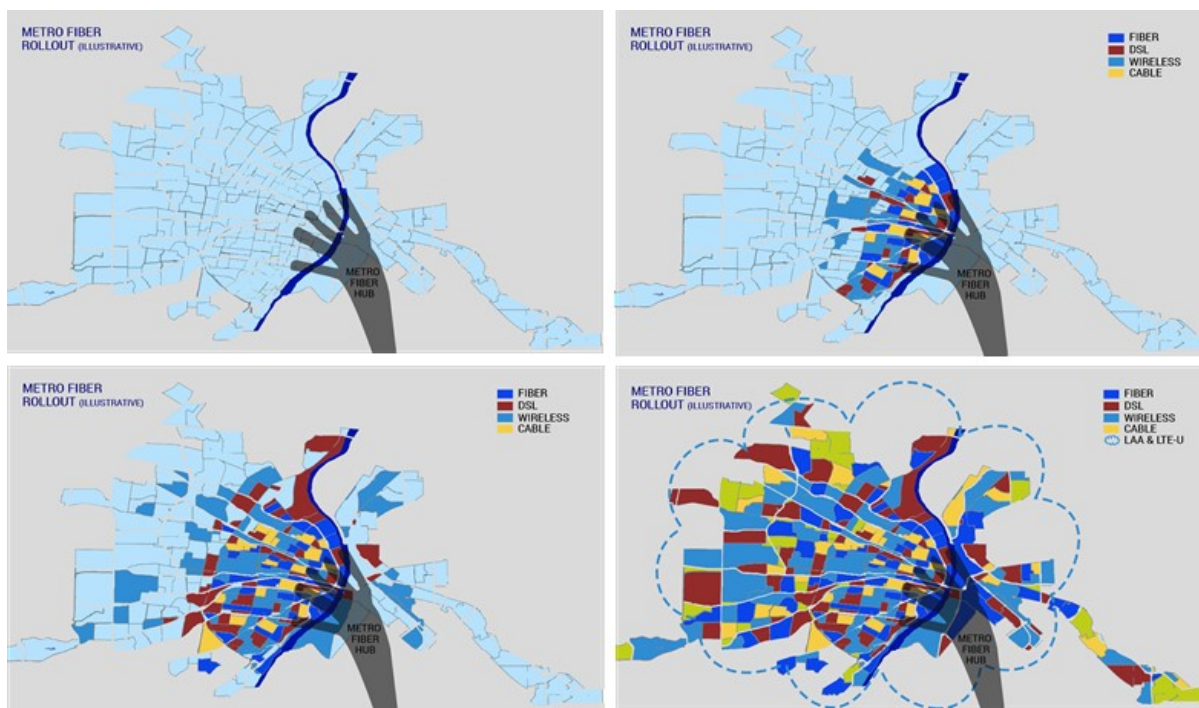


Image ©Wireless Assets Holdings LLC

On the wireless side, outside the urban core where an individual carrier perhaps does not have robust spectrum resources, carriers are utilizing a combination of licensed, “lightly-licensed”, and unlicensed spectrum bands (“LAA” and “LTE-U” in the diagrams) to improve coverage and service. As mentioned above, these LTE solutions are increasingly being deployed for home broadband fixed wireless solutions. Fiber is a critical component in enabling the backhauling of traffic from these wireless nodes in an efficient, cost-effective manner.

Cable companies, traditionally bound by high-cost last mile solutions, already own dense, hybrid-fiber networks and stand to benefit from Wi-Fi and unlicensed spectrum integration with LTE/LTE-U. This approach allows them to extend beyond just the wired portions of their network to encompass nearly everyone within their footprints at speeds greater than 25 Mbps and with modest incremental cost. The 125m potential subscribers that live within Comcast’s footprint,

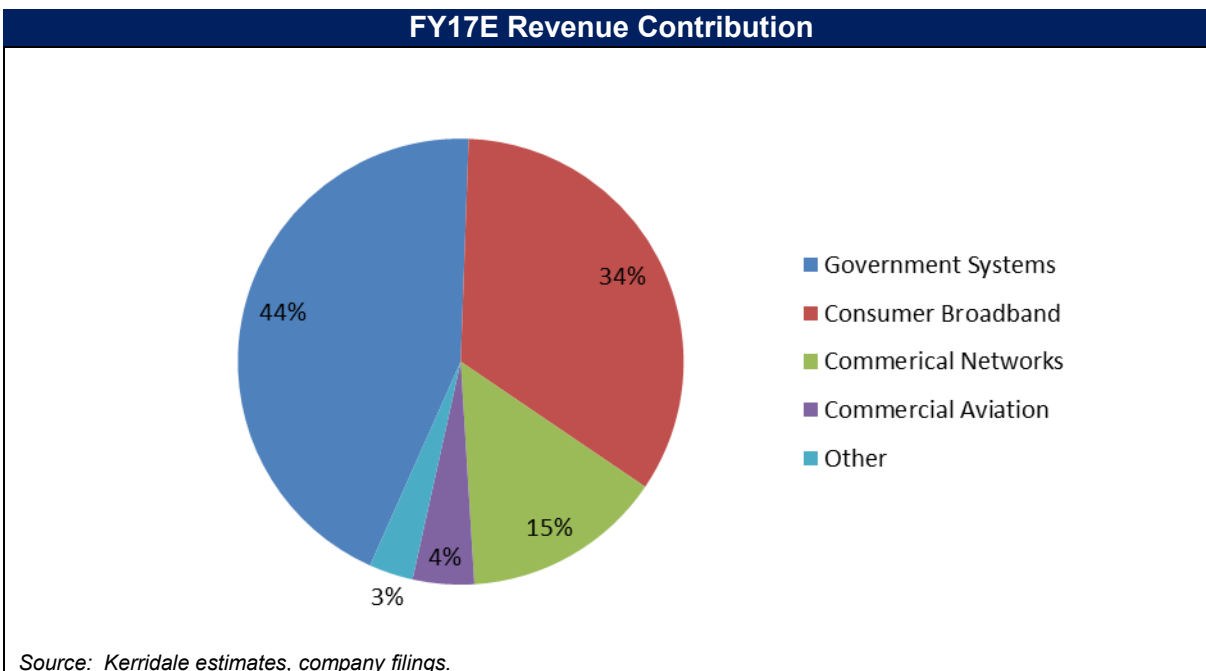
according to noted BTIG futurist, Walter Piecyk, could be substantially served with less than \$2bn.¹⁸

Metro fiber rollouts have implications beyond the most dense or urban locales historically associated with the fiber deployment itself. Remember, ViaSat is not particularly rural and in the company's own presentations to the FCC, states its customers "are everywhere." The suburban fringe and neighborhoods that lie just outside of the "belt" that rings metropolitan areas are precisely where the combination of fiber, Wi-Fi, and unlicensed spectrum is disrupting the entire competitive landscape.

¹⁸ "Will Comcast Use its Fiber for a New Wireless Network?" BTIG Research, January 3rd, 2017.

IV. Company Description

- ViaSat is a satellite operator that provides advanced digital satellite telecommunications and wireless signal processing equipment to residential consumers, airlines and the defense industry.
- The company operates through three reporting segments: Satellite Services, Commercial Networks, and Government Systems.
- We have focused in this report on the Consumer Broadband sub-segment of Satellite Services, the 2nd largest contributor to revenue and ~70% of EBITDA. Residential internet represents ~70%+ of the capacity for ViaSat-1 and future satellites.



Background

- The company was founded in 1986 by current CEO Mark Dankberg, Mark Miller and Steve Hart. ViaSat's roots are as a defense-oriented satellite communications hardware manufacturer. In 2008, the company entered the satellite services market when it announced a contract with Space Systems/Loral to build ViaSat-1, a 140Gbps satellite. The original plan was to lease ViaSat-1 capacity to WildBlue Communications, a provider of consumer broadband service and customer of ViaSat's ground network equipment. When both WildBlue and eventual competitor, Hughes, decided not to lease capacity, ViaSat purchased WildBlue outright to secure adequate distribution for the new satellite.
- ViaSat-1 was launched on October 19, 2011 and entered commercial service in January 16, 2012. ViaSat owns one other satellite, WildBlue-1 and has prepaid, leased capacity on Anik F2, operated by Telesat.
- ViaSat-2 will have 2x the capacity (~300Gbps) of ViaSat-1 and after nearly a year of delay was launched on June 1, 2017 with an estimated commercial service date sometime in 1Q18.

- ViaSat-3 (a planned constellation of 3 satellites, each with 1Tbps of capacity) will follow in late 2019/2020. The first of the class will serve the Americas, the second is targeted for EMEA, the final one is slated for Asia Pacific but plans remain in development.

ViaSat Satellite Overview			
Satellite	ViaSat-1	ViaSat-2	ViaSat-3
Capex (\$M)	\$522	\$625	\$625
Launch Date	Oct-11	Jun-17	2H19 / 1H20
Nominal Capacity (Gbps)	140	300	1,000
Benchmark Speed (Mbps) (a)	12	50	100
Contention Ratio (b) ⁽¹⁾	120	150	150
Speed Provisioned per Subscriber (Mbps) (a/b)	0.10	0.33	0.67
Total Est. Capacity Utilized by Residential (Gbps)	65		
Est. Capacity Reserved for Residential ⁽²⁾	115	225	750
Est. % of Capacity Utilized by U.S. Residential	57%		
Residential Capacity as % of Total Nominal	82%	75%	75%

Source: Kerrisdale estimates, company data.

1. ViaSat-1 contention ratio based on Kerrisdale research and estimated 100 Kbps per subscriber provisioning.

2. ViaSat-1 assumes 140 Gbps of rated capacity, less 15 GBps allocated for Barret Explore and 10 Gbps for inflight connectivity. ViaSat-2 and ViaSat-3 assumes ~75% of total capacity assigned to residential broadband, in line with published Street forecasts.

Satellite Services

Consumer Broadband

- ViaSat provides satellite-based high-speed broadband and value-added services to consumers, enterprises, and commercial airlines primarily in the United States. Consumer broadband services are offered under the Exede and WildBlue brands. As of F3Q17, ViaSat serves 675k total consumer and small business subscribers
- Consumer Broadband revenue accounts for ~85% of FY17E Satellite Services segment revenue (excluding Loral settlement payments) and 33% of FY17E total company revenue. Consumer Broadband Services EBITDA accounts for roughly 70% of total company EBITDA and drives 70-80% of consensus estimates for total EBITDA growth thru FY 2020.
- ViaSat offers a range of base service plans:

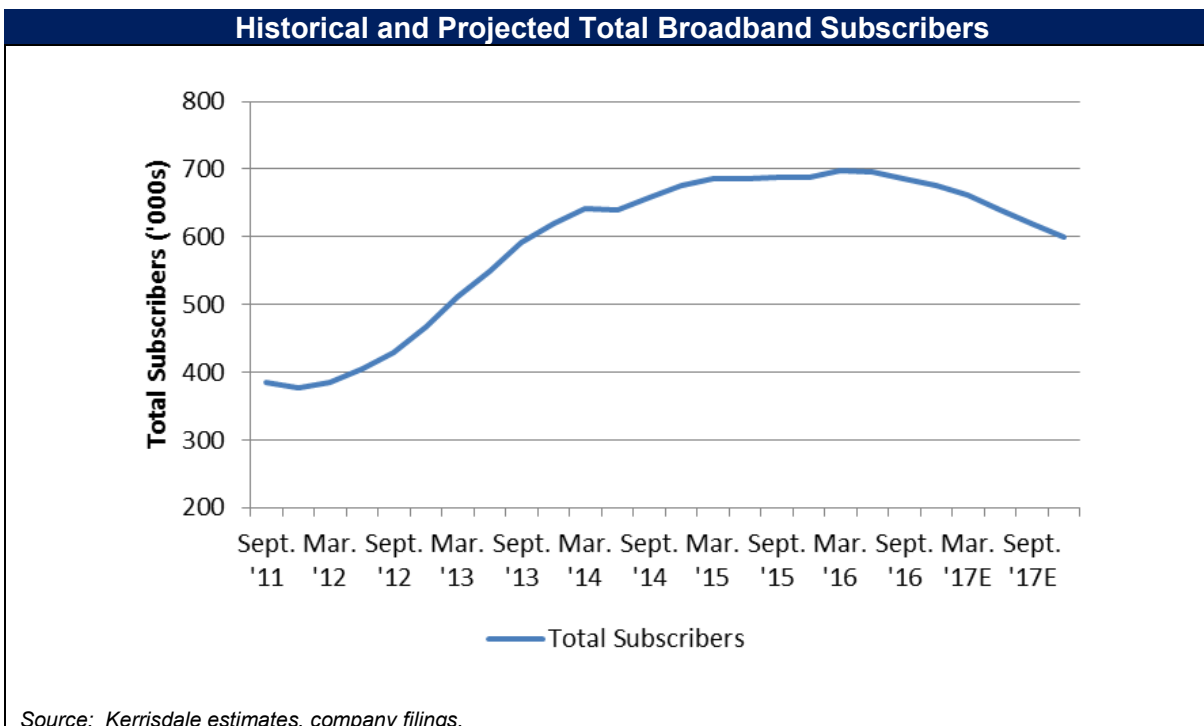
Current Exede Service Plans

SPEED ON ALL PLANS: ^{UP TO} **12 Mbps** DOWNLOAD SPEED / 3 Mbps UPLOAD SPEED

LIBERTY 12	LIBERTY 25	LIBERTY 50
<p style="font-size: small;">PRIORITY DATA</p> <p style="font-size: large; font-weight: bold;">12 GB</p> <hr/> <p style="color: #f4a460; font-weight: bold;">Liberty Pass</p> <p style="font-size: x-small;">Don't fear your data allowance.</p> <p style="font-size: x-small; border: 1px solid #00a0e3; padding: 2px; display: inline-block; color: white;">Learn More</p> <p style="text-align: center; font-size: x-small;">+</p> <p style="color: #f4a460; font-weight: bold;">Free Zone</p> <p style="font-size: x-small;">3 am to 6am daily</p> <hr/> <div style="background-color: #333; color: white; padding: 10px; font-size: large; font-weight: bold; text-align: center;">\$50/mo</div>	<p style="font-size: small;">PRIORITY DATA</p> <p style="font-size: large; font-weight: bold;">25 GB</p> <hr/> <p style="color: #f4a460; font-weight: bold;">Liberty Pass</p> <p style="font-size: x-small;">Don't fear your data allowance.</p> <p style="font-size: x-small; border: 1px solid #00a0e3; padding: 2px; display: inline-block; color: white;">Learn More</p> <p style="text-align: center; font-size: x-small;">+</p> <p style="color: #f4a460; font-weight: bold;">Free Zone</p> <p style="font-size: x-small;">3 am to 6am daily</p> <hr/> <div style="background-color: #333; color: white; padding: 10px; font-size: large; font-weight: bold; text-align: center;">\$75/mo</div>	<p style="font-size: small;">PRIORITY DATA</p> <p style="font-size: large; font-weight: bold;">50 GB</p> <hr/> <p style="color: #f4a460; font-weight: bold;">Liberty Pass</p> <p style="font-size: x-small;">Don't fear your data allowance.</p> <p style="font-size: x-small; border: 1px solid #00a0e3; padding: 2px; display: inline-block; color: white;">Learn More</p> <p style="text-align: center; font-size: x-small;">+</p> <p style="color: #f4a460; font-weight: bold;">Free Zone</p> <p style="font-size: x-small;">3 am to 6am daily</p> <hr/> <div style="background-color: #333; color: white; padding: 10px; font-size: large; font-weight: bold; text-align: center;">\$100/mo</div>

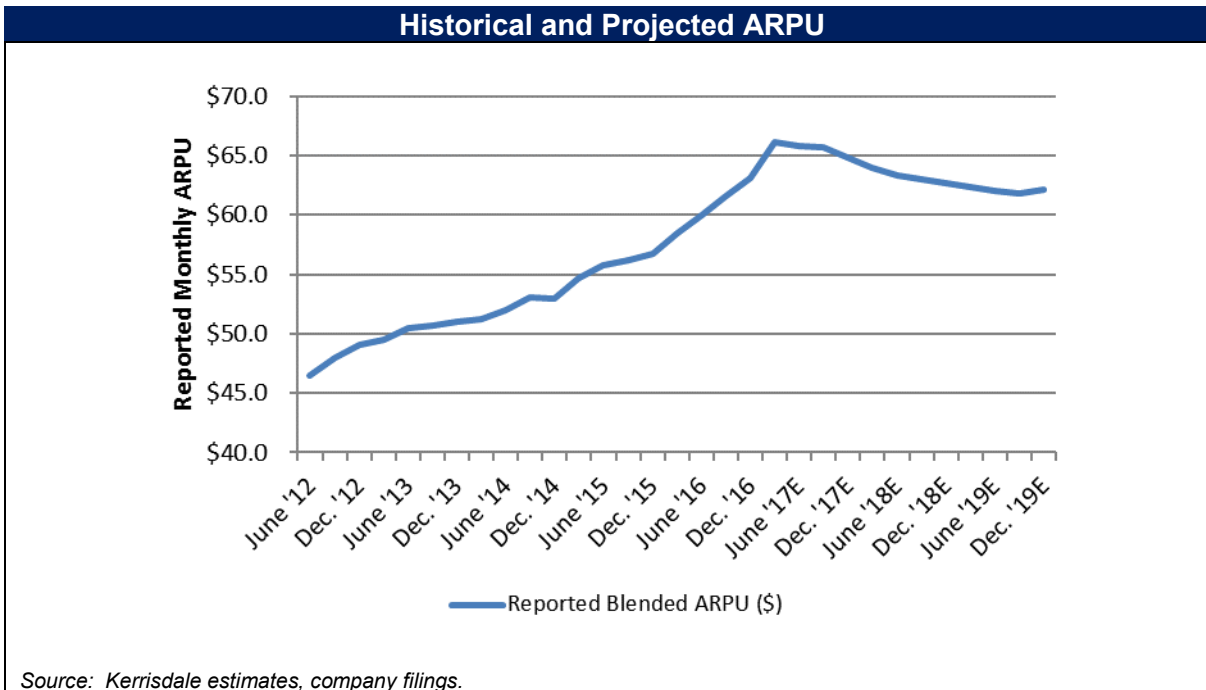
Source: Exede-sales.com

- Since hitting capacity limits in 2H14, overall subscriber growth has been nominal. The company has lost 20k customers over the last 2 quarters. With EchoStar recently launching new satellite capacity and marketing attractively priced plans at 2x the current speed offering of ViaSat, we expect losses to accelerate until ViaSat-2 is operational in 1Q18.



- Average revenue per user (ARPU) has increased steadily since the launch of ViaSat-1. Initial increases were driven by a shift in mix from wholesale subscribers (est. \$27

ARPU) to a predominantly direct retail model (est. ~\$70 ARPU). ARPU increases over the past 18 months have been driven by the sale of non-bandwidth related services, such as VoIP, “premium” customer care, various equipment fees and installation fees. These commoditized non-bandwidth offerings now constitute an estimated ~40% of retail ARPU and are subject to erosion in increasingly competitive markets.



In-Flight Connectivity

- ViaSat provides in-flight connectivity (IFC) to the commercial aviation market. It currently provides in-flight connectivity to 555 commercial aircraft in service for JetBlue, United and Virgin America. We estimate the sub-segment currently accounts for ~4% of total revenue.
- ViaSat’s go-to-market strategy differs from industry leader, Gogo, in that broadband capacity is primarily sold wholesale to each airline, with a flat rate and data allocation per passenger. It is then up to the airline to brand, price and allocate the service to passengers (for example, JetBlue Fly-Fi and United Wi-Fi).
- ViaSat has contracted to supply in-flight services for the new American Airlines Boeing 737 MAX fleet as well as 500 existing aircraft for American Airlines. ViaSat and Eutelsat together introduced in-flight internet service in Europe with EL AL Israel Airlines and their joint venture has signed new European contracts with Finnair and SAS.
- As part of its government systems segment, ViaSat was awarded an exclusive contract to provide in-flight services to Air Force One and other US government aircrafts. It now has deployed its government mobile broadband internet service on more than 400 VIP government aircraft. (recent industry rumors suggest this contract is at risk)
- We view ViaSat’s competitive positioning in aviation as favorable and assume Average Revenue per Aircraft grows 5-7% p.a. and the IFC installed base grows from 555 aircraft to over 1,500 by FY2020E. Our FY2020E forecast of \$223m in commercial aviation broadband service and product revenue is in line with consensus.
- There are some notable longer-term risks, however. ViaSat provides wholesale capacity to 500 JetBlue and United Airlines aircraft through agreements signed with LiveTV

(originally, a wholly-owned subsidiary of JetBlue). In March 2014, LiveTV was sold to Thales, a large, European defense and IFE-focused (In-Flight Entertainment) company. In September 2016, Thales signed North American capacity agreements with SES and Hughes' EchoStar in a maneuver designed to possibly replace ViaSat as a supplier. ViaSat is at risk of losing a sizable portion of their current online aircraft upon expiration of its partnership in 2021.

Commercial Networks

- Commercial Networks develops and produces a variety of end-to-end satellite and wireless communication systems, including ground networking equipment, infrastructure and space-to-earth connectivity systems. The segment accounts for ~15% of total revenue and est. $-\$(105)\text{m}$ in FY17E EBITDA.
- ViaSat's Commercial Network's business has found success in selling terminals for Australia's next-generation broadband network operated by NBNCo and to airlines for its Exede-in-the-Air service. Product revenues in this segment are generated from selling to third parties. Main products include: Ka-band ground terminals, maritime broadband terminals and modems, antenna systems, MSS terminals, payload and terminal development programs.
- Topline performance has historically been characterized by the timing of particular infrastructure projects, such as the Australian National Broadband Network and the awarding of contracts to develop antennas for O3b. Historically, core operating margins have been negative to low-single digits. More recently, operating income has been significantly pressured by large increases in R&D associated with the payload development for ViaSat-3, FCC certification activity, as well as a change in accounting requiring certain R&D for the ViaSat-3 program to be expensed rather than capitalized, as it is not outsourced.

Government Systems

- Represents the single largest category by revenue (44%) with EBITDA margins of ~24%. Segment revenues are 70% product driven, with performance dependent on the awarding and timing of government contracts.
- Main products and services include:
 - Providing military and government users with broadband and multimedia connectivity in key regions of the world (ViaSat leases capacity to provide coverage in Europe and the Middle East).
 - Government satellite communications systems – a wide array of portable, mobile and fixed broadband modems, terminals, networking equipment.
 - In-flight communication for Air Force One and approximately 400 other VIP aircraft.
 - Tactical data links systems include BATS-D handheld radio system and MIDS terminals for military fighter jets.
- Visibility is limited in the segment. As with Commercial Networks and Aviation Broadband, we forecast financial performance in line with consensus.

V. Valuation

The key driver of our \$35 price target for ViaSat is our more conservative view of Consumer Broadband. All other segments are modeled in-line with published Street estimates.

A discounted cash flow analysis is typically the preferred method to value satellite companies, but with ViaSat, the significantly negative cash flows that dominate the projection period results in placing an inordinate amount of value in the terminal value. We are not alone in this problem – a recent sell-side initiation report from April derived its entire enterprise value from the NPV of 2025 terminal value and used an 8.5% WACC. We find this discount rate to be unreasonable given the high level of competitive, technological, and execution risk. The discount rate should also be materially higher in light of the fact that nearly the entirety of ViaSat's valuation is based on cash flows beyond 2025 due to the negative free cash flow of the preceding years, which adds an additional layer of uncertainty to ViaSat's valuation calculation for DCF purposes.

We value ViaSat by assigning a 9.5x target multiple to our estimate of FY 2020E EBITDA adjusted for the level of overstatement due to equipment leases. The company currently trades at 10.3x FY 2020E consensus adjusted for expected cash burn. Current net debt is adjusted to reflect the anticipated cash burn over the next 4 years. We make no assumption for further equity issuance despite the historical tendency to fund cash burn through a 50/50 debt/equity mix.

ViaSat's Satellite Services peers trade at ~7.0x-8.5x 1Yr Fwd. EBITDA.

Price Target	
Target Multiple	9.5x
2020E Reported EBITDA	496
Less: Equipment Lease Adj.	(67)
2020E "Real EBITDA"	430
Enterprise Value	4,082
Less: Net Debt Adj. for Cash Burn ⁽¹⁾	(2,224)
Add: ETL JV @ Cost	145
Implied Equity Value	2,003
Diluted Shares Outstanding	58
Target Price	\$35

Source: Kerrisdale estimates.

1. Net Debt reflects Kerrisdale estimates of additional debt financing required to meet projected cash burn through 2020E.

VI. Conclusion

“I think when we get ViaSat-2, we’ll be able to move upstream. The way I like to describe it is it’s the bear in the woods story. Two guys are out in the woods and, all of a sudden, a bear appears. And one of them turns around and starts to run. The other guy says, well, you’re never going to outrun that bear. And he said, well, I don’t have to, I just had to outrun you, right? So think of the bear in the woods as bandwidth demand. Like, nobody is going to outrun the bear. Basically, the way we’ll be successful is outrunning the other guys who are also trying to deal with that bear, right?”

— Mark Dankberg (CEO of ViaSat, May 14, 2015)

With every passing year, ViaSat falls further and further behind the “other guys” and closer and closer to the trailing bear. Dankberg talks at length about taking share against terrestrial competitors and expanding ViaSat’s addressable market, but the reality is that the technological landscape is worsening for them at an accelerated pace. It is abundantly clear that in the U.S., the company doesn’t have a viable way to keep up with other providers of home broadband internet. In 2012, they introduced a service that showed at least a few signs of providing a viable value proposition to a small segment of the American populace. 6 years later, they’ve dropped to the back of the pack. By 2020, they will likely be eaten by the bear. Until then, the company continues to burn cash, rely on secularly challenged products like VoIP to prop up subscriber metrics, promote an EBITDA metric that is distorted by leasing generic hardware, and at conferences typically talk as long as possible about aviation to avoid discussing what’s happening in its main business. Current valuations simply don’t reflect that 70% of EBITDA is attributable to a business that is destined to disappear for the most part in the near- to intermediate term. The price of shares reflects flawless execution of impossible subscriber growth and pipe dreams of global expansion. It won’t take long to see the key drivers of the consumer business begin to turn the wrong way; when they do, ViaSat shares will come crashing back to Earth.

Appendix I – ViaSat-2 IRR Analysis

- Our analysis of ViaSat-2 returns a 9% IRR.
- Key ViaSat-2 IRR Analysis Assumptions:
 - Our analysis deliberately follows the methodology of the only published Street IRR analysis for ViaSat-2. We assume the analyst received some guidance from the company and wish to limit our changes to the inputs as much as possible.
 - Our analysis conservatively uses the same length of time, assumes a higher contribution from Aviation, and yet results in a lower IRR based on 3 key aspects:
 1. A decline in retail and wholesale ARPU during the initial loading phase of the satellite to account for the high levels of non-core service revenues that are subject to competitive erosion.
 2. High churn associated with lower-priced plans
 3. Based on several conversations with satellite experts and former employees, there is \$75m to \$100m in ground network capex related to the building and upgrading of gateways that is not included in the company's \$600-\$650m disclosed costs for the satellite.

Full Legal Disclaimer

As of the publication date of this report, Kerrisdale Capital Management LLC and its affiliates (collectively "Kerrisdale") have short positions in the stock of ViaSat ("VSAT"). In addition, others that contributed research to this report and others that we have shared our research with (collectively with Kerrisdale, the "Authors") likewise have short positions in the stock of VSAT. The Authors stand to realize gains in the event that the price of the stock decreases. Following publication of the report, the Authors may transact in the securities of the company covered herein. All content in this report represent the opinions of Kerrisdale. The Authors have obtained all information herein from sources they believe to be accurate and reliable. However, such information is presented "as is," without warranty of any kind – whether express or implied. The Authors make no representation, express or implied, as to the accuracy, timeliness, or completeness of any such information or with regard to the results obtained from its use. All expressions of opinion are subject to change without notice, and the Authors do not undertake to update or supplement this report or any information contained herein.

This document is for informational purposes only and it is not intended as an official confirmation of any transaction. All market prices, data and other information are not warranted as to completeness or accuracy and are subject to change without notice. The information included in this document is based upon selected public market data and reflects prevailing conditions and the Authors' views as of this date, all of which are accordingly subject to change. The Authors' opinions and estimates constitute a best efforts judgment and should be regarded as indicative, preliminary and for illustrative purposes only.

Any investment involves substantial risks, including, but not limited to, pricing volatility, inadequate liquidity, and the potential complete loss of principal. This report's estimated fundamental value only represents a best efforts estimate of the potential fundamental valuation of a specific security, and is not expressed as, or implied as, assessments of the quality of a security, a summary of past performance, or an actionable investment strategy for an investor.

This document does not in any way constitute an offer or solicitation of an offer to buy or sell any investment, security, or commodity discussed herein or of any of the affiliates of the Authors. Also, this document does not in any way constitute an offer or solicitation of an offer to buy or sell any security in any jurisdiction in which such an offer would be unlawful under the securities laws of such jurisdiction. To the best of the Authors' abilities and beliefs, all information contained herein is accurate and reliable. The Authors reserve the rights for their affiliates, officers, and employees to hold cash or derivative positions in any company discussed in this document at any time. As of the original publication date of this document, investors should assume that the Authors are short shares of VSAT and have positions in financial derivatives that reference the security and stand to potentially realize gains in the event that the market valuation of the company's common equity is lower than prior to the original publication date. These affiliates, officers, and individuals shall have no obligation to inform any investor or viewer of this report about their historical, current, and future trading activities. In addition, the Authors may benefit from any change in the valuation of any other companies, securities, or commodities discussed in this document. Analysts who

prepared this report are compensated based upon (among other factors) the overall profitability of the Authors' operations and their affiliates. The compensation structure for the Authors' analysts is generally a derivative of their effectiveness in generating and communicating new investment ideas and the performance of recommended strategies for the Authors. This could represent a potential conflict of interest in the statements and opinions in the Authors' documents.

The information contained in this document may include, or incorporate by reference, forward-looking statements, which would include any statements that are not statements of historical fact. Any or all of the Authors' forward-looking assumptions, expectations, projections, intentions or beliefs about future events may turn out to be wrong. These forward-looking statements can be affected by inaccurate assumptions or by known or unknown risks, uncertainties and other factors, most of which are beyond the Authors' control. Investors should conduct independent due diligence, with assistance from professional financial, legal and tax experts, on all securities, companies, and commodities discussed in this document and develop a stand-alone judgment of the relevant markets prior to making any investment decision.

Additional disclosure regarding research provided by Wireless Assets Holding LLC:

The expert analysis, opinions, and images cited in this report were developed in consultation with Bill Stueber and Wireless Assets Holding LLC ("Wireless Assets" or "the Company"). Mr. Stueber is a wireless industry expert, Senior Partner of Telecom Partners Group and Founder of Wireless Assets, a big data analytics research firm focused on the TMT sector. With more than 35 years of telecom experience, including 15 years as a senior industry analyst, Mr. Stueber provides independent, proprietary research to clients that include many top global investment institutions. Mr. Stueber, Telecom Partners Group and Wireless Assets research does not in any way constitute an offer or solicitation of an offer to buy or sell any investment, security, or commodity discussed herein.

The content of any research represents the views, opinions, and analyses of its authors and does not constitute financial, legal, tax or any other advice. All third-party data presented therein is obtained from publicly available sources which is believed to be reliable; however, Wireless Assets makes no warranty, express or implied, concerning the accuracy or completeness of the content of such information. In no event shall Wireless Assets be responsible or liable for the correctness of, or update to, any such material or for any damage or lost opportunities resulting from use of this data.

Wireless Assets is an independent research provider. The Company is not a member of the FINRA or the SIPC and is not a registered broker dealer or investment adviser. The Company has no other regulated or unregulated business activities which conflict with its provision of independent research. No employee or member of the Company, or immediate family member thereof, exercises investment discretion over, or holds any position in, securities of any issuer analyzed by the Company. Any research or other material received should not be construed as individualized investment advice. Investment decisions should be made as part of an overall portfolio strategy and you should consult with a professional financial advisor, legal and tax

advisor prior to making any investment decision. The Company shall not be liable for any direct or indirect, incidental or consequential loss or damage (including loss of profits, revenue or goodwill) arising from any investment decisions based on information or research obtained from the Company.