



DIRECWAY

Federal Communications Commission Broadband Presentation

June 2002

REDACTED -- FOR PUBLIC
INSPECTION



Presenters

DIRECTWAY

- Mark Jackson - Sr. VP, EchoStar
- Pradman Kaul - Chairman and CEO, Hughes Network Systems, Inc.



Agenda

DIRECTWAY

- Overview
- No Current Competitive Satellite Broadband
- Requirements to Achieve a Competitive Offering
- Merger Efficiencies
- Competitive Benefits



Merger Provides Important Benefits: Broadband to Consumers

DIRECTV

- Access to affordable broadband service to all Americans, including those in rural areas
- Meaningful competitive alternative to cable and DSL consumer broadband services
- Meaningful competitive alternative to the bundled offerings of cable



Standing Alone, EchoStar and Hughes Cannot Fulfill the Broadband Promise

DIRECTV

- Without the merger, neither firm could reach scale
 - Smaller standalone DBS subscriber bases
 - Limited spectrum
- Without scale, consumers face:
 - High equipment costs
 - High monthly service charges
- Without scale, a service provider faces:
 - Large SAC, marketing, space segment, and ground infrastructure investment required without the possibility for an adequate return
- Unsupportive financial climate
- The merger makes possible the major investment required to create an affordable satellite broadband offering



Business Overview

DIRECWAY

- Hughes has two residential Internet access services
 - DIRECWAY satellite broadband (about [redacted] subscribers)
 - DIRECTV DSL (reseller) (about [redacted] subscribers)
- Hughes is unlikely to continue to fund its residential satellite broadband service without the merger
- Hughes' SPACEWAY enterprise service expected to launch in 2004



Business Overview

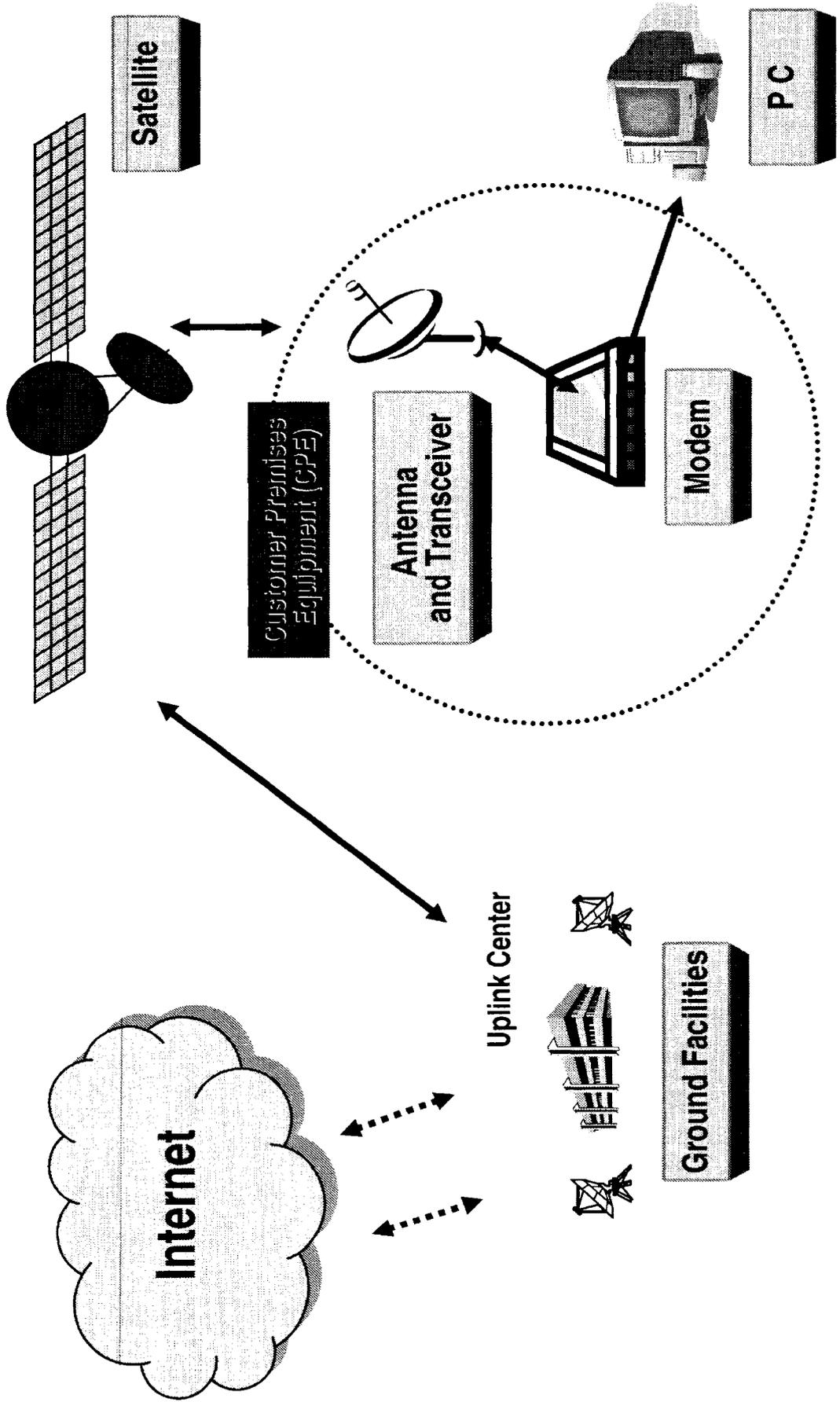
DIRECWAY

- EchoStar no longer markets satellite Internet access services
 - StarBand marketing relationship terminated; StarBand has filed for Chapter 11 bankruptcy
 - Approximately 40,000 current subscribers, after spending approximately \$400,000,000
- Limited DSL marketing agreements with SBC and Earthlink (no subscribers to date)



Technical Overview

DIRECWAY



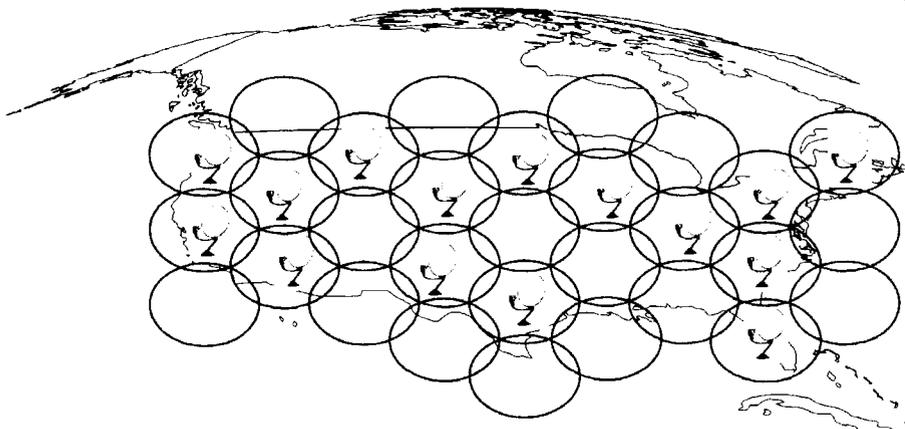
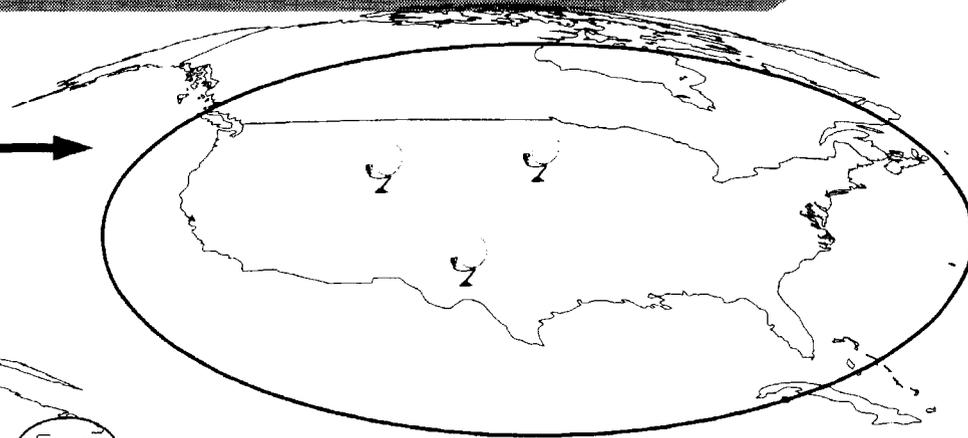


Spectrum Efficiency & Coverage



Ku CONUS

- Spectral Efficiency x 1
- No. Residential Subscribers ~ 250K

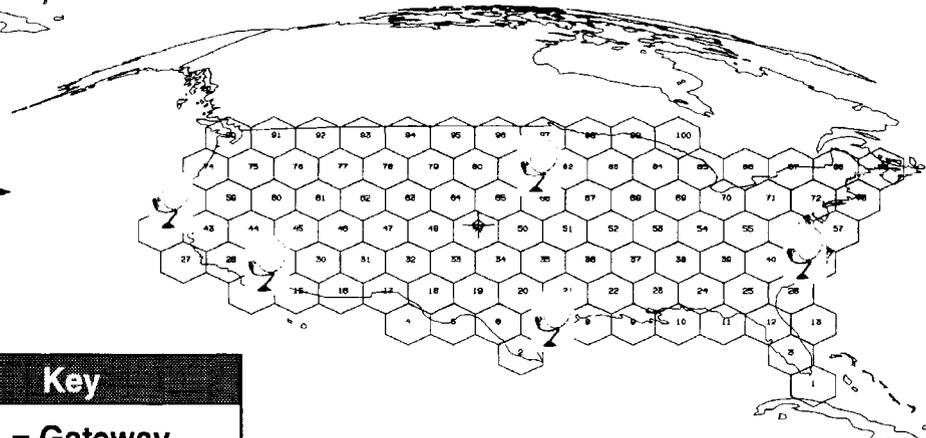


Bent-Pipe Ka Spot Beam

- Spectral Efficiency x 4
- No. Residential Subscribers ~ 1M

SPACEWAY Processor-based

- Spectral Efficiency x 8.5
- No. Residential Subscribers ~ 1 - 1.3M
- plus [redacted] Enterprise Subscribers



Key

 = Gateway



Agenda

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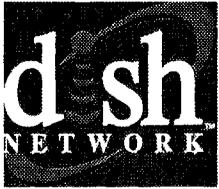
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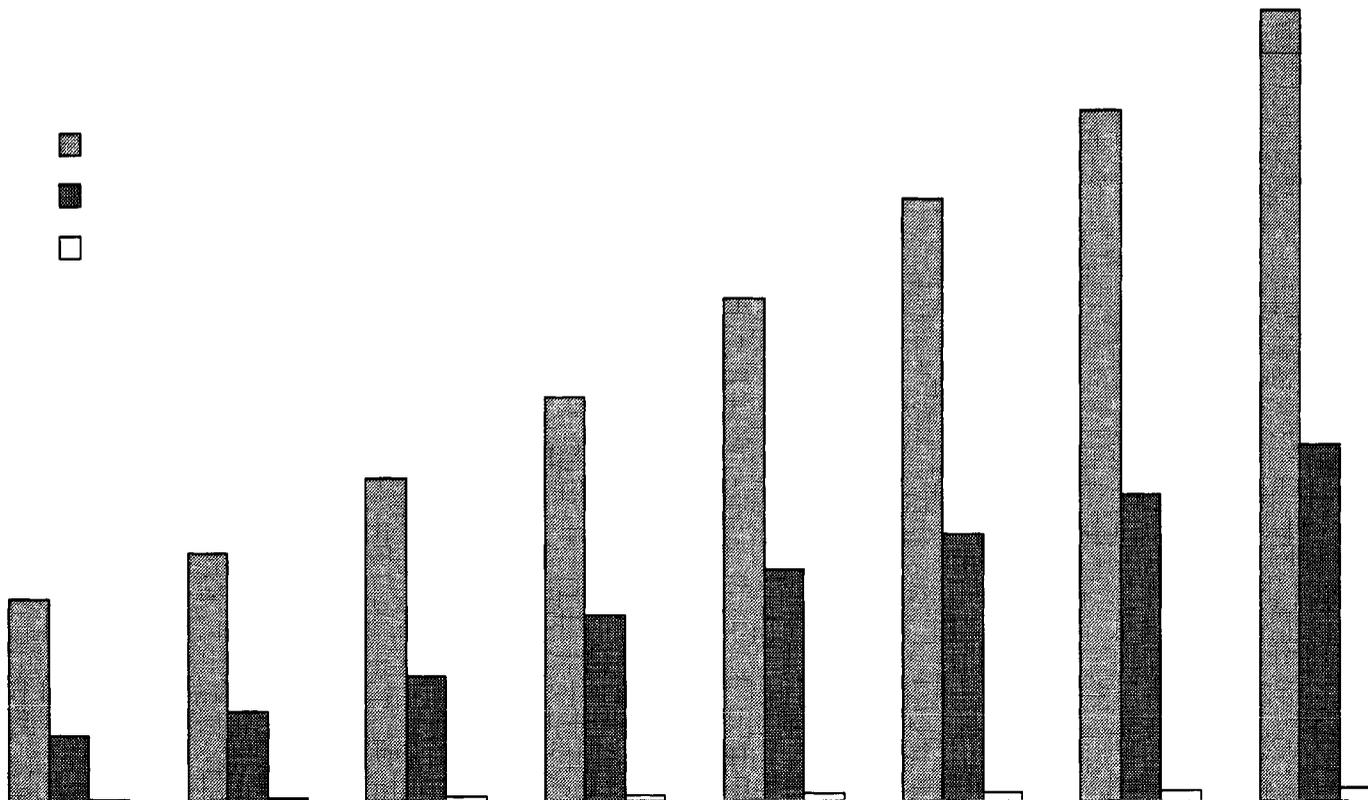
Why Satellite Broadband Is Not Competitive Today

DIRECWAY

	<u>Ku-Band CONUS</u>	<u>Cable</u>	<u>DSL</u>
Manufacturing & Installation Costs			
Antenna / Transceiver	\$275-\$400	N/A	N/A
Modem	\$225-\$375	\$75	\$75
Installation	\$150-\$300	Self-install	Self-Install
Typical Monthly Fee	\$60-\$70	\$50	\$50
Typical Installed CPE Price	\$600-700	\$0-\$100	\$0-\$100
Typical Speeds (kbps)	[redacted]	1250/128	384-768/128



Consumer Broadband Growth



Source: NCTA, TeleChoice, Hughes & EchoStar



Current SAC

DIRECWAY

(Approximate)

Total Expenses (includes retail commission and marketing)	\$[redacted]
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Customer Payment	<u>- \$600</u>
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SAC	\$[redacted]
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Today's Satellite Broadband Economics



(Approximate)

Monthly Subscriber Fee	\$60
Monthly Space Segment Costs	[\$redacted]
Other Monthly Costs ¹	<u>[\$redacted]</u>
Monthly Margin	[\$redacted]
Churn ([redacted]% of \$[redacted] SAC)	<u>[\$redacted]</u>
Monthly Loss per Sub	[\$redacted]

Note: Economics assume leased transponder

¹ Includes billing, collections, call center, service/warranty, etc.



DIRECWAY

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-
- Absent the merger, Hughes is unlikely to continue its investment in consumer Internet access
 - Cash constraints
 - Poor economics because of scale



SPACEWAY Targets Enterprise Markets

DIRECTWAY

- SPACEWAY is conceived for and targeted at the Enterprise market
- Enterprise market has traditionally been HNS's primary focus
 - Global, profitable business
 - Sales consistently over \$500 million with double-digit EBITDA profitability
- Enterprise market characteristics
 - Significant & steady long-term growth
 - VSAT market 3-year CAGR “remained remarkably stable since 1990 and has averaged about 15% since 1992.” *
 - Stable, long-term contracts (5-year norm)
 - Low SAC

* COMSYS 2001



Enterprise Focus Limits Residential Service

DIRECWAY

- Concurrent business/residential use
- **[redacted]**
- Total consumer support limited by available capacity during business PBH
- Assumptions relating to concurrent usage populations, online time and bandwidth needs are highly variable
- Consumer capacity estimated at 1 – 1.3M users per satellite

[redacted]

**Peak Busy Hour
Capacity loading**

(Usable end user capacity, excludes system overhead)



Disadvantages of Ku-band for Consumer Satellite Broadband

DIRECTV

- Current Ku-band FSS spacecraft not optimized for broadband
 - Do not meet growing bandwidth and performance needs of broadband users
 - Low power (EIRP density) levels constrain transmission speeds
 - Expensive to lease capacity from third party satellite operators
- Difficult to obtain sufficient capacity on the same spacecraft or within given part of the orbital arc
- Possible interference with adjacent satellites; multiple satellites will require coordination with adjacent operators
- Ku service requires larger antenna



No Ka-Band Consumer Satellite Network Has Been Implemented Over the U.S

DIRECTV

- Since 1997, FCC has granted Ka-band licenses to more than 14 companies in addition to Hughes and EchoStar, including Lockheed Martin, Motorola, and Loral
- To date, no one in the U.S. has launched a commercial Ka-band satellite, and future plans are uncertain given financial climate and limited scale



DSL Bundle Disadvantages

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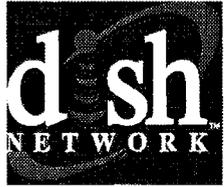
- DSL not available to all DBS subscribers
- DSL bundle (with RBOCs) does not allow total control over price or customer relationship – especially customer service
- DSL more expensive than cable modem in many areas
- Difficult/expensive to develop advanced services or differentiated content, or to integrate with video
- RBOCs are potential competitors in video business



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To Achieve Competitive Consumer Satellite Broadband

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- Approximately \$[redacted] must be invested in higher capacity, higher speed satellites and ground infrastructure
- Over \$[redacted] must be invested in SAC alone
- Over \$[redacted] must be invested in marketing
- These major upfront investments can be justified only by the expectation of rapidly achieving a viable customer base -- estimated to be 5 million residential subscribers within 5 years from start of operations



SPACEWAY Investment

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- Hughes has spent \$1.2 billion for SPACEWAY and will spend another \$600 million to create an enterprise-focused business
 - without an existing VSAT customer base, the cost would be even higher and risk would be even greater
 - **[redacted]**



No Path to Affordable Consumer Satellite Broadband Without Merger

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Standing alone, neither company could:

- Have a sufficiently large, fast-growing DBS subscriber base to achieve the necessary broadband subscriber ramp rate and to achieve economies of scale in CPE
- Justify the required investment in additional satellites, SAC, marketing without assurance of minimum scale
- Finance the billions of dollars in SAC investment needed to achieve minimum scale without high probability of achieving scale fast enough to recoup its investment
- Have enough Ka-band orbital slots near video slots to support the minimum scale for consumer service



Consumers Suffer Without Competitive Satellite Broadband

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- Cable companies currently dominant
- Digital Divide: Many Americans with no access to cable modem service or DSL have no affordable broadband option
- Decreased broadband competition
- Decreased MVPD competition



Harm to MVPD Competition

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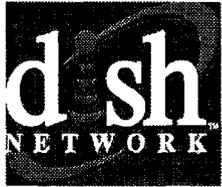
- Cable is bundling video and broadband, further entrenching its position in both markets
- Cable is directly targeting DBS customers with its cable modem bundle
- DBS cannot match cable firms' bundles and ties, or integrate data and video for on-demand services, reducing DBS's price and innovation pressure on cable



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Transaction Creates a Meaningful Competitor

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- Merger gives New EchoStar the critical mass of current and potential subscribers to reach 5 million subscribers in 5 years, allowing prices and service that are competitive with terrestrial broadband
- Rapid ramp-up:
 - Reduces CPE costs
 - Utilizes satellite capacity and lower per-subscriber space costs
 - Achieves efficient installation, billing, and customer service operations



Combined, Growing DBS Subscriber Base Key to Achieving Scale

DIRECTV

- Large, growing DBS customer base justifies large upfront investment in risky climate (i.e., already in the home)
- DBS subscribers are most likely candidates to purchase satellite broadband
 - Familiar with benefits of satellite technology
 - Proved willing to install satellite dish, and have required view of southern sky
 - Cable subscribers have high propensity to choose cable modem service (path of least resistance)



Combined DBS Base and Faster Growth Allows Broadband Scale

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Residential Broadband Growth from Merger: Combined DBS Base +
Expansion from New DBS Services & Lower Prices

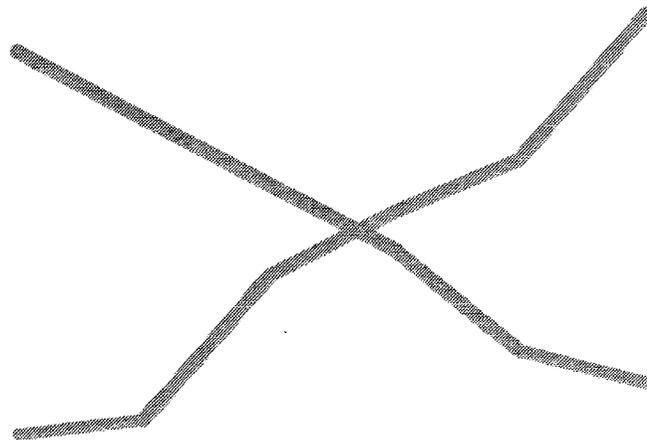
[redacted]



CPE Cost Significantly Declines With Fast Ramp Up to Scale

DIRECTWAY

- Fast ramp-up to scale necessary to reduce cost of CPE
- CPE costs can be reduced with scale. Rapid ramp-up allows forward pricing.
- Compare decreasing cable modem costs:



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Source:
Cabledatcomnews.com



CPE Costs Drop with Volume

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Ku Single LNBF Price/Volume Trend

[redacted]



Projected Ka-band CPE Costs vs Volume

DIRECTVAY

[redacted]



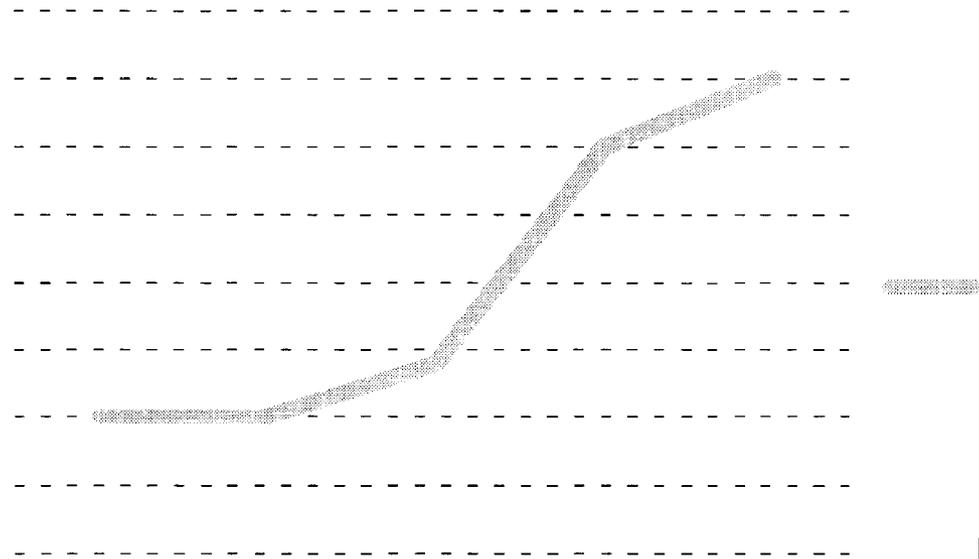
Importance of Rapid CPE Price Reduction



[redacted]



Consumer Take Rates Higher As Prices Decrease



Source:
McKinsey/J.P.
Morgan



SPACEWAY Post Merger

DIRECTWAY

- SPACEWAY satellites planned to launch in 2003 and 2004
- Combined DBS subscriber base would allow investment in SAC and marketing to leverage SPACEWAY investment into a Ka-band residential service starting in mid-2004
- SPACEWAY's capabilities would allow higher speed service with premium features like video conferencing
- With scale-driven CPE costs, can compete with cable and DSL for premium consumers



Additional Satellites

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- CPE scale economies would allow expected growth to justify investment in additional satellites
- Could be ready for service in 2005, sooner if under-construction satellite can be secured
- Additional satellites would allow lower-priced service, reaching below a target of \$35 per month for basic service
- Potential orbital locations: 103 (PanAmSat*), 113 (VisionStar), 121 (replacing EchoStar IX)

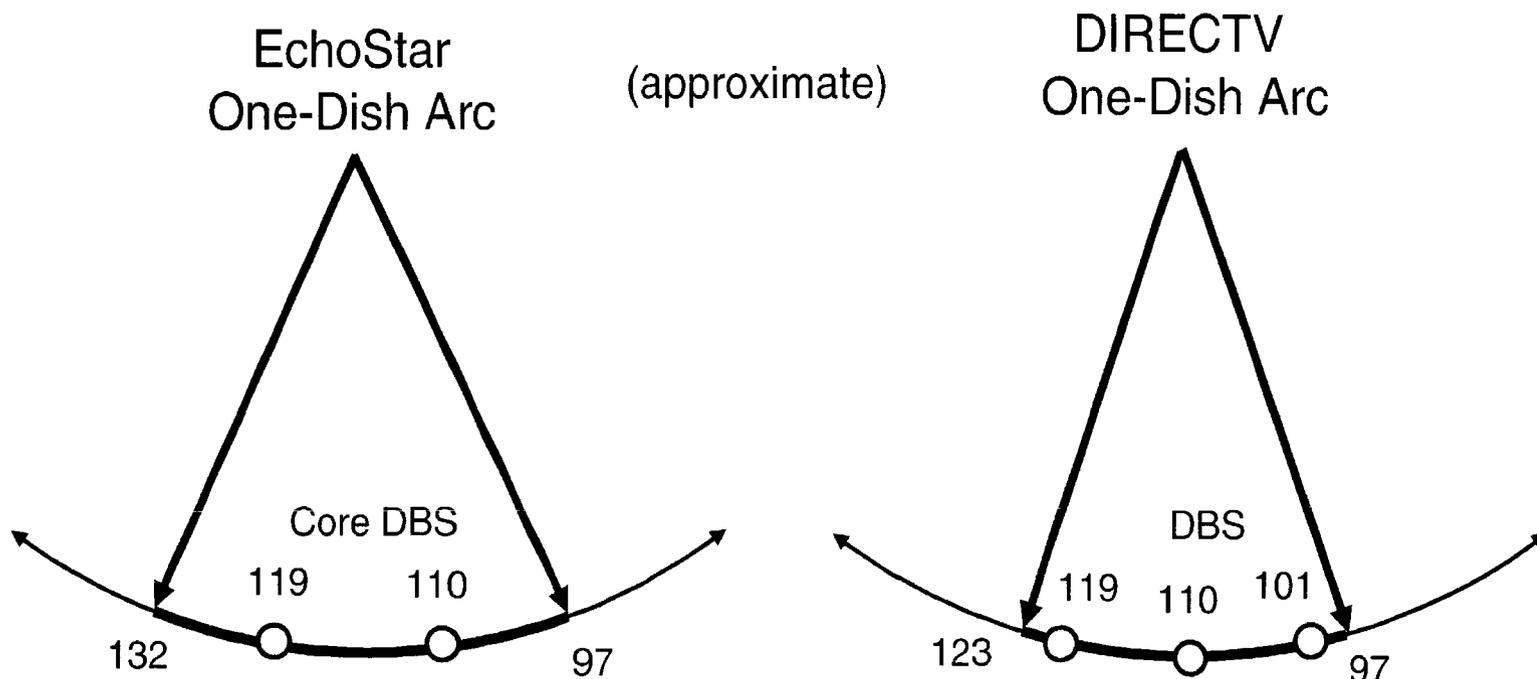
* Requires change in system design



Spectrum Limitations: The One-Dish Arc

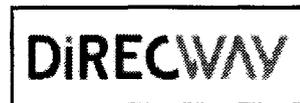


- Only orbital locations within approximately 22 degrees of the core DBS location(s) allow for broadband and DBS service to a single dish.





FCC Ka-Band Authorizations



EchoStar's Potential One-Dish Ka-Band Orbital Authorizations

Orbital Location	Usable Capacity for Broadband
103 (from PanAmSat)*	500 MHz
113 (from VisionStar)**	500 MHz
121 (replaces EchoStar IX)	500 MHz

Total Residential Subscriber Capacity:
3.0 million subscribers

*To be acquired by EchoStar independent of Hughes transaction ** FCC extension requested

Insufficient to Reach Scale



FCC Ka-Band Authorizations

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Hughes's Potential One-Dish Orbital Authorizations

Orbital Location	Useable Capacity for Broadband
99	500 MHz
101	500 MHz

**Total Residential Subscriber Capacity:
2.0 to 2.6 million subscribers**

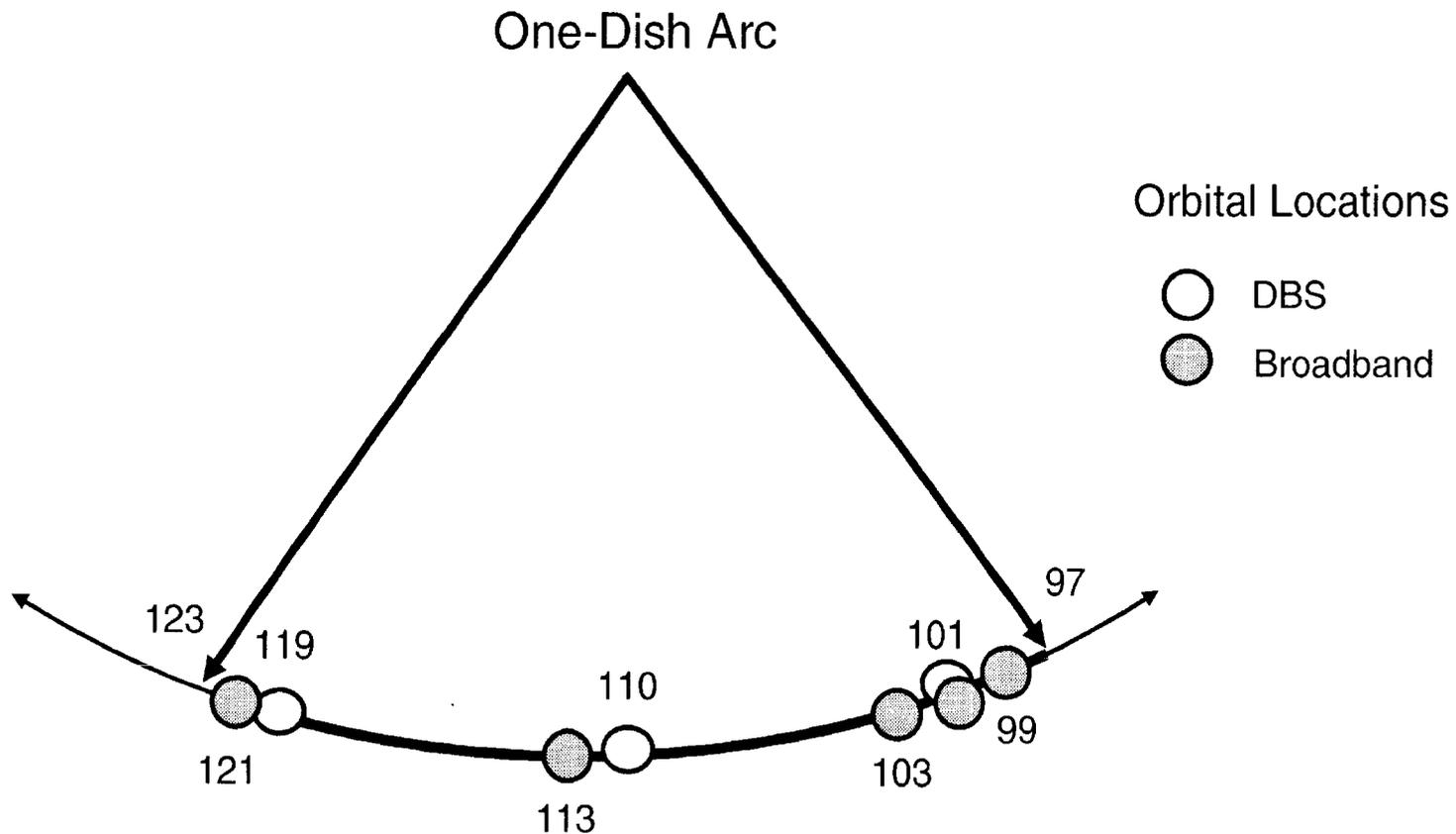
Insufficient to Reach Scale



FCC Ka-Band Authorizations



New EchoStar Would Have Enough One-Dish Orbital Authorizations to Reach Scale





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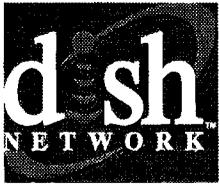
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Competitive Benefits

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- Bridge digital divide
- Lower prices, increased deployment of consumer broadband service
- Encourage innovation in satellite and complementary technologies
- Encourage broadband content development
- Increase broadband competition
- Increase MVPD competition



Digital Divide

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- About 40 million households currently unserved by cable modem or DSL
- Satellite broadband is “especially promising for serving remote areas....[However, the] high fixed start-up cost represents a substantial risk and has been prohibitively expensive for many companies to consider.” -- USDA/Commerce Dep’t
- The merger will lower the price of satellite broadband to where many more consumers will be able to afford it
- Affordable broadband available to homes, schools, and businesses across the country



Increased Broadband Competition

DIRECTWAY

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- Effective, facility-based competition with cable modem and DSL technology
 - Comparable price/performance
 - Available across all of America
 - Competitive constraint on cable and DSL providers' pricing and service



More Broadband Use and Content

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- Allows for rapid deployment of more innovative service integrating video and Internet platforms. Since satellite is a national platform, this will happen more quickly with a viable satellite broadband offering.
- Provides larger audience for new applications and other broadband content
 - Video conferencing
 - Multicasting Internet content
 - Telemedicine and other healthcare applications
 - Distance learning



Increased MVPD Competition

DIRECTV

- If DBS cannot match the cable operators' video/broadband bundle, DBS's growth and competitiveness will suffer, especially with premium customers.
- Satellite broadband allows effective competition with the bundle, and promotes a more competitive MVPD market.



Importance of Meeting Competition from Cable Modem Bundles

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DBS-Broadband Bundle Allows Continued DBS Growth

[redacted]



Conclusion

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- Hughes and EchoStar alone cannot reach the scale necessary to create a robust consumer satellite broadband business
- Only New EchoStar can create an affordable, nationwide consumer satellite broadband platform
- New EchoStar establishes the first broadband provider in underserved America
- New EchoStar establishes and intensifies competition in areas served by cable/DSL