



U.S. Cable: New Strategies for a Competitive World

Strategies for U.S. cable companies to compete against satellite TV services and Telco IPTV as well as venture into mobile services and leverage their network by marketing to small and medium businesses.

The U.S. cable companies are facing increased competition for TV services. The satellite TV companies are continuing to grow and take video market share. The U.S. Telcos have started offering IPTV services that will make the Pay TV market even more competitive. Verizon's fiber based FiOS TV is now well established and has passed 1 million subscribers. AT&T VDSL based U-verse IPTV began to develop traction in late 2007. This report defines strategies that the U.S. cable companies can use to maintain their growth in this increasingly competitive environment.



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I Rationale for New Strategies

1.1 A Bit of History

Multiple Systems Operator or MSO for short is the label for the U.S. cable companies. The name originates from the formation of these companies. The U.S. cable industry started in the early sixties. At that time rural areas were not served by large broadcasters which focused on more densely populated areas. Communities Antenna TeleVision or CATVs were built by small entrepreneurs who installed large antennas to be able to capture signals and distributed those signals over a coax infrastructure. During the seventies and eighties those small companies merged and/or entered into a series of acquisitions to form today's MSOs. U.S. cable companies are operating multiple systems thus the name MSO.

After the 1996 Telecom Act, the MSOs engaged in a major network upgrade. By some accounts, they have spent over \$90B to bring triple services to a large portion of their subscribers. The investment community has punished them for this large CAPEX and their stock has underperformed major indicators.

Equipped with a two way broadband network, one could expect MSOs to have some reprieve from heavy investments and focus on giving Wall Street better overall results. Unfortunately, it might not be the case. A new wave of competition is coming from other facility based operators. First, direct broadcast satellite companies such as Dish Network but more specifically DirecTV have augmented their satellite fleet and are now able to offer many more high definition channels than any MSO can do with the current infrastructure. Next are the MSO's wireline arch nemeses (AT&T and Verizon) upgrading their networks to support TV services. AT&T and Verizon upon completion of their network upgrade will be able to offer true quadruple play services (fixed voice + data + video + wireless). In addition, with the acquisition of MCI by Verizon and AT&T by SBC (now renamed AT&T), AT&T and Verizon have a virtual lock on the enterprise market with their unlimited financial resources and existing sales channels.

The challenges faced by the MSOs are numerous but the cable industry has shown remarkable resiliency, ingenuity and more importantly it is led by great entrepreneurs.

1.2 Competition in Numbers

The U.S. cable companies have experienced significant competitive pressure from the satellite TV companies over the last 10 years. These satellite companies now serve 30 million households in the U.S.

In addition to this, the major Telcos have introduced competitive TV services. Verizon now has more than one million subscribers and AT&T has more than 250 thousand. Both services are at an early stage and are growing rapidly.

In spite of this competition, the cable companies have been relatively flat at around 65 million subscribers from 2001 to 2007. The big change during this period is that the cable digital subscribers have grown from 15 million in 2001 to 35 million in 2007.

The cable companies have established a strong broadband data business and currently serve 55 percent of the U.S. broadband data subscribers. They have also established a strong residential telephony business and had 15 million subscribers at the end of 2007 and are experiencing a high rate of growth.

1.3 *New Marching Orders*

Faced with renewed competition, the cable companies must implement a multiple prongs strategy to sustain their growth and enter previously untouched markets.

- Enhance their video services.
- Expand broadband data and voice services
- Enter the mobile wireless business.
- Leverage their networking infrastructure by marketing to the small and medium business community.

2 Video Strategy

The U.S. cable companies have come under pressure to add more HD programs, add new broadcast channels, to support more video on demand usage, and to support higher speed data services. Each of these requires additional spectrum that is not available in many cable systems today. Thus, the key for the cable companies is to find ways to increase the amount of spectrum available or to more efficiently use the spectrum that they already have.

The U.S. cable companies have a number of options to accomplish this that include:

- ❑ **Node Splitting** involves reducing the number of homes connected by coax to an optical node. Node splitting increases the number of simultaneous video on demand viewings as well as the performance of cable broadband data services.
- ❑ **Increasing Spectrum** adds spectrum to the cable network, while the other alternatives improve the efficiency of how spectrum is used. It is possible to increase the spectrum of a cable plant to 1 GHz. This is a good approach for networks that are still at 500 MHz and is less valuable for networks at 750 MHz. It is probably not a good approach for a network that has been increased to 860 MHz.
- ❑ **Analog Reclamation** takes the channels that are delivered using legacy analog technology and converts them to more efficient digital formats. A single analog channel uses enough capacity to support 10 to 12 equivalent standard definition (SD) digital channels or 3 high definition (HD) digital channels. The satellite TV and Telco TV services provide only digital channels with significantly higher quality than the cable analog channels. Converting cable analog channels to digital puts the cable companies on par with their satellite and Telco competitors.
- ❑ **MPEG-4** provides improved video compression that increases the number of channels or simultaneous video on demand viewings. It is most viable for cable companies that are adding a significant amount of spectrum and have to replace set-top boxes.
- ❑ **Switched Digital Video** provides access to more broadcast channels by transmitting only the channels that are being viewed at any one time. This gives the ability to provide a larger number of niche channels that appeal only to a smaller number of viewers.

Each cable company will set its own priorities. It appears that switched digital will have the broadest appeal with nearly all of the major companies adopting. Some of them are likely to put a higher priority on analog reclamation because it provides the strongest gains. The rest of these alternatives will be adopted as well by many of U.S. cable companies.

3 Data and Voice Strategy

The cable telephony services are quite successful at this point and are still experiencing high rates of growth. The cable companies need continued strong marketing support to maintain this progress.

The cable broadband data services have been quite successful over the last 10 years but are now experiencing increased competition, especially from new Telco fiber based services from AT&T and Verizon.

DOCSIS 3.0 is a new emerging cable technology that will bring significant improvements in performance. DOCSIS 3.0 will be competitive with Verizon's fiber to the home technology and have superior performance to AT&T's fiber to the curb approach. The cable companies should use DOCSIS 3.0 to establish technical parity if not superiority.

4 Wireless Strategy

The Telcos will make increasing use of their wireless services to create service combinations that will be difficult for the cable companies to compete with. The cable companies need to establish their own mobile service in order to be able to compete with these new Telco service strategies. There are three strategies that the cable companies can adopt:

- ❑ **MVNO** strategies that apply the cable company brand to a wireless service provided by one of the existing mobile operators. This is the lowest cost approach but gives the cable companies minimal control over the service.
- ❑ **Acquisition** strategy where one or more cable companies would acquire a wireless operator. This approach is expensive but immediately puts the cable company into a strong position in the wireless industry.
- ❑ **Network build** where one or more cable companies build a new network from scratch. This is an expensive option and will take a significant amount of time to execute.

While it is clear that the cable companies should enter the wireless business, this will be a difficult and expensive process. They appear to have recognized this need and are moving in this direction now.

5 Enterprise Market Strategy

Business services is another Telco dominated market that the cable companies can easily enter and use to develop an additional revenue stream. The small business market is the ripest target for the cable companies. These small businesses are largely located where the cable companies provide service. There are also opportunities for the cable companies for regional enterprises whose communication requirements can be serviced by the cable network.

6 Conclusion

In spite of increased competition, the U.S. cable companies have a large number of options to respond. It is important that they do respond but that they carefully think through their options.

The path for the cable companies is one of networking because they have become communications companies. They should leverage existing assets and reach out to untapped markets. The risk to become a “dumb pipe” is real. By being the best broadband video provider the cable companies can attract more content to their network and for subscribers. This content should be on demand, in HD with interactive features and with intelligent opt-in targeted advertisement. By having a wireless network, MSOs can also entice content owners to prefer them over the competition because the enjoyment of content would be ubiquitous and adapted to the user location, device and mobility. Finally, the move to serve SMB is fundamentally about leveraging a network to be used 24/7 instead of being mostly used between 6pm and 11pm during week days.

Appendix A: Operators Overview¹

Name	Type	Subscribers (M)	Employees (K)	Revenue	Strengths	Weaknesses
Comcast	MSO	21.9	90	30B	Size and good data/VoIP combination	Poor subscriber perception and lack wireless offering
TWC	MSO	13.5	43	16B	Size and good data/VoIP combination	Lack wireless offering
Cox	MSO	5.6	NA ²	NA ³	Privately held and low churn rate	Lack wireless offering
Charter	MSO	5.5	15.5	5.6B	Operates in rural areas with little wireline competition	Lack wireless offering and huge debt
Cablevision	MSO	3.3	14	6.4B	Advanced HFC architecture	Competes in NY area against FiOS
Bright House	MSO	2.4	NA ⁴	NA ⁵	Strong presence in the South East	Lack wireless offering
DirecTV	Satellite TV	16.6 ⁶ (U.S. only)	10	16.6B	Best HD offering	Video only play
Dish Network	Satellite TV	14	21	10.8B	Value player and low churn rate	Video only play
Verizon	Telco/MN O	42.4 (AL) ⁷ 63.7 (WL) ⁸	234	94B	Wireline and wireless combination (quadruple play opportunity)	High CAPEX FiOS and loss of primary line
AT&T	Telco/MN O	61.7 (AL) 70 (WL)	309	120B	Wireline and wireless combination (quadruple play opportunity)	Unclear video strategy and loss of primary line
Qwest	Telco	11.5 (AL)	37	13.8B	Presence in high growth states	Lack wireless infrastructure and financially weak
Sprint	MNO	52 (WL)	64.6	40.8B	Great spectrum position	Lack wireline infrastructure and weak execution team
T-Mobile USA	MNO	28.7 (WL)	36	17.2B	Best growth execution	Lack wireline infrastructure

¹ Best approximations as of Dec 31, 2007; Sources: Company websites, SEC filings and TelecomView Analysis, 2008.

² As a private company COX doesn't release this information

³ As a private company COX doesn't release this information

⁴ Subsidiary of Advance/Newhouse – no breakdown of employee provided

⁵ Subsidiary of Advance/Newhouse – no revenue breakdown provided

⁶ U.S. only, about 4.6M subscriber in Latin America

⁷ AL stands for access line

⁸ WL stands for wireless

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Appendix C: Glossary

The following terms and organizations have been referred to in the text.

Acronym	Definition
3GPP	3rd Generation Partnership Project
ADSL	Asymmetric Digital Subscriber Line
ARPU	Average Revenue per User (Usually monthly)
AWS	Advanced Wireless Services
BER	Bit Error Rate
Billion	1,000,000,000 (1,000 Million)
BSS	Business Support System
BTS	Base Transceiver Station
CAPEX	Capital Expenditure
CATV	Community Antenna TeleVision
CDMA	Code Division Multiple Access
CM	Cable Modem
CMTS	Cable Modem Termination System
CNO	Cable Network Operator (See also MSO)
CPE	Customer Premise Equipment
CPGA	Cost per gross add
CRM	Customer Relationship Management
DAS	Distributed Antenna System
DBS	Direct Broadcast Satellite
DOCSIS	Data-Over-Cable Service Interface Specification
DS3	NA transmission standard for wideband communications
DSL	Digital Subscriber Line
eMTA	embedded Multimedia Terminal Adapter
EPG	Electronic Program Guide
EV-DO	Evolution Data Only
FCC	Federal Communications Commission
FNO	Fixed Network Operator
GHz	Giga Hertz
GSM	Global System for Mobile (Communications)
HBO	Home Box Office
HD	High Definition
HFC	Hybrid Fiber Coax
HLR	Home Location Register
HW	Hardware

Acronym	Definition
Hz	Hertz
INO	Integrated Network Operator
IP	Internet Protocol
IPv6	IP version 6
IP/MPLS	IP/ Multi Protocol Label Switching
IPTV	Internet Protocol TeleVision
ISP	Internet Service Provider
ITU	International Telecommunications Union
kbps	Kilo bits per second
KDDI	Japanese Mobile Operator
kHz	Kilo Hertz
km	Kilometer
kW	Kilowatt
LLU	Local Loop Unbundling
LTE	Long Term Evolution
MAC	Media Access Control
Mbps	Mega bits per second
M-CMTS	Modular CMTS
MHz	Mega Hertz
Million	1,000,000
MNO	Mobile Network Operator
MPEG	Motion Picture Experts Group
MPLS	Multi Protocol Label Switching
MSO	Multiple Systems Operator
MTA	Major Trading Area
eMTA	Embedded Multimedia Terminal Adapter
MVNO	Mobile Virtual Network Operator
NGN	Next Generation Networks
NMS	Network Management System
NPV	Net Present Value
NPVR	Network Personal Video Recorder
NTSC	National Television System Company
NTT	Nippon Telegraph and Telephone Corporation
OFDM	Orthogonal Frequency Division Multiplexing
OPEX	Operational Expenditure
OSS/BSS	Operational Support System/Billing Support System
PBX	Private Branch Exchange
PCCW	Pacific Century CyberWorks Limited
PCS	Personal Communication Services
PSTN	Public Switched Telephone Network



Acronym	Definition
PVR	Personal Video Recorder
QAM	Quadrature Amplitude Modulation
QoE	Quality of Experience
QoS	Quality of Service
QPSK	Quadrature Phase-Shift Keying
RAN	Radio Access Network
RF	Radio Frequency
ROI	Return On Investment
SD	Standard Definition
SLA	Service Level Agreement
SMS	Short Messaging System
SOC	System On a Chip
STB	Set Top Box
TV	Television
UHF	Ultra High Frequency
U.S.	United States
VDSL	Very High Digital Subscriber Line
VoD	Video on Demand
VoIP	Voice over Internet Protocol
VPN	Virtual Private Network
Wi-Fi	Wireless Fidelity
WiMAX	Worldwide Interoperability for Microwave Access