HDTV Status

Grand Alliance 10^{th} Reunion

Glenn Reitmeier

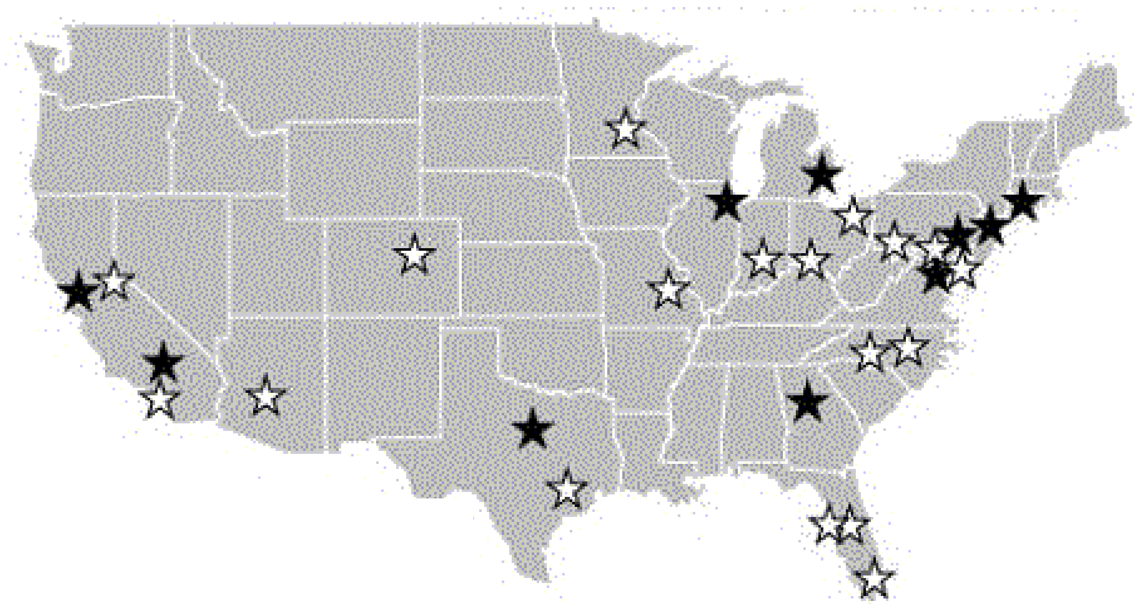
May 24, 2003

Content

DTV Market Progress

Price

1997 - FCC Required DTV Introduction



Top 10 Markets

New York
Los Angeles
Chicago
Philadelphia
San Francisco
Boston
Washington
Dallas/Ft Worth
Detroit
Atlanta

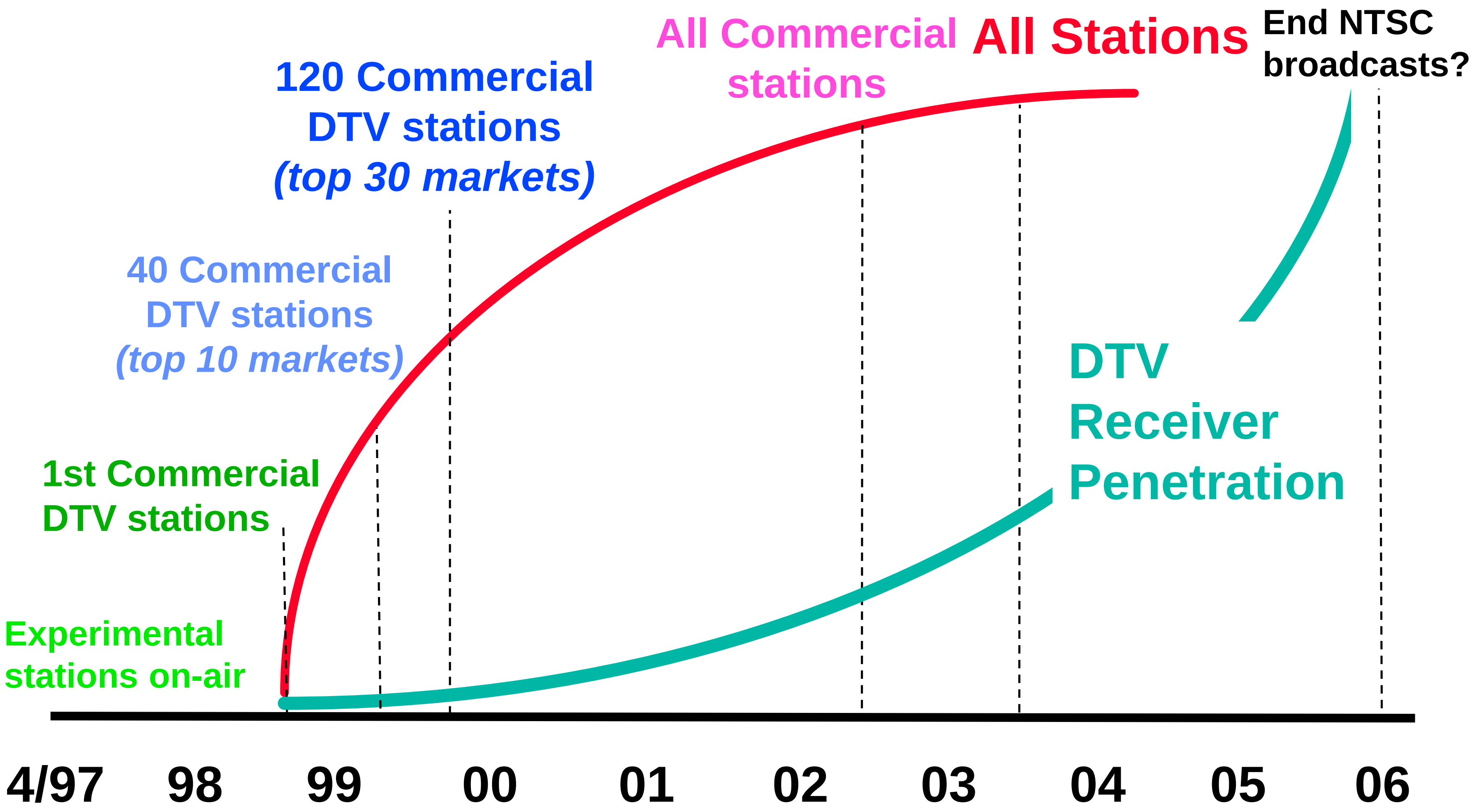
30% US Households

Additional Top 30 Markets

Houston
Seattle/Tacoma
Cleveland
Minneapolis/St. Paul
Miami/Ft Lauderdale
Phoenix
Tampa/St Petersburg
Denver
Pittsburg
St. Louis
San Diego
Raleigh/Durham
Hartford/New Haven
Orlando/Daytona
Charlotte
Baltimore
Portland
Cincinatti
Indianapolis
Sacramento/Stockton

FCC - DTV Broadcast Milestones

...availability of content drives receiver penetration...



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Broadcaster Progress

- Top 10 Markets, 4 Major Network Affiliates
  – 38 out of 40 on air (-NY)
- Markets 11-30, 4 Major Network Affiliates
  – 75 out of 79 on-air
- 1586 commercial stations (94%) have been grated a DTV construction permit
  – 843 requested first extension
    - 772 granted, 71 admonished
  – 602 requested second extension
    - 527 granted, 68 dismissed
  – 58 requested third extension

FCC Scorecard

April 16, 2003

CATAGORY	# DTV STATIONS ON AIR	# DTV CHANNELS	% ON THE AIR	WITH LICENSED FACILITY OR PROGRAM TESTS	WITH STAs
TOP 30 MARKET NET AFFIL.	113	119	95.0%	107	6
OTHER COMMER.*	717	1196	59.9 %	229	488
NC EDU.**	120	373	32.2%	72	48
TOTAL	950	1688	56.3%	408	542

* May 1, 2002 Build Out Deadline
** May 1, 2003 Build Out Deadline

FCC - DTV Broadcast Milestones

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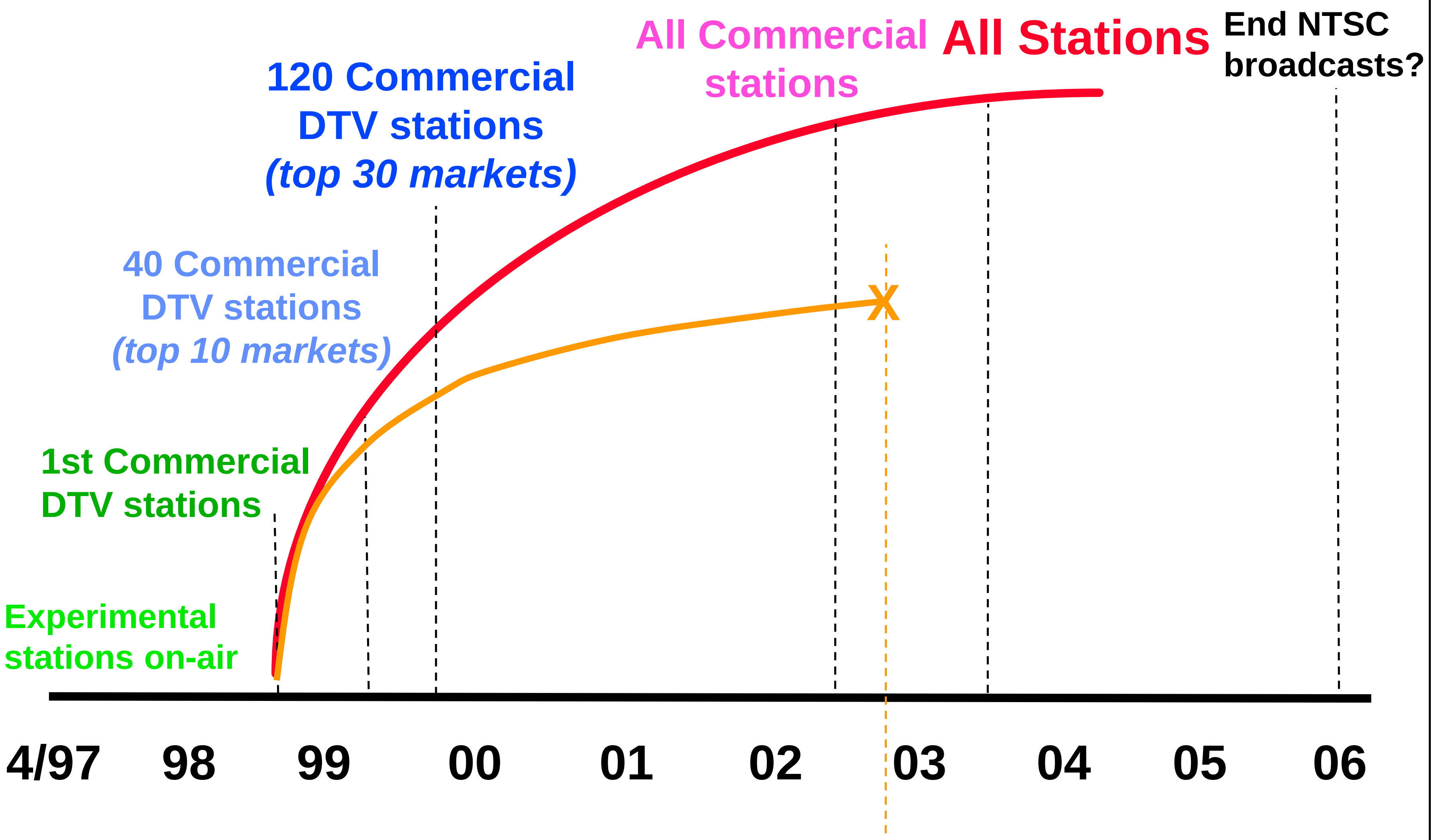

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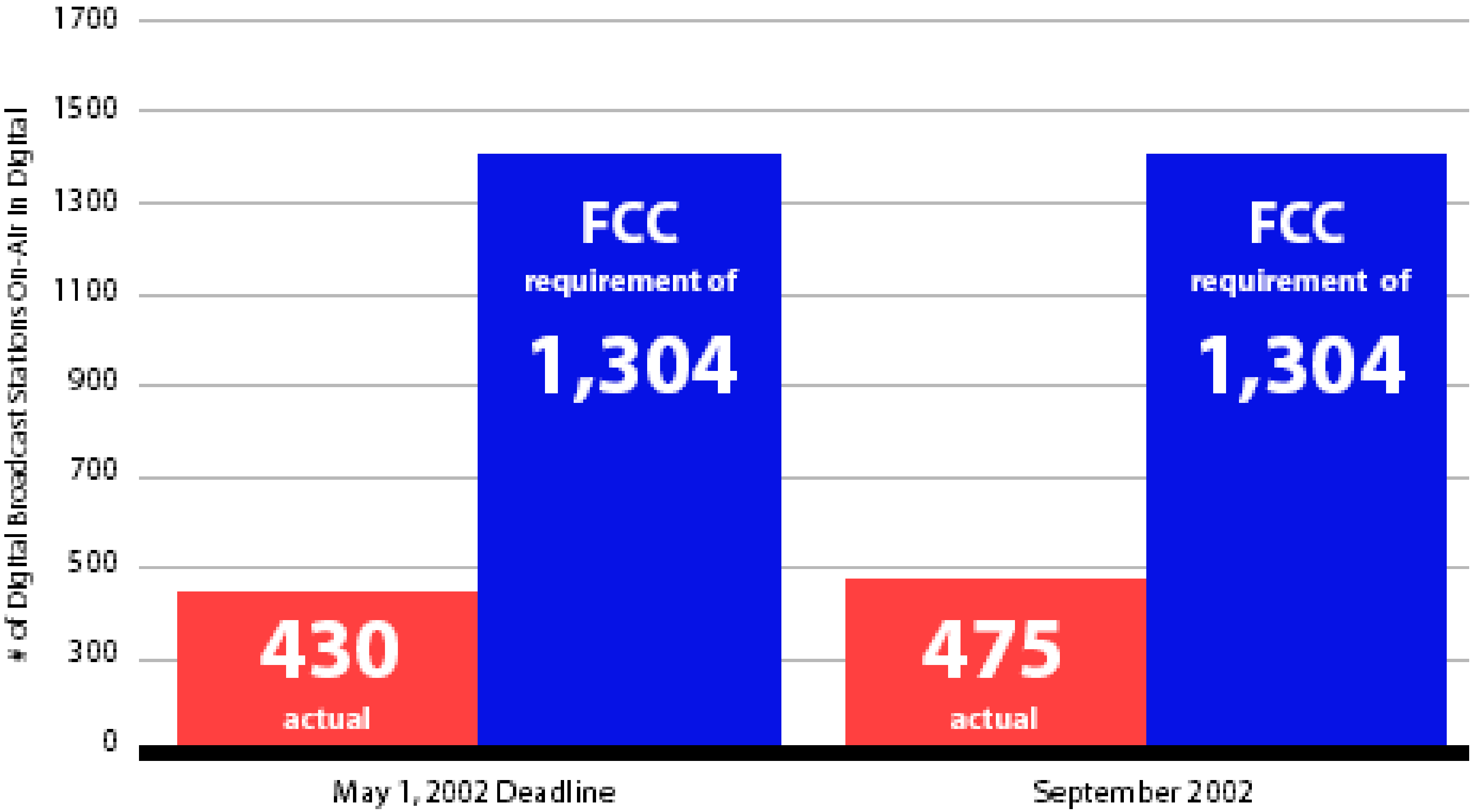
Broadcasters Miss the Mark

Actual DTV Stations vs. FCC Requirement



Source: CEA Market Research

www.CE.org/DTV

Turn It On

Content Distribution

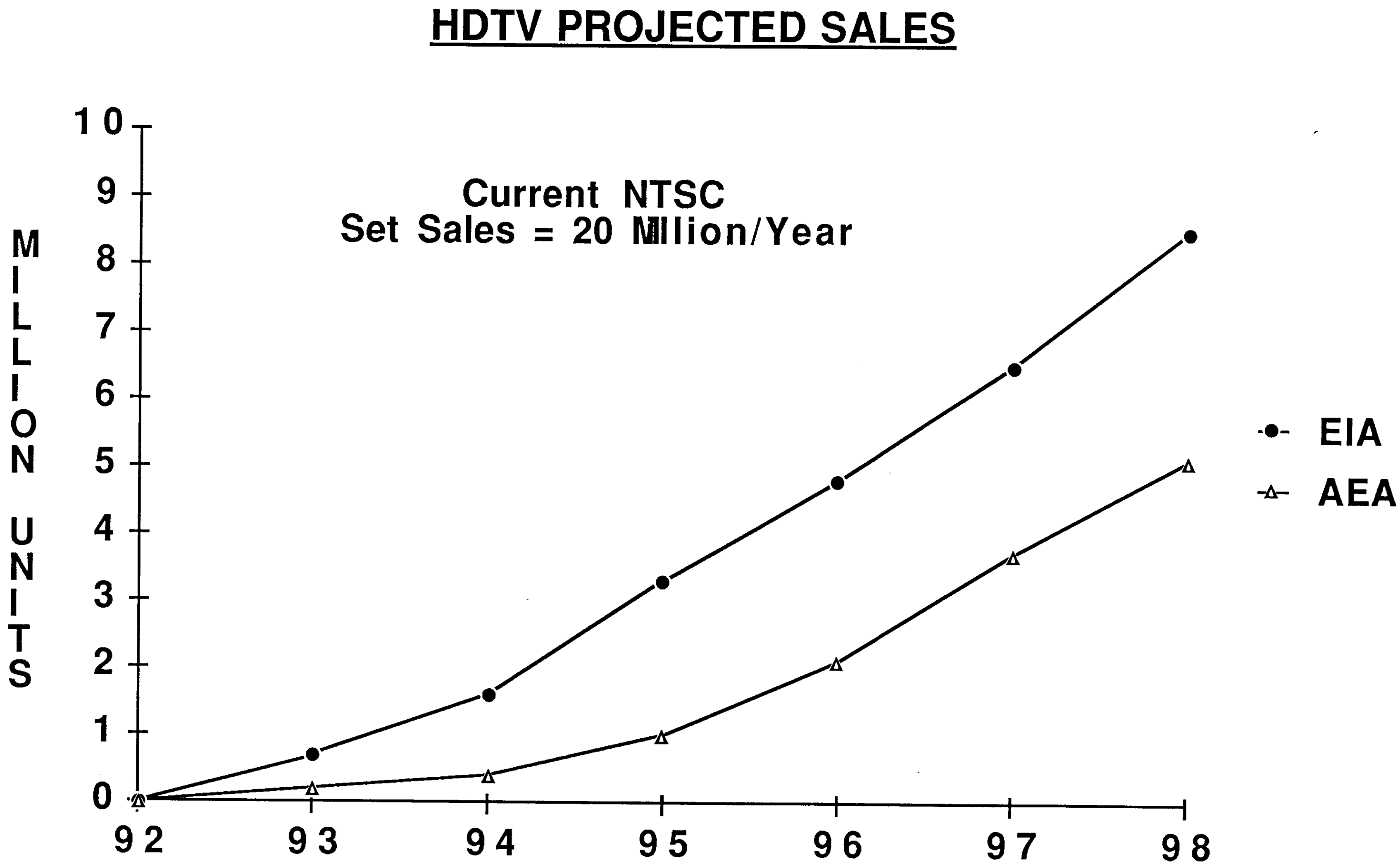
- **DBS – early lead in HDTV distribution**
- **Cable – coming on strong**
  - **Recent MSO – CEA agreement on Cable-Ready HDTV sets**
  - **Cable industry ramping up to more aggressive marketing**
    - Cable-ready sets deemed crucial to consumer adoption (significant impact of Plug and Play Agreement)
    - HDTV service is available in at least 1 cable system in 73 of the top 100 DMAs
    - Comcast target is to have 50% of their homes passed by HD by the end of the year
    - Co-marketing with retailers touted as highly successful (e.g., Comcast/BestBuy in Philadelphia)
    - HDTV will be a focal point of 2003 NCTA convention

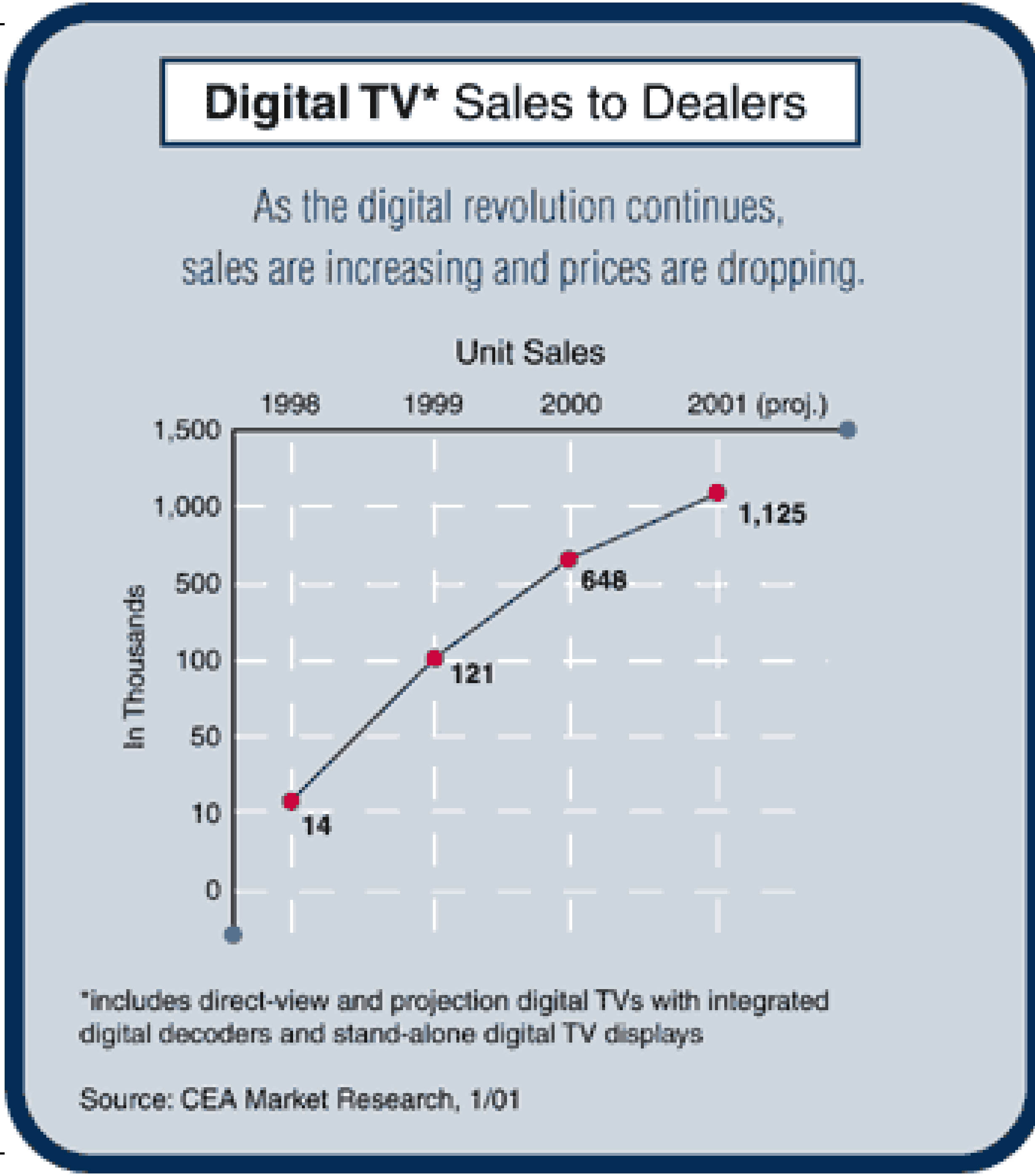
Content

DTV Market Progress

Price

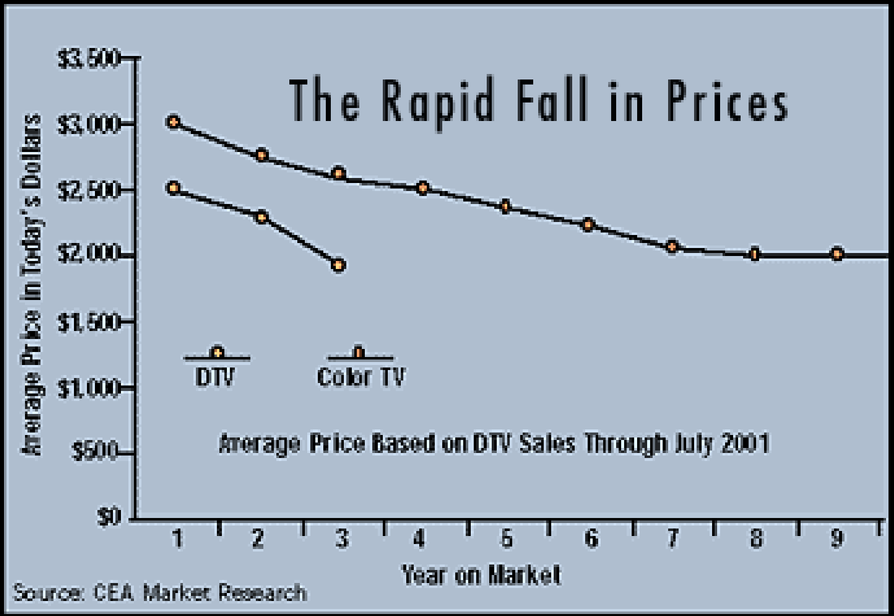
HDTV Sales Projections - 1989

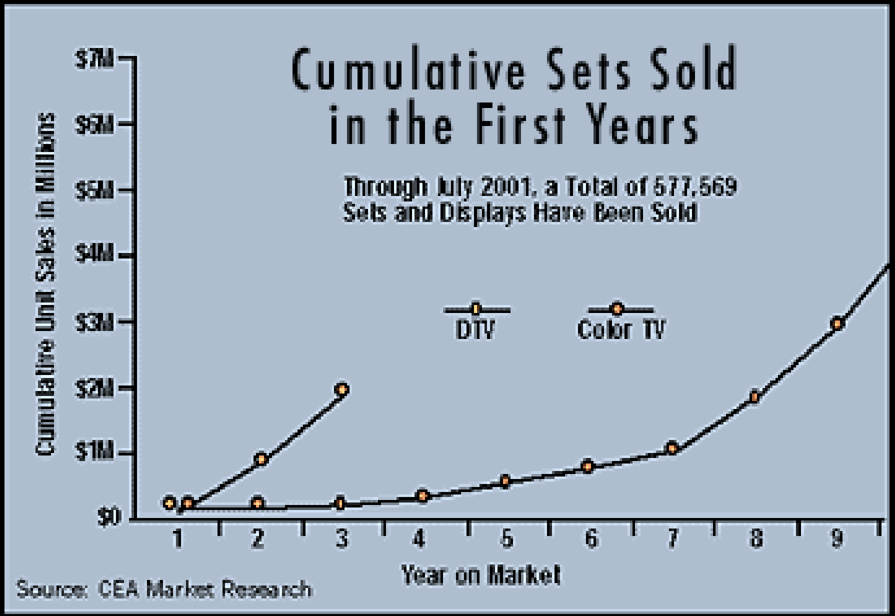



Digital TV* Sales to Dealers
As the digital revolution continues,
sales are increasing and prices are dropping.
Unit Sales
1998
1999
2000
2001 (proj.)
In Thousands
1,500
1,000
500
100
50
10
0
14
121
648
1,125
*includes direct-view and projection digital TVs with integrated digital decoders and stand-alone digital TV displays
Source: CEA Market Research, 1/01

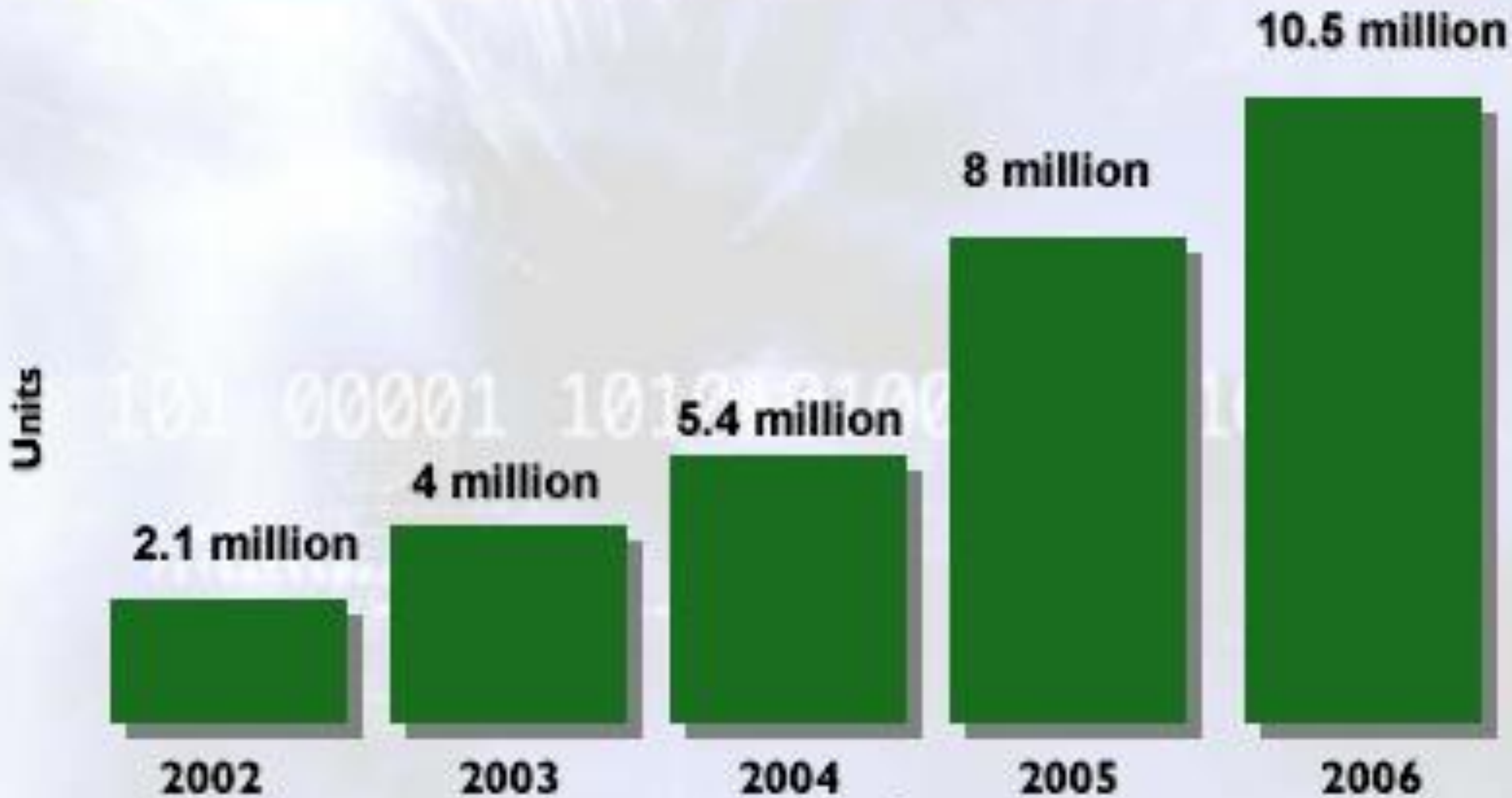
CEA – DTV Prices & Sales

through July 2001

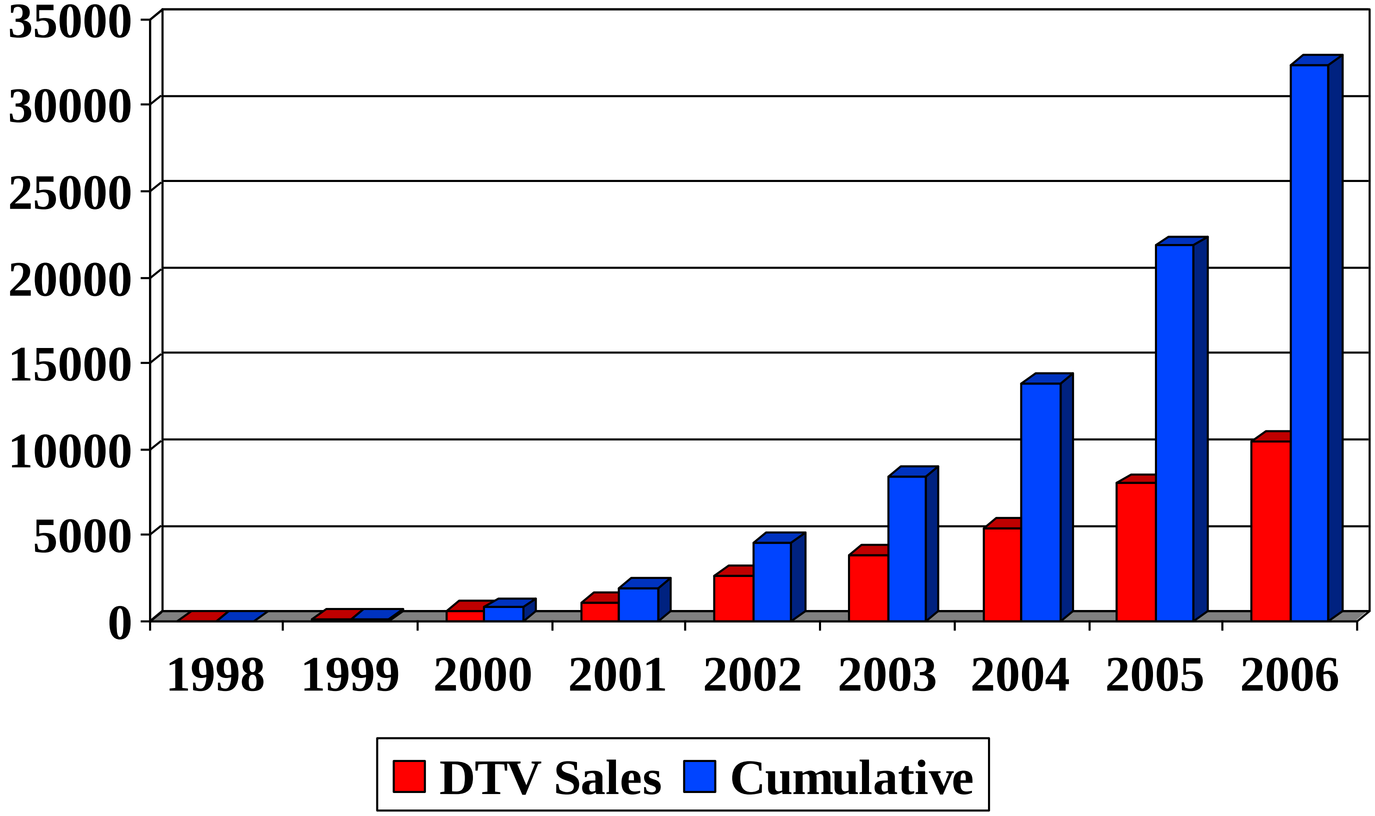




Projected Sales 2002-2006

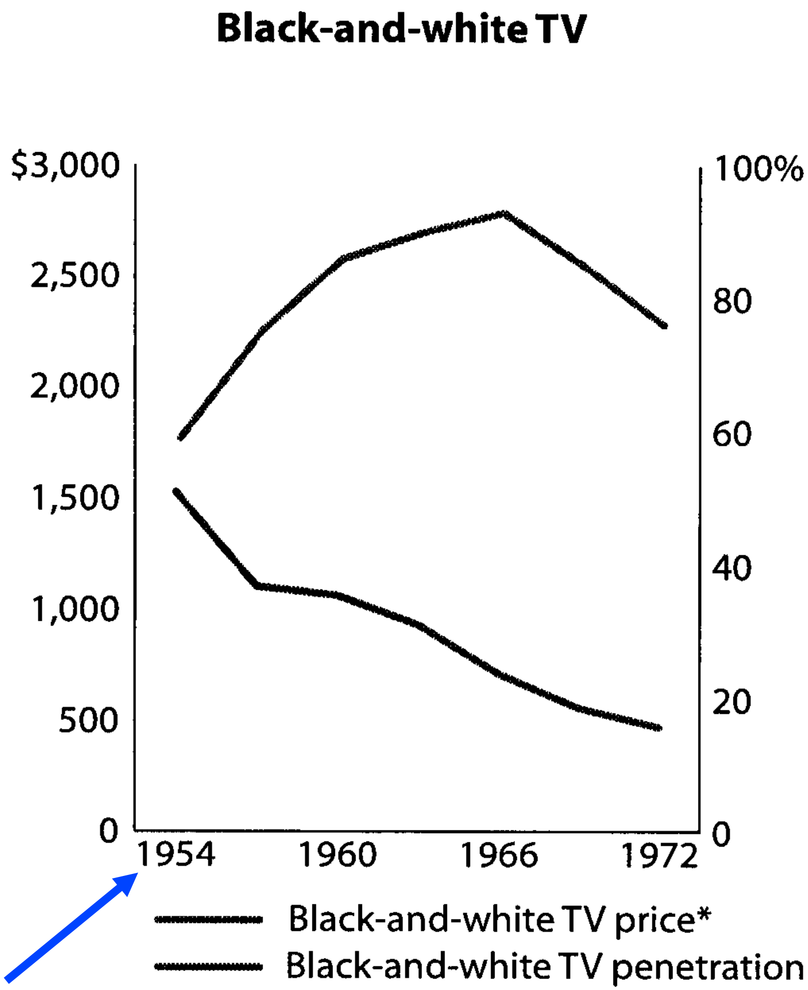


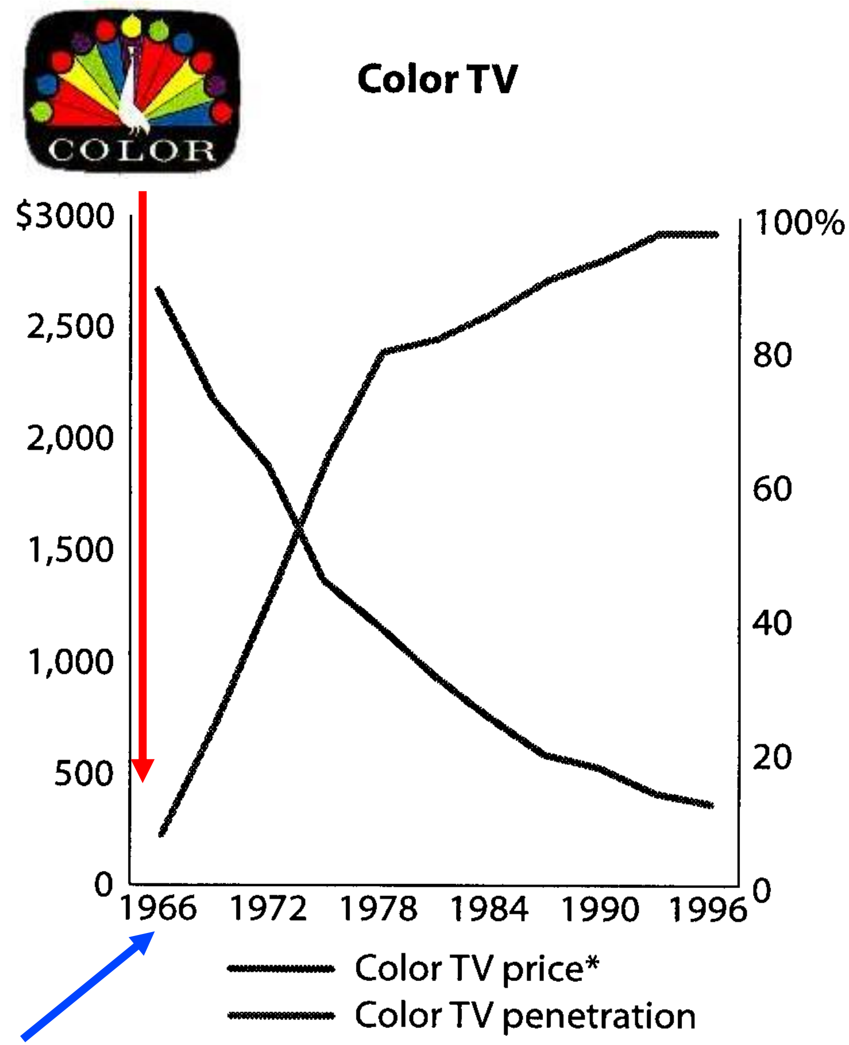
HDTV Adoption



- 1998 - First receivers introduced
- 2002 - $ volume of DTV > NTSC; 4M HD screens

Consumer Adoption





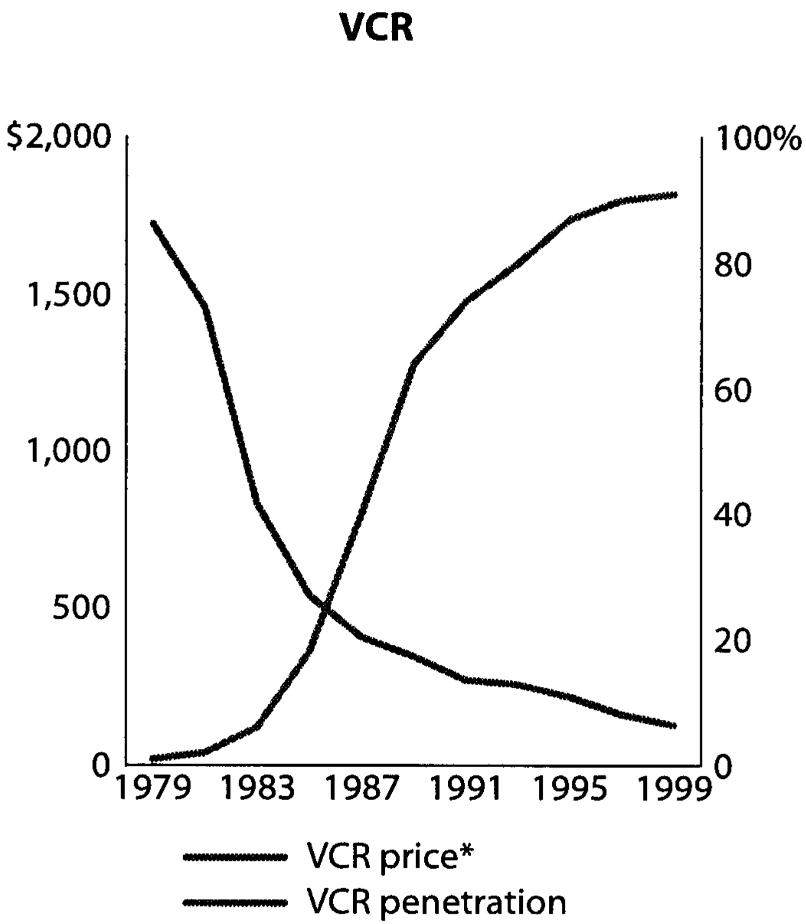
13 years after the NTSC standard

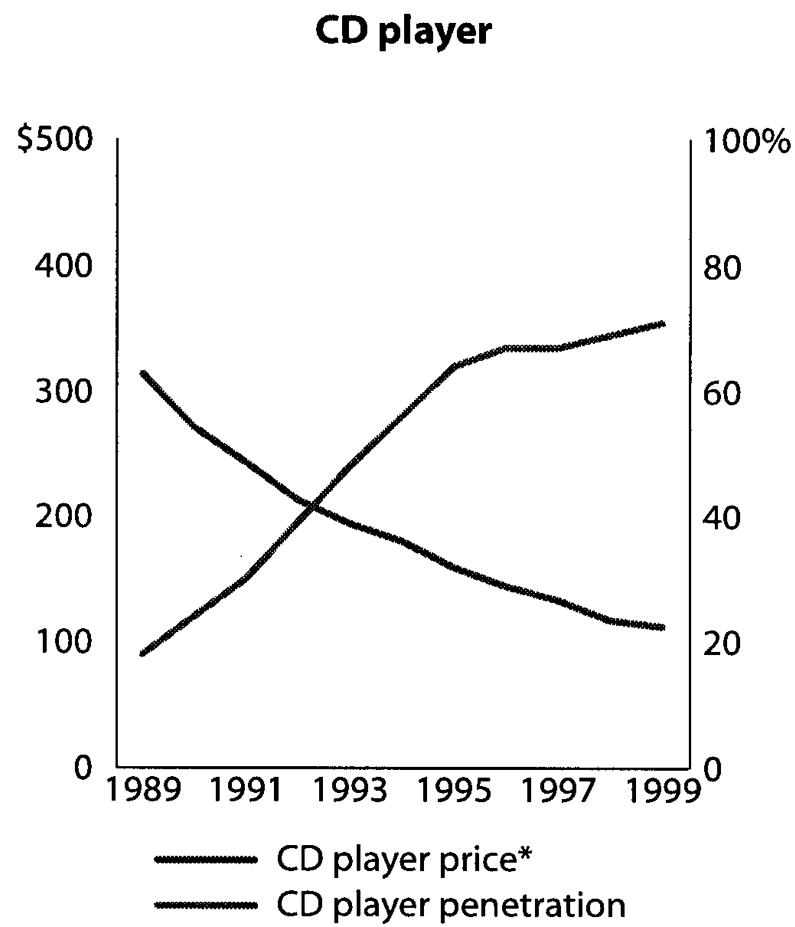
13 years after the NTSC standard

sing the GDP Deflator Index
›enetration are not available after 1972

Source: Forrester Research, Inc. with historical data from Statistical Abstracts of the United States and the

More Consumer Adoption





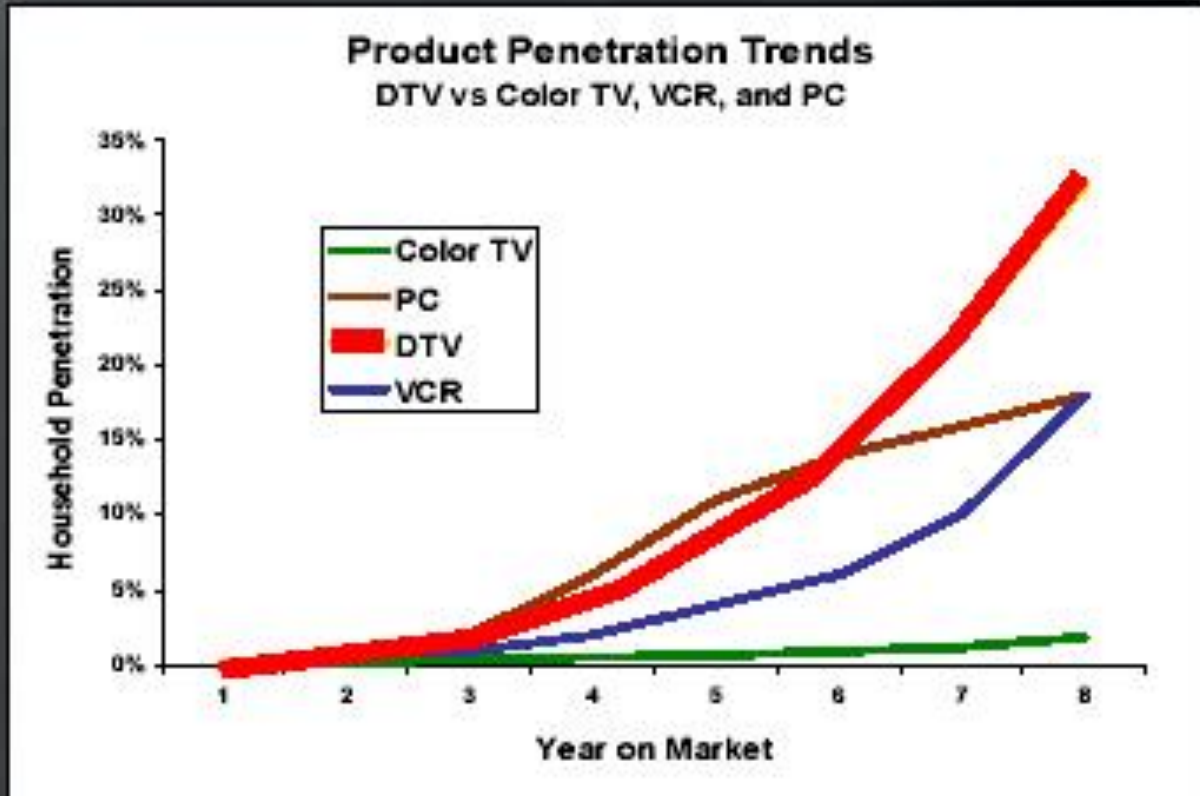
*All prices are in constant 1999 dollars using the GDP Deflator Index

Note: Numbers for black-and-white TV prices and penetration are not available after 1972

Source: Forrester Research, Inc. with historical data
from Statistical Abstracts of the United States and the

DTV In Perspective

The DTV adoption rate surpasses that of the PC, the VCR and the Color TV.



Growing Consumer Awareness

- 71% familiar with HDTV terminology (up from 62% in 2001)
- Video-on-Demand (44%) and HDTV (40%) top the list of TV technologies that interest consumers
- HDTV appeared on the 2002 CEA holiday wish list for the first time (6th place)
- 31% expect to purchase a new TV within 18 months; of those, 47% expect to buy an HDTV (up from 29% in 2001)
- Movies top the list of HD content that consumers say they are willing to pay for (41%)

Predictions

Predictions of the Future

- National Information Infrastructure
- Interlace causes AIDS epidemic
- Chips
- HD VCRs

Digital Developments

- DVD
- Digital Cameras > HDTV resolution
- Cable Modem
- Displays
  - Plasma
  - DLP
- PVRs
- Memory sticks
- Compression advances

Controversy – Then

- 1993 - MPEG-2 compatibility
- 1993 - Interlace vs. Progressive
- 1994 - B Frames
- 1994 - Interlace vs. Progressive
- 1995 - Practicality of multiple formats
- 1996 - Interlace vs. Progressive
- 1996 - HDTV vs. Multicast SD

Controversy – Recent

- **1997 - HDTV vs. Multicast SD**
- **1998 - Integrated sets vs. set-top boxes**
- **1999 - VSB vs. COFDM**
- **2002 - DTV tuner mandate**
- **2003 - Cable carriage & interoperability**
- **2003 - HDTV vs. Multicast SD**
- **2003 - Interlace vs. Progressive**

BACKUP

1954

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Year after year...
MORE PEOPLE BUY CHEVROLETS
than any other car!
Power Glide
1954

1966

<

over $2600
in 1999 dollars

1998

under $9,000

<<

HIGH DEFINITION TELEVISION
HDTV
MONITOR

An Interactive Future

…interactivity and deeper content...