



# IPTV, Business Models, Success Factors and Cisco End-to- end Architectures



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# Table of content

1. Introduction
2. Business Models
3. Turning IPTV into a Success Story
4. Why Cisco could be Your Obvious Choice

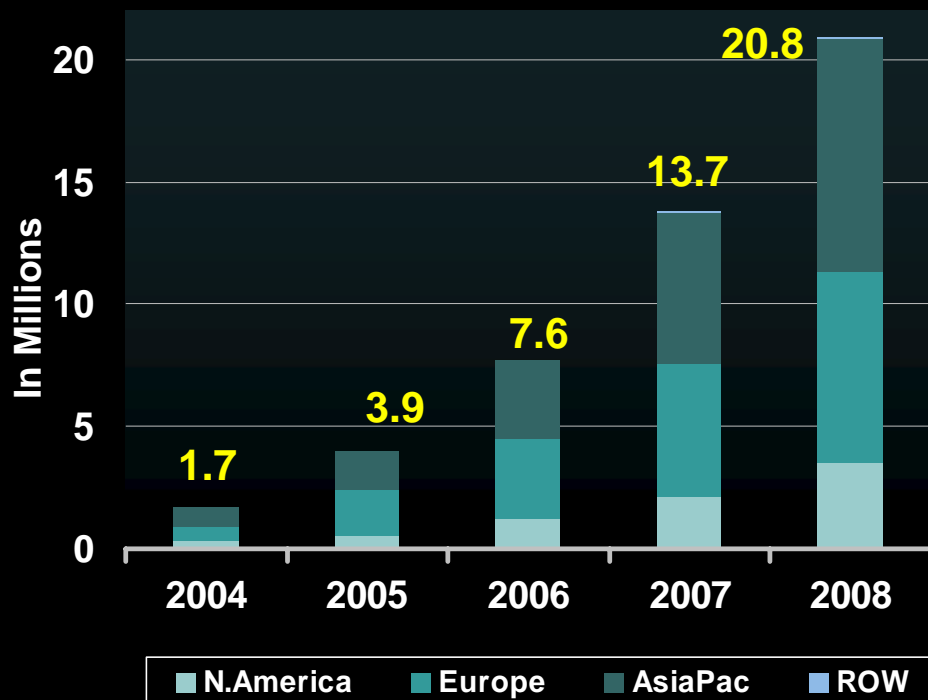
# Introduction



# Introduction

A market reality

## Expected Subscribers Growth



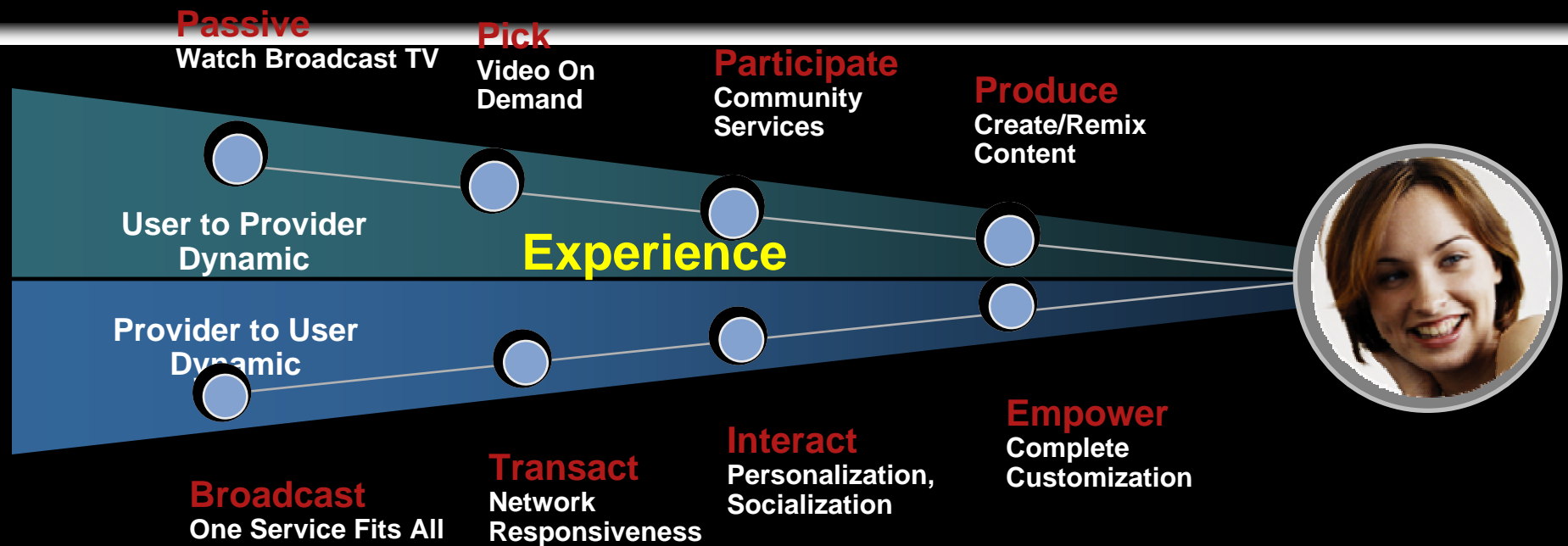
- Catalyst for Entertainment & Communications Industry transformation
- A \$2.5/3 B market by 2009
- 6 to 10 % Western Europe household penetration by 2009
- IPTV ARPU <20 \$ a month a user

- 21 Million Subscribers Expected by 2008, 17 Million in W. Europe by 2010
- Eastern Europe to represent 20-30% of Total Europe IPTV Subscribers

Source: Instat, 02/05, IDC, 09/05, Gartner 01/06

# Introduction

Shaping an experience that is consumer defined & driven



**What**  
They Want

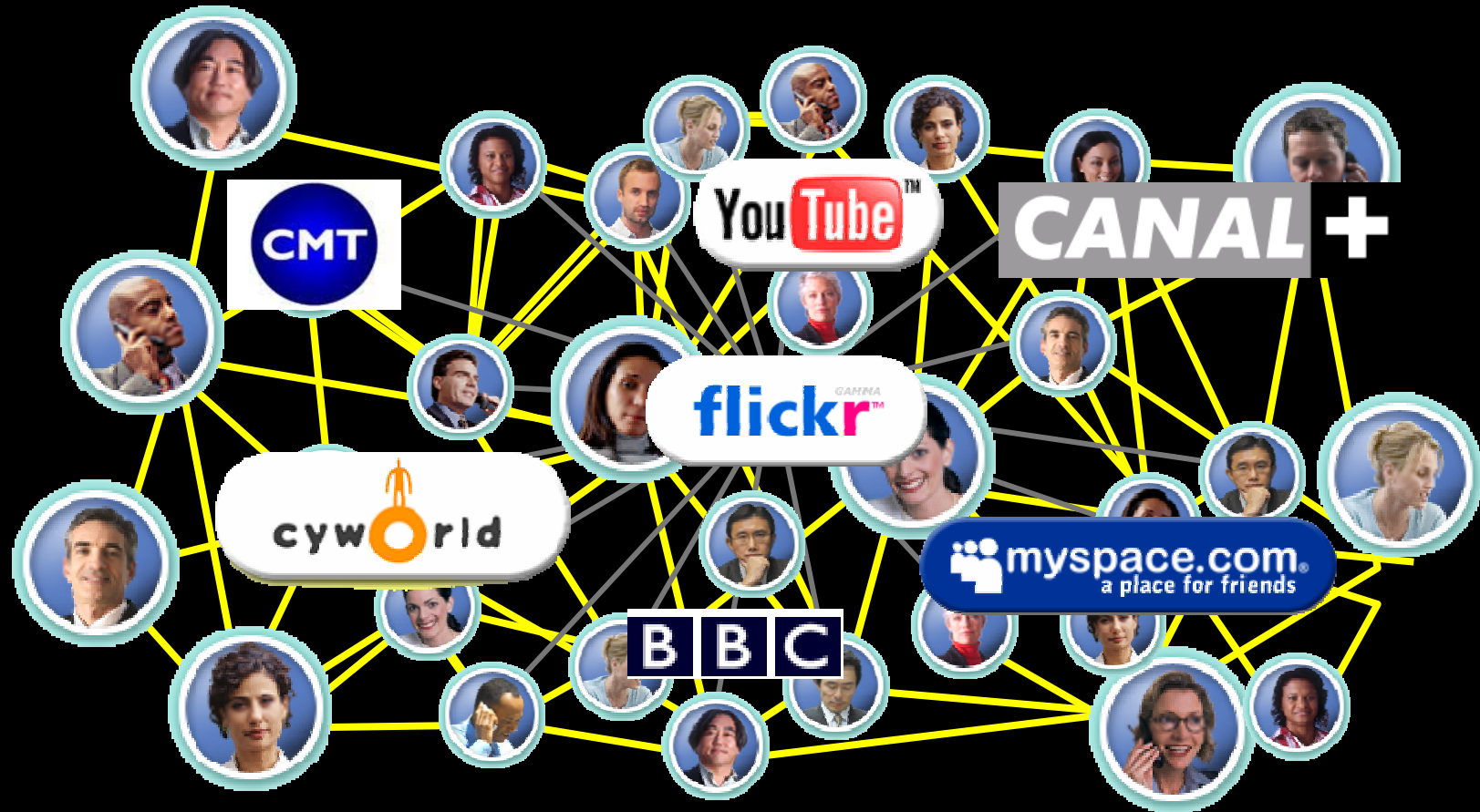
**When**  
They Want It

**Where**  
They Want It

**How**  
They Want It

# Introduction

Where End-Users step in to create The Human Network



Connecting People to People.

Best-in-class Network + Web 2.0 Interactivity = New Experiences

# Introduction

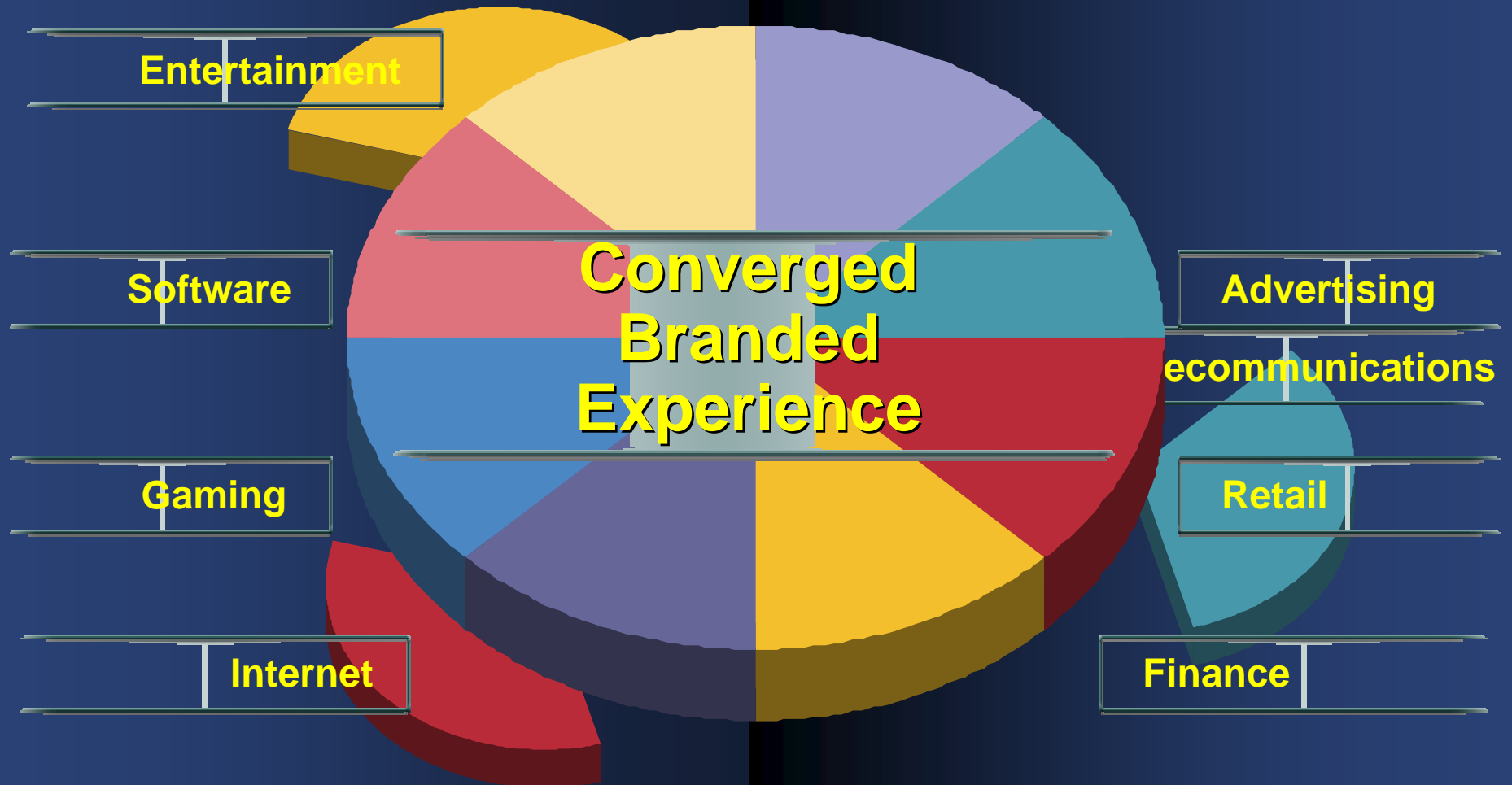
Where providers are no longer defined by their access techn.



Creating "The Connected Life"

# Introduction

And integration is expanding the SP's business scope

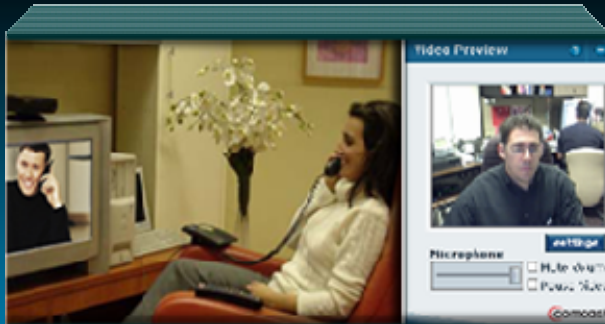


# Introduction

Including video as a key component



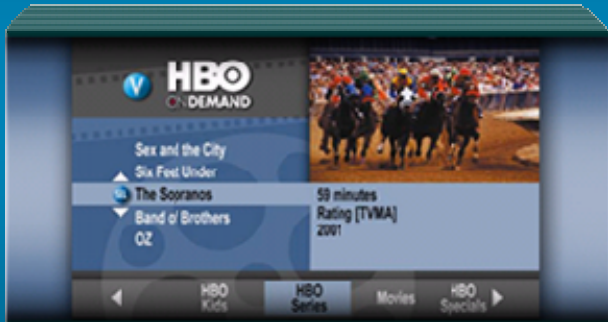
High Definition



Video Phone /  
Video Conferencing



Video Streaming



Video-TV On Demand /  
nDVR/ Mobile TV



Gaming / Interactive TV



Video to Other Devices

**Managed  
Video  
Applications**

**Video  
Communications  
Services**

**“Over the Top”  
Video**

# Introduction

..but not easy to deliver

## Business Challenges “Content Scope & Control”

- Differentiation/New Business Models
- Content Explosion
- Growth of “on-demand” TV
- Increasing relevance of long tail (niche) content to consumers
- Impact of “over the top” video

## Technical Challenges “Open, Balanced System”

- Achieving scale at a lower TCO
- Managing video in scope of larger Triple Play on the Move convergence
- Linking key architectural elements to deliver a better user experience
- Capitalizing on 3<sup>rd</sup> party innovation



Traditional  
Web-Based Services



VoIP Services



Video-Based Services

**Easiest**

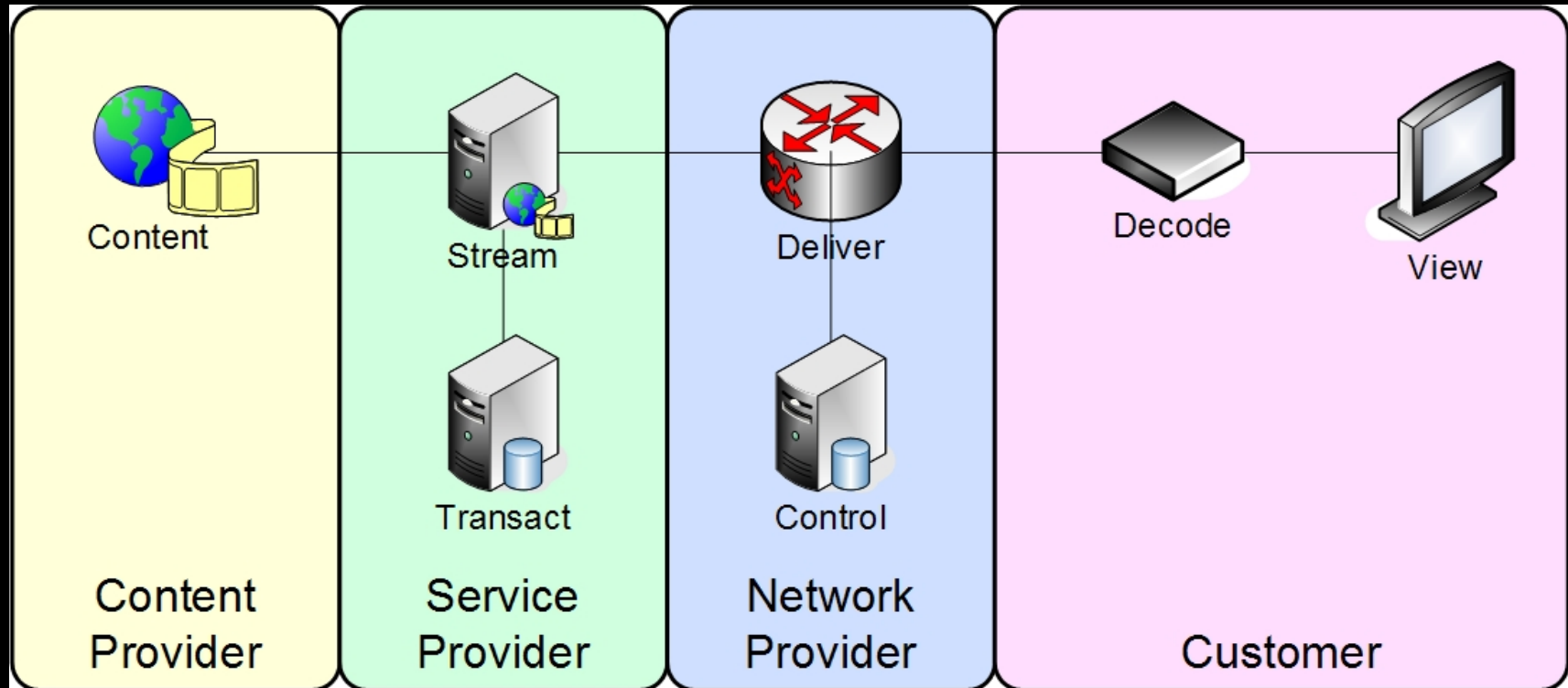
**Most  
Difficult**

# IPTV Business Models



# IPTV Business Models

## Value Chain



Owner of the content

Delivered as streams, files, tape, or discs

Provides the IPTV service

Ingests and protects content

Delivers IPTV streams

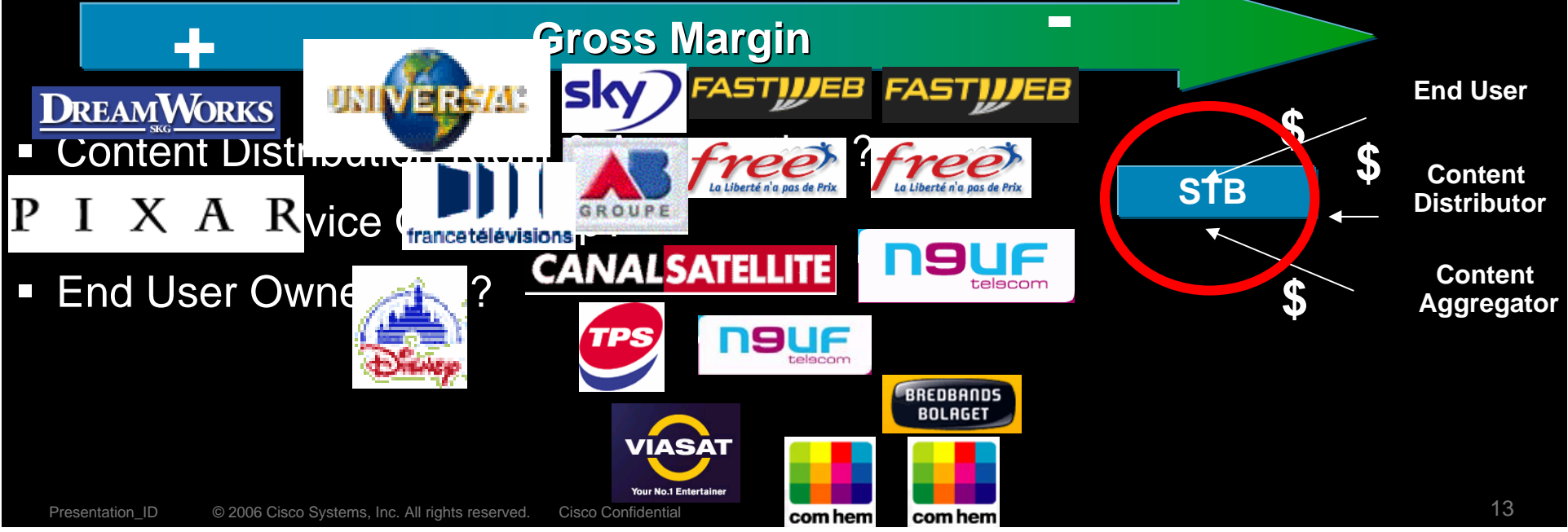
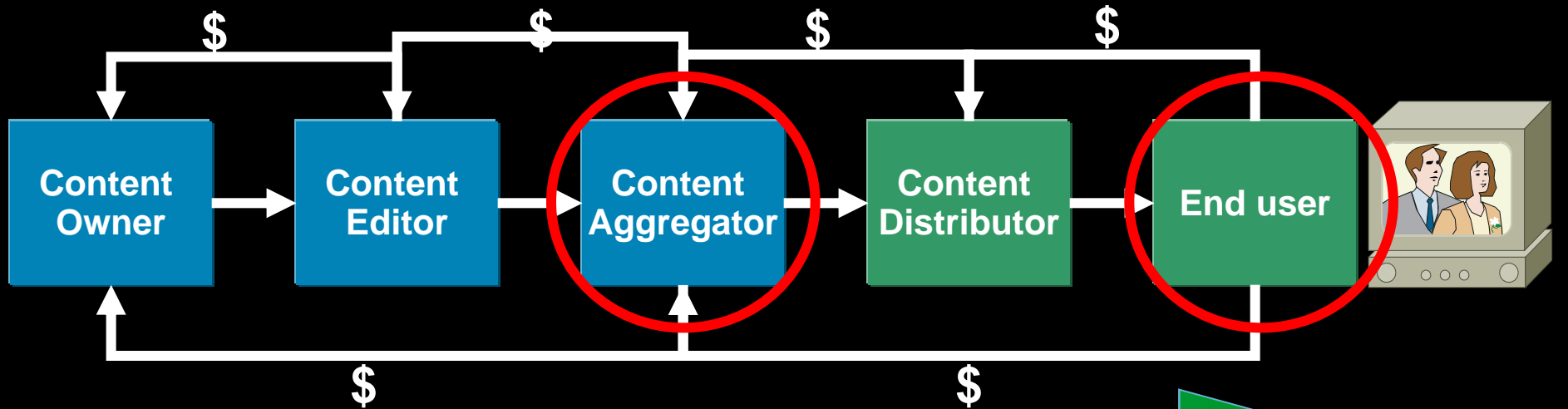
Via unicast and multicast delivery

Selects Content, Service, and sometimes Network providers

Consumes content  
Pays the bill for the service

# IPTV Business Models

## Value Chain & Business Models



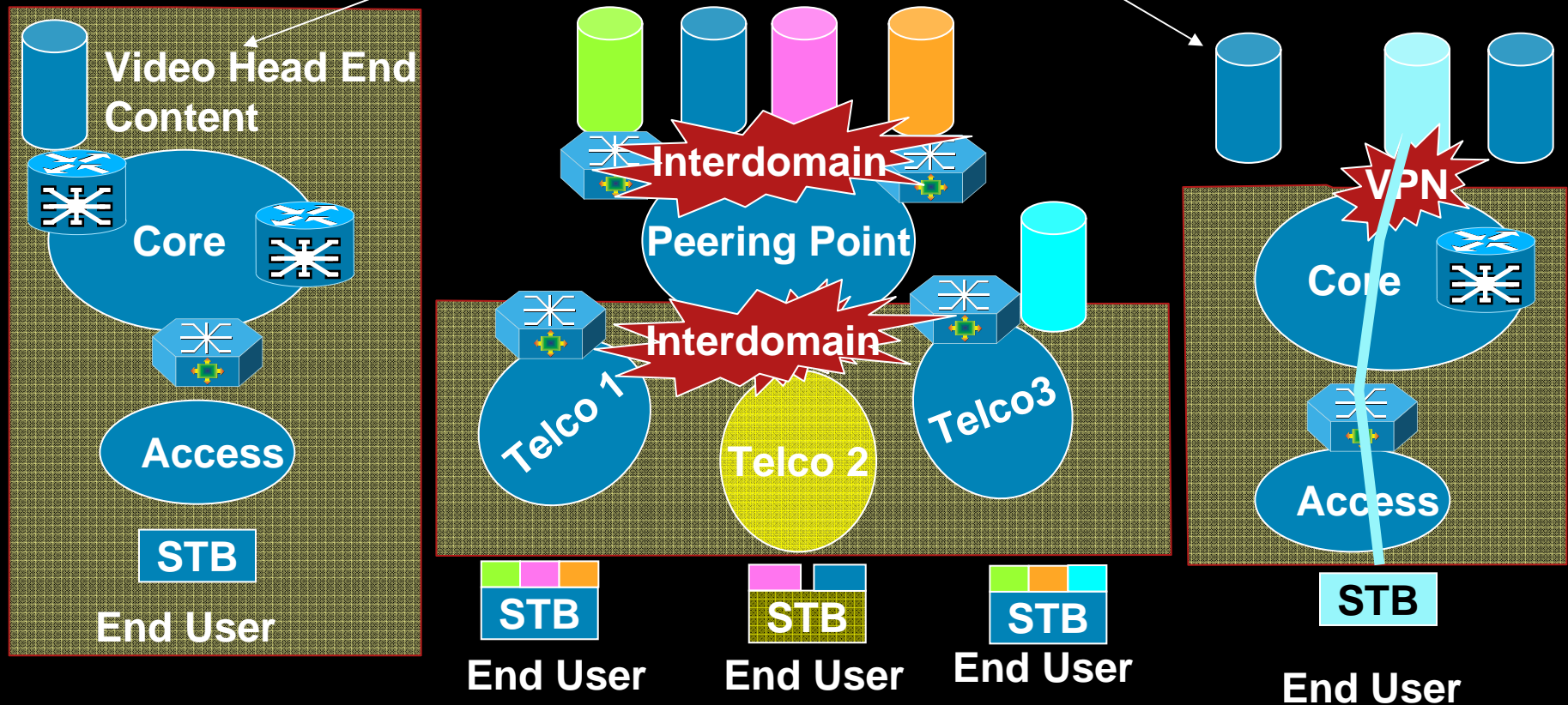
# IPTV Business Models

## Big Picture Alternatives

- Retail / Vertical PAY TV

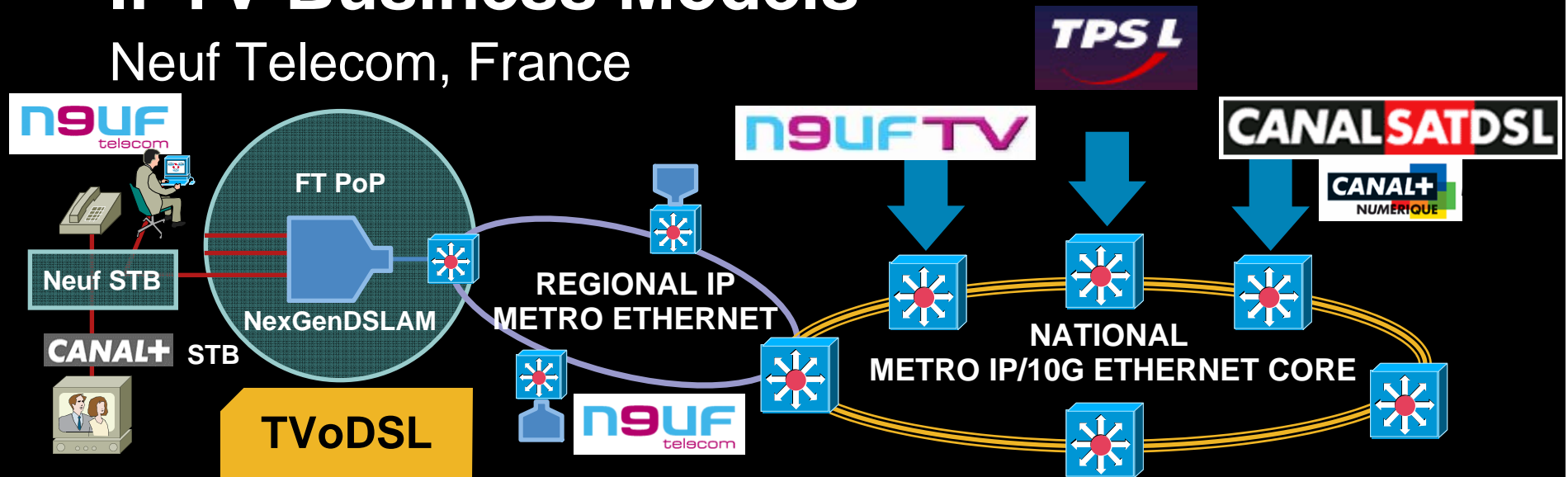
- Horizontal/ COOPETITION

- Wholesale COOPERATION



# IPTV Business Models

Neuf Telecom, France



One Infrastructure

Many Services

Multiple Video Providers

- 750+ local exchanges, 70%+ population coverage in France
- NeufTV: 70+ Digital quality channels including PayTV: launched in Nov 2004
- CanalSat DSL: 80+ Digital quality TV Channels
- TPSL : 80+ Digital quality TV Channels
- Club internet (T-Online), Tele2 and La Poste offer wholesale IP & TV services

Cisco IP-NGN Technology: Cisco 7600, Catalyst 3550, Cisco IOS

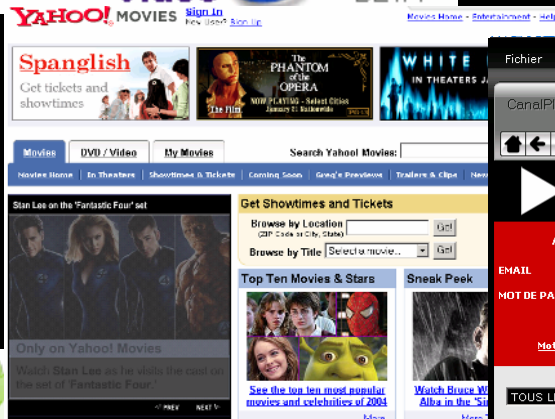
- QoS enabled intelligent video distribution
- Dynamic multicast for easy TV channel provisioning & fast TV channel

# IPTV Business Models

Over-the-Top Players bring challenges & opportunities



VONAGE  
THE BROADBAND PHONE COMPANY



**Movies Channel »**  
Film Clips & Trailers, Exclusives, Interviews, Showtimes.

# Turning IPTV into a Success Story

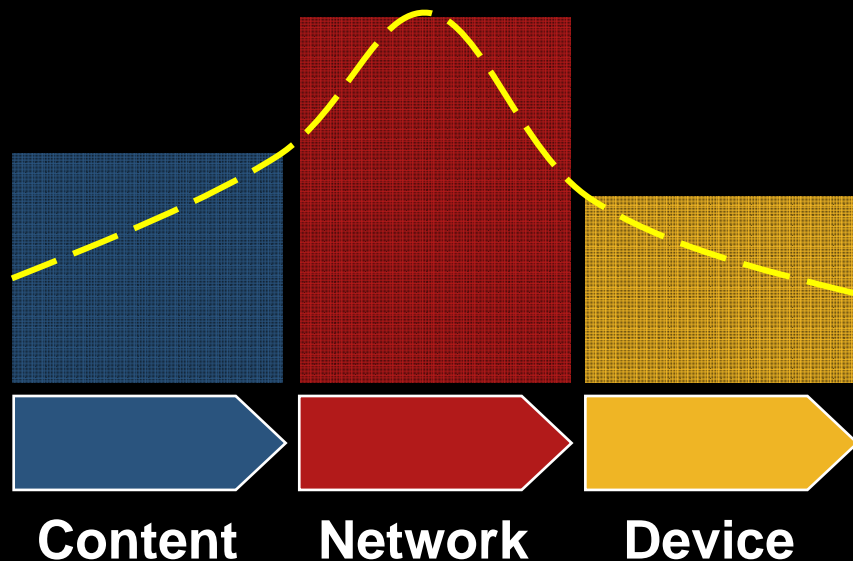


# Turning IPTV into a success story

Understanding the shifts in the value chain

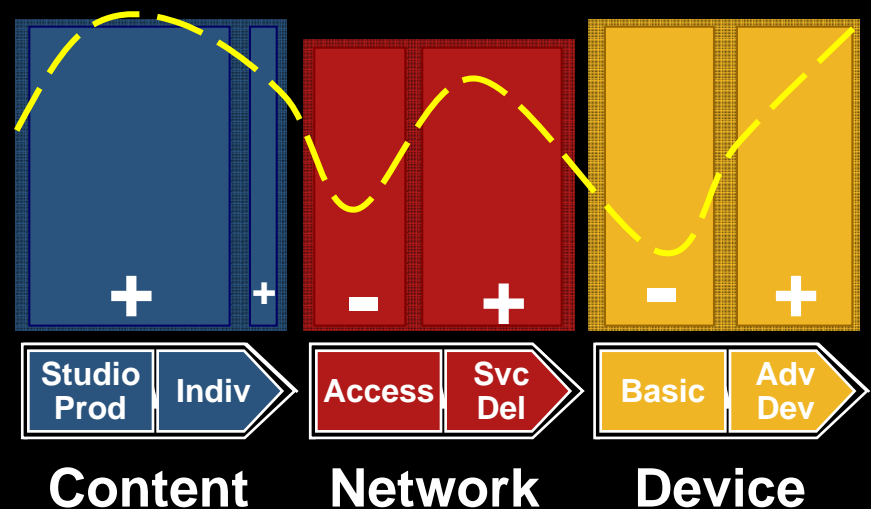
## Old Paradigm

- Network and content have tight relationships
  - Vertical integration
  - Existing contractual relationships
- Devices are an extension of the network



## New Paradigm

- Intelligent Service Delivery and features becomes source of differentiation
- Devices extend service delivery capabilities
- Content ownership becomes differentiator for network operators
- Content enters & leaves home over many devices & from many sources



Source: *IBSG Framework and Analysis*

# Turning IPTV into a success story

Addressing needs in both areas

## Ensuring Quality Experience

### Consumer Perspective

- Reliable and simple
- High quality at a good price
- At least par with previous experiences

### Telco Perspective

- Proven end-to-end scalable solution
- Timely deployment
- Experienced partner



## Creating Differentiation

### Consumer Perspective

- Better overall offer
- Content – More, Exclusive...
- Enhanced experience – HD, DVR, Personalization ...

### Telco Perspective

- Understand the consumer
- Create the “Differentiation Arsenal” with partner
- Benefit from customer needs

# Turning IPTV into a Success Story

Understanding how Churn impacts the overall profitability

**Churn Rate** Source: Bear, Stearns & Co. Inc estimates

Average Customer Life	2.50%	2.75%	3.00%	3.25%	3.50%	3.75%	4.00%	4.25%	4.50%	4.75%	5.00%
40	\$1,036										
36		\$910									
33			\$815								
31				\$720							
29					\$657						
27						\$594					
25							\$531				
24								\$499			
22									\$468		
21										\$436	
20											\$404

... and Bundling Reduces Churn and Increases ARPU

A major US MSO			
Products in Bundle	Churn	Life of Sub (in months)	Life of Sub (in years)
1	3.10%	32.26	2.69
2	2.46%	40.65	3.39
3	1.55%	64.52	5.38

**Profitability =  
Bundle of Data  
+Voice  
+Video**

# Turning IPTV into a success story

Triple-play is about more than (price) bundling



**Video Services on TV**



**Data/web-based Services**



**Voice-based Services**

<p><b>TV</b></p> 	<ul style="list-style-type: none"> <li>Video on-demand</li> <li>DVR</li> <li>Enhanced navigation</li> <li>Integrated search across storage media</li> </ul>	<ul style="list-style-type: none"> <li>Personalized Content on your TV</li> <li>Movielink</li> <li>Music on Demand</li> <li>My IP TV content services</li> </ul>	<ul style="list-style-type: none"> <li>Caller ID on TV</li> <li>Unified Communications on your TV</li> <li>Synchronized with cell and PC</li> <li>Video phone</li> </ul>
<p><b>(Cell) Phone</b></p> 	<ul style="list-style-type: none"> <li>Control recording on PVR</li> <li>Receive video clips from your PVR</li> <li>Send photos or video clips to PVRs</li> </ul>	<ul style="list-style-type: none"> <li>Control what to get on cell</li> <li>Personalized content on your cell phone</li> <li>Your music and photos on your cell phone</li> </ul>	<ul style="list-style-type: none"> <li>Unified Communications on your cell</li> <li>Receive voice messages fwd by PVR</li> <li>Synchronized with PVR and PC</li> </ul>
<p><b>PCs</b></p> 	<ul style="list-style-type: none"> <li>Manage content on PVR (record, delete, search, etc)</li> <li>My Pictures on my TV</li> <li>My Music on my TV</li> <li>My Videos on my TV</li> </ul>	<ul style="list-style-type: none"> <li>Manage service preferences at home or at office</li> </ul>	<ul style="list-style-type: none"> <li>Unified Communications on your PC</li> <li>Synchronized with cell and PVR</li> </ul>

# Turning IPTV into a Success Story

By not compromising on picture quality

*Differences in Encoder architectures can become very obvious*



**Good Picture Quality => minimizes churns**

**Operation at lower bit rates => allows to maximize service footprint**

# Turning IPTV into a Success Story

## By understanding how AVC Encoders impact Your Business Case

- **Case 1 - Supplier A**

SD / HD TV required BW: 2 / 8 Mbps  
 Total: 14 Mbps (1 SD + 1 HD + 4 Mbps for BB & VoIP)  
 Service Coverage : 60%

- **Case 2 - Supplier B**

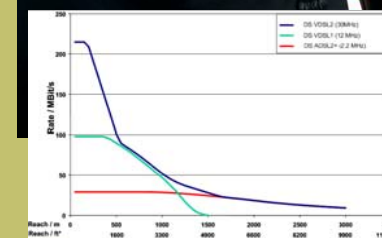
SD TV required BW: 1.5 / 6 Mbps  
 Total: 11.5 Mbps (1 SD + 1 HD + 4 Mbps for BB & VoIP)  
 Service Coverage: 73% (21% increase)

- **Business Case**

Homes connected: 1 M homes  
 Service Coverage: 600k – 840k homes  
 Subscribers (1yr – 5 yr):  
     Case 1: 50/150/250/350/500k Subs  
     Case 2: 60/181/302/423/605k Subs  
 ARPU: 20 Euro  
 5-year Revenue:  
     Case 1: 26 M Euro  
     Case 2: 31.4 M Euro

- **Conclusion: Incremental revenue (B vs A): 5.4 M Euro**

Family	ITU standard	Maximum data rate
ADSL	G.992.1	7 Mbits/s down, 800 kbits/s up
ADSL2	G.992.3	8 Mbits/s down, 1 Mbit/s up
ADSL2+	G.992.5	24 Mbits/s down, 1 Mbit/s up
ADSL2++	G.992.3	Reach extended, 8 Mbits/s down, 1 Mbit/s up
VDSL	G.993.1	55 Mbits/s down, 15 Mbits/s up
VDSL2	G.993.1	55 Mbits/s down, 30 Mbits/s up (12-MHz bandwidth) 100 Mbits/s symmetrical (30-MHz bandwidth); short reach



# Turning IPTV into a Success Story

By going strong for an Experience Provider Profile

Connected  
Life



At  
Home



At  
Work



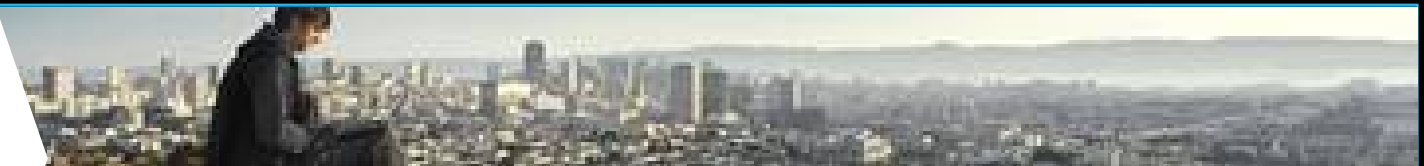
On  
the Move

A connected life joins you to the human network

Experience  
Providers



Experience providers deliver the connected life



Cisco IP NGN powers the experience provider

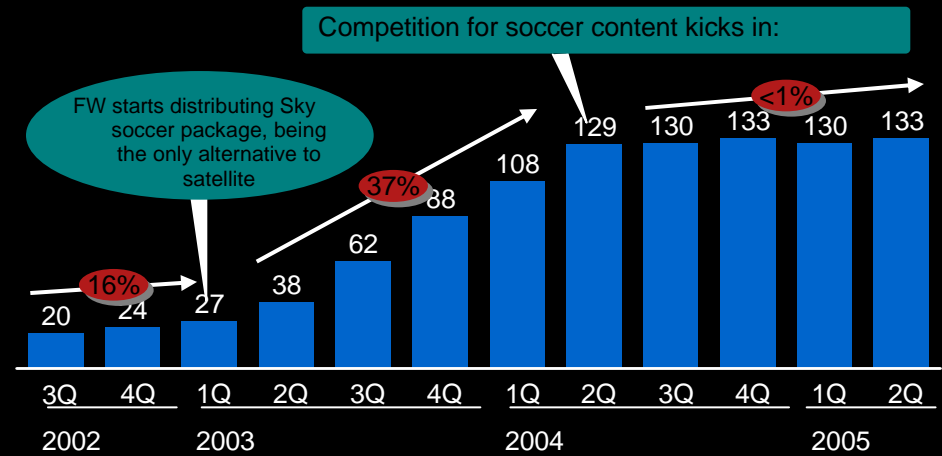
# Turning IPTV into a Success Story

By offering a differentiated user experience e.g. HD content



Customer base evolution in Thousands of IPTV customers

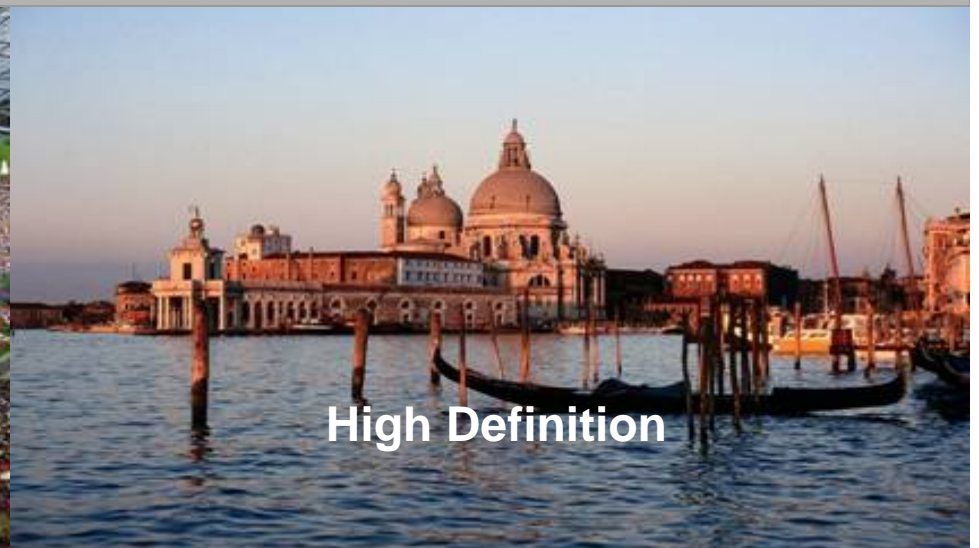
 Average quarterly growth



Source: McKinsey Analysis, Fastweb Company Report



Exclusive Content (e.g. Football)



High Definition

# Turning IPTV into a Success Story

Grasping the revenue possibility created by the long tail

## African

ABN America - \$14.99/mo.



## Arabic

15 channels - \$39.99/mo.



Al Jazeera



Kuwait TV

## Armenian

Armenia TV - \$14.99/mo.



## Chinese

17 channels - \$29.99/mo.



## Farsi

3 channels - \$32.99/mo.



## French

3A Telesud - \$14.99/mo.



## German

1 channel - \$14.99/mo.



## Greek

6 channels - \$36.99/mo.



## Israeli

Israeli Network - \$19.99/mo.



## Italian

2 channels - \$12.99/mo.



## Japanese

TV Japan - \$25.00/mo.



## Korean

4 channels - \$36.99/mo.



## Polish

4 channels - \$38.99/mo.



## Portuguese

TV Globo - \$19.99/mo.



## Russian

2 channels - \$24.99/mo.



## South Asian

6 channels - \$49.99/mo.



## Tagalog

1 channel - \$14.99/mo.



## Urdu

3 channels - \$34.99/mo.

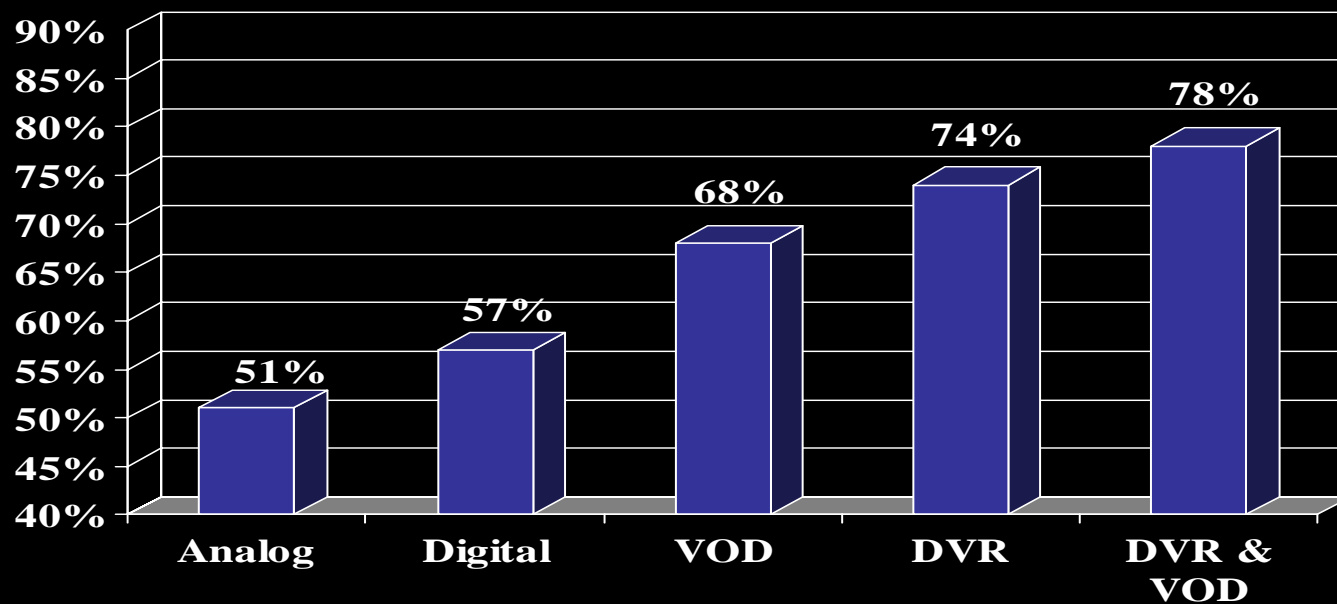


The high price of these offerings demonstrates the value to niche consumers.

# Turning IPTV into a Success Story

By including “On-Demand” content

Overall Satisfaction with Service Provider

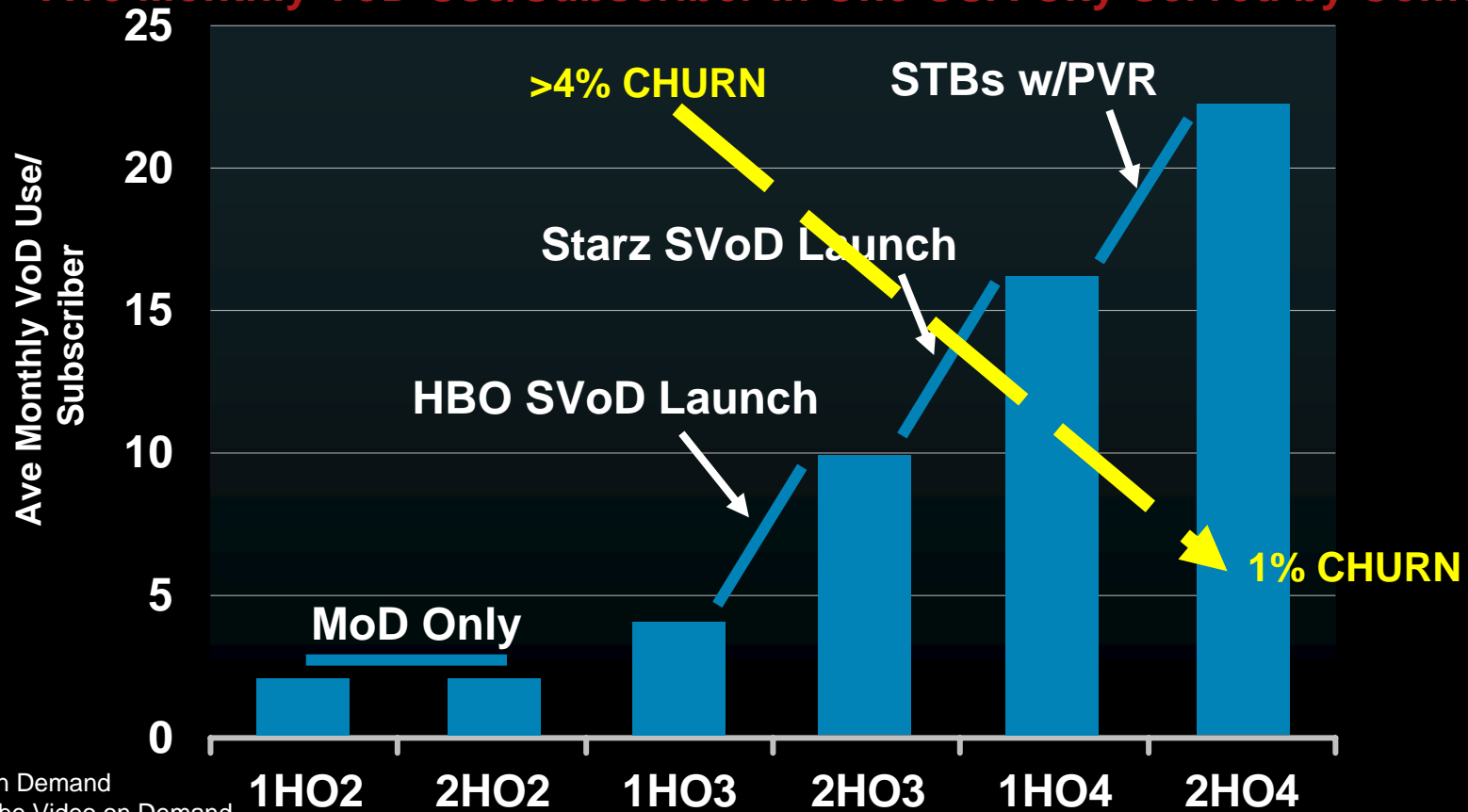


Source: CTAM research conference

# Turning IPTV into a Success Story

Example: Bundling impacting Churn (Comcast)

**Ave Monthly VoD Use/Subscriber in One USA City Served by Comcast**



MoD: Movie On Demand  
 SVoD: Subscribe Video on Demand  
 PVR: Personal Video Recorder

**Nov 04: In last 90 Days 68% of All Digital Subs Ordered on-demand \***

# Turning IPTV into a Success Story

“Watch What, When & Wherever You want”

## Greatest Benefit of the DVR Service (Total Mentions)

The greatest benefit matches the reason for the initial subscription: the ability to **record** one’s favorite shows/movies. This desire and “viewing shows when convenient” comprise a ‘**time shift**’ benefit.

	Total
<b>Able to record shows/movies, never miss shows</b>	<b>39%</b>
Able to view shows when its convenient for you	20
Easy to record/simple to use	18
<b>Pausing live TV</b>	<b>13%</b>
Not having to put in a VCR tape	9
Able to set to record all episodes of show	8
Can watch one program and record another	6
Able to skip commercials	6
Can record multiple programs at same time	6
Pause and rewind TV	5
Rewinding live TV	3
Saving/storing programs	3
High definition capabilities	2
Quality of picture	2
Other	11
Nothing/Don't know	2
N=	(600)



# Turning IPTV into a Success Story

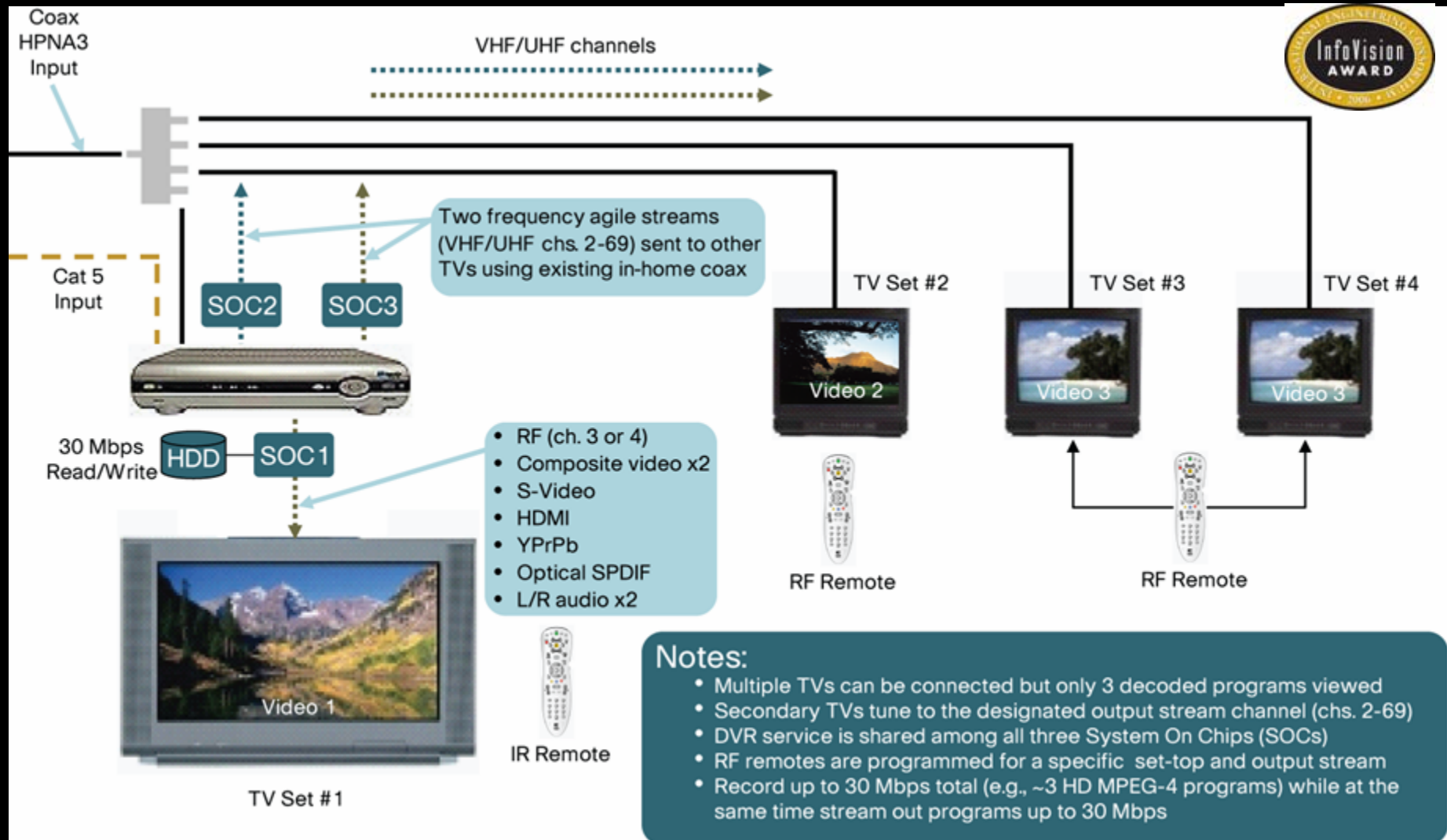
“Watch What, When & Wherever You want”

- DVD recording is consistently ranked as one of most desired feature enhancement among DVR users
- DVD recording provides the next step in the connected home/media center segment enabling content to become portable and mobile
- The product offers many potential benefits to service providers, including new revenue streams, reduced churn and stronger brand loyalty



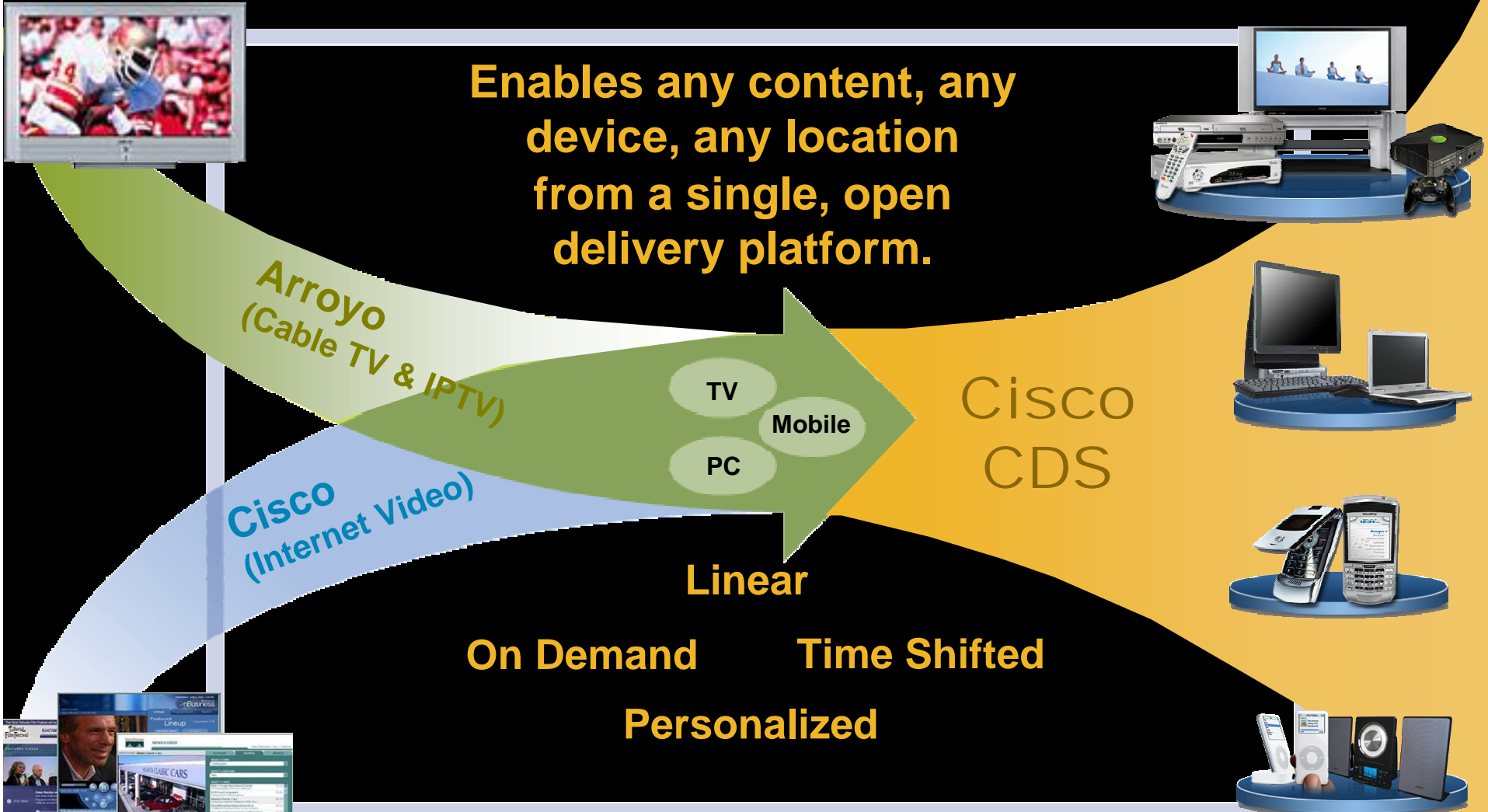
# Turning IPTV into a Success Story

By offering cost-efficient home entertainment solutions



# Turning IPTV into a Success Story

By embracing solutions that target all possible CPE's



Why Cisco  
could be your  
obvious  
choice?



# Why Cisco could be your obvious choice?

Our mission – Transforming End-to-end

**IP DNA**



CISCO SYSTEMS

**Build**

CRS-1, XR 12000, 7600, more...

**Video DNA**



Scientific Atlanta  
A CISCO COMPANY

**Partner**

Content providers...  
Middleware...

**Home Networking DNA**



LINKSYS  
A Division of Cisco Systems, Inc.

**Acquire**

Scientific Atlanta,  
Linksys

**Cisco Service Provider Vision**

Connecting Customers with Services,  
Services with Networks,  
and Networks with Each Other

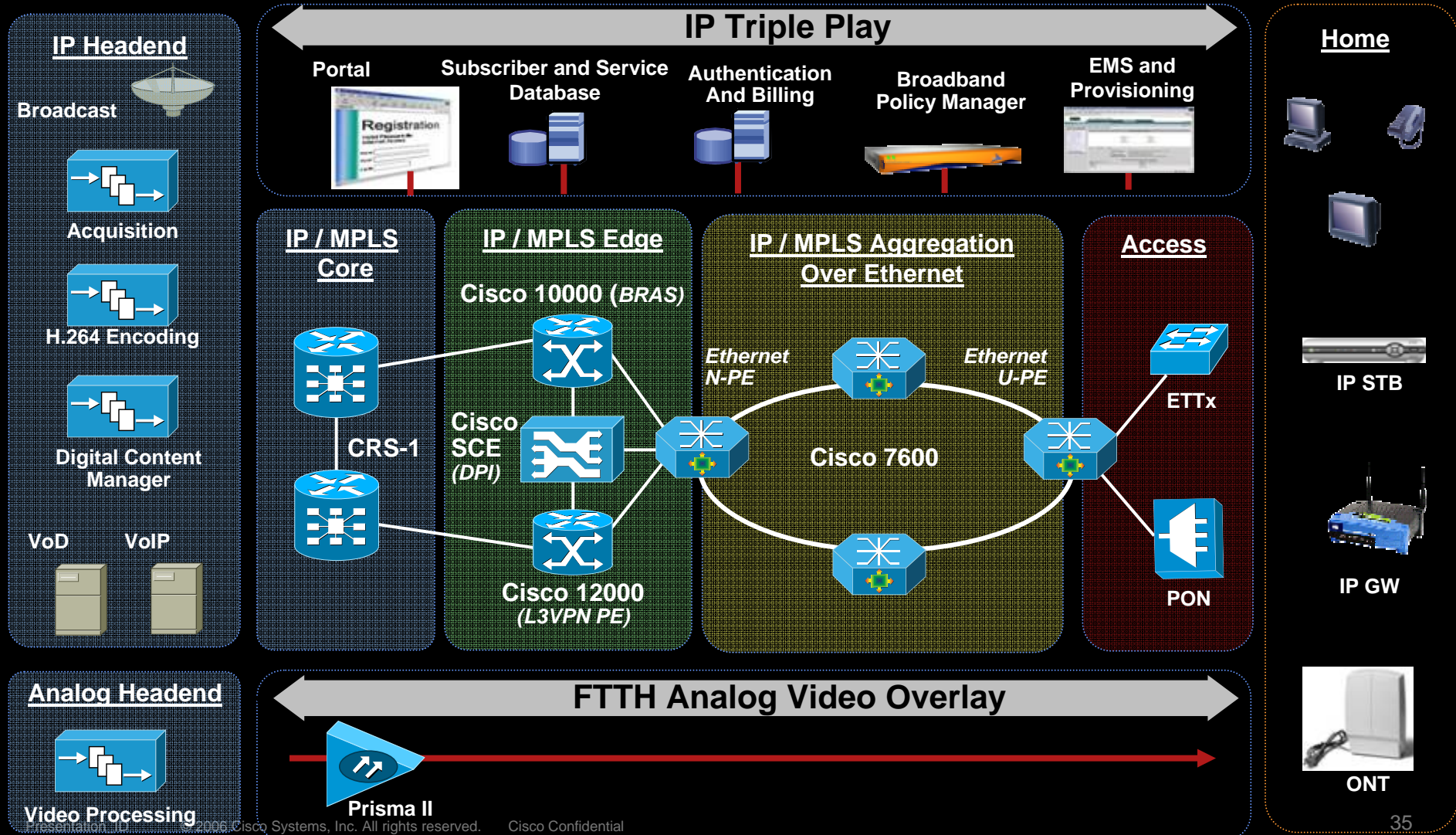


**IP Next-Generation Network**






# Why Cisco could be your obvious choice?

## Cisco IP NGN architected approach



# Why Cisco could be your obvious choice?

## Experience & Innovations Delivering Video

	CPE	Access / Agg	Service Edge	Core	Video Head-End
  	<p>26M STBs Deployed</p> <p>Leading Linksys Portfolio</p>	<p>Market-Leading CMTS</p> <p>Wideband Innovations</p>	<p>7600 Video Innovations: Video CAC, Monitoring</p>	<p>New CRS-1 4 slot</p> <p>60+ Total Customers, 300+% YoY</p>	<p>240 Video Head Ends Globally</p> <p>50M Homes Passed</p>

**Cable:** 2 Billion IP Video Steams from a single IPNGN

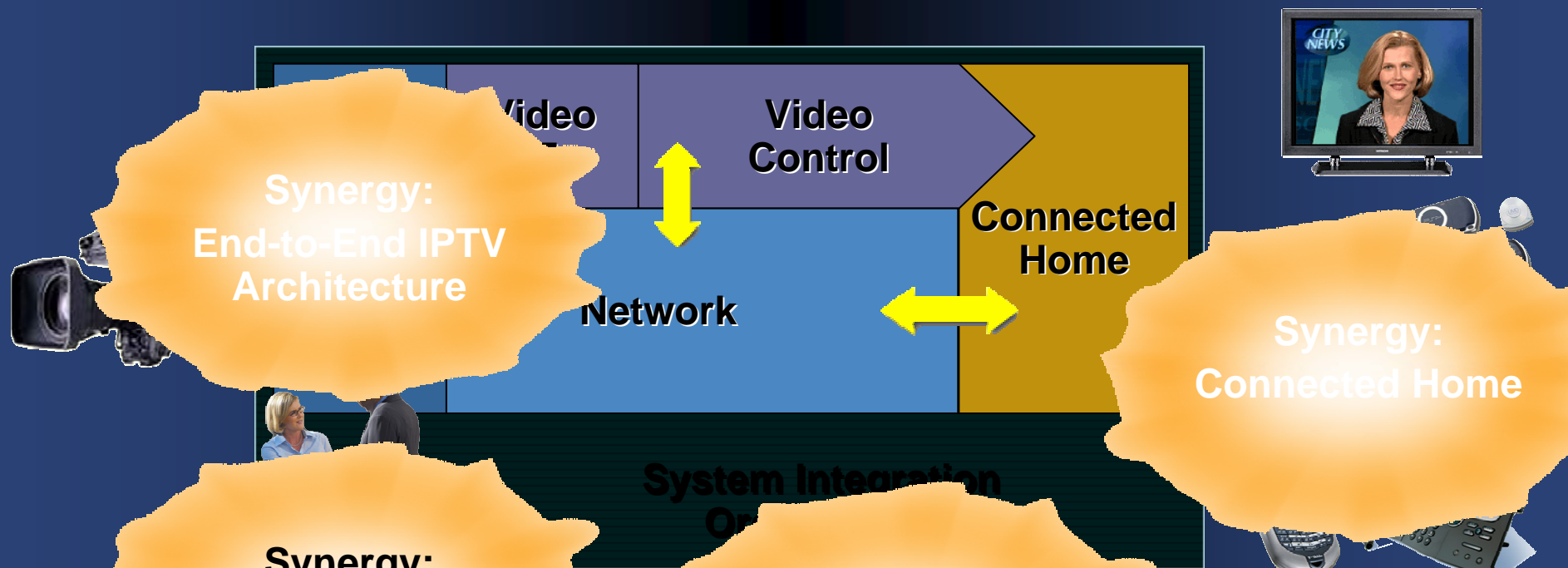
25+ Million Digital Video Subs Supported

**Wireline:** Participating in 50+% of IPTV subs globally



# Why Cisco could be your obvious choice?

Because of the synergies that differentiate our offer.



Synergy:  
End-to-End IPTV  
Architecture

Synergy:  
Connected Home

Synergy:  
Video Quality  
Monitoring/Improvement

Synergy:  
Improved Broadcast  
Reliability

**Adaptive**  
A CISCO COMPANY

**IP**

**LINKSYS**<sup>®</sup>  
A Division of Cisco Systems, Inc.

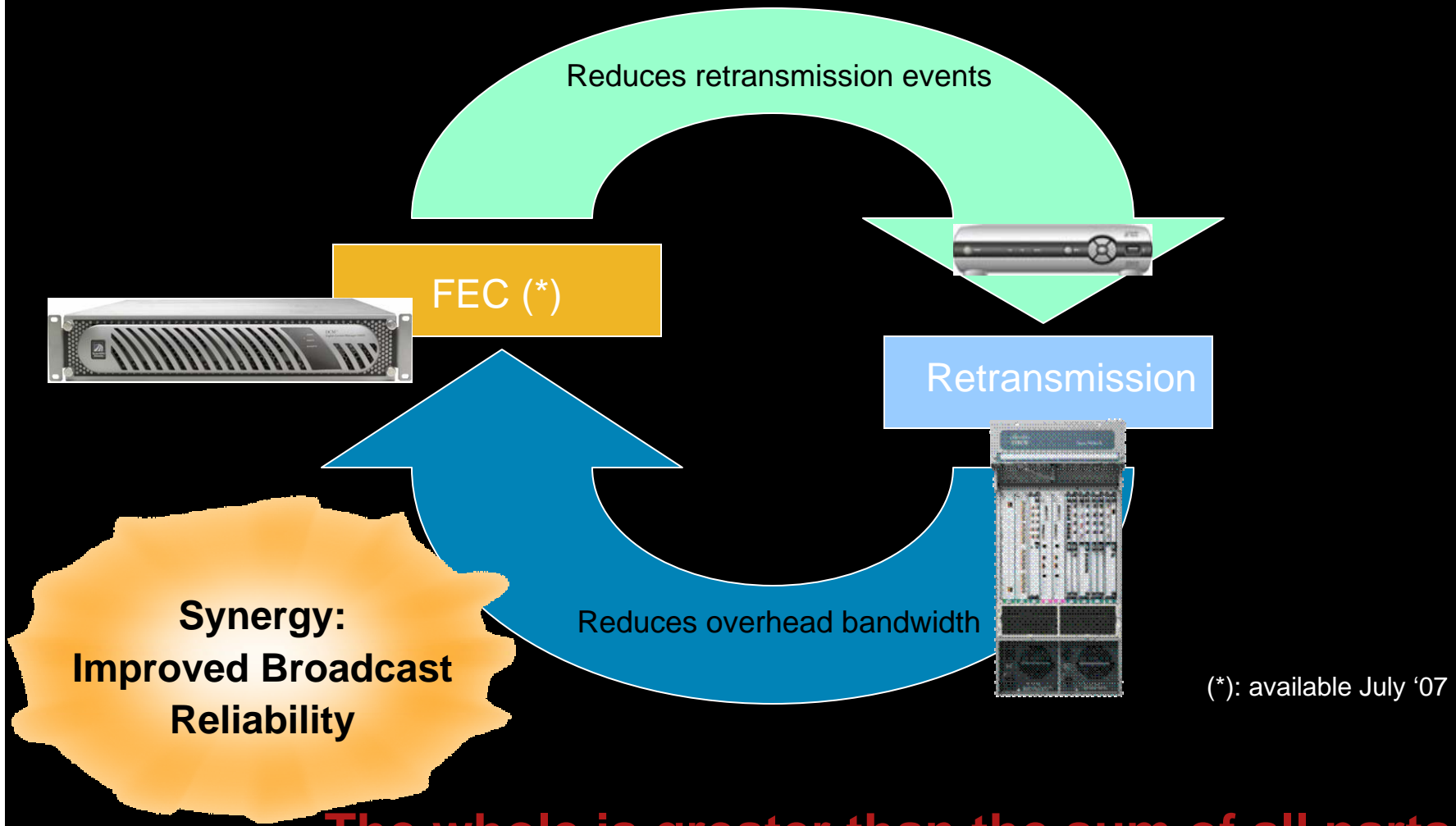
**Video DNA**

**IP DNA**

**Home Networking  
DNA**

# Why Cisco could be your obvious choice?

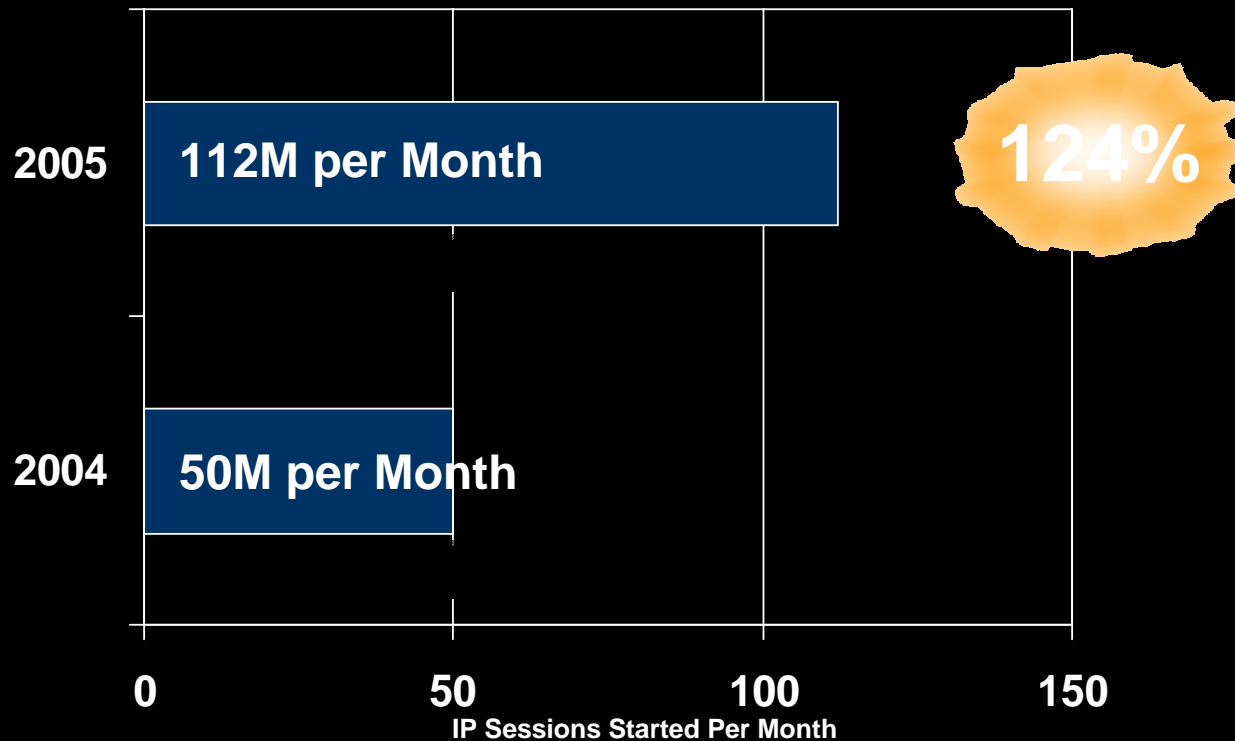
Synergie example involving HE, network and CPE



**The whole is greater than the sum of all parts!!!!**

# Why Cisco could be your obvious choice?

Unmatched experience: Scaling to billions of IPTV streams



**comcast.**

VoD, Broadcast,  
High Speed Data,  
VoIP Converged  
on Cisco IP NGN

**CISCO**

**“My IPTV system will do 1.5 Billion streams this year – how many will yours?”** **David M. Fellows, CTO, Comcast, 2005**

# Why Cisco could be your obvious choice?

Building on unmatched experience

The world's largest digital video/IPTV networks run on the combined company's infrastructure

Over 23 million Explorer Digital STBs

- Over 4.4 million DVR units shipped
- Over 2.9 million HD STBs shipped

Over 50 million homes passed with over 240 video head-ends deployed globally

- Including some the world's largest

Over 10M digital video subs get their video streams over Cisco networks

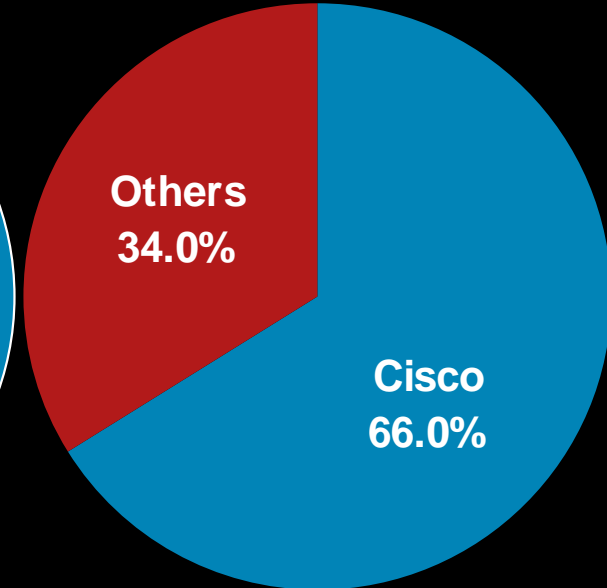
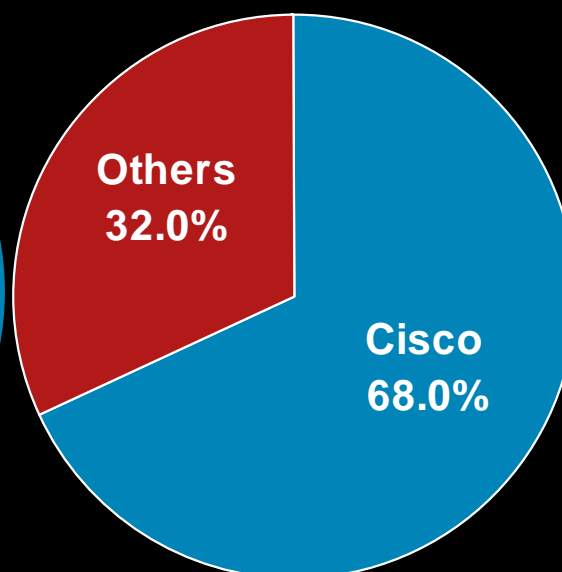
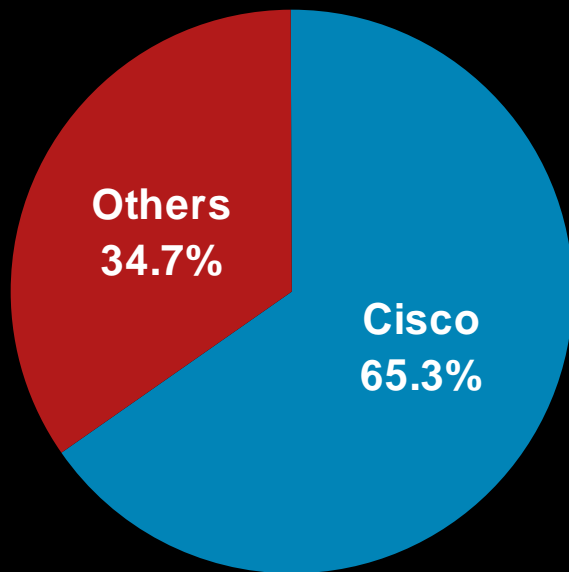
- Over one billion IP VoD streams will be carried on Cisco networks



...

# Why Cisco could be your obvious choice?

## Leadership in Carrier Ethernet



[http://newsroom.cisco.com/dlls/2006/prod\\_032006.html](http://newsroom.cisco.com/dlls/2006/prod_032006.html)

# Why Cisco could be your obvious choice?

## What the street tells about Cisco's position

- „Cisco Systems arguably has a hand in the most IPTV deployments and trials for the aggregation part of the IPTV value chain.“

- „Leading IPTV Carriers and Their Technology Vendors“, Gartner Research, 9 Feb 2006



- “This is Microsoft's largest IPTV agreement in Europe to date, and we are pleased to be working with Cisco to help Deutsche Telekom deliver high-quality broadband entertainment to consumers across Germany.”

- Enrique Rodriguez, corporate vice president for the Microsoft TV Division, Microsoft Corporation



- “We're successful on that front in large part thanks to supplier partners like Scientific Atlanta that consistently go above and beyond the call of duty.”

- Maureen Merkle, President AT&T Procurement, Scientific Atlanta Honored by AT&T as Outstanding Supplier, June 7 2006



