



2007 Symposium on Racing

Technology: Threats & Opportunities

An Brief Tour of IPTV:
Capabilities, Technologies & Roadmap

December 4, 2007

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- 1: What is Broadband TV?
- 2: What is IPTV?
- 3: Other types of TV - what Broadband TV isn't
- 4: The true meaning of Broadband TV and IPTV
- 5: The Road Ahead
- 6: Opportunities (not threats)

What is Broadband Television?



The delivery of Live Video (TV), Video-on-Demand, Web and/or text content, to a player (software or hardware), via a broadband IP network.

- Content may be:
 - Live (Multicast, Unicast or streamed) - or a combination of these
 - On-demand (pre-cached) for near-instant playback
- Streamed to a local device (computer, set-top box or mobile)
- Supported by a two-way-capable network (for interactivity)

Types of Broadband TV . . .

Internet Video: YouTube



Videos

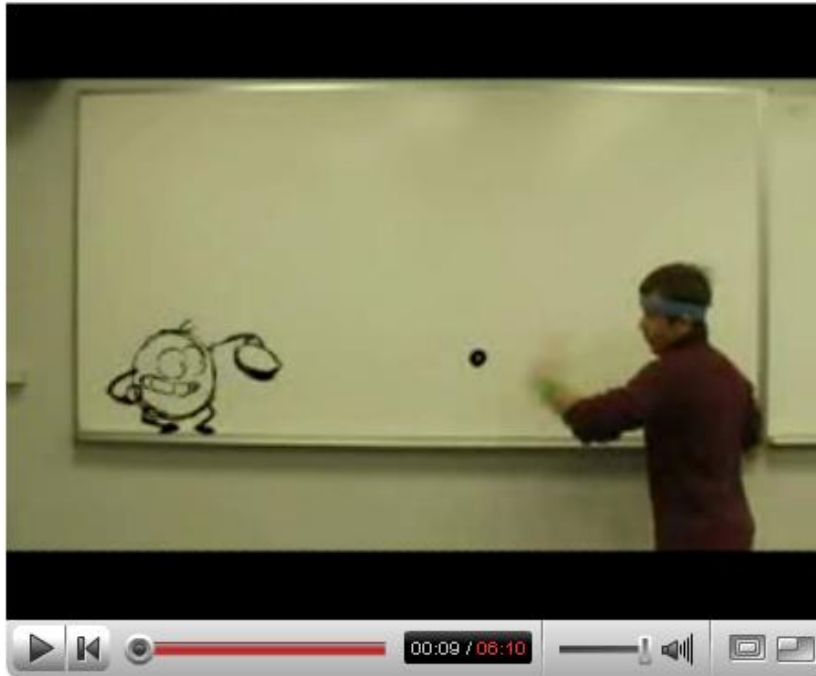
Categories

Channels

Community

[Upload Videos](#)

Off The Wall Episode 1: "Lady Troubles"



[Login to rate](#)
★★★★☆ 2651 ratings

[Save to Favorites](#) [Share Video](#) [Flag as Inappropriate](#)
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Views: **248298** | Comments: **1495** | Favorited: **2294** times
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Added **April 28, 2007** [SUBSCRIBE](#)
From [TheAlexmeister](#) to TheAlexmeister

DIRECTOR Provided By: [TheAlexmeister](#)

Wallby bets Nick that he can get a gi... (more)

Category [Film & Animation](#)

Tags [animated](#) [cartoon](#) [live action](#) (more)

URL http://www.youtube.com/watch?v=cv1o_9S2iDI

Embed `<object width="425" height="350"><param na`

This is part of [world peace](#) with 1 users.

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Showing 1-20 of 49 [See All Videos](#)

- [The CalArts Song](#)
01:37
From: [TheAlexmeister](#)
Views: 15289
- [Calarts Bob - Pee Wee Herman](#)
01:58
From: [mocherz](#)
Views: 2717
- [Cal arts Audition](#)
05:59
From: [drummer2101](#)
Views: 3951

Director Videos

[Barenaked Ladies - Wind it Up \(Fan Version\)](#)
04:12
From: [NettwerkMusic](#)

[Sharpys O-Face](#)
02:41
From: [welcomestranger](#)

[The 12 Days of Christmas](#)
05:47
From: [Zipster08](#)

Internet TV: Joost

My Joost™ Plugins

Instant Messaging
Offline

Username
Password

Remember my password

Sign in using your Jabber or Gmail account

Sign in

Rate It
Stereophonics - Dakota

★★★★☆
Very good! (3.84) 19 Ratings

Notice Board

Happy new year everyone - and once again, a big thank you for helping us test the system.

This is our plugin section, where you can find (and soon, create!) all sorts of interactive applications and community tools. We are continually working on

Channel Chat
Netwerk (1 person)

Started talking in the 'Red Hot Chili Peppers' chatroom as guest-678db2fa

Started talking in the 'Paris Hilton' chatroom as guest-678db2fa

Started talking in the 'Netwerk' chatroom as guest-678db2fa

guest-678db2fa: Man, I was at one of their concerts last year! They rock

Major League Baseball - video mosaic

The screenshot shows the MLB.TV Mosaic website interface. At the top, there's a navigation bar with "MLB.TV MOSAIC™" on the left, "MLB.com" on the right, and a "SELECT TEAM" dropdown menu. Below the navigation bar, there's a "Help" button and a "vOLUME" control. The main content area is a grid of six panels, each representing a different baseball game. The panels are arranged in two rows and three columns. The top row contains three panels, and the bottom row contains three panels. The middle panel in the bottom row is labeled "blacked out".

Game	Score	Panel
LAD 6 @ COL 4	7	Top Left
MIL 2 @ CHC 1	9	Top Middle
SD 2 @ STL 1	8	Top Right
BAL 4 @ NYY 16	8	Bottom Left
blacked out		Bottom Middle
NYM 1 @ ATL 13	F	Bottom Right

Additional information visible in the interface includes "PANEL 1", "PANEL 2", and "PANEL 3" labels, a "blackout restrictions apply" warning, and an "ALERT: Chad Cordero is pitching for the Nationals." notification. A "Playing" indicator is also present at the bottom left.

IPTV: Another type of Broadband TV



“Looks
like
TV”

Source: Microsoft Corp.

Place-shifting: Sling Media SlingBox

WATCH YOUR TV FROM ANYWHERE

the slingbox

INTRODUCTION

WHAT IS IT?

HOW DOES IT WORK?

WHY SLINGBOX?

USER STORIES

360° VIEW



Skip Intro

Introducing the Slingbox™ — a groundbreaking piece of hardwired ingenuity that will literally transform the way you watch television. The Slingbox enables you to watch your TV programming from wherever you are by turning virtually any Internet-connected PC into your personal TV. Whether you're in another room or in another country, you'll always have access to your television.



Take a
Product Tour!

**INTRODUCING
SLINGPLAYER MOBILE**



Watch your home TV
on mobile phones

Time & Place-shifting: TiVo To Go

Watch your favorite shows anywhere

Only TiVo® goes everywhere you go. TiVoToGo™ transfers make it easy to take and watch your favorite shows anywhere:



Transfer recordings to a PC in any room

Don't fight over the remote control. The kids can lounge in the living room as you watch your favorite show in the den (and cleverly look like you're working).



Transfer recordings to your laptop

Now *that's* in-flight entertainment. Watch your favorite shows on your laptop when you're away from home — any time, anywhere.



Burn recordings to DVD

Easily burn your favorite TiVoToGo™ transfers to DVD with My DVD from Sonic Solutions (try it 15 days for FREE!). Play them back on any DVD player. Take them with you on planes, trains, and in the minivan.

Presentation Outline



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Internet Protocol Television:

The **secure** delivery of multichannel TV, video-on-demand, text and Web content to a **dedicated** consumer electronics device (set-top box, mobile, portable), via a **managed** broadband IP network, such as a Telco.

- True Broadcast quality
- BIG gamble (and big payoff) for the Telcos
- Telcos had to do it (Cable offering voice, data)

- Telcos
 - Top ILECs worldwide (National, Regional major incumbents)
 - Mid-tier and rural telcos (> 200 in US)
 - Cooperatives / Consortia
- Utilities
 - Public utility districts; many in US
 - Power companies; many in Europe
- Municipalities
 - Individual communities
- Public-private partnerships



- Single access point to:
 - Live TV
 - On-demand
 - Web-on-TV
 - Interactive games
 - Personal portal
 - Settings
 - Parental controls

Source: ANT Ltd and Telecom Italia

Content partnerships (TV): PCCW

The screenshot displays the PCCW Now TV website interface. At the top, there are navigation links for 'now channels', 'now schedule', 'now services', 'My account', 'Customer services', and 'Business customers'. The date is shown as 26/04/2006. The main content area is a grid of channel categories and their respective channel numbers and names.

Category	Channel No.	Channel Name	
Movie	02	MGM	
	03	Hallmark Channel	
	04	HBO Signature	
	05	HBO	
	06	Cinemax	
	07	STAR MOVIES	
	09	Turner Classic Movies	
	34	China Movie Channel	
	37	Mei Ah Movie Channel	
	39	Star Chinese Movies	
	111	HBO Hits	
	112	HBO Family	
Music	53	Soundtrack Channel	
	54	MTV Southeast Asia	
	55	CHANNEL [V] International	
	56	CHANNEL[V] China	
	581	DMX MUSIC -595	
	Indian	94	STAR PLUS
		95	STAR NEWS
		96	CHANNEL [V] India
	Infotainment	10	Animal Planet
11		Discovery Science	
12		Discovery Real Time	
13		Discovery Travel and Living	
14		Discovery Home & Health	
15		National Geographic Channel	
61		ABC Asia Pacific	
62		Voyages	
65		Deutsche Welle	
69		CCTV-4	
News	16	CNN International	
	17	CNN Headline News	
	18	FOX NEWS	
	19	CNBC	
	20	BBC World	
	21	Bloomberg Television	
	22	Channel NewsAsia	
	23	SKY NEWS	
	24	24-Hour ATV News Channel	
	26	EuroNews	
Entertainment	27	Asian Food Channel	
	28	STAR WORLD	
	29	BBC Prime	
	30	Reality TV	
	31	E!	
	32	Fashion TV	
	35	ETTV Asia Channel	
	36	EAST-TV	
	38	Mei Ah Asian Drama Channel	
	40	Xing Kong	
Sports	66	Phoenix InfoNews Channel	
	71	ETTV Asia News	
	333	now Business News Channel	
	82	The Golf Channel	
	83	Golf Tour Channel	
	84	ESPN	
	85	STAR SPORTS	
	88	Lucky 88	
	93	ESPN STAR Sports Cricket Live	
Adult		AV-On-Demand	
	901	Ice Fire	
	902	Blue Dream	
	903	Channel Adult	
	904	Playboy TV	
Kids	41	Disney Channel	
	42	Playhouse Disney Channel	
	43	Cartoon Network	
	44	Nickelodeon	
	46	Boomerang	
	50	Hong Kong	

Additional elements on the page include a 'now Select' banner with a play button icon, a 'What's on now? It's up to you!' promotional image, and a '衛視電影台 自選' (Satellite Movie Channel) logo at the bottom right. The footer contains links for 'SITEMAP', 'PRIVACY POLICY', 'TERMS AND CONDITIONS', and 'DISCLAIMER & COPYRIGHTS', along with the text 'A PCCW service'.

Content Partnerships: PCCW

now TV | [BACK](#) | [HOME](#) | DATE: 26/04/2006 | [LOGIN](#) | [中文](#)

[now channels](#) | [now schedule](#) | [now services](#) | [My account](#) | [Customer services](#) | [Business customers](#)

Channel 209

Discovery CHANNEL

Making its **now** debut on Mar 16

APPLY NOW!
Subscribe to **NETVIGATOR** broadband and enjoy exclusive **now TV** service.

- \$0 monthly fee
- Free decoder
- Installation fee waived

What's on now? It's up to you!

Now Select

Discovery Channel

ESPN THE WORLDWIDE LEADER IN SPORTS

STAR SPORTS

HBO

Animal Planet

Discovery CHANNEL

real time

home & health

travel & living

Discovery science CHANNEL

Brand New **Ultimate Discovery Pack**

Subscribe to **Ultimate Discovery Pack** Only \$48 a month*

*The above offer is only applicable to customers who subscribe to Ultimate Discovery Pack for at least a 12 month period.

24-HOUR SALES HOTLINE 2888 0008 PRESS **1** TO APPLY

A **PCCW** service


SITMAP | [PRIVACY POLICY](#) | [TERMS AND CONDITIONS](#) | [DISCLAIMER & COPYRIGHTS](#)

美亞電影台

IPTV: Interactive Program Guide



MSNBC News Live (12:00 p.m. - 1:00 p.m.)
Live news coverage, breaking news and current news events.



9/28 12:15 p.m.

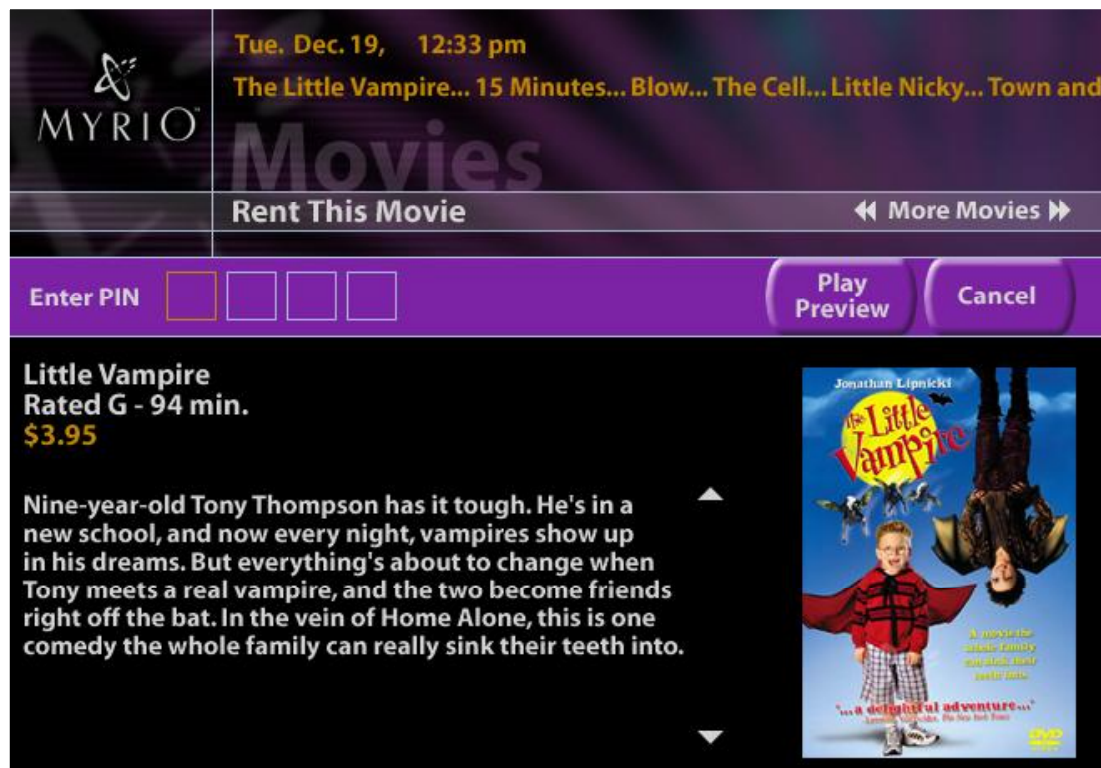
Tue, Sep 28	12:00 PM	12:30 PM	1:00 PM	1:30 PM
50 MSNBC	MSNBC News Live		Mar...	Lester Holt Li... >>
60 KNTV	Starting Over		Days of our Lives	
70 FNC	Studio B With Shepard S...		Your World With Neil Ca...	
76 KTVU	KTVU Chann...	Celebrity ...	Home Delivery	
80 HBOHD	<< The Ring			Masterminds >>
90 KNTV	Starting Over		Days of our Lives	

Tip: To return to the main menu, select **Back** or press **Main** on your remote.

- Find “Live” TV programs
- See what’s on later
- Select and watch

Source: Kasenna Inc.

IPTV: Video on Demand

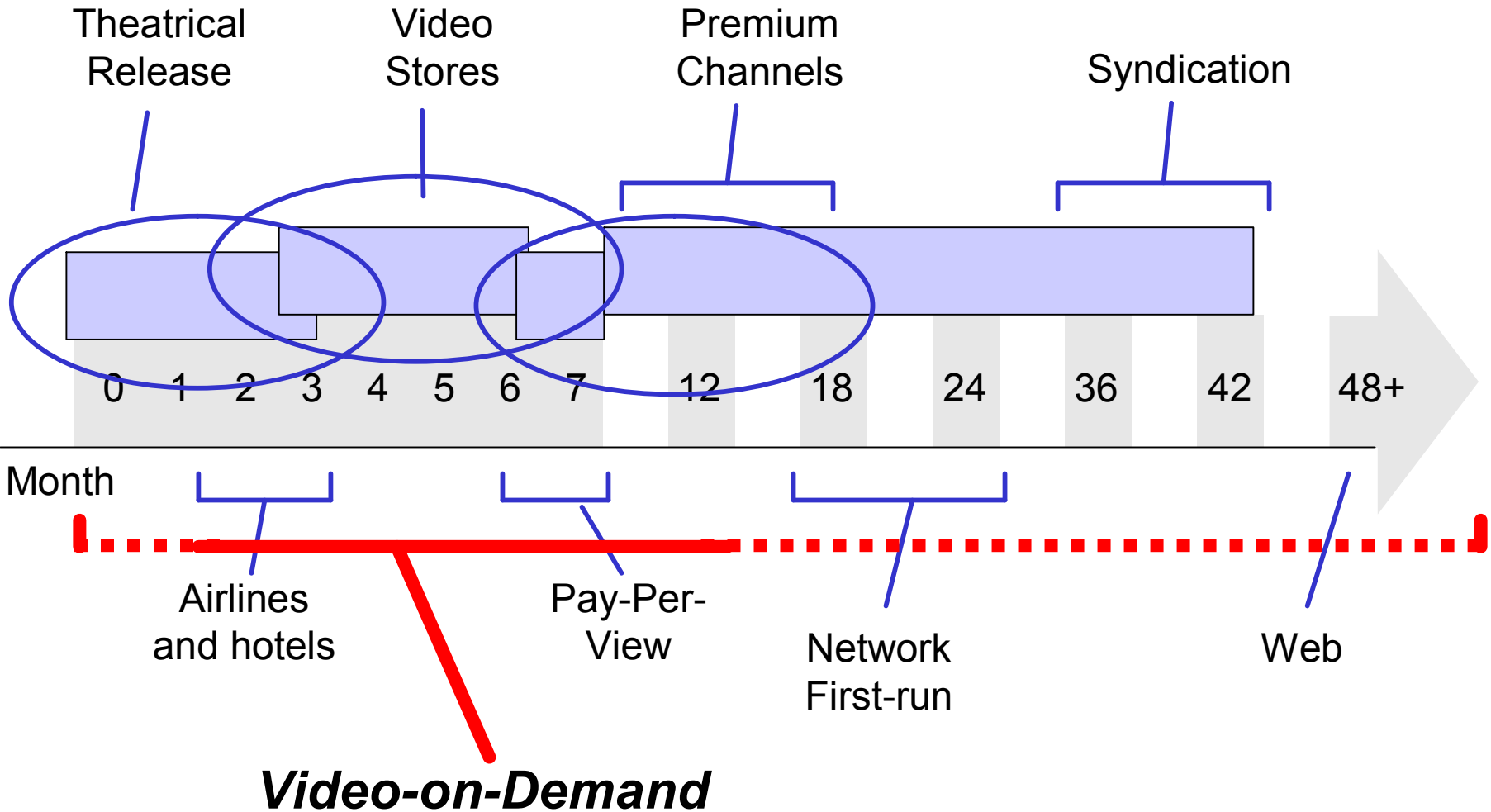


The screenshot shows the Myrio IPTV interface. At the top left is the Myrio logo. The main header area displays the date and time: "Tue. Dec. 19, 12:33 pm" and a list of available movies: "The Little Vampire... 15 Minutes... Blow... The Cell... Little Nicky... Town and". Below this is a "Rent This Movie" button and a "More Movies" link. A PIN entry field is visible with four empty boxes. To the right are "Play Preview" and "Cancel" buttons. The selected movie, "Little Vampire", is shown with a poster and a synopsis: "Nine-year-old Tony Thompson has it tough. He's in a new school, and now every night, vampires show up in his dreams. But everything's about to change when Tony meets a real vampire, and the two become friends right off the bat. In the vein of Home Alone, this is one comedy the whole family can really sink their teeth into." The movie is rated G, 94 minutes long, and costs \$3.95.

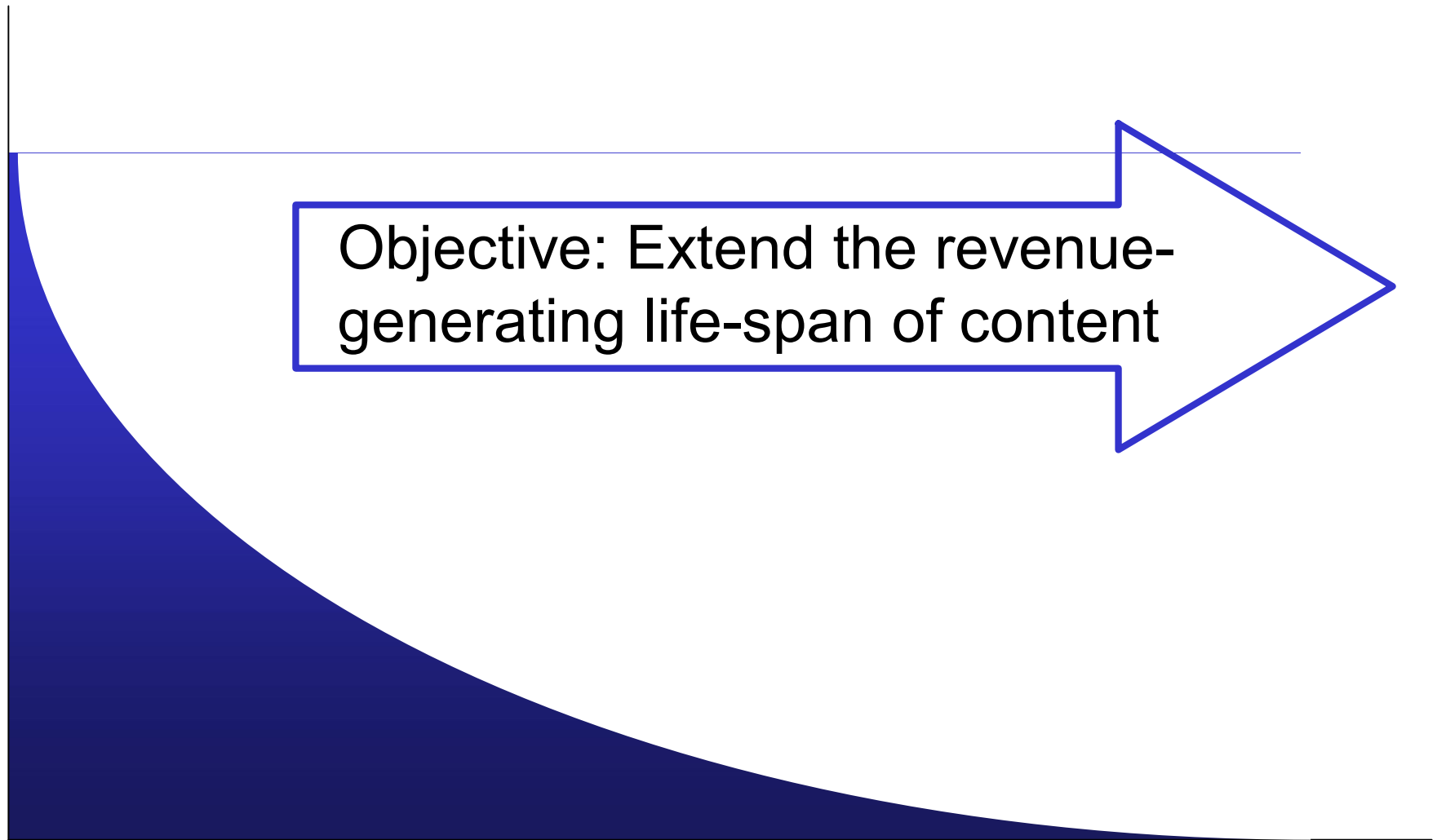
- Search for titles
- See Program Info
- Purchase the video
- Service models include
 - Movies-on-demand
 - Subscription video on demand
 - Free (promo) video on demand

Source: Myrio (a unit of Nokia Siemens Networks)

Video release windows



“The Long Tail”



Origin: Wired, October 2004



“Time-shifted” TV

- Request now
- View Later
- Playback on TV
- Playback on other devices
- Control from mobile or Web browser

Source: Minerva Networks

IPTV: Caller-ID on TV



- Incoming caller ID
- Screen your calls
- Click the remote to send to voice mail

Source: Orca Interactive



The screenshot shows a web-on-TV interface for 'cocina ELLE'. At the top, there is a banner with the text 'Descubra los otros servicios lagardere active'. Below this, there is a navigation menu on the left with options: 'Todos los pescados:', 'BACALAO', 'CALAMARES' (highlighted in red), 'SALMON', 'MEJILLONES', 'RAPE', 'SUMARIO', and a control panel with 'Seleccionar', 'Validar', and 'Salir'. The main content area displays the recipe for 'CALAMARES EN ENSALADA' under the 'Ingredientes' and 'Pescados' tabs. It includes a photo of the dish and a list of ingredients for 6 people: 1,250 kg of small calamars, 1 stalk of celery, 250g of black olives, 2 onions, 2 cloves of garlic, olive oil, 1/2 jar of natural red peppers, vinegar, salt, pepper, and 1 cube of stock powder. At the bottom, there are navigation buttons for 'Presentación' and 'Preparación'.

- Content is “re-purposed” from the Internet
- Must be formatted for a TV screen

Source: OpenTV Inc



yes

יום ג' 21:40

משחקים

- שש בש
- דומינו
- מבוכים
- דרקונים
- סולמות וחבלים
- צוללות
- פזל

ספיידרמן הזחינו עכשיו!

חזרה ●

הפעל משחק ok

Can be
interactive
and mixed
with live TV
programming

Source: Orca Interactive

IPTV: Personal Media Sharing

The screenshot displays the ORCA My Pictures IPTV interface. At the top left is the logo for ORCA INTERACTIVE My Pictures. To the right is a silver digital camera. The main area features a grid of photo album thumbnails, each with a title and a count of items. The thumbnails are arranged in two rows of three. The first row includes 'Family - 164', 'Nature - 64', and 'Maya - 16'. The second row includes 'Europe - 155', 'Vacation - 55', and 'The dog - 41'. At the bottom left, there is a navigation bar with a red dot and the text 'View slide show', and a blue dot with the text 'Back'. At the bottom right, it shows '2/16'.

ORCA My Pictures
INTERACTIVE

Family - 164

Nature - 64

Maya - 16

Europe - 155

Vacation - 55

The dog - 41

Nature - 64

● View slide show ● Back

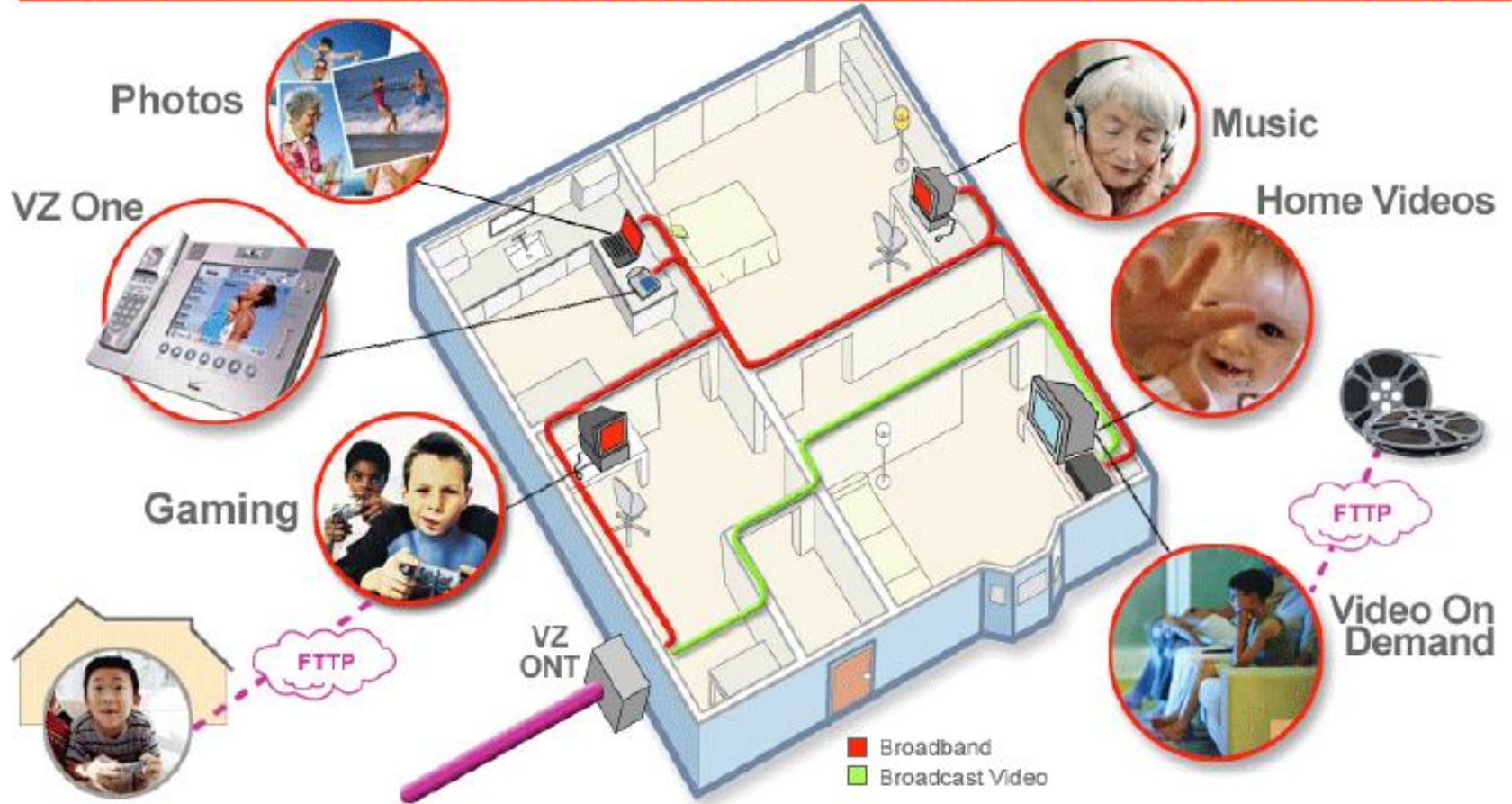
2/16

- Personal pictures, movies, sounds, music...
- Content could be on PCs, server or set-top box

Source: Orca Interactive

Verizon: Whole-home networking

Provide Customer with an Integrated Whole Home Solution



Source: Verizon Communications

New selling opportunities, via TV

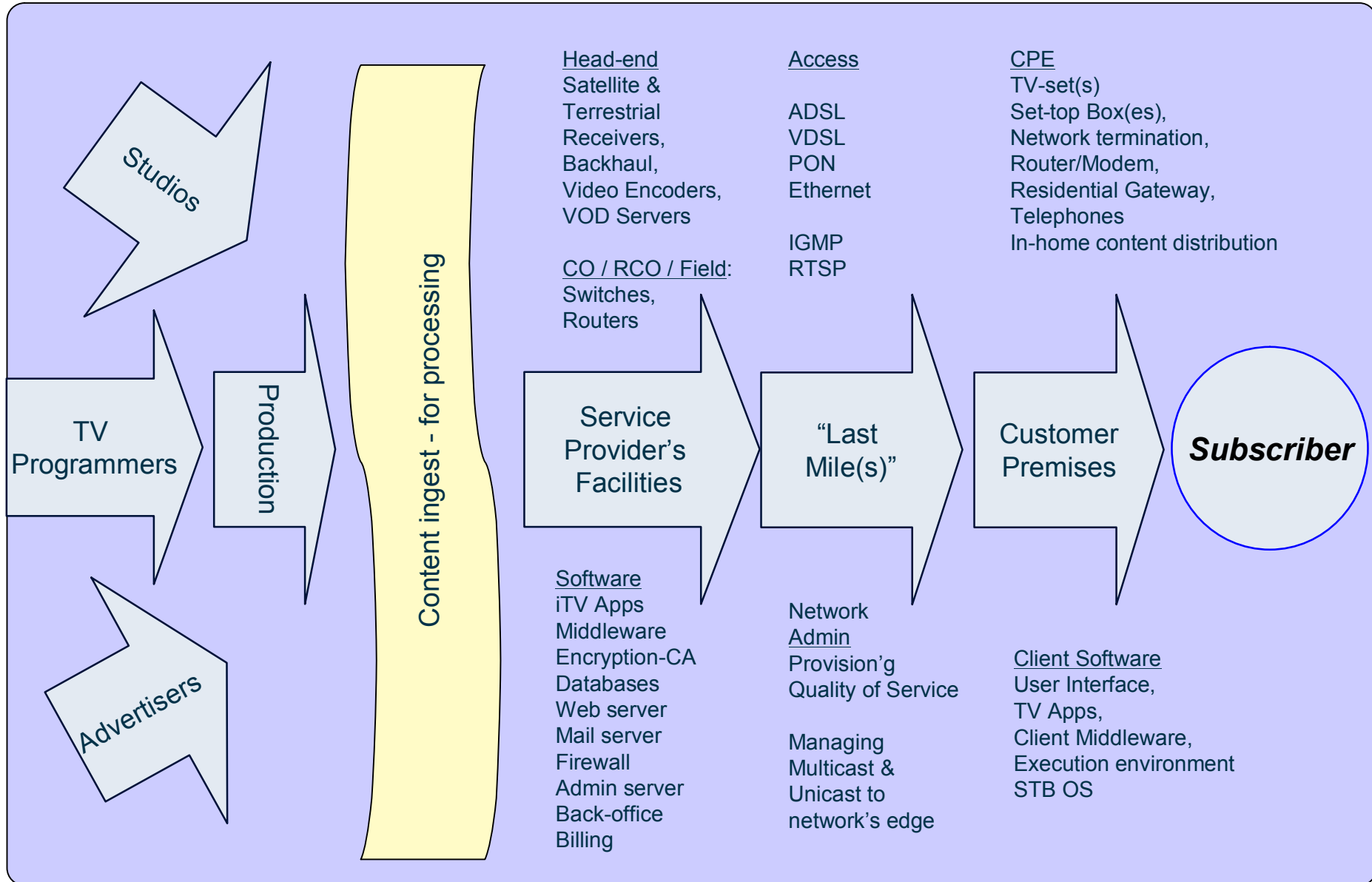
- Sell Add-on items associated with programming
- Ring-tones
- Sound-track
- DVD

- Could be associated with time (voting, polling, wagering where legal...)



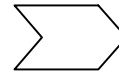
Source: Minerva Networks

IPTV Value Chain



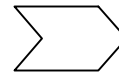
Many moving parts . . .

Consumer Devices



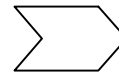
TV / STB
PCs, Media Centers
Mobile, Nomadic devices

Content



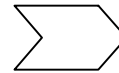
Live TV, Music
Movies
Games

Applications



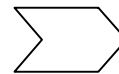
Program Guide
VOD, PVR
Interactive TV, Web-on-TV

Control & Management



Middleware
Content Protection / DRM
OSS/BSS

Infrastructure



Headend - content processing
Network

Presentation Outline



- 1: What is Broadband TV?
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What *ISN'T* Broadband TV?



- Direct Broadcast Satellite TV (Dish, DirecTV)
- Cable TV (Comcast, Time-Warner, et al)
 - Although IP is on the roadmap for Cable operators
- Over-the-Air analog TV (going away now)
- Over-the-Air digital TV (replacing analog)

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- A **fundamental change** in the consumer's relationship with TV programmers, content owners, advertisers and service providers
- Each consumer can assemble a unique **personalized** experience
- “Any time, anywhere, any content, any device, any network, in any context”
- **Completely on the consumer's terms**

- A new way to reach “**Audiences of one**”
- An opportunity to **multi-purpose content** assets, to multiple services, multiple devices, multiple consumer groups, etc
- Ability to “read” audience preferences like never before, to better **target programming and advertising**
- A way to increase revenue across multiple services
- **Increased consumer loyalty** (“stickiness”)

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- **5: The Road Ahead**
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Traditional TV

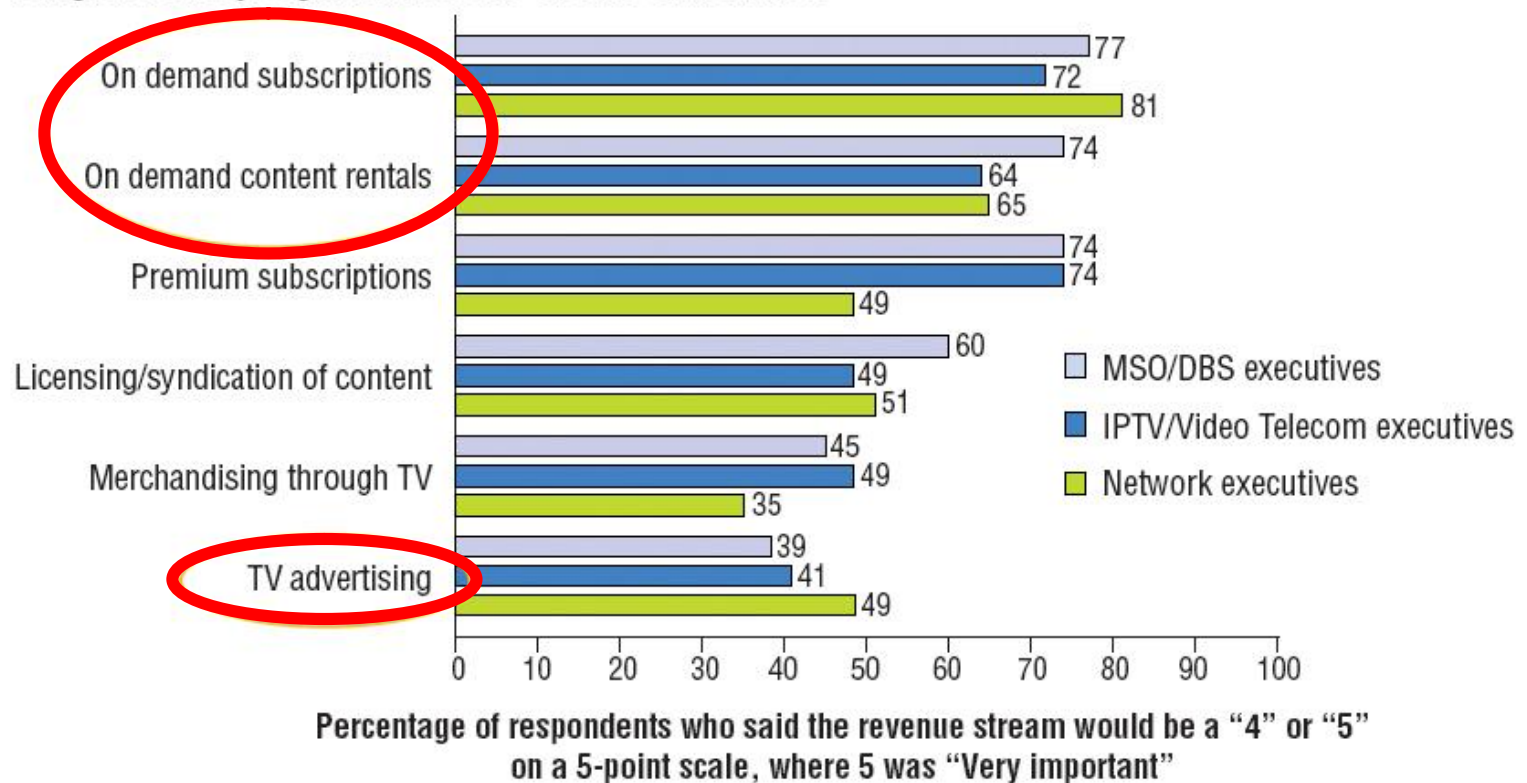
- Push - Linear
- Cable or Satellite
- National & Regional
- Location-specific services
- Triple-play
- Traditional TV business models

IPTV / iTV

- Pull - On-demand
- New competitors
- Hyper-local
- Any content to any device, anytime
- Multiple-play
- Enable new business models

IBM: Future iTV revenue streams

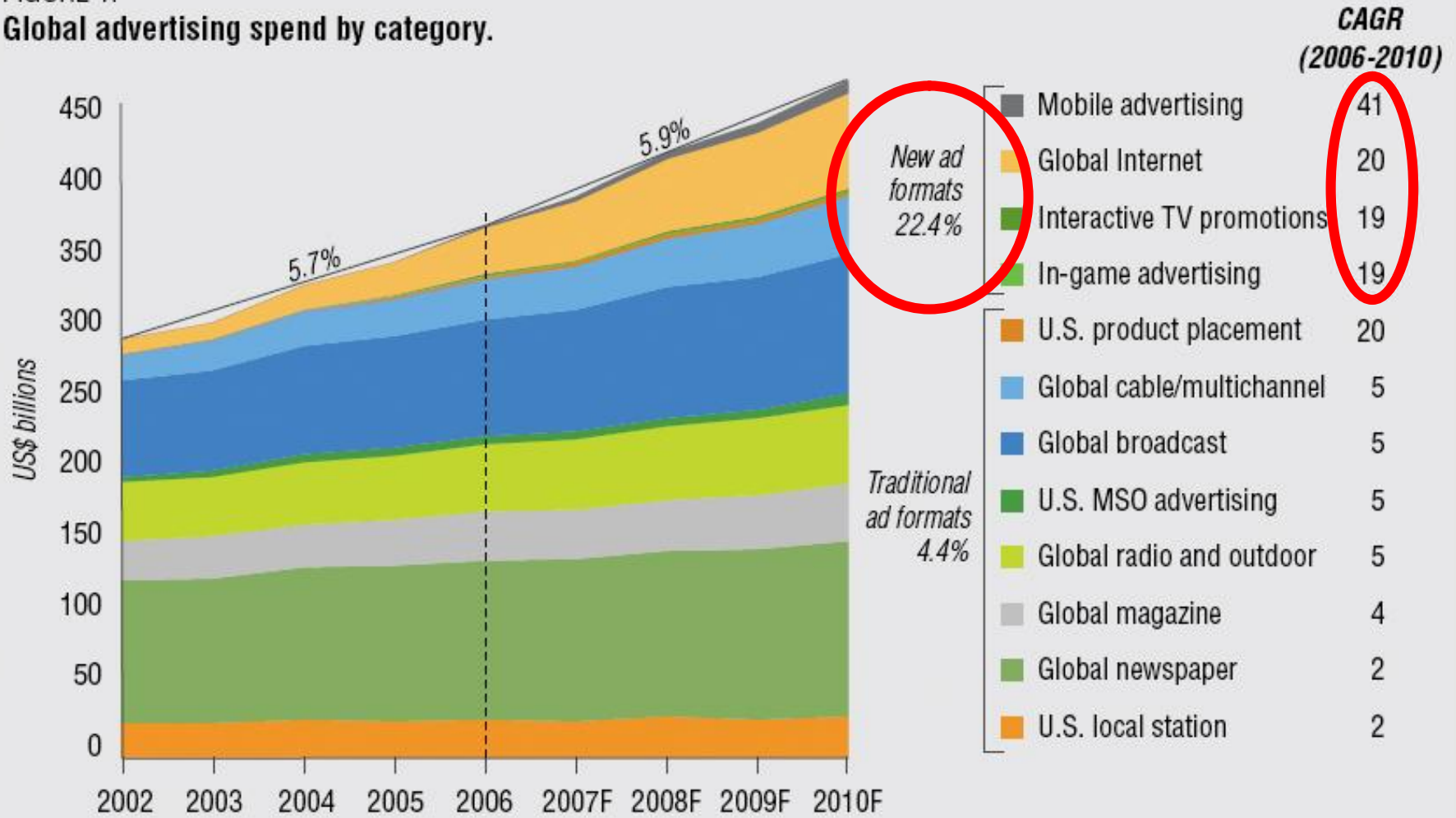
IBM global survey: Significant revenue streams of the future.



Source: IBM Institute for Business Value survey conducted by the Economist Intelligence Unit.

IP services = greatest ad growth

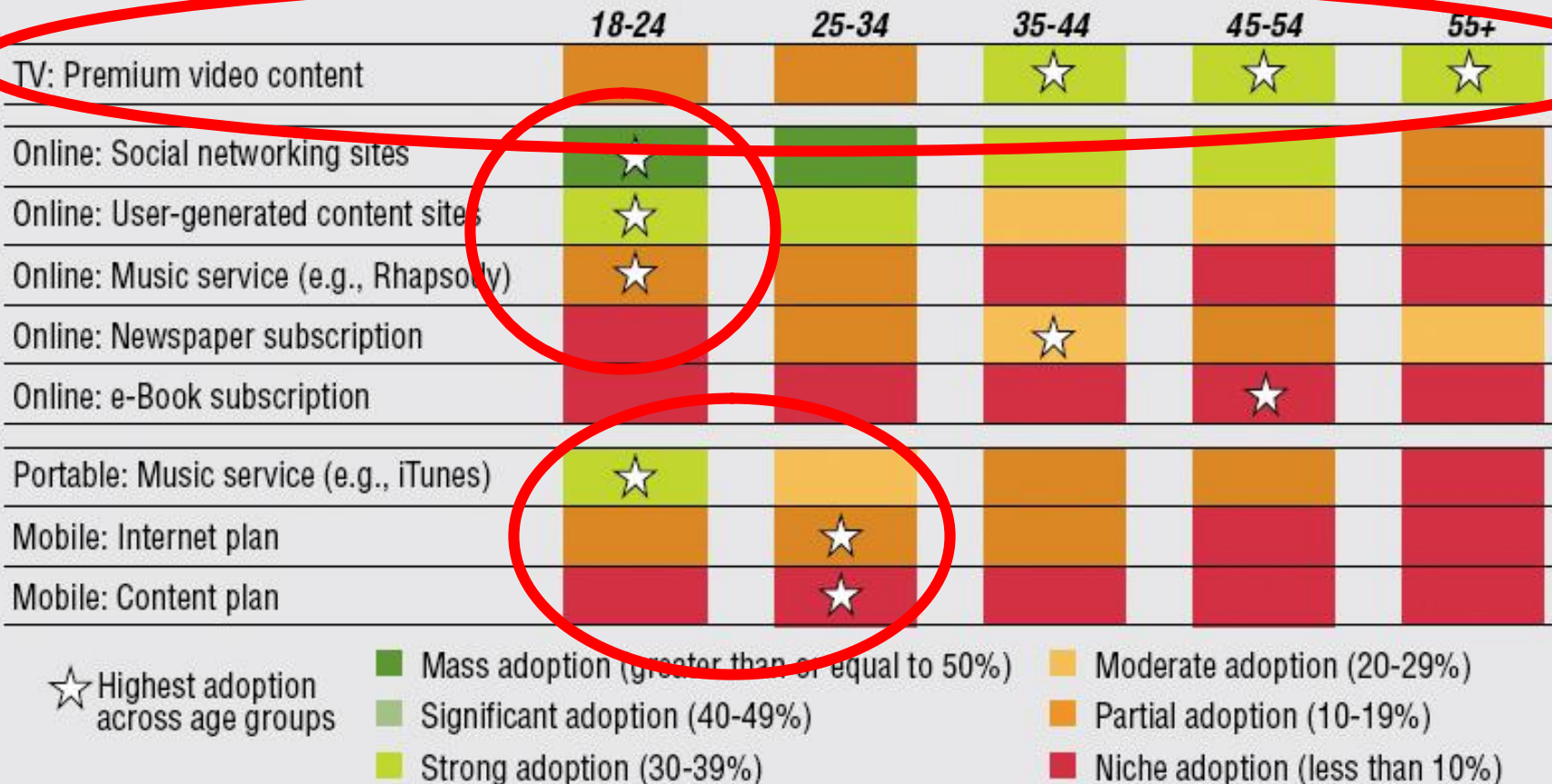
FIGURE 1.
Global advertising spend by category.



Source: IBM Institute for Business Value analysis based on an amalgamation of industry forecasts.

IP service users = new audiences

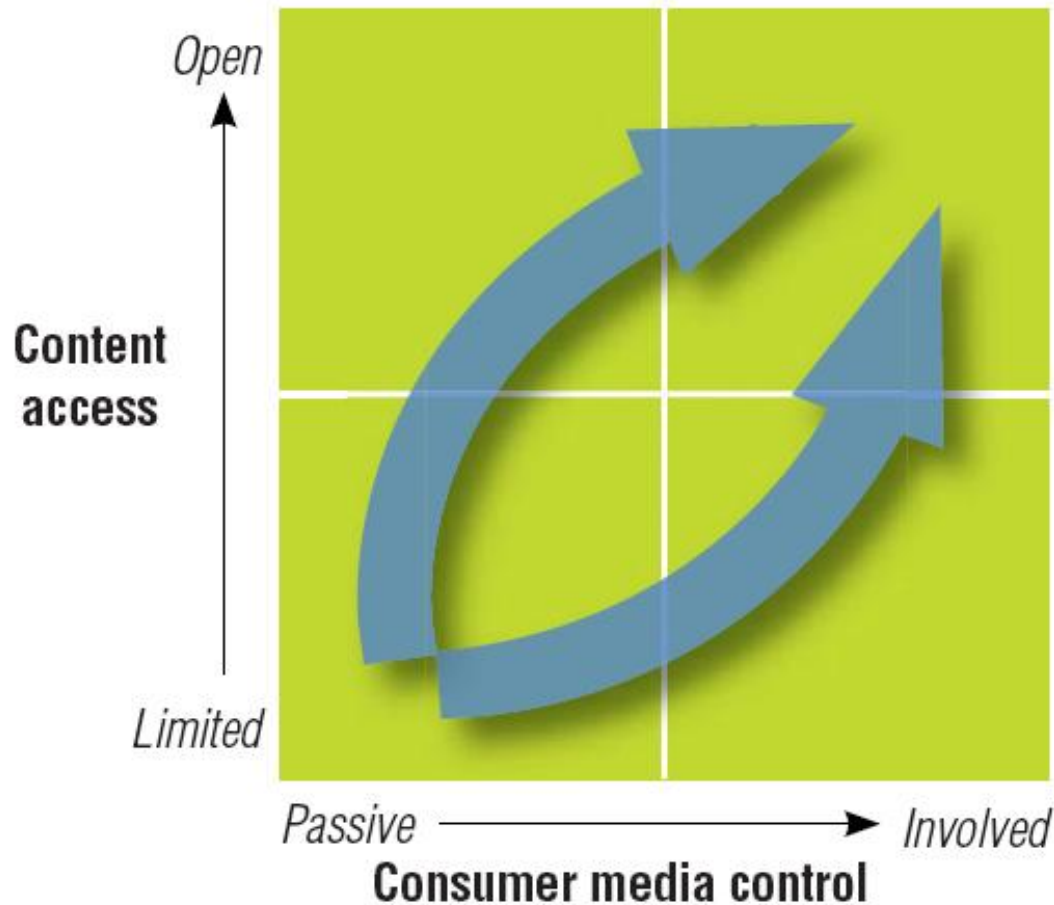
FIGURE 2.
U.S. content subscription services adoption by age group.



Source: IBM 2007 Digital Consumer Study.

TV industry Change Drivers

Drivers of change for the long-term future of the TV industry.



Source: IBM Institute for Business Value.

Presentation Outline

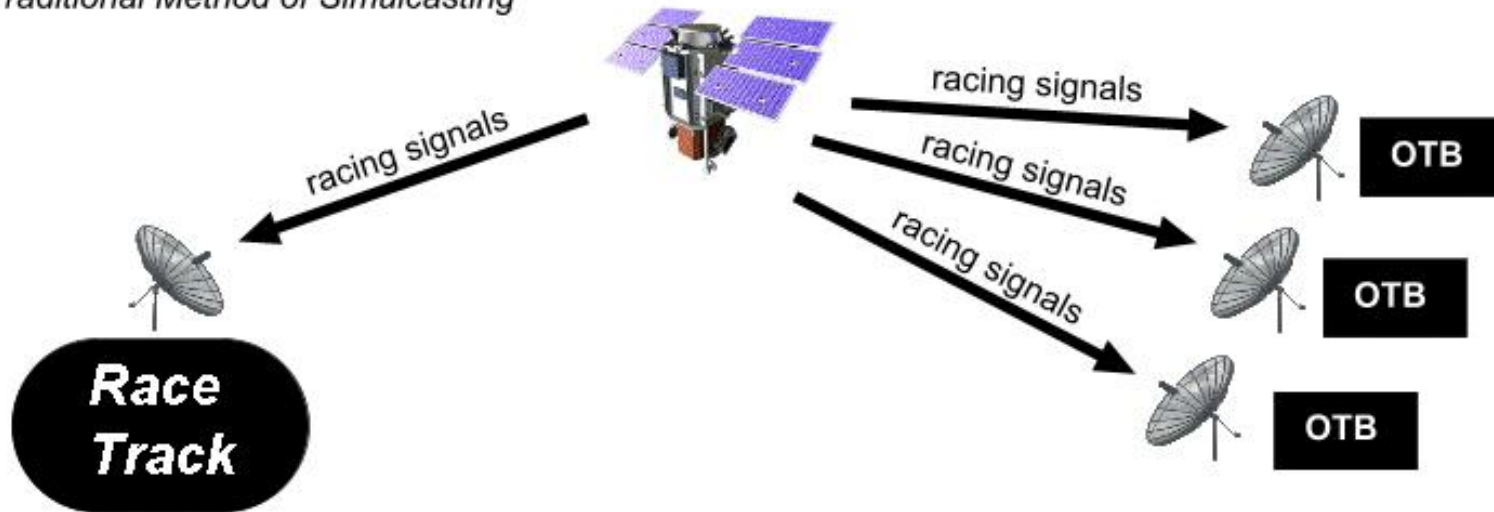


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- Online, place-shifted, time-shifted ... & traditional
- The concept of the Long Tail (lasts forever)
 - Classic games -> college alumni...
 - Classic races -> ???!!!
- Consumers taking charge like never before
- A Revolution in Advertising

IP alternative to Satellite distribution

Traditional Method of Simulcasting



TelePhoto's Simulcasting Solution



Imagine if this were “clickable”

Turf Paradise **Race 5** 3 Minutes

Win	2564	Exa	4512
Place	1524	Tri	6845
Show	2359	Sup	3158

WIN ODDS

1	5
2	9/2
3	3
4	5
5	99
6	12
7	6
8	5/2
9	SCR
10	15

The image shows a horse race in progress. A jockey in green and white silks is riding a dark brown horse with saddle cloth number 5. Another jockey in orange and pink is visible behind. The track is dirt, and a white barrier with 'Turf Paradise' written on it is in the foreground. The background shows a blurred crowd and stadium lights.

And... imagine it over IP networks

Where IPTV is going... Content view



It isn't just theory: PCCW



QuickTime™ and a
TIFF (LZW) decompressor
are needed to see this picture.



2007 Symposium on Racing

Technology: Threats & Opportunities

An Brief Tour of IPTV:
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