

# Converged Services and the Telco of the Future

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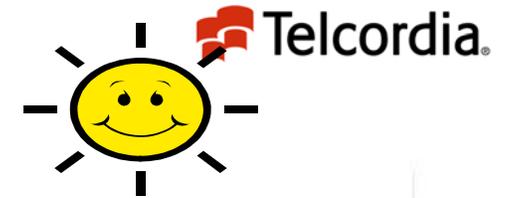
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## A Vision of a Fixed-Line Operator in 5 years (Business as Usual?)

- Profit from Fixed Line voice subscribers and minutes declines
  - Wireless Substitution
  - VoIP (Internet Bypass, Peer-to-Peer, CLEC)
- Price War for High Speed Data
  - Cable Modems beat DSL
  - WiFi and WiMax operators gain market share
  - CLECs compete on price
- Cable and Satellite TV dominate the Content Delivery Business
- Margins Drop, Revenue Declines, .....

**This is the future many Fixed-Line Incumbents Face**



## A better Vision

- Broadband Access pipes of more than 20 Mb/s are available to residential customers in targeted areas
- Telco offers a broad portfolio of services
  - Fixed voice, partnering with Mobile for seamless fixed-mobile access (in-house or MVNO)
  - Secure and Managed High Speed Data + Voice
  - Interactive “when you want it” Hosted video content
  - Interworking voice, video, data (and games)
  - Attractive Pricing Bundles “pull-through” service take
- New Services are introduced quickly – many per quarter
- ***Services interact and interoperate – creating unique offerings that are not commoditized.***
- Subscribers, Minutes, and ARPU grow

**In Other Words, a Converged Network offering Converged Services**



## Two Fundamental Elements Needed for the Bright Future

### ➤ Spread of Broadband and Ethernet Access

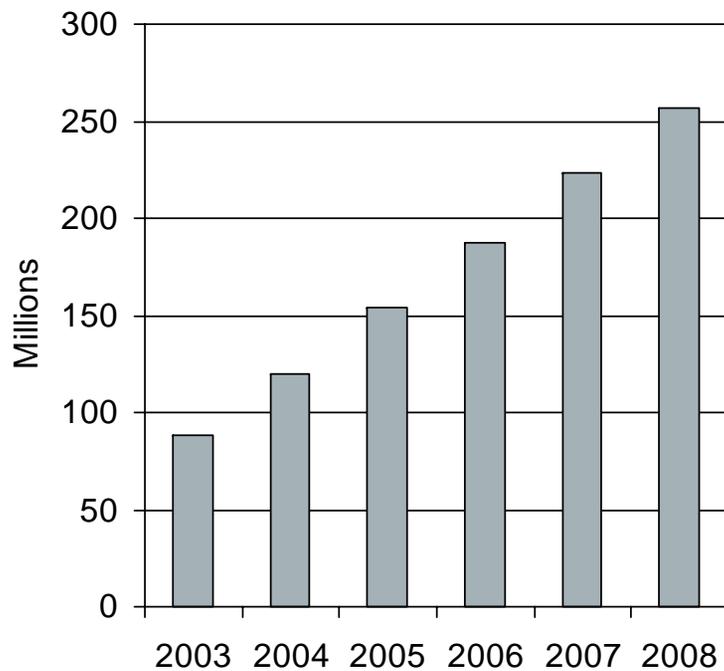
- DSL, ADSL2+, VDSL
- Cable Modems, FTTx, GbE, WiMax

### ➤ IP becomes the Telecom “Common Platform” for Converging Services

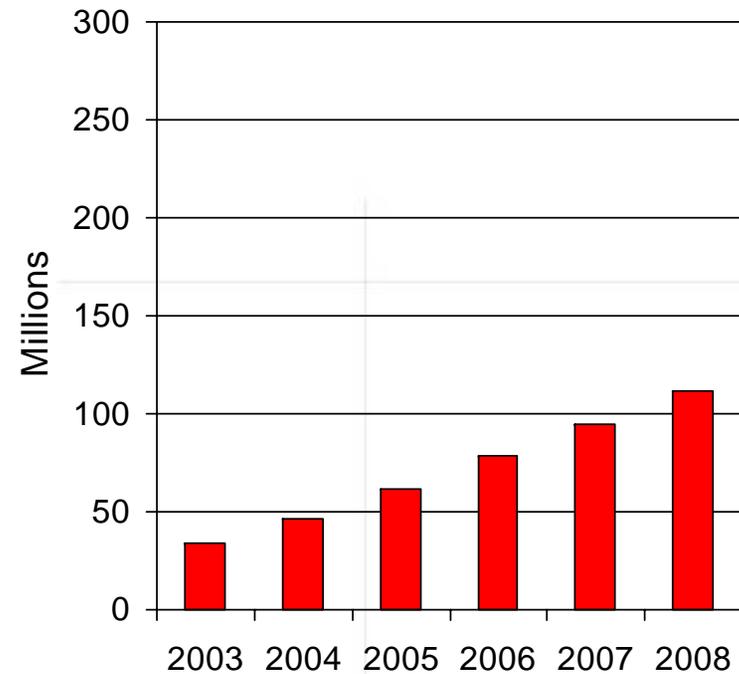
- Voice
- Data
- Video
- Mobility

# The number of broadband subscribers explodes, Worldwide

**Broadband Subscribers - Worldwide**



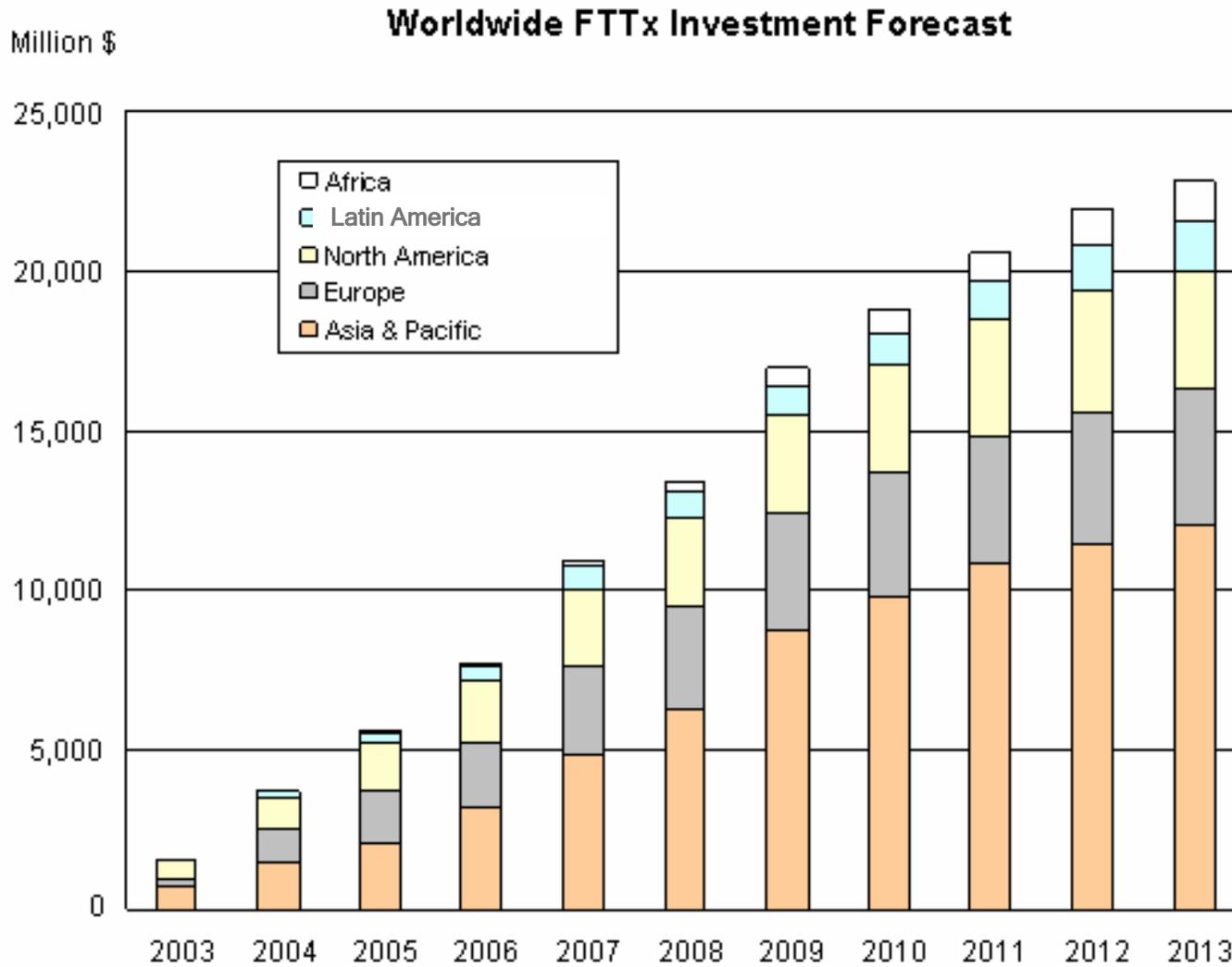
**Broadband Subscribers - Asia/Pacific**



Source: Yankee Group, "2004 Broadband Subscriber Forecast: Price Erosion Drives Mass Adoption", Nov 2004

**65 M Broadband Customers yet to be Added in Asia/Pac**

# FTTx Investment



Source: Dittberner Associates Inc., Nov 2004

# Japan Celebrated 1 Millionth FTTH Subscriber - YE 2003



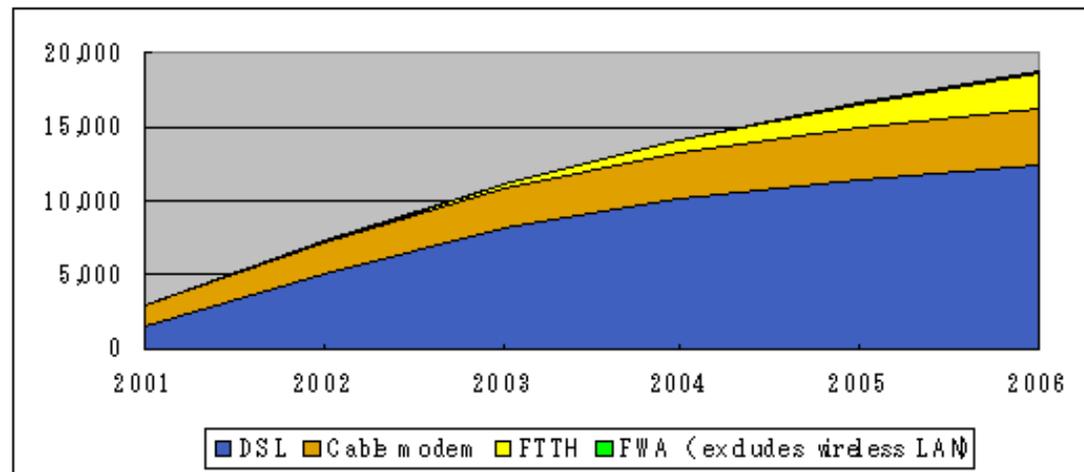
Service Provider	Type of Service
NTT East and NTT West <sup>1</sup>	100-Mbps shared type for apartment
	100-Mbps shared type with VDSL and PNA of more than 8 users for apartment
	100-Mbps basic type for house
Tepco Hikari by Tokyo Power Electric Company <sup>2</sup>	100-Mbps basic type for house
	10-Mbps shared type by for apartment
K-Optic.com by Kansai Power Electric Company <sup>3</sup>	100-Mbps basic type for house
	100-Mbps shared type of 8-16 users for apartment
Usen Broadband Networks <sup>3</sup>	100-Mbps shared type of 8-16 users for apartment
	100-Mbps basic type for house

Source: Gartner

Gartner Dataquest predicts that only in regions such as Japan and South Korea, where there is strong government support, will carriers undertake accelerated deployment of FTTH.

**But even so, FTTH will constitute only a small fraction of broadband households in Japan.**

Source: IDC



# The Rest of Asia Lags – But Has Plans for FTTx

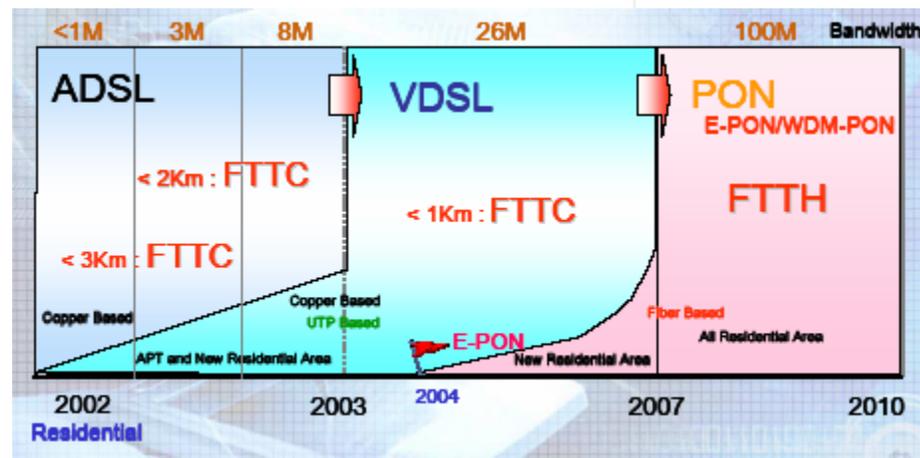
## • Korean FTTx

- June 2003: New Apartment Bldg in Seoul, 896 Subscribers (Active Netwk)
- November 2003: 100 Subscribers in Gwangju (EPON)
- December 2003: Residential Subscribers in Busan, WDM-PON
- March 2004: 1092 “Superclass” Homes



- Korea Telecom plans to begin a major FTTP deployment in 2006, delivering 50 Mb/s to 100 Mb/s of bandwidth to 73% of total households by the end of 2010.

## Korea’s Plans for Broadband



Source: “Convergence Access in Korea”, Dr. Chu Hwan Yim, President of ETRI, June 2004

# The Rest of Asia Lags – But Has Plans for FTTx (2)

- **FTTx in China**

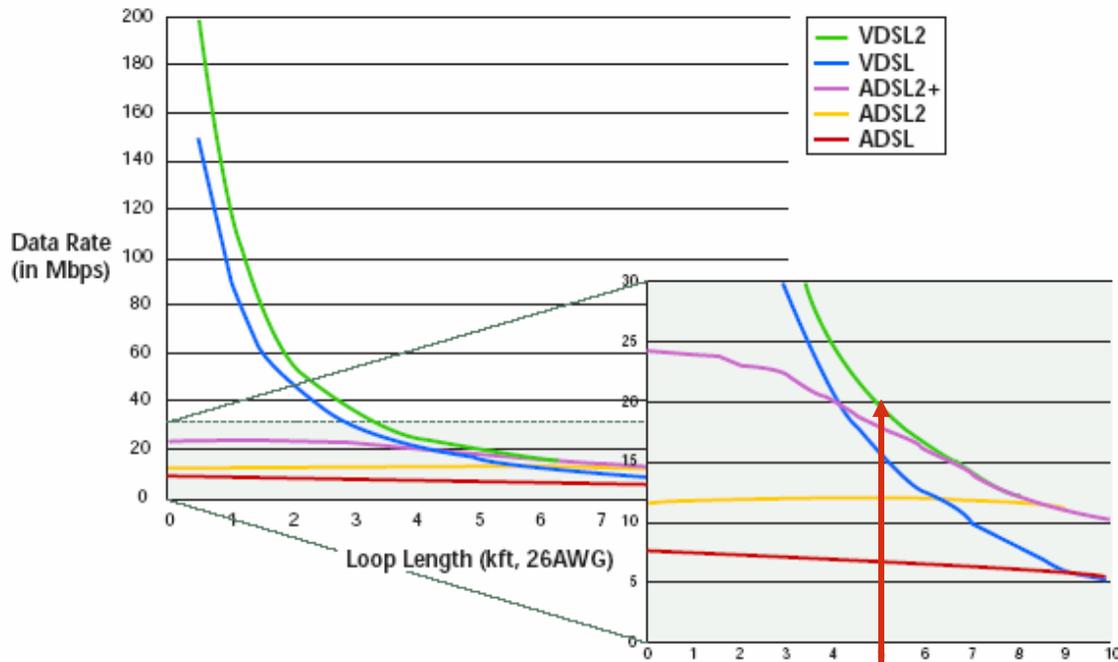
- July 2003: **China Netcom** to deploy Salira FTTP equipment in Beijing and Changsha City in Hunan Province
- February, 2004: **China Unicom** selected Release 2.2 of the Salira 2000 Platform to deliver broadband services in the province of Guangdong.
- April, 2004: **Great Wall Broadband Network Service Co. Ltd.** one of China's fastest growing broadband service providers selected WorldWide Packets' LightningEdge Ethernet FTTP system to offer their customers data access, voice, VPNs, IP Centrex, video (VOD, IPTV), content and gaming, interactive television programs, and distance education.

- **FTTx in Taiwan**

- September 2004: Chunghwa Telecom has deployed the ECI HiFocus FTTP system

# There's Fibre, But Many Incumbents have another way to get to Extreme Broadband

**ADSL/VDSL over existing Copper can meet much of their need.**



➤ >50% of customers are within 1,500 m of a DSLAM in Europe.

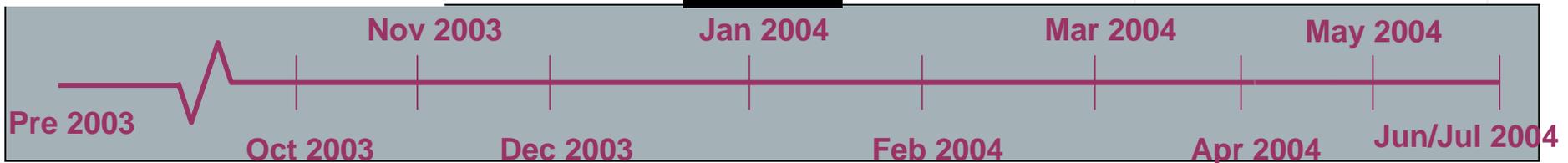
➤ Compare to US and Canada - < 25%

20 Mb/s is minimum needed for Triple Play

**Broadband Access with DSL or Fibre is the basic underlying infrastructure needed by Telcos .....**

**But it's Services that will pay the bills!**

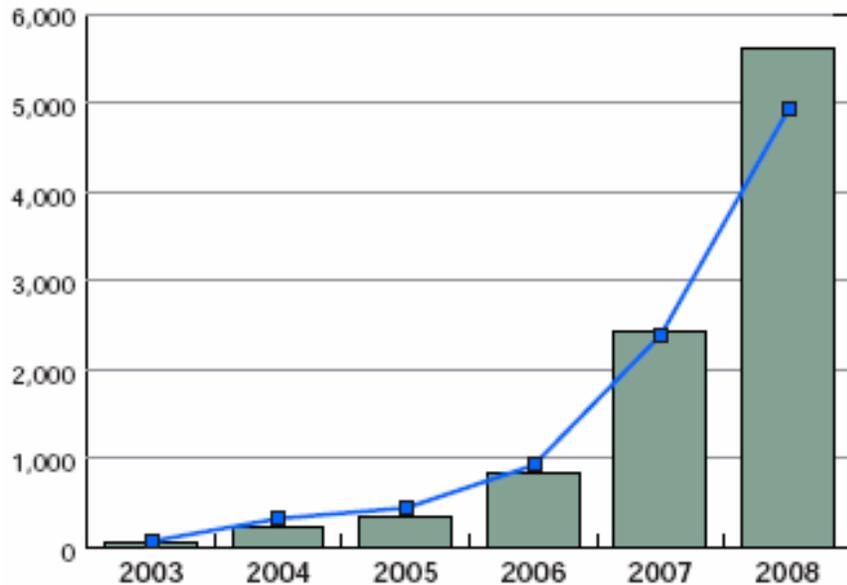
# VoIP Carrier Announcement Timeline



# Voice over Broadband: Selected Asian Deployments

Asia-Pacific Cable  
VoIP Subscribers  
(in Thousands)

% VoIP  
Penetration  
of Cable  
Modems

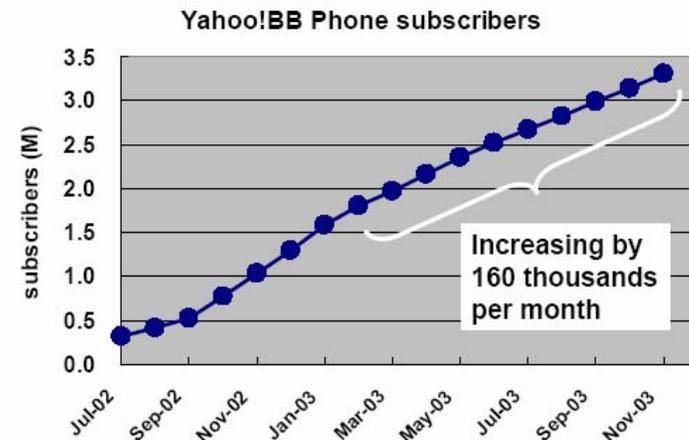


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## Broadband and IP Telephony in Japan



Number of IP Telephony users are still growing, not saturated yet.



(Source: Softbank BB Press Release)

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## What is the Triple Play?

- **Triple play**: The bundled offer of voice, data (broadband) and video (TV and video on demand).
  - Bundled at the Bill, separate partner networks
    - E.g. Telco + Satellite TV Bundles
  - Single Network Offer
    - E.g. Telco with FTTx or Advanced DSL
    - E.g. Cable MSO with Digital Video, Broadband Access, and VoIP
- **What's at Stake?** Access to a new revenue stream
  - By 2008, \$4,700 M will be spent annually on subscription video services, worldwide. This is a CAGR of 47%
- **Leads to the Quadruple Play**
  - Add mobility to the Triple Play
  - The ultimate target for communications companies

# Incumbent Telcos are already Telcordia offering Triple Play

North America	Europe	Asia/Pacific
Manitoba Telephone <i>(MTS TV)</i>	France Telecom <i>(MaLigne)</i>	PCCW – Cascade Hong Kong
SaskTel <i>(MAX™)</i>	Telefonica de Espana <i>(Imagenio)</i>	Chunghwa Telecom
Bell Canada <i>(TotalVision)</i>	Deutsche Telekom <i>(T-Online Vision)</i>	KT – So. Korea <i>(Home N Service)</i>
Aliant <i>(TV on my PC)</i>	Telecom Italia <i>(Rosso Alice)</i>	China Telecom <i>(Shanghai)</i>
QWEST (capped)	BT <i>(BT Openworld)</i>	NTT West <i>(OnDemandTV)</i>
	KPN <i>(Bredbandportal)</i>	
	Telekom Slovenije <i>(SiOL)</i>	

Source: Gartner Dataquest, August 2004, RHK, March 2004 and September 2004

And more are announcing plans or trials - every day

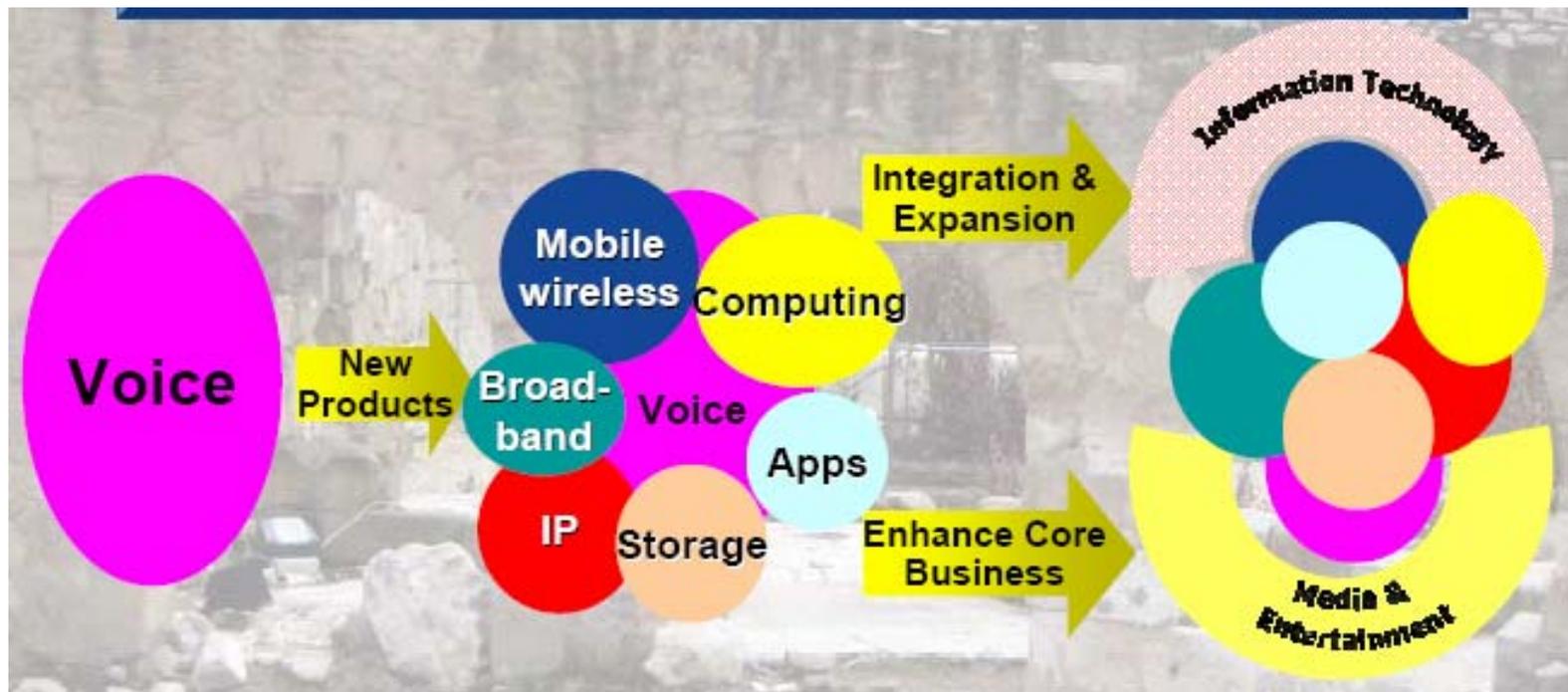
North America	Europe	Asia/Pacific
SBC <i>(Lightspeed)</i>	Swisscom <i>(Bluewin)</i>	Reliance Telecom (India)
Verizon <i>(FIOS)</i>	Telecom Italia <i>(Microsoft IPTV)</i>	China Netcom
BellSouth	Sistema Companies (Russia)	
	KPN (Netherlands) Wireless DVB-T	
	Belgacom <i>(iDTV)</i>	

# How Much Bandwidth?

Service	Unit Bandwidth	Total Bandwidth
High Definition IPTV (MPEG 4 or WM9 coding)	7.5 Mb/s (WM9) or 10 Mb/s (MPEG 4) each	7.5 Mb/s - 10 Mb/s (1 Stream)
Standard Definition IPTV	1.33 Mb/s each	4 Mb/s (3 Streams)
High Speed Data	3 Mb/s	3 Mb/s
Voice (VoIP) CD Quality Voice	0.5 Mb/s	1.5 Mb/s (3 talkers)
<b>Total</b>		<b>16.0 – 18.5 Mb/s</b>

**Most Analysts Believe 20 Mb/s Downstream is Minimum Required.**  
 ➤ Initial Triple Play offers usually over Copper + ADSL2+

# Convergence is more than offering bundled multiple services



Source: IDC, March 2005

Single Service → Multiple Services and Bundled Billing → Convergence

When I'm online,  
I want text to my mobile to come up  
in Messenger ...  
and I want to click to reply.

**That'd be cool.**



**I want to purchase** music from the television,  
and send it to my mobile.

**Or store on my music library..**



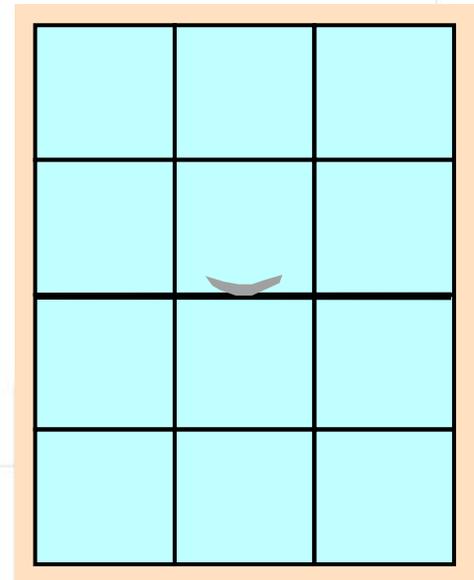
When we're watching a movie, we want to  
**see who is calling** when the phone rings.  
**on the television.**



# Great goal!

I'll send that as a **message** to my friends

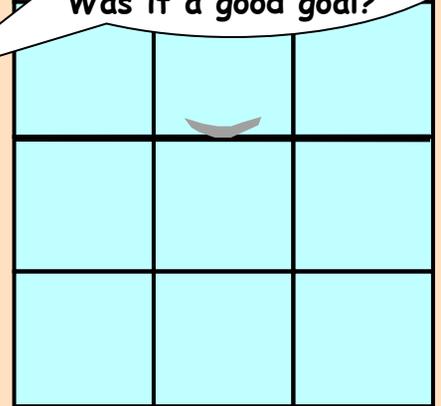




Ah, What a game.



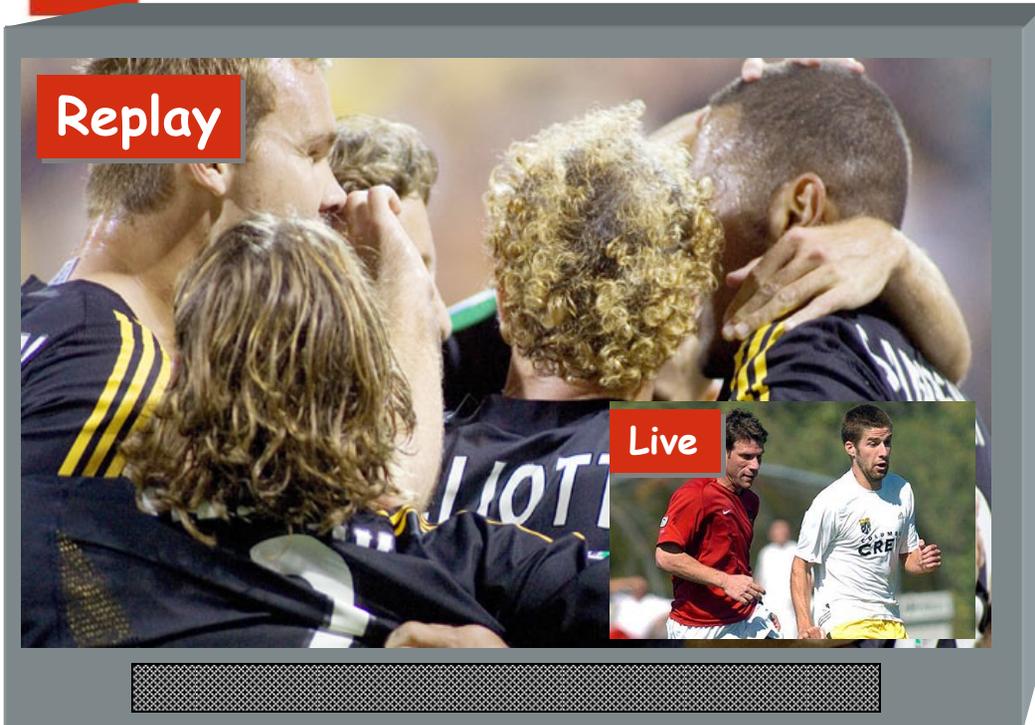
I'm on the train.  
I saw the score  
change?  
Was it a good goal?



Joe, Hi,  
I sure am watching the  
game!

Joe, that was a great  
goal, I'll send it to  
your cell phone





Pretty neat.  
How's our fantasy  
team doing?



Let me check.



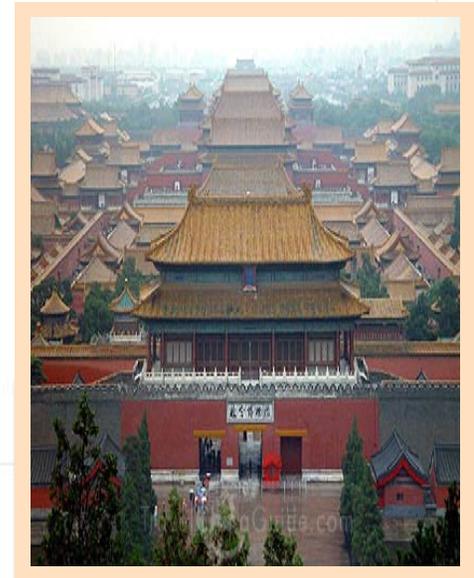
**Final Standings**

1	Texas	1655
2	Duke	1375
3	Class of '09	1375
4	Class of '08	1370
5	Miami	1370
6	UConn	1370
7	UVA	1370
8	Stanford	1370
9	Georgia Tech	1365
10	Michigan	1365
11	North Carolina	1360
12	Wake Forest	1360
13	UNC	1355
14	UCLA	1355
15	UW	1355
16	Pele is here!!!	1675
17		0

That's great. See you tomorrow at our game. Bye.



With that goal, they moved up one spot.



Now, back to this game!

## What will it take to achieve the vision?

- A Broadband, IP Infrastructure
- Convergent Services and Customer Bundles
- Good Marketing and Communications
  
- Rapid Introduction of Innovative New Services
- Network and Service Quality and Security
- Cost Efficient Operation
- Business Transformation to a Service-Centric Operation and Customer-Centric Organization

## In the Midst of all this Technology Change Operators Must Transform their Business Operations

- Modernize Legacy OSS
- Consolidate “mini-solutions” purchased to manage a single initiative
- Break down organizational and functional “silos”
- Wholesale Transformation of Software Platforms



It's Not Your Grandfather's  
Telephone Company..... Anymore!