The OCTAVE Project

New Business Planning Group
KT

March 2005
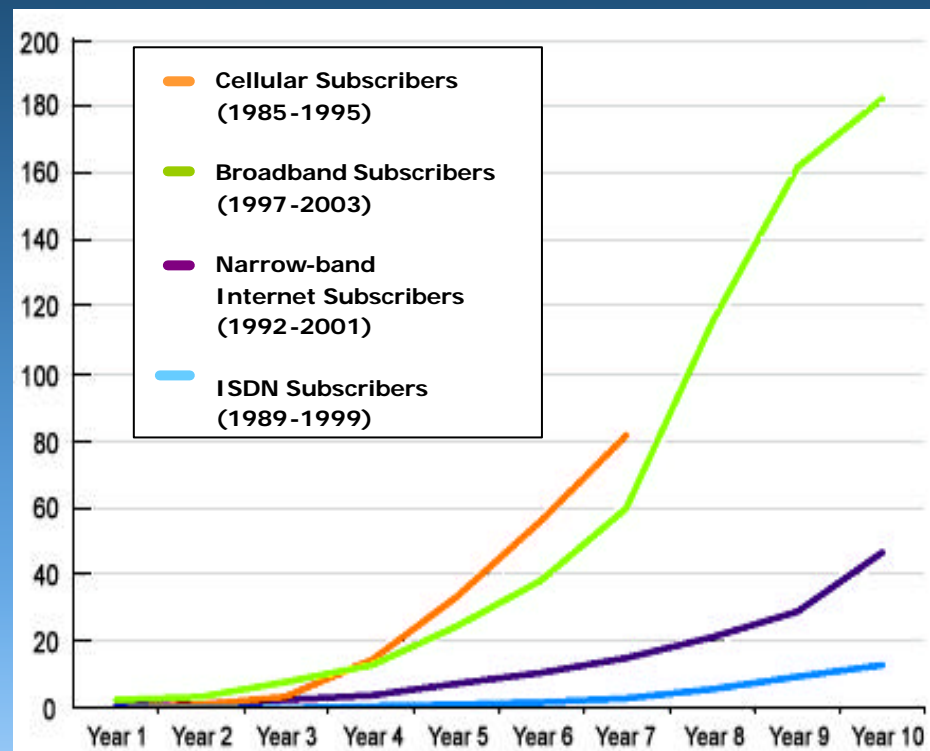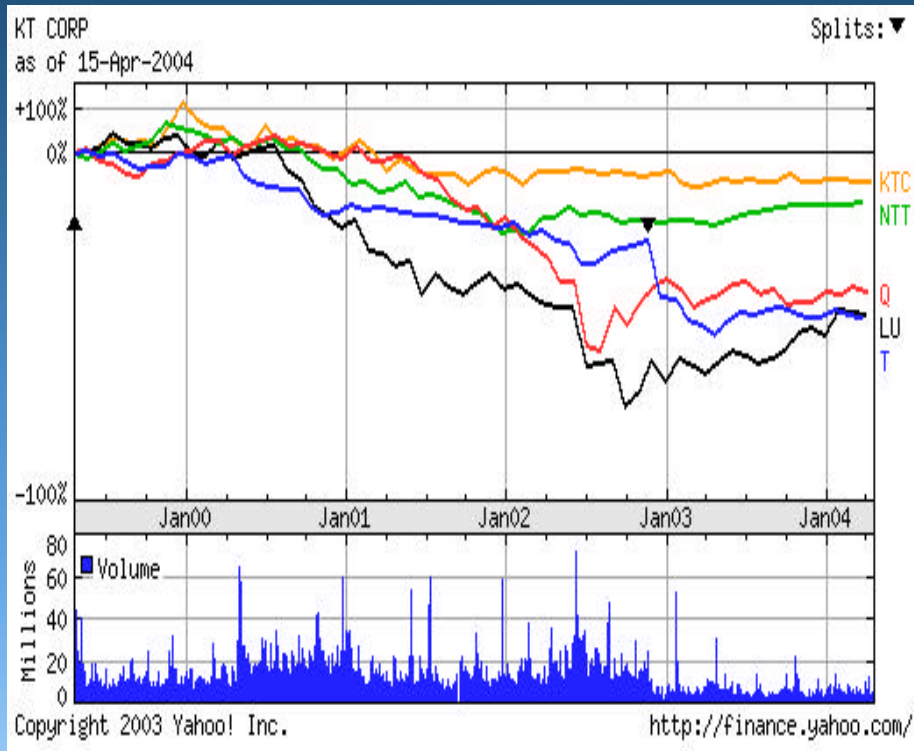
KT Value Networking

Today's Telco - Broadband

Downfall of Main Revenue Stream
- **PSTN Business**
- **Leased-line**

Broadband take-up over first 10 years is faster than previous services across the OECD countries.

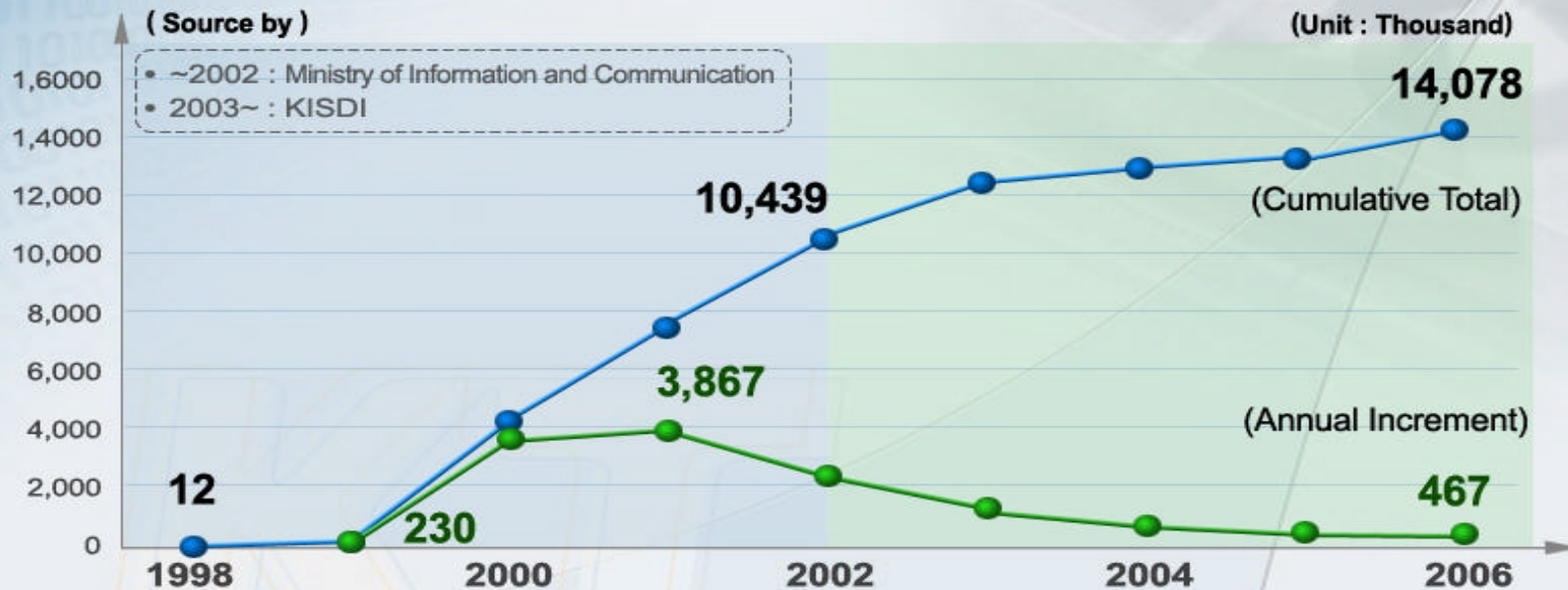# Two Sides of Broadband Internet Business in Korea

Threat & Opportunity

Threat

◆ Revenue: Saturating market with flat rate
◆ Expenditure: Increasing CAPEX/OPEX
      due to doubling traffic
◆ High customer expectation level:
  - avr. ~4.5Mbps bandwidth per customer
  - customer sensitivity to network quality

Opportunity

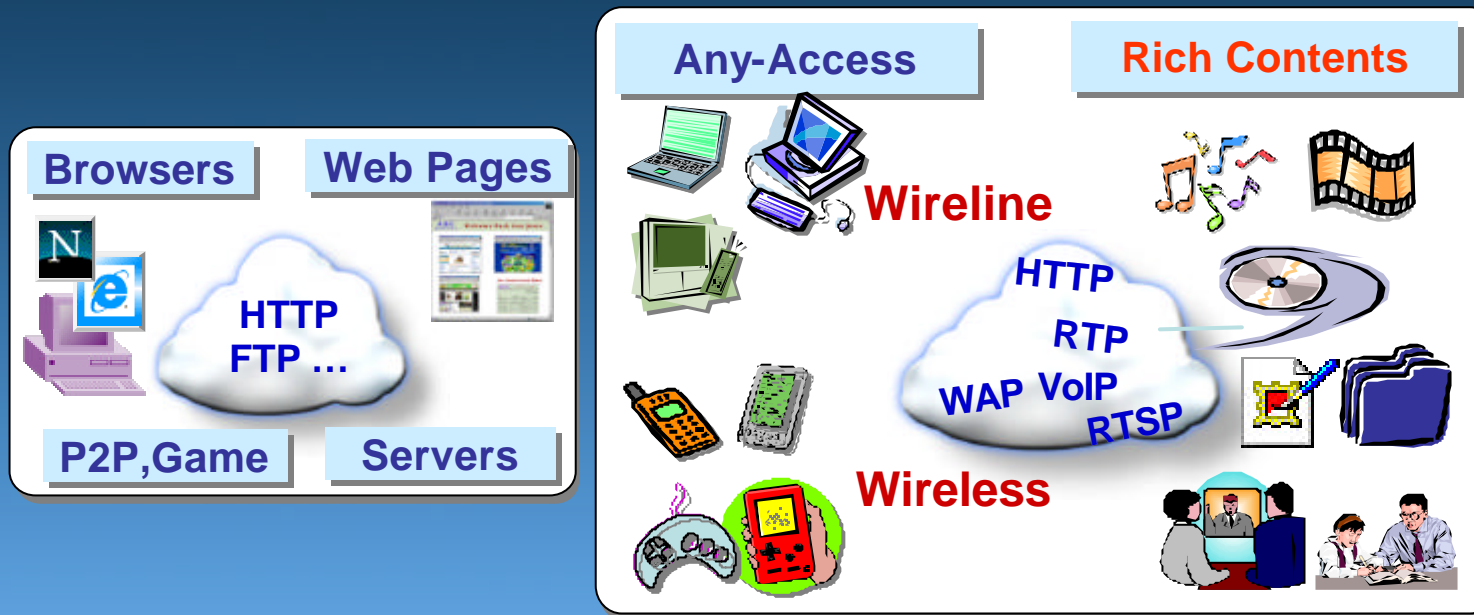◆ Has established
  - high quality infrastructure
  - Large customer base
◆ Opportunities in application
  & value-added services

(Source by)
- ~2002 : Ministry of Information and Communication
- 2003~ : KISDI

(Unit : Thousand)

14,078 (Cumulative Total)

10,439

3,867

12

230

467 (Annual Increment)

1998 2000 2002 2004 2006

1,600 1,4000 12,000 10,000 8,000 6,000 4,000 2,000 0

Broadband Internet: The Next Stage

- **From simple Internet access to "quality life/work services"**

| Yesterday | Today | Tomorrow |

Browsers   **Web Pages**

HTTP
FTP ...

P2P,Game   **Servers**

Any-Access   **Rich Contents**

Wireline

HTTP
RTP
WAP VoIP
RTSP

Wireless
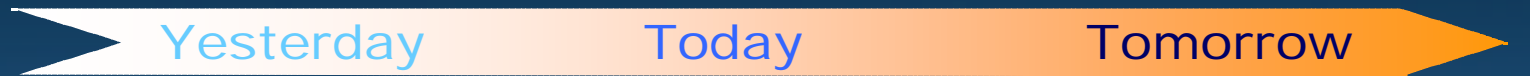
Simple Internet Access

Quality Life/work services

Basic Questions

1. Will |A| >> |B|?
2. Will Telcos dominate the market?
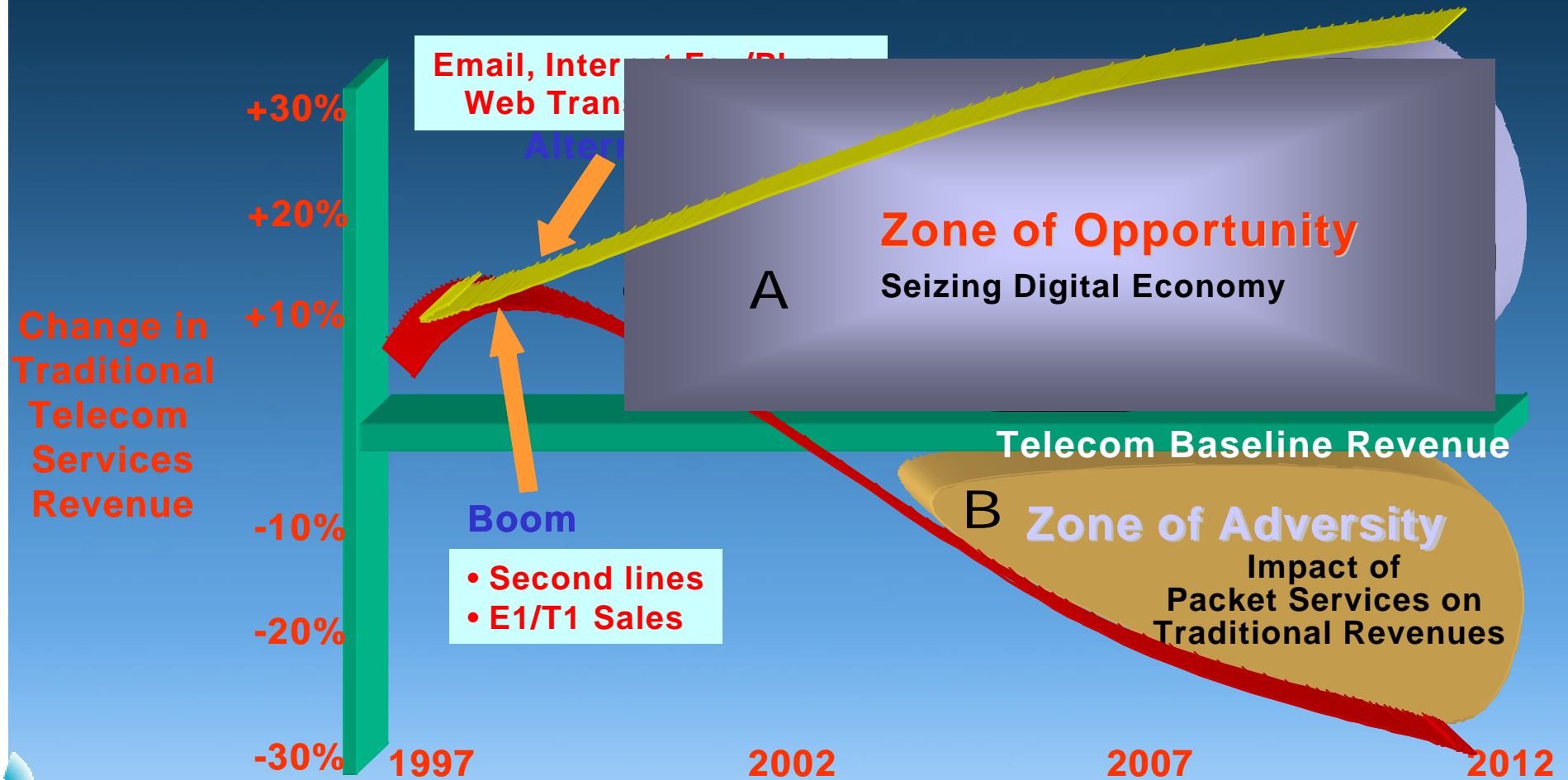
Email, Inter... ...w/Phone, Web Tran...

Alter...

Zone of Opportunity

Seizing Digital Economy

A

+30%

+20%

+10%

Change in Traditional Telecom Services Revenue

Telecom Baseline Revenue

B **Zone of Adversity**

Impact of Packet Services on Traditional Revenues

Boom

-10%

- **Second lines**
- **E1/T1 Sales**

-20%

-30% **1997**   **2002**   **2007**   **2012**

Challenge for Octave Higher

Value Networking **KT**

Answers #1
App./Solution Market: Forecasts & Facts

(? ? ? ?)

	2000?	2001?	2002?	2003?	2004?	2005?	2006?	2007?
2003? ? ? ? ? ? ?			605,872	646,559	708,828	796,454	895,846	1,011,231
1999? ? ? ? ? ? ?	597,800	678,900	776,400	890,500	1,070,800	1,297,700		

(? ? ? ?)

	1997?	1998?	1999?	2000?	2001?	2002?	2003?	2004?	2005?	2006?	2007?
2003? ? ? ? ? ?						14,215	16,727	19,688	23,065	26,749	30,666
2000? ? ? ? ? ? ?	4,256	4,488	5,856	7,656	10,816	14,728	19,336	23,728	31,704		
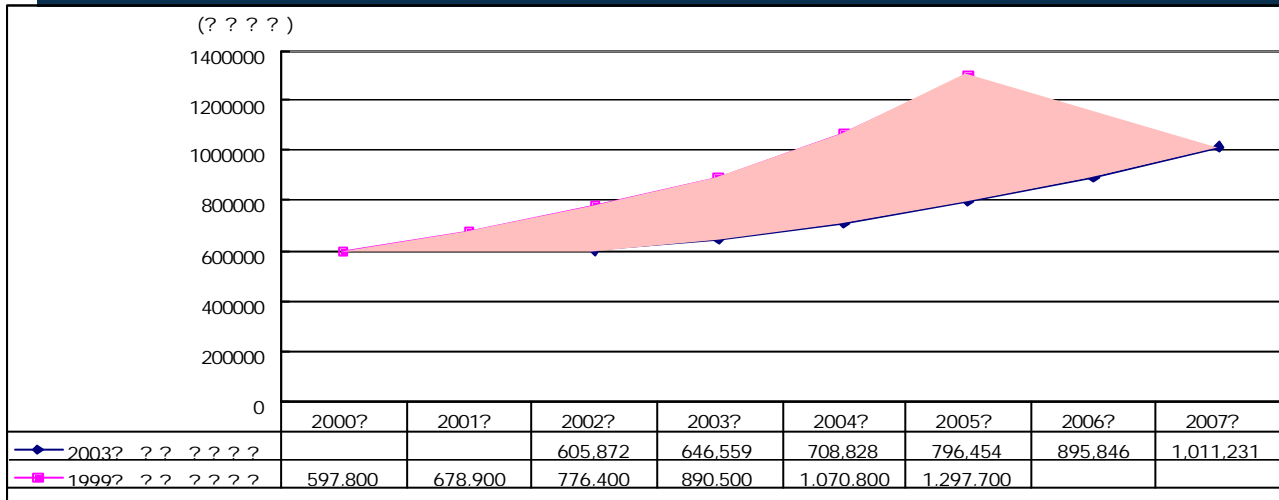
For Digital Content Market (2003, Korea)
- Creation & Service(63.2%)
- Delivery(14.9%)
- Solution(21.9%)
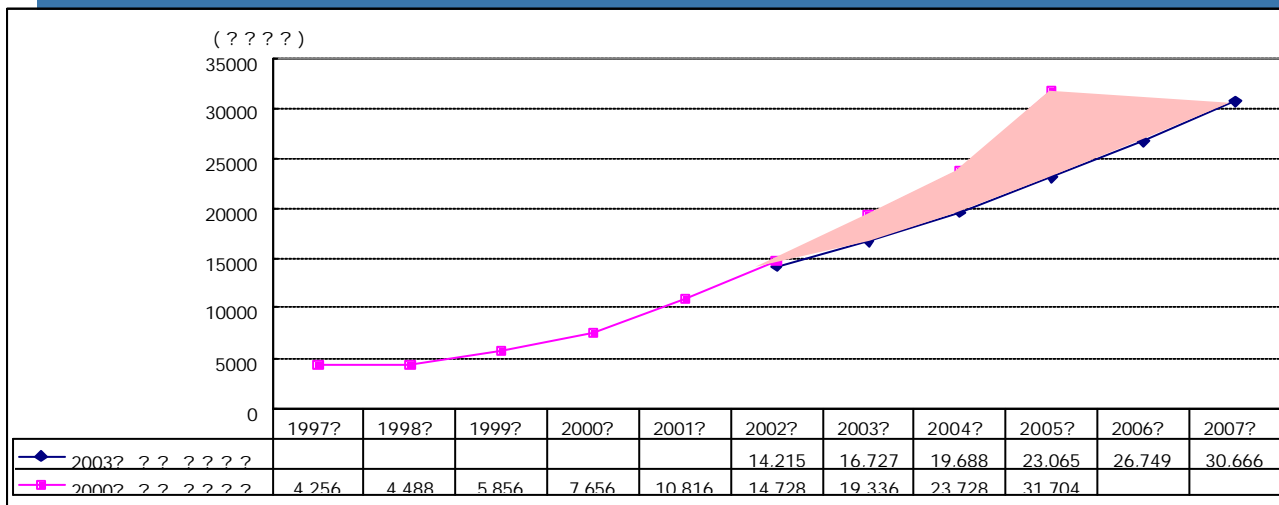
For Delivery
- Off-line(51%)
- On-line(49%)

Challenge for Octave Higher

Value Networking **KT**

Answers #2
Telcos in the App. & Solution Market

⬡ **Small name in the application service market**

Telco: e.g., KT

Free-riding;
No differentiation

Best effort Access

best effort Internet

HanMir

Home Media

idisk

No differentiation

NAVER

CINEWEL.COM

MBC www.iMBC.com
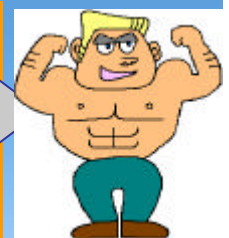
megastudy

App. Giants
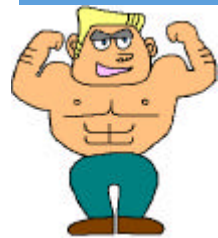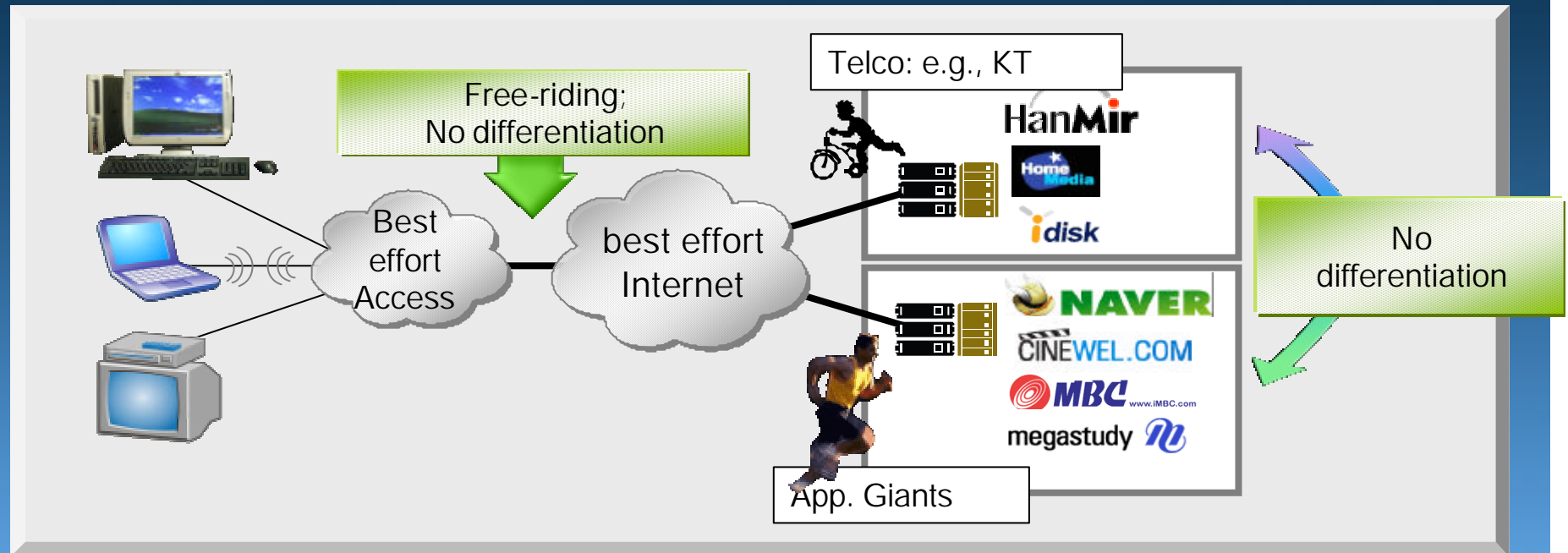
Contents
(or App. service)

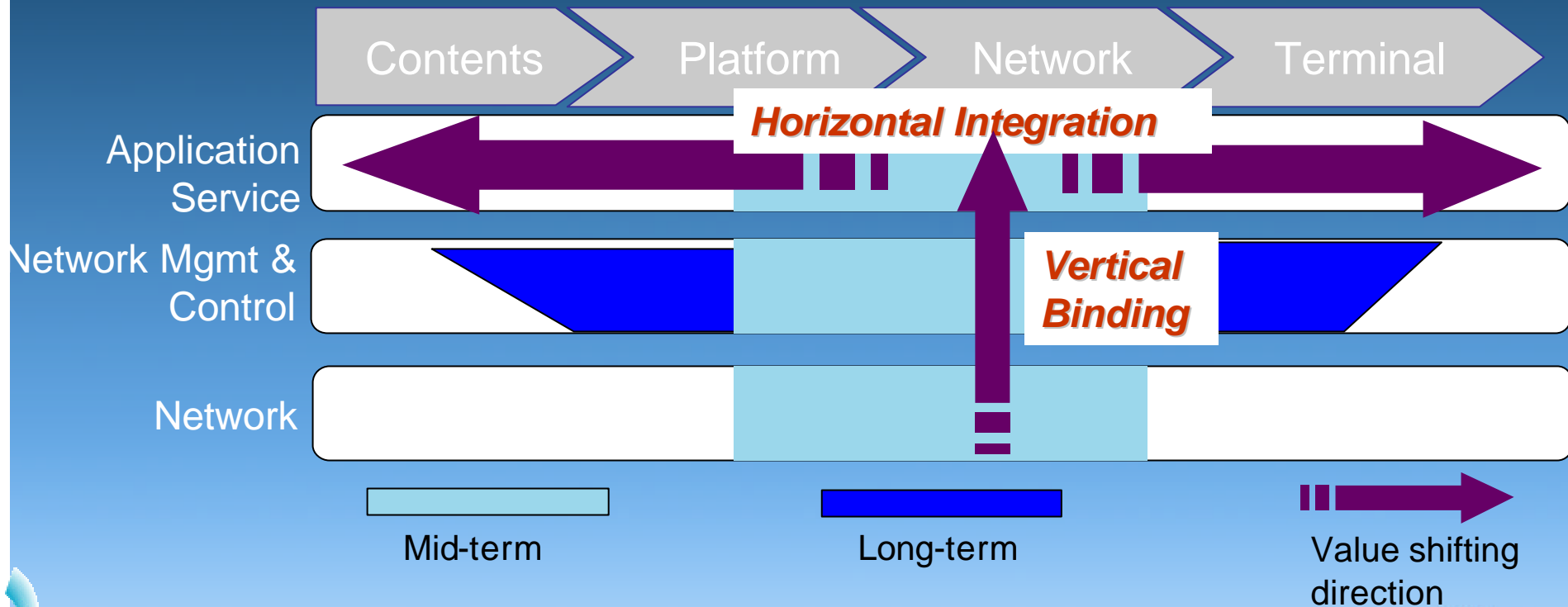**Platform**

Network

Terminal

Answers #2
Telcos in the App. & Solution Market

- **Values shifting from the Network to Contents/Platform/Terminal**
- **Expected growth rate:**
  - **- Contents(38.9%), Platform(22%), Terminal(16%), Network(11%)**
- **Telco as the application-to-network binder & service integrator**

Contents	Platform	Network	Terminal

Application Service — *Horizontal Integration*

Network Mgmt & Control — *Vertical Binding*

Network

Mid-term   Long-term   Value shifting direction

Value Networking **KT**

Octave Concept

● **Past Case : PSTN and IN(Intelligence Network) Service**

- IN Service Revenue increase Total PSTN Revenue at the early stage

- New Signaling Structure and Device invested

- Recently IN service slowdown the decrease scale of PSTN revenue
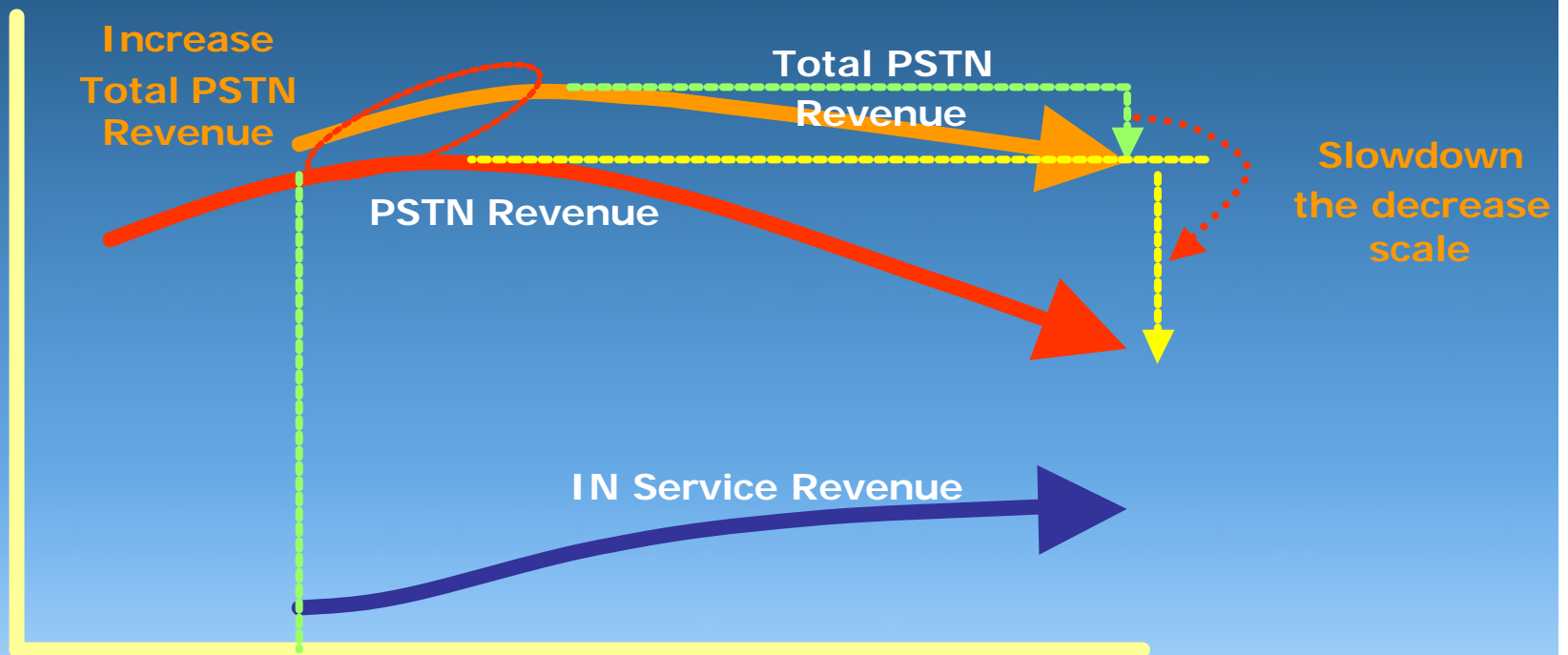
Octave Concept

Now : Broadband Service & Managed Service

- Broadband Service Market almost saturated and will decrease due to other substitute service like Wibro, 4G, etc..

- To expand market size, Managed & Innovative Service needed

- For Managed & Innovative Service, New Signaling Structure and New Device will be invested

➡ Octave Project

Overcome & Expand total Market Size
by Managed & Innovative Service

One Octav
Higher!

Cause of Other Substitute Service

The Octave Project

Service	From network provider to total solution provider
Strategic Direction	**Differentiated services on differentiated infrastructure** • step 1: basic application services over the Octave infra • step 2: innovative ICT-based life/work application services over the consolidated Octave infrastructure
Analogy	From plain seaside to water park

Best Effort Internet

YONHAPNEWS

Quality-guaranteed, secure IP network

•Free/cheap, Unstable Quality, Unmanaged, Insecure

•Fee-based, Guaranteed Quality, Managed, Secure

OCTAVE *Challenge for Octave Higher*

Value Networking **KT**

Octave Service

- **New Application Services that will Take Up Broadband Internet Revenue**
  - Providing octave service and device to the home with broadband access
  - Reaching up to the next octave level : twice the size of the current broadband revenue

Red Service Entertainment

Green Service Communication

Blue Service Education

Yellow Service Secure Home

KT Octave Device

Managed Broadband Network (Megapass/NESPOT/Wibro)

OCTAVE *Challenge for Octave Higher*

Value Networking **KT**

Beyond Broadband : Services

- Multimedia conferencing
- High quality voice service
- Multimedia messaging

Contents

- Broadcast over IP
- Media on-demand
- Interactive TV
- Personal/Enterprise casting
- Interactive learning
- Embedded communication

Computing

Commerce/ Finance

- Network computing (Grid computing)
- Computing on-demand
- ASP (Application service provider) service
- Network intelligence

- On-line banking
- On-line stock trading

Control

- Telemetry
- Remote surveillance
- Home/office automation

OCTAVE *Challenge for Octave Higher*

Value Networking **KT**

Beyond Broadband : Business

● **Different business**

- – *From access service to end-to-end service*
- – *Both best-effort & quality service*
- – *From network service to solution/application services*
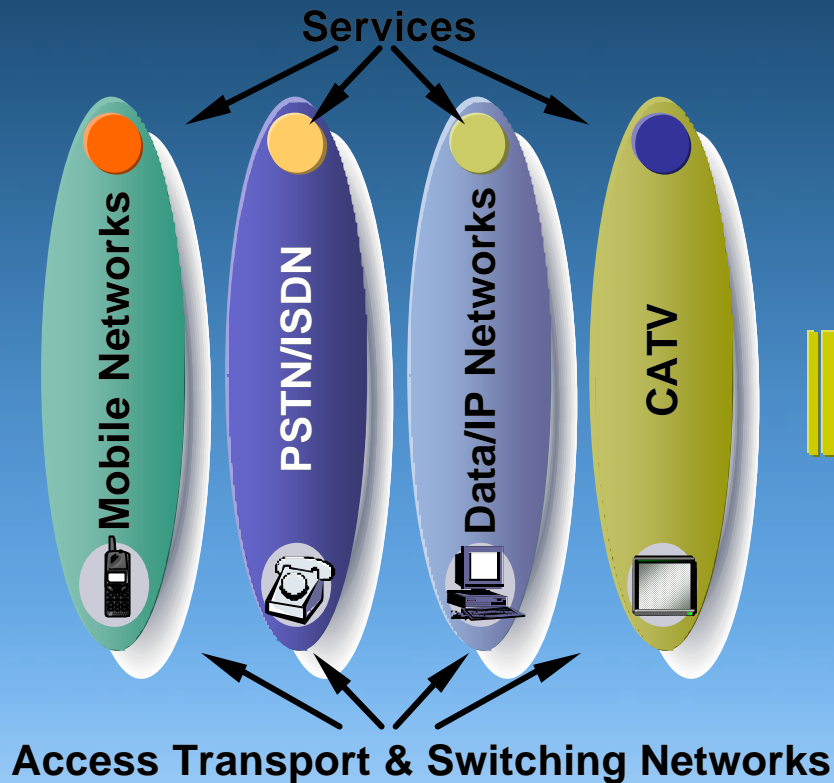- – *Applications: from niche market to mass revenue market*

● **Different focus**

Ubiquity

Convergence

Beyond
broadband
business

Quality

Bandwidth

Handy

Current broadband
"access" business

Personalization
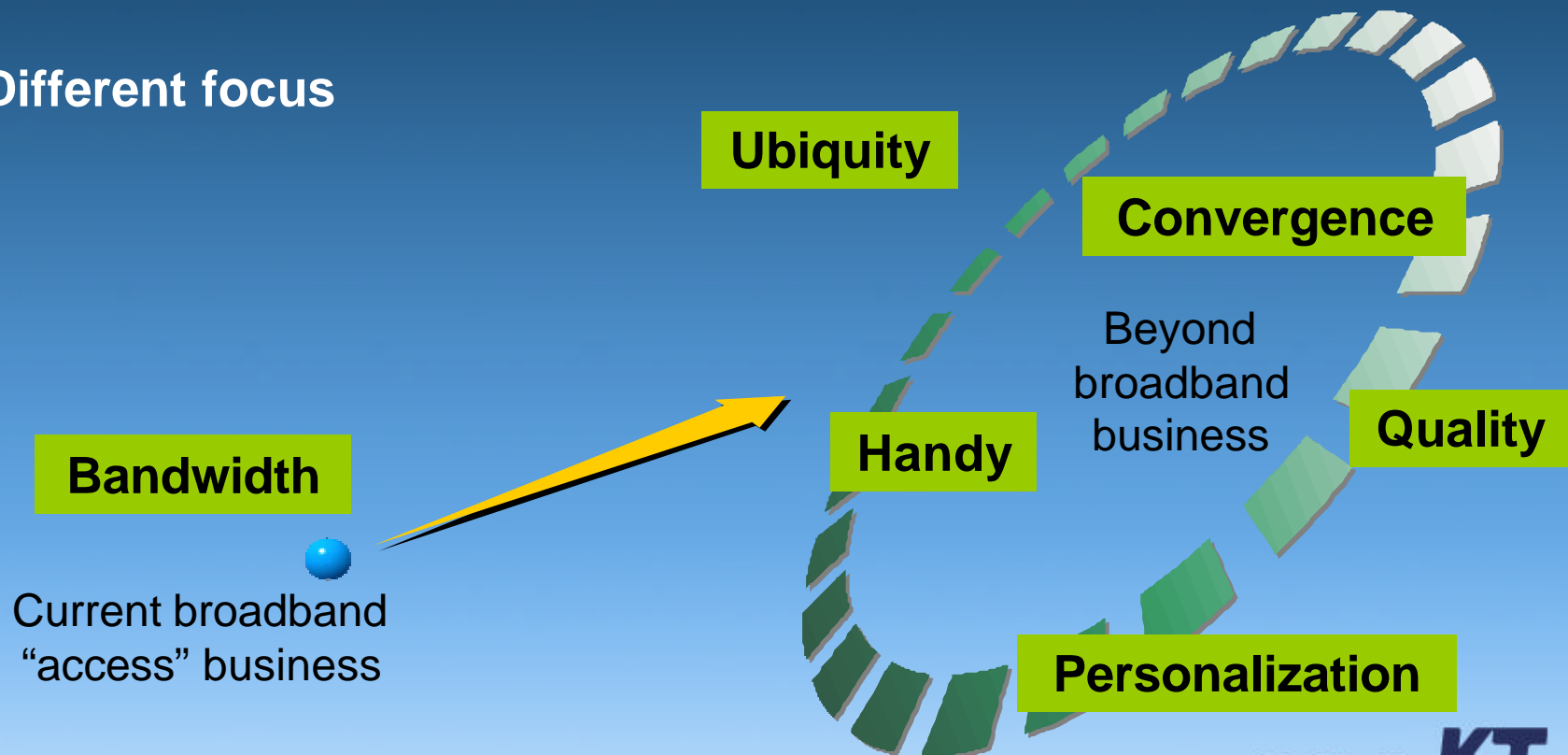
The Next Generation Networks

⬡ **The following picture has been in place for more than 10 years**

Too costly, per-service network architecture

Single/simple/cost-effective network infrastructure for existing & new services

Services

Mobile Networks

PSTN/ISDN

Data/IP Networks

CATV

Access Transport & Switching Networks

Existing and newly emerging services

Network control (QoS, Security, IP Mobility)

Multi-Service IP Backbone

Wireless Access

Wireline Access

Octave Infra

App. App. ... App.

Octave app. service

Integrated Service Platform
(Communication, Content, Computing, Commerce, Control)

Control Layer
(QoS, Security, Mobility)

Network Layer

Managed
IP core

Edge
Service
Node

Edge
Service
Node

Best Effort
Internet

Access
network

Internet app. service

Access
network

home   enterprise   road   car

Timely deployment of Octave services

Common application platform functions
• application level AAA (SSO with network AAA)
• Billing & user management
• Communication session management
• Content delivery networking
• Interface with the control layer

Network control functions
• per person/device AAA
• end-to-end QoS
• managed security
• IP mobility
• interface with the service platform

Common access network for Octave services
• multi-access, dual-backbone
• Fixed & wireless/mobile access
• IP transport with QoS, security

Premise networking & terminal devices
• Optimal premise networking
• Octave devices

(AAA: Authentication, Authorization, Accounting) (SSO: Single Sign-On)

OCTAVE *Challenge for Octave Higher*

Value Networking **KT**

Challenge for One Octave Higher

- **Octave** is the Vision for Next Generation Network and Services of KT

- **Octave Infra** aims One Network for Multiple Services (triple play services, broadband wireless services, etc)

- **Octave Service** will integrate various broadband services an provide them to customers homogeneously

Octave Project will give **One Octave Higher** in Broadband Service Revenue