



The trillion dollar revenue opportunity of UMTS

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3G on rocky ground?

The reality... a gloomy economy and harder times still for mobile industry

- Operators:
 - Big investments in licensing
 - Will terminals arrive in time, and in quantity?
- Manufacturers:
 - Job cuts, lower expectations
- Consumers:
 - Do they want mobile data services after a poor early experience with WAP over GSM?

But there are good news!

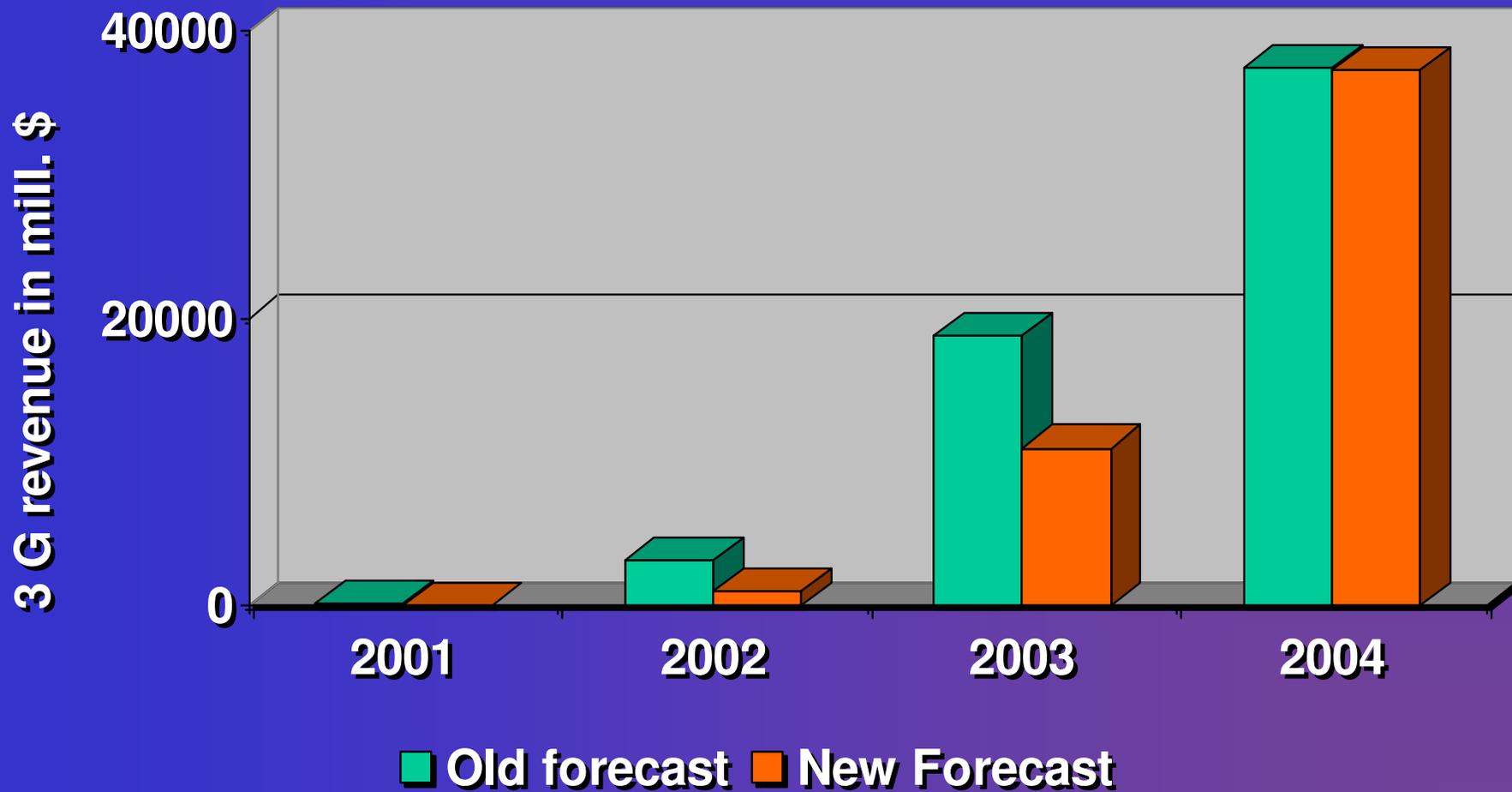
- Japan launch of FOMA the 1 October
- Successful 3G trials in many countries
- Major vendors is committed to introducing terminals from Q3 2002
- WAP v.2 evolving to suit 3G needs



The 3G Market study

- 3G Market Study (Report #13) updated to reflect latest changes in outlook
- Changes in the rate of uptake of services
- Small changes in long-term figures
- Small changes in total revenue opportunities

Changes in revenues



Key assumptions

- **Growth in 3G subscribers** estimated from existing forecasts for worldwide mobile subscribers and 3G substitution rates
- **Worldwide service subscriptions** determined using adoption rates by service, applied to 3G subscribers
- **Service revenue forecasts** determined using known willingness-to-pay for analog services

Key assumptions continued



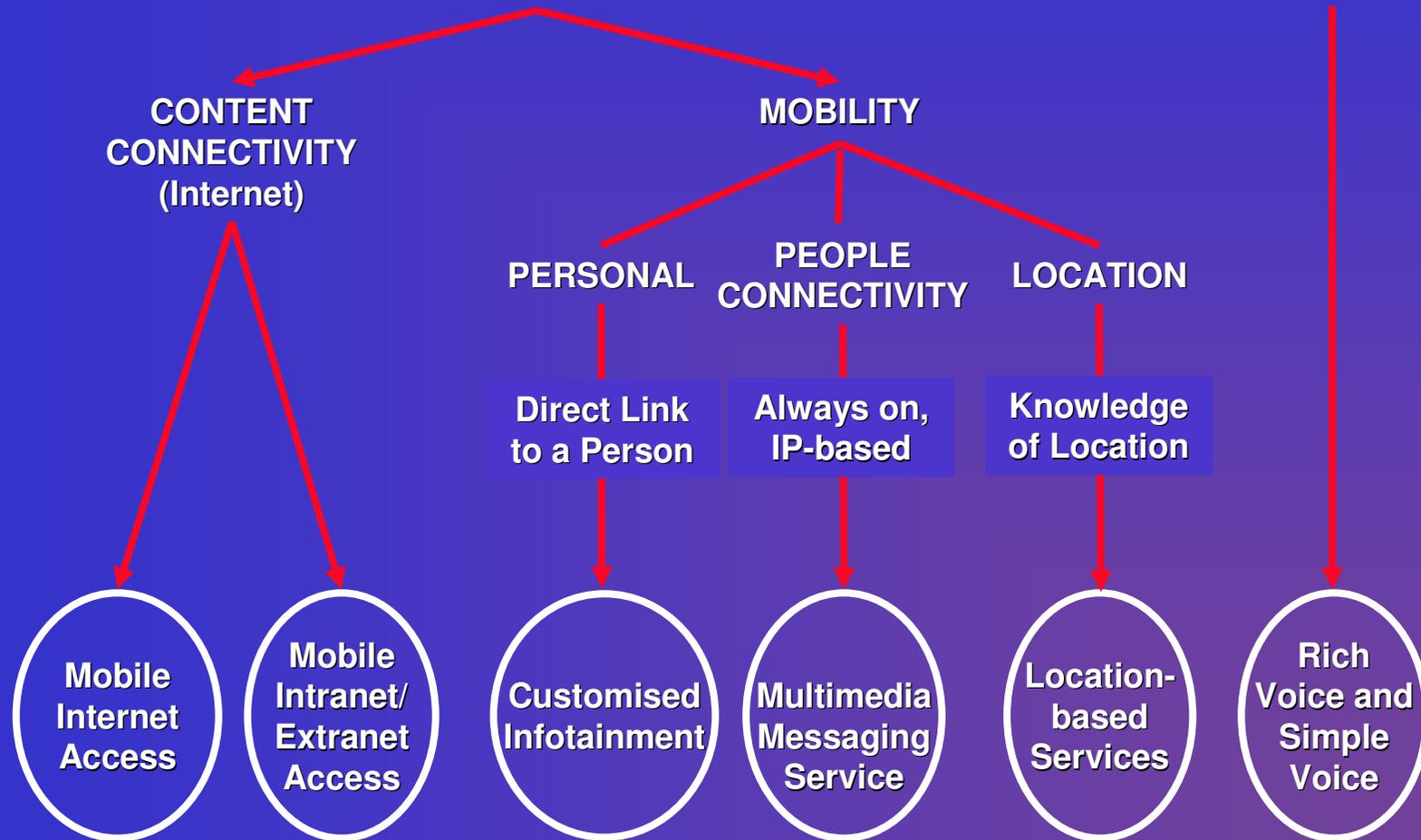
- **No additional operator-retained revenue** included for those services and applications users will expect as part of their future service package
- **Average worldwide pricing** assumed
- **Significant price declines** assumed over the forecast period for each service
- **Country level service demand** determined considering current mobile penetration levels and other economic, social and regulatory factors

Services framework



INFORMATION AND CONTENT (Non-Voice)

VOICE



Source: Telecompetition, Inc August 2000

3G user needs

- Demand will be driven by the following user needs:
 - Anywhere, anytime access to information
 - Access to corporate networks from any device
 - Access to all messages (voice, email, multimedia, fax) from any single device
 - Video and Web conferencing
 - Access to specific types of information (financial, recreational)
 - Social contact (community of interests)
 - Access to location-based information on demand

Impact of 3G share on ARPU levels



Source: Telecompetition Inc., February 2001

Is ARPU a useful tool in the 3G market?

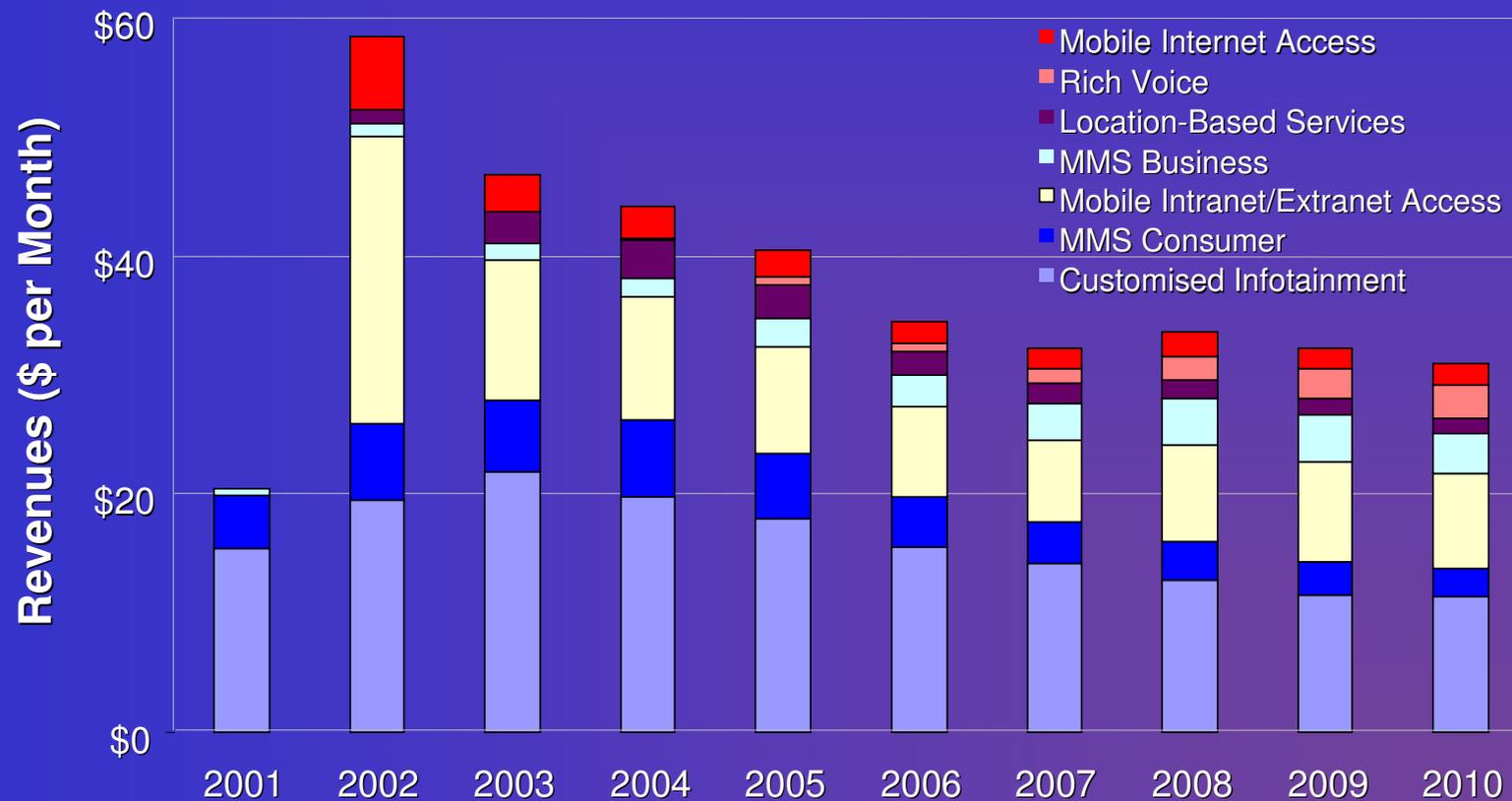


The use of ARPU, mobile penetration rates and subscriber numbers as performance indicators for 3G has to be treated with caution:

- In a 3G environment, not all subscribers will take a subscription for all services.
- High subscriber numbers without an underlying revenue stream do not guarantee a sustainable long-term business.

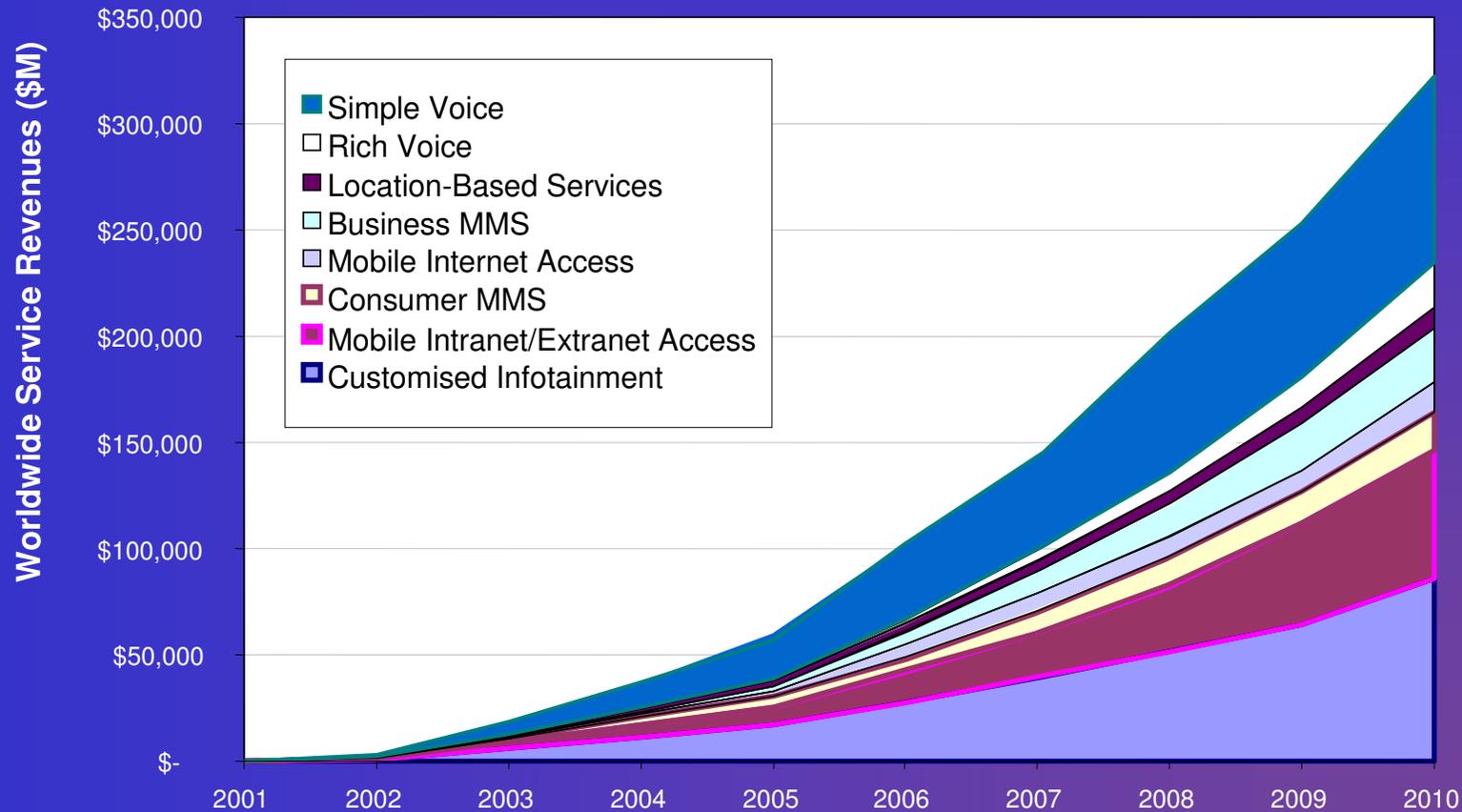
Incremental Revenues

Per 3G subscriber- by service
(excludes simple voice)



Source: Telecompetition Inc., February 2001

Long-term revenue growth till 2010



Source: Telecompetition Inc., August 2001

Long-term revenue opportunities for operators



- **Customized Infotainment** will be the largest revenue opportunity for the consumer segment
- **Mobile Intranet/Extranet Access** is the largest revenue opportunity for the corporate sector
- **Multimedia Messaging Service** is the second largest revenue opportunity for the business sector:
- **Managed corporate services** will serve to retain customers, but will not be a significant revenue stream
- **Location-based services** may not be a significant revenue opportunity for operators

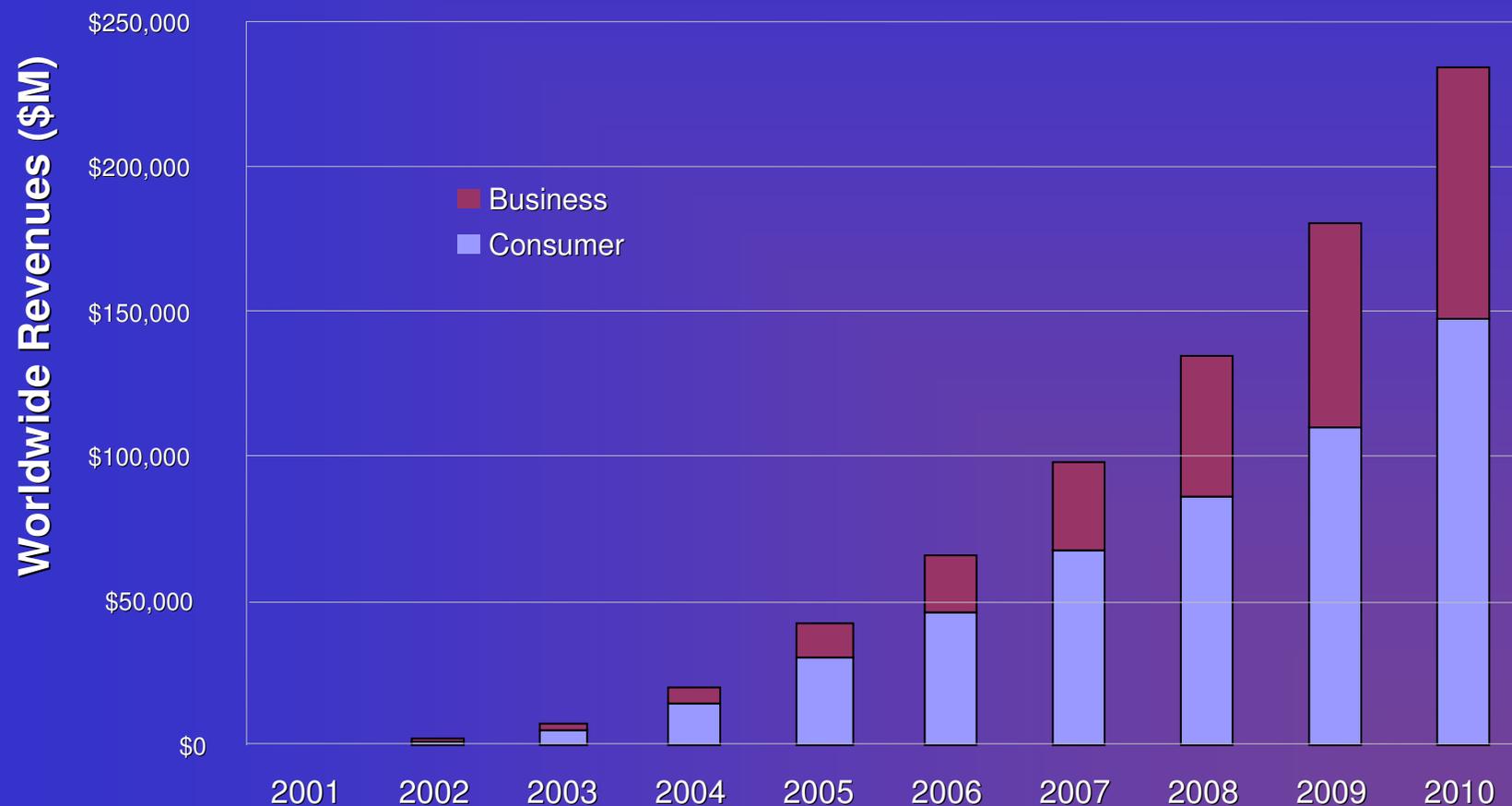
Long-term revenue opportunities for operators



- For business and consumers **Simple voice** will remain a vital component of operators' service portfolio: In 2010 subscribers using a 3G device will generate \$88 bn revenues from simple voice services, compared to \$233 bn for all other services
- **From now to 2010 3G subscribers will generate around one trillion dollars of additional revenue**

Revenues by segment

(Excluding simple voice)

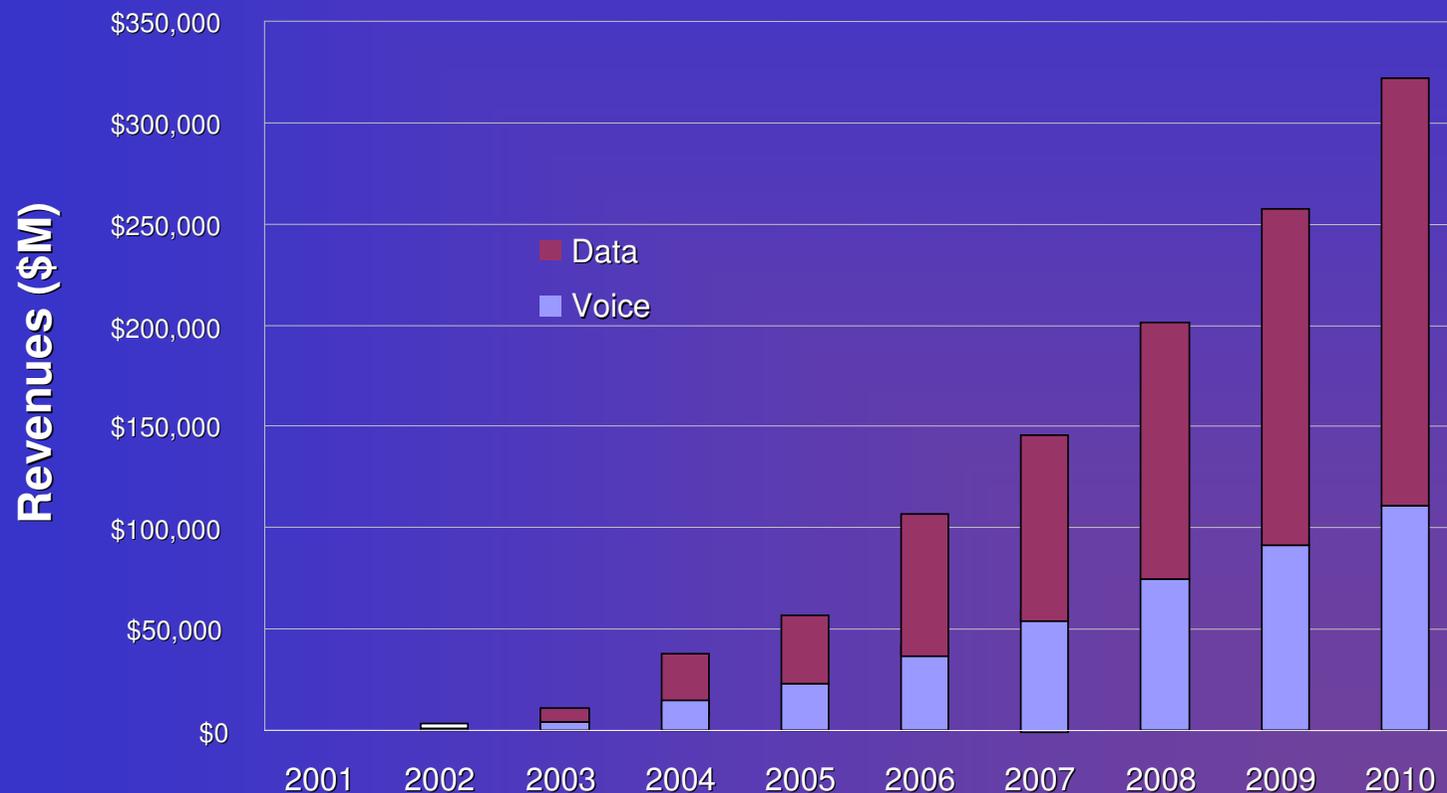


Source: Telecompetition Inc., August 2001

Revenues: Data and voice



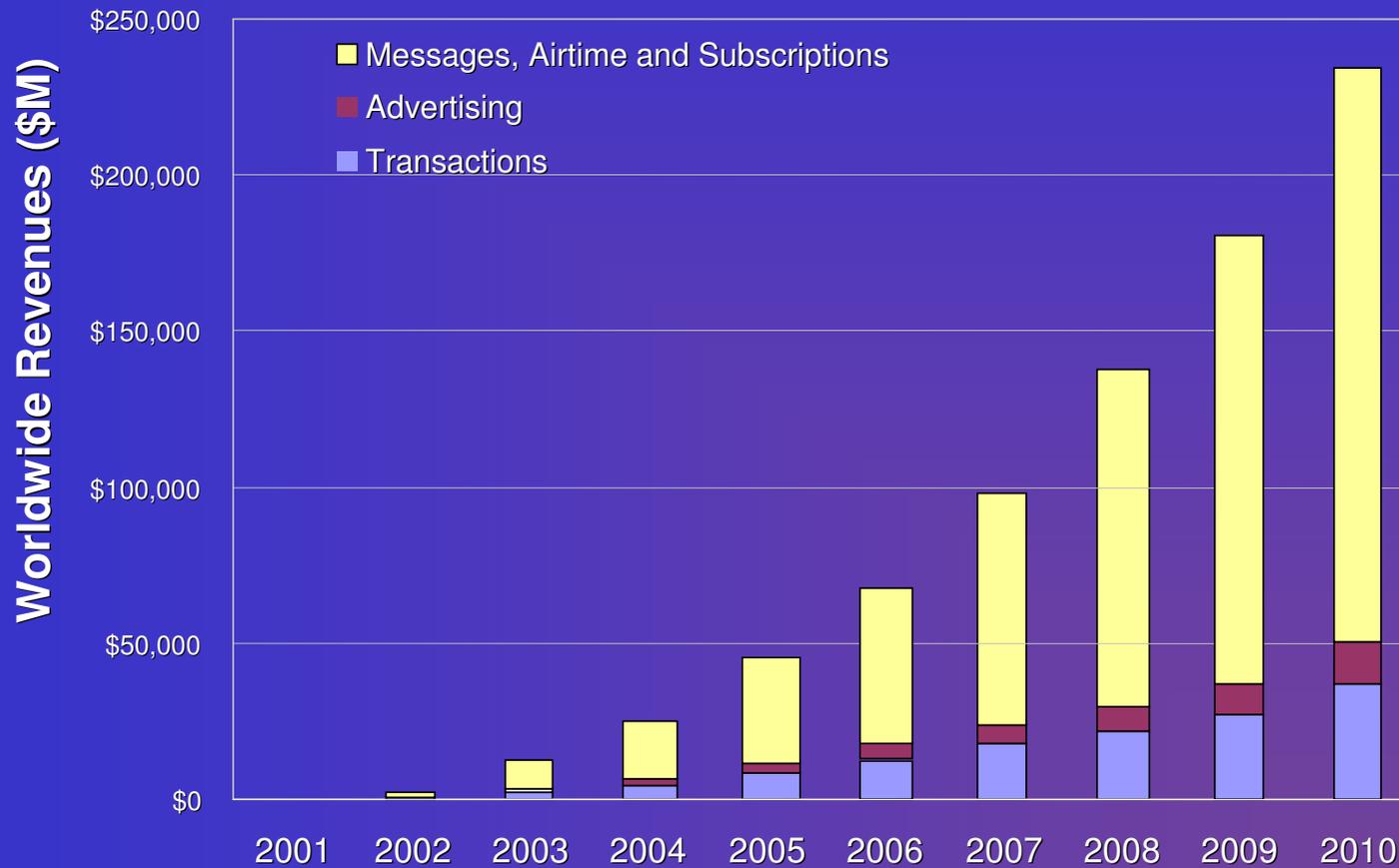
Worldwide 3G revenues - data and voice
(including simple voice)



Source: Telecompetition Inc., August 2001

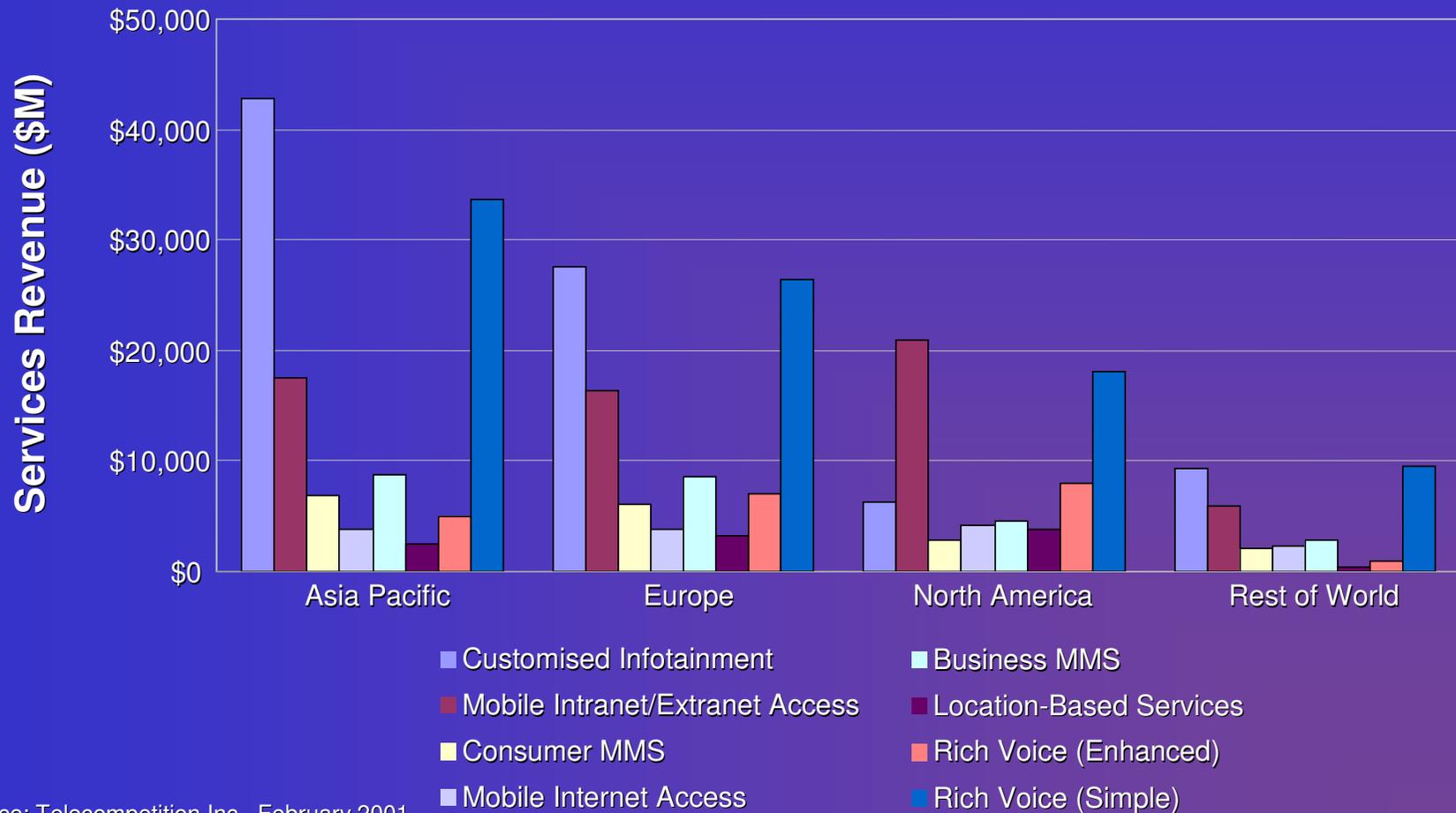
Revenue by revenue type

(Excluding simple voice)



Source: Telecompetition Inc., February 2001

Revenue comparison by service by region - 2010



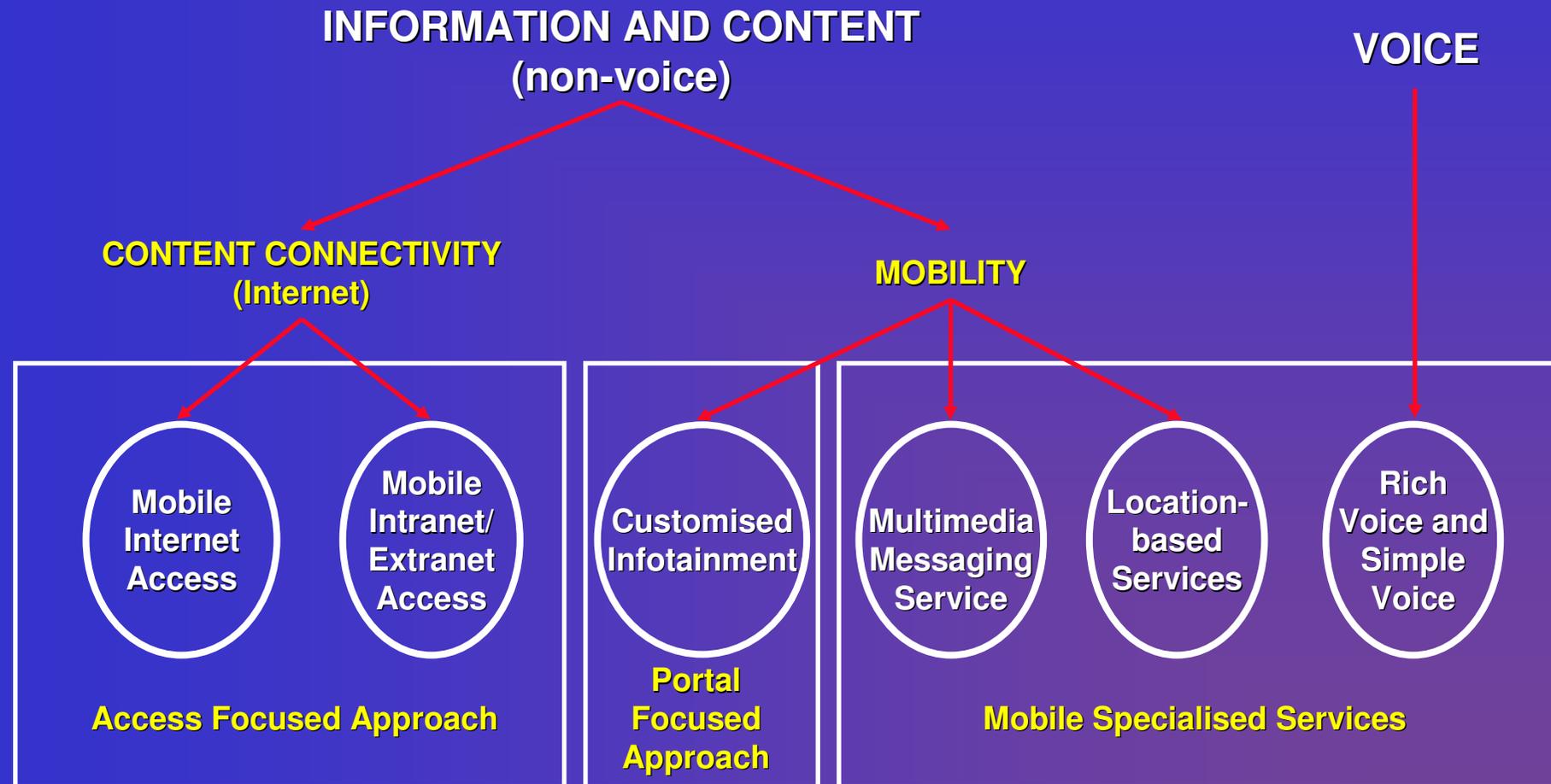
Source: Telecompetition Inc., February 2001

Highlights



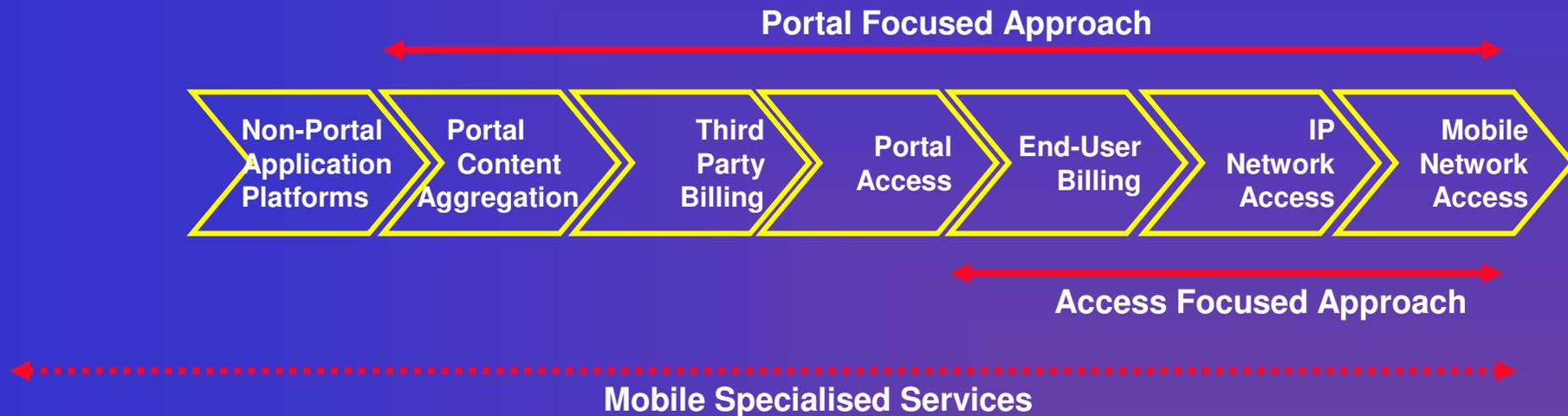
- **\$320 billion** in revenues in 2010
- Cumulative revenues of more than **\$ 1 trillion** from now until 2010
- In 2010 the average 3G subscriber will spend about **\$30** per month on 3G data services
- Non-voice service revenues will dominate voice revenues by year 3 and comprise **two thirds** of 3G service revenues by 2010
- Asia Pacific represents the single largest total revenue opportunity - reaching **\$120 billion** in 2010
- Europe and North America will provide the highest annual revenue per POP.

Business model framework



Source: Telecompetition, Inc August 2000

Value chain positioning



Source: Telecompetition, Inc., February 2001

Business Opportunities: Industry Structure



- Revenue streams for 3G operators are highly dependent on the business models which they and their partners adopt
- The 3G operator role will change from a simple voice-only, direct relationship with the user to one which involves:
 - Multiple partners
 - Revenue sharing, and
 - Third parties also targeting the end-user

Market Study Summary

- Very encouraging prospects for 3G
- Over the long term, only 3G will meet customer needs
- Voice will remain a key source of revenue
- 3G data services are the key to reverse declining ARPU and generate customer loyalty
- Operators will need to offer services which genuinely fulfill market needs
- Operators will need to forge strategic partnerships and adopt appropriate business models targeted to specific customer segments