

## rethinking broadband: some policy challenges

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# INTUG contents

- INTUG
- fixed broadband
- wireless broadband
- 3G cellular
- conclusions and issues

# INTUG what is INTUG?

- members
  - national associations
  - corporations
  - individuals
- activities
  - ITU and WTO
  - OECD
  - APEC TEL, CITELE and EU

# INTUG our aims

- real and effective competition
- genuine choice for users
- lower prices
- higher quality
- more innovative services
- constructive co-operation with
  - international bodies
  - governments
  - regulators

# INTUG broadband

- widespread deployment of broadband:
  - cable modem and ADSL
  - satellite and wireless ISPs
  - fibre to the premises
- competition drives:
  - lower prices
  - more services
  - bundling with voice
- residential networks

# INTUG local loop unbundling

- has been important in developed countries to open up markets
- has often failed in the face of incumbent operator resistance
- many incumbent operators cannot:
  - give up vertical integration
  - see wholesale as a more profitable alternative
  - parallel with MVNOs



- €21.90 for 2 Mbps **Germany**  
<http://www.alice-dsl.de/>
- €36.95 for 4 Mbps **Italy**  
<http://www.alice.it/>
- €29.95 for 8 Mbps **France**  
includes all calls to the fixed network  
<http://www.aliceadsl.fr/>

Which market is most competitive?

# INTUG residential gateways

- the need/ability to redistribute capacity to all household members
- off-the-shelf Wi-Fi 802.11g (52 Mbps)
- everything can have a wireless IP interface
  - telephones - “fixed” and “mobile”
  - computers, games consoles and TVs
  - domestic appliances
- need for security



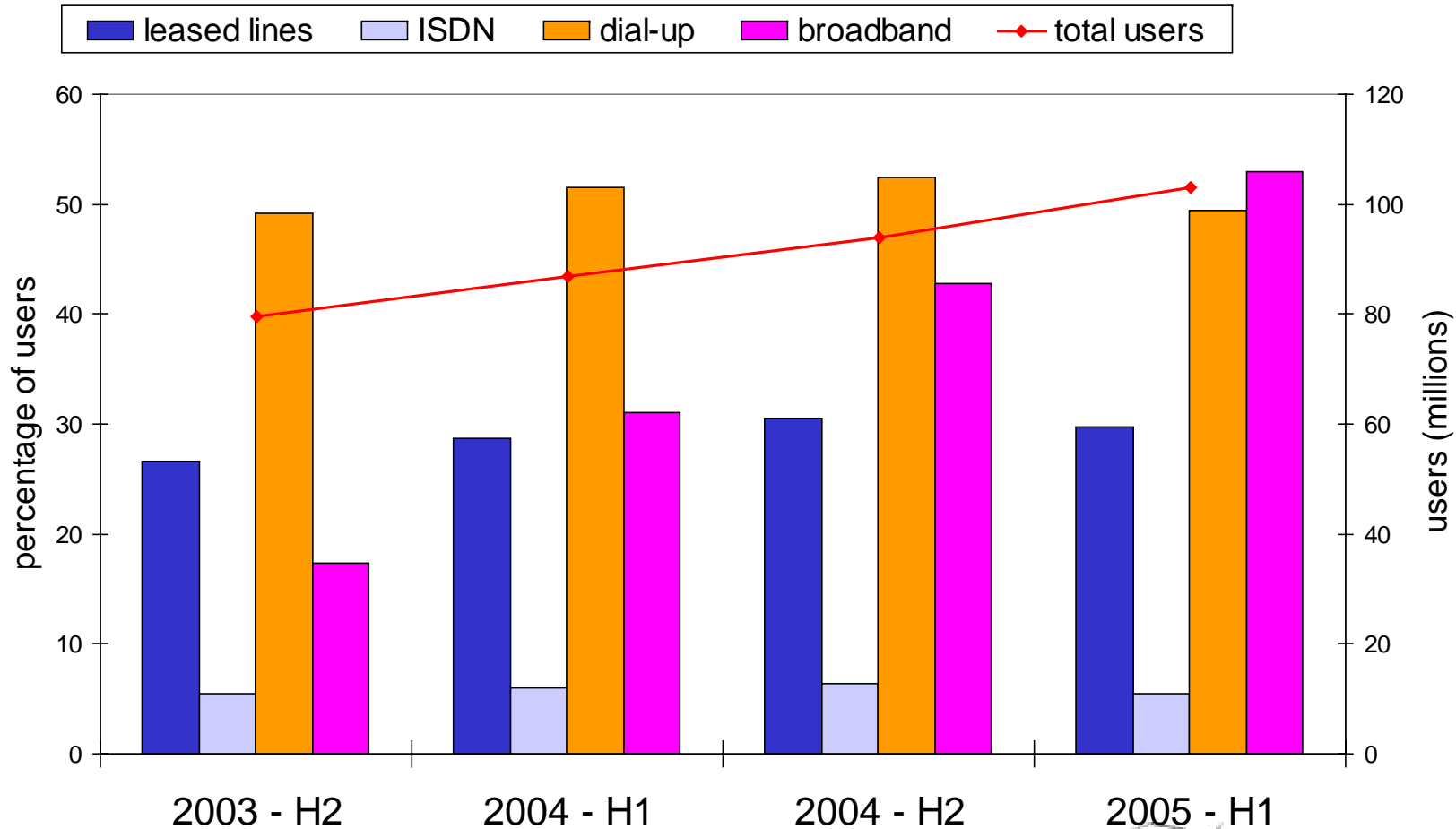
# INTUG IP services

- Voice over IP:
  - driving down prices
  - flat rate calling plans
  - secondary numbers in remote locations
- Television over IP:
  - access to more content
  - more flexible access
- which firms have the expertise to make profits in these areas?

# INTUG china

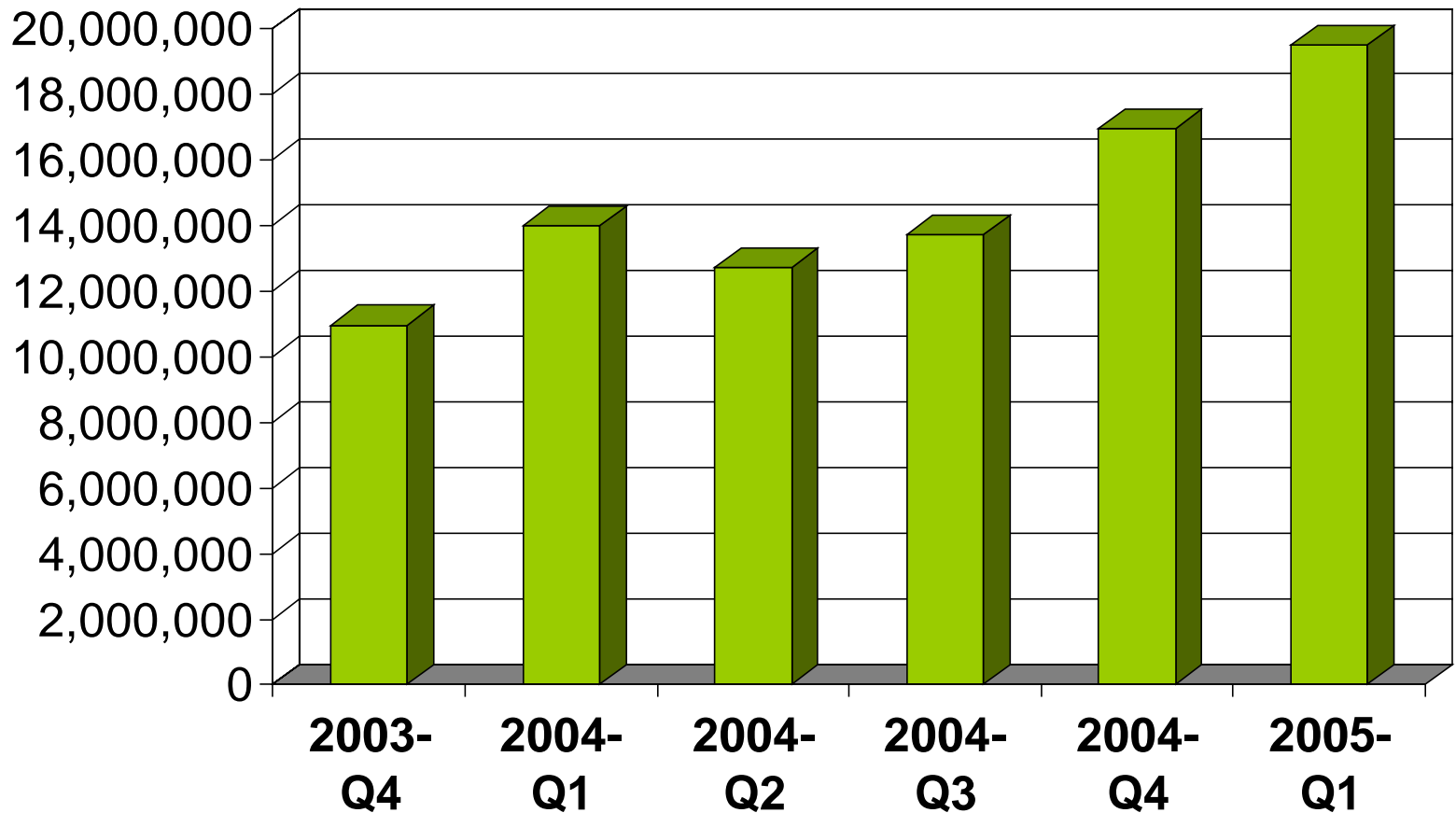
- massive growth of GSM
- substantial growth of WLL
- very solid broadband growth:
  - ADSL and cable modem
  - fibre to the building
  - metro Ethernet
  - fixed wireless access

# INTUG China - Internet users



Source: CNNIC Statistical survey reports

# INTUG china - dsl (lines)



Sources: DSL Forum and Point-Topic

# INTUG pakistan

- added two GSM licences
- new broadband policy at end of 2004
- licensed a dozen ISPs to construct their own last mile
- PTCL and Buraq Telecom rolling out 1.5m WLL
- opening terrestrial fibre link to India

# INTUG USA fibre to the home

- strong incentive to build by lifting unbundling obligations
- SBC - 18 million households by 2008
  - Fiber To The Home (FTTH)
  - Fiber To The Neighborhood (FTTN)
- Verizon
  - FIOS
- IP Television
- triple play plus

# INTUG wireless ISPs

- many sound technologies
- business models emerging
- very different economies of scale from copper networks

# INTUG 450 MHz

- mostly CDMA
- wider coverage, fewer base stations
- Czech Republic - Eurotel
- Romania - ZAPP
  - flat fee for 7 hours access
- Russia - VolgaTelecom
- Brasil

Now some FLASH-OFDM  
e.g., Finland



# INTUG WiMAX

- can use bands that are:
  - licensed
  - unlicensed
- adopted by Intel (so in chip sets)
- WiMAX maybe overhyped

# INTUG south korea

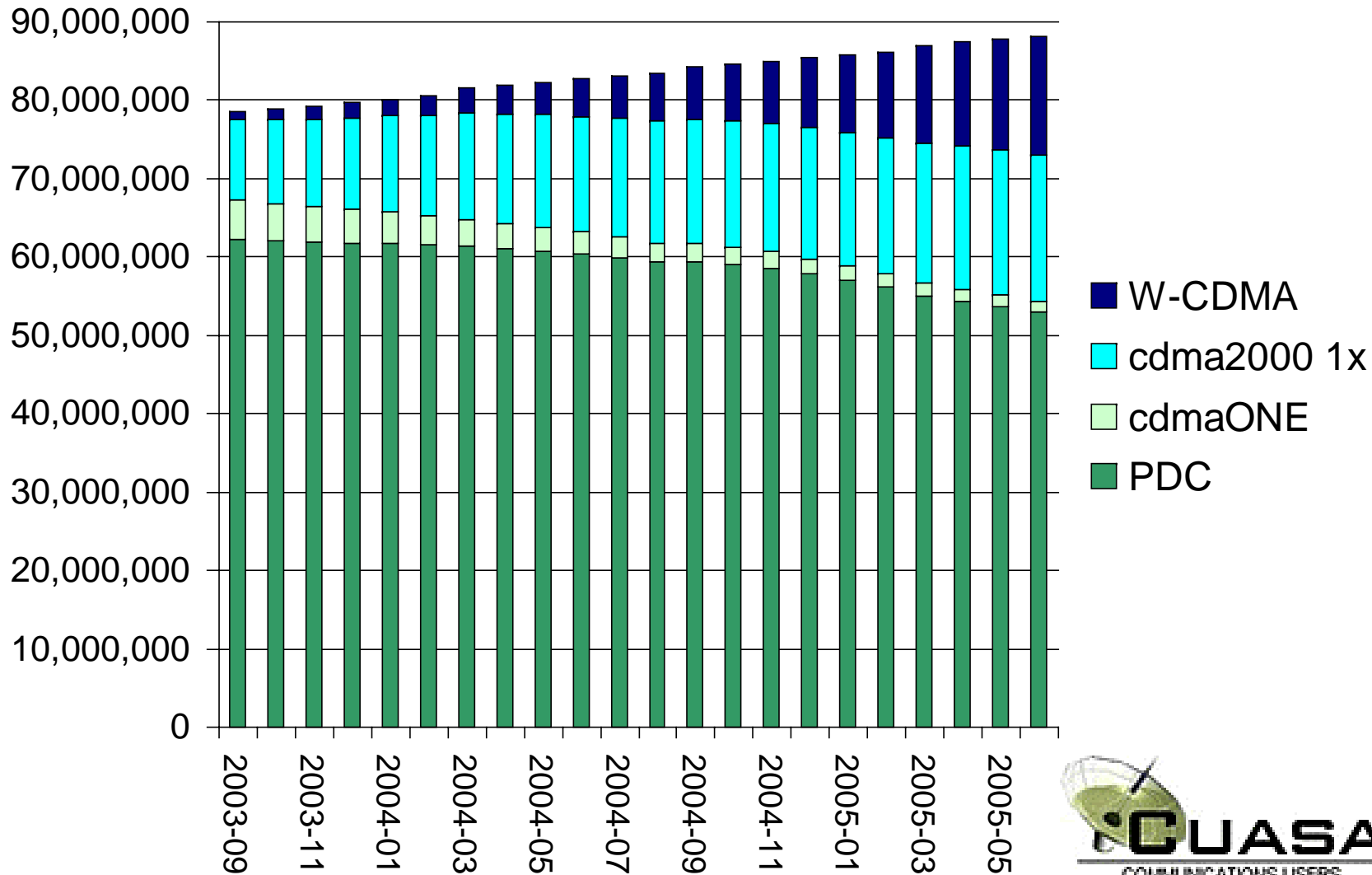
- national ICT strategy '839'
- broadband market saturated
- strong growth of 3G cellular
- competition between terrestrial and satellite DMB
- launch of Broadband convergence Network (BcN)

# INTUG 3G cellular

- incredibly disappointing adoption:
  - exceptions are Japan and South Korea
- mostly cheaper voice
- few applications and little revenue
- expensive handsets
- operators aspiring to be bankers:
  - mobile transactions
- trying to block potential competition - 3D

# INTUG 3G in Japan (users)

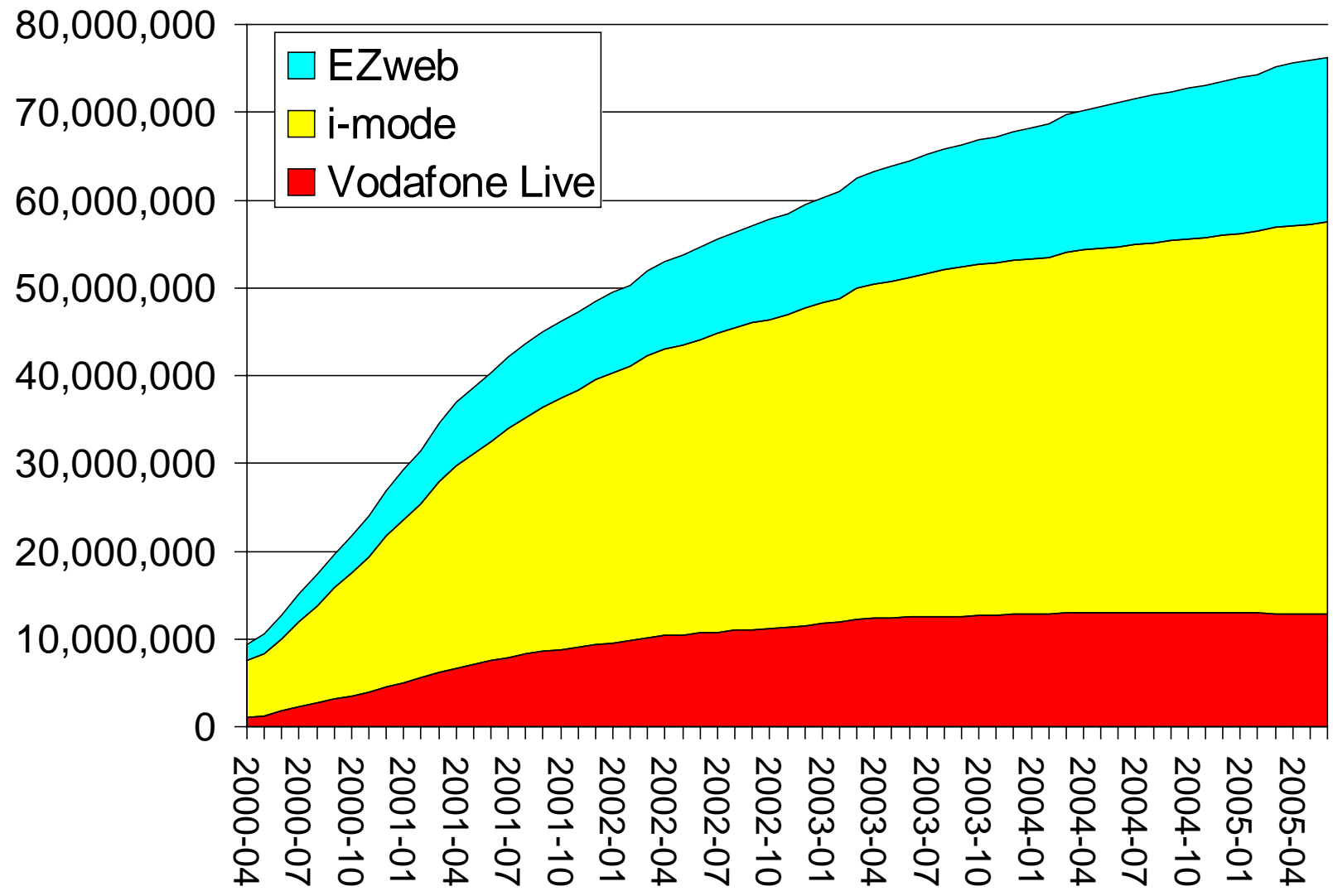
Broadband, LINK Centre 18 viii 2005  
[www.INTUG.net](http://www.INTUG.net)





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Witwatersrand

# INTUG mobile Internet in Japan



Broadband, LINK Centre 18 viii 2005  
[www.INTUG.net](http://www.INTUG.net)

# INTUG 3G - elsewhere

- dreadful failure of 2.5GSM:
  - over-priced with staggering prices for roaming
  - sold as a technology, not a service
  - lessons were not learned
- talk/hype of 3.5G - HSDPA
- increasingly serious threats from alternative technologies:
  - Digital Audio Broadcast
  - Digital Multimedia Broadcast
  - Wi-Fi and WiMAX
- little sense of urgency or direction

# INTUG handsets

- many countries have allowed cross-subsidies
- manufacturers have stronger brands than operators
- users pick handsets based on non-network features
- collision with music players and PDAs
- interfaces to other networks
- migration to Personal Area Networks
  - e.g., Motorola/Oakley Razrwire

# INTUG diagram



# INTUG conclusions

- broadband continues to evolve:
  - technologies and business models
  - no longer a single network
  - no longer distinct from content
- this creates many policy challenges:
  - can we access content from all networks?
  - will all networks be interconnected?
- how do you move pre-paid users to broadband?

# INTUG issues

- can users access services and content on any network?
- can providers ensure high-quality access to their services?
- at very high-bandwidth will the server need to be close to the user?
- can operators avoid becoming merely “bit pipes”?

# INTUG thank you

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