

# The evolution of the Internet

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Unfettered by rigid regulations,  
the Internet has adapted to changes in:

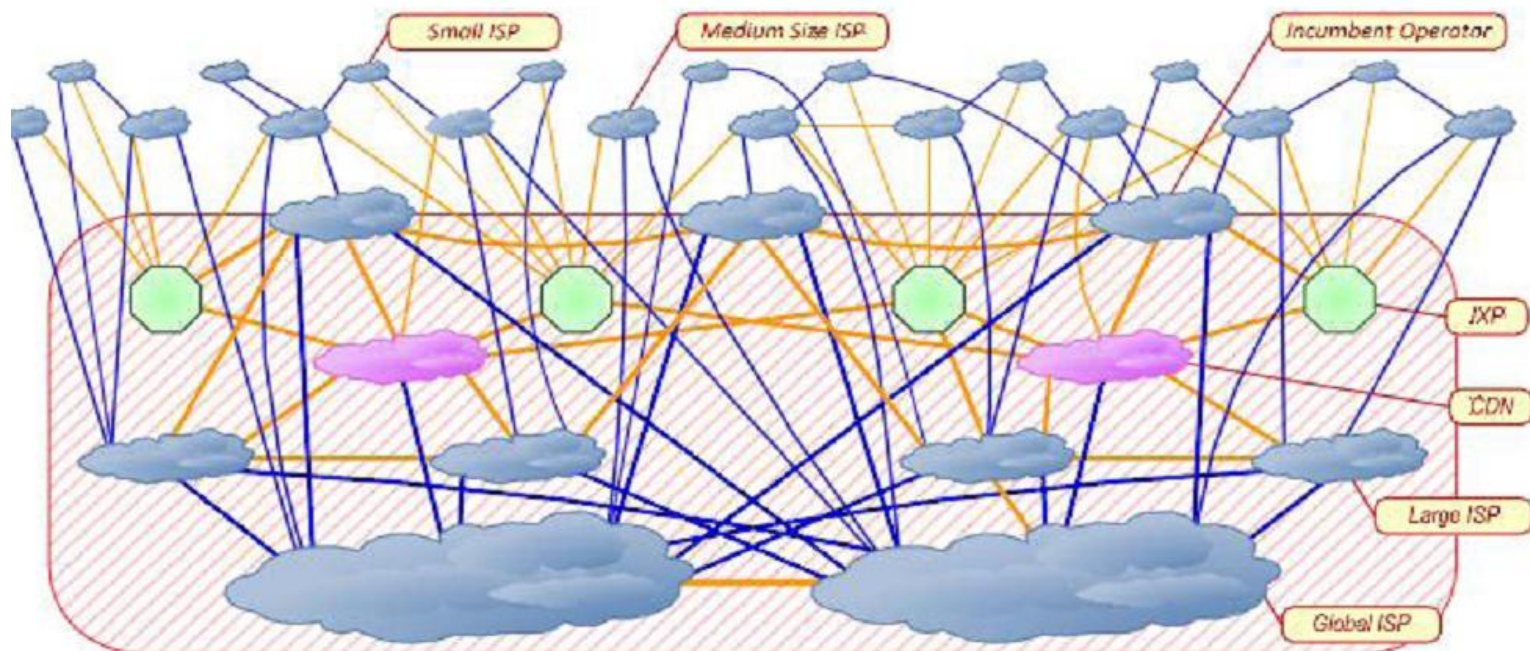
- The infrastructure it rides
- Its own topology
- Technology at the edge
- Types of traffic
- Volume of traffic
- Types of participants and their relationships
- Methods of compensation for exchange of traffic

# Very short history of Internet

- 1969: BBN connects four university mainframes with phone lines
- 1980's: TCP/IP, Ethernet begin wide use
- 1989: WWW invented
- 1995: Internet privatized
- Today: A network of networks that carries most global traffic

# A network of networks

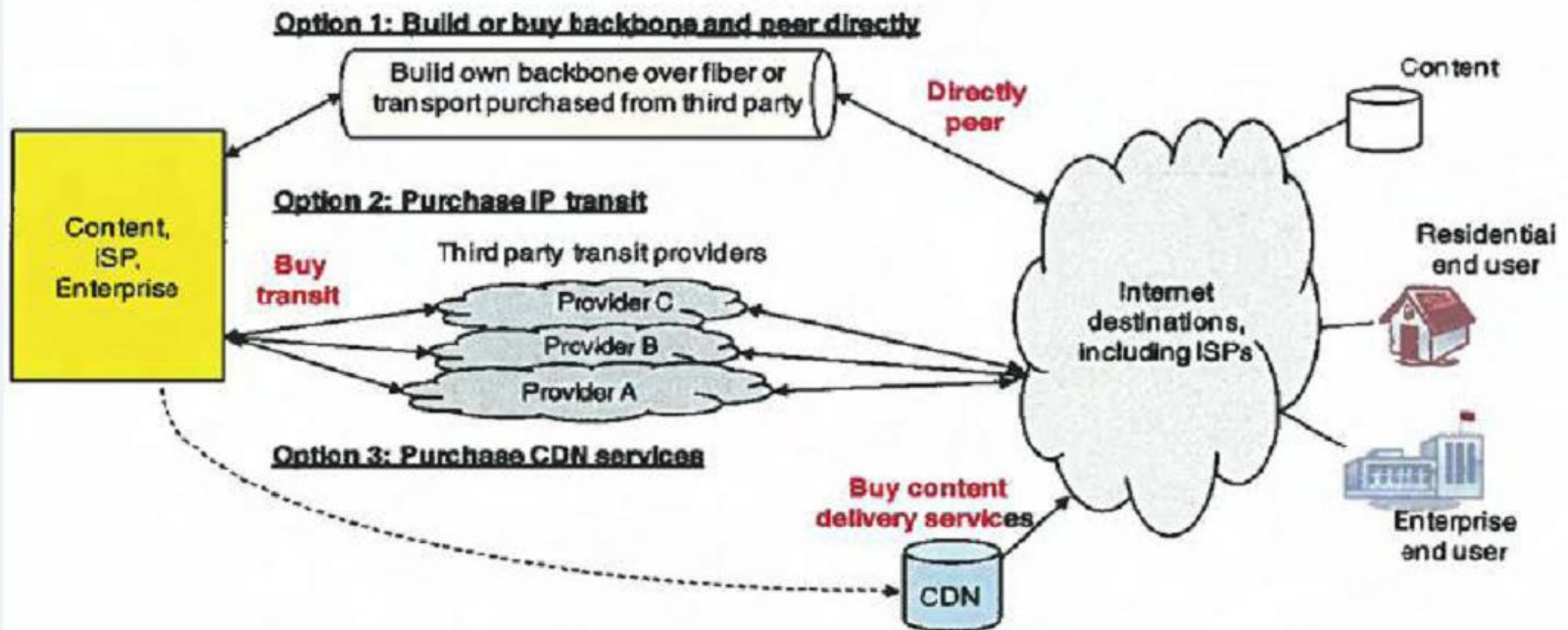
## The System of Connections



Source: ENISA © 2011

# Multiple paths to any destination

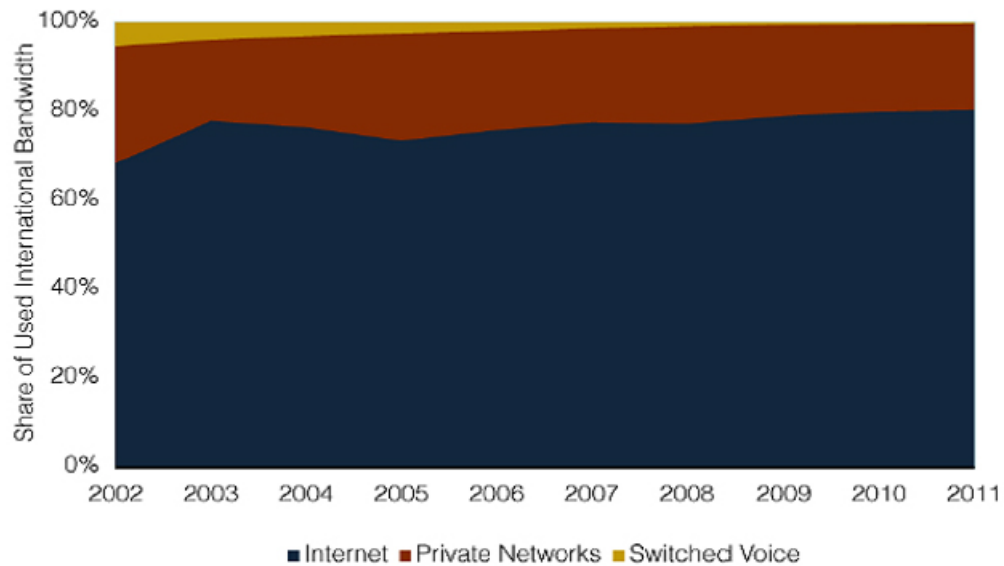
## Options for customers to move traffic



Source: Level 3 declaration in FCC docket IB 11-78

# Internet uses most of global bandwidth

International Internet, Switched Voice, and Private Networks Capacity, 2002–2011



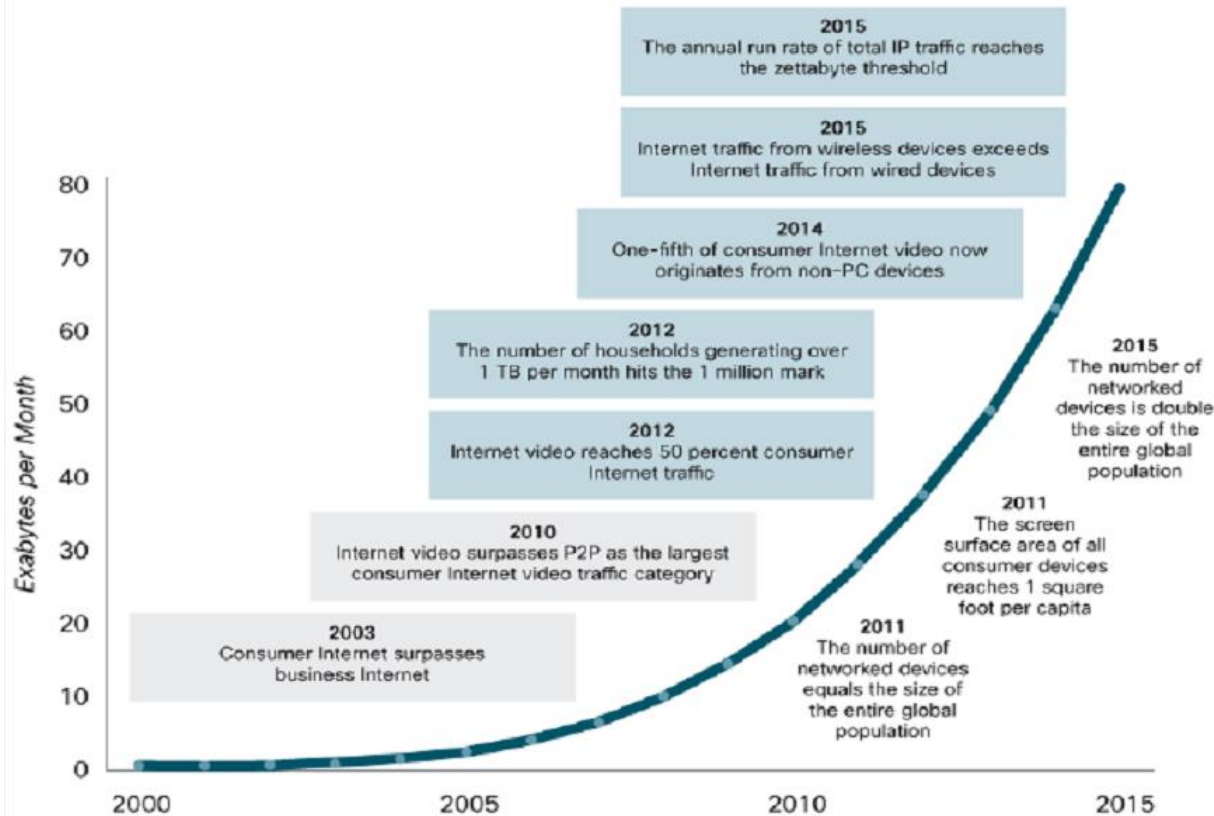
Notes: Data as of mid-year.

Source: TeleGeography

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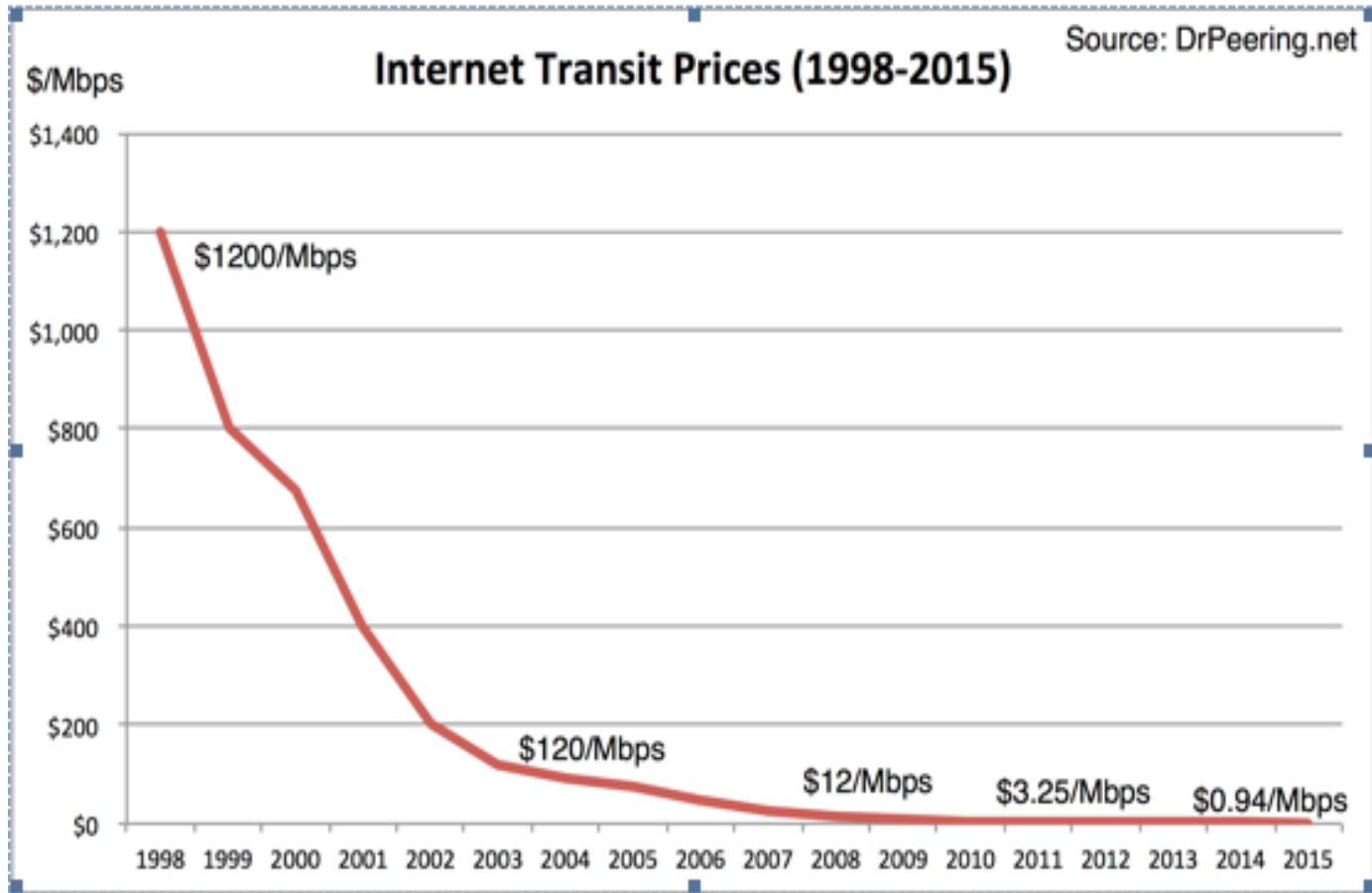
# Drivers of Internet growth

Five Traffic Milestones and Three Traffic Generator Milestones by 2015



Source: Cisco VNI, 2011

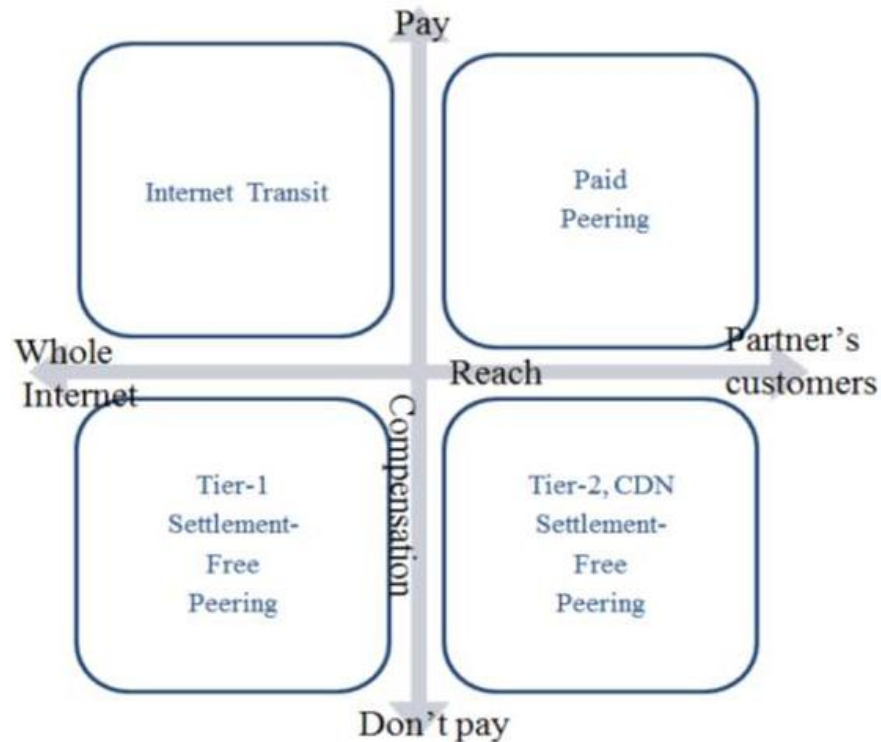
# Prices fall while volume explodes





# Payment by commercial negotiation

## Internet peering v. transit



# Success

- Explosive traffic growth
- Most traffic settlement-free
- Pricing of paid traffic falls sharply
- Adapts to changes in ecosystem in absence of regulatory rigidity