

# Local Internet interconnection

**Simon Hampton**

**AOL Europe**

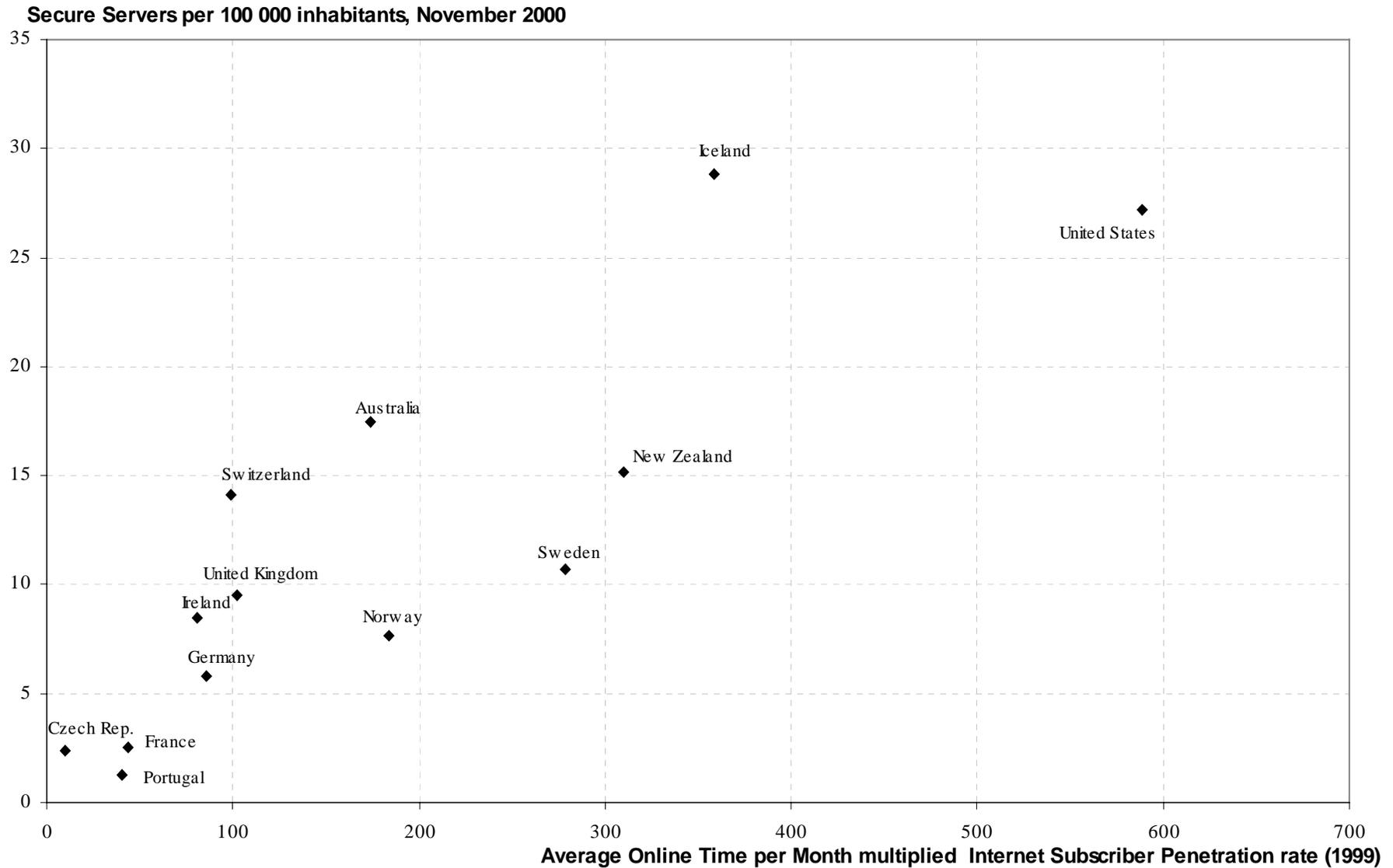
# Overview

- ➔ **The need for flat rate**
- ➔ **Network costs & interconnection models**
  - ⇒ Per-user pricing
  - ⇒ capacity-based pricing
- ➔ **Local and regional interconnection**
- ➔ **Non-discrimination: is it any use?**

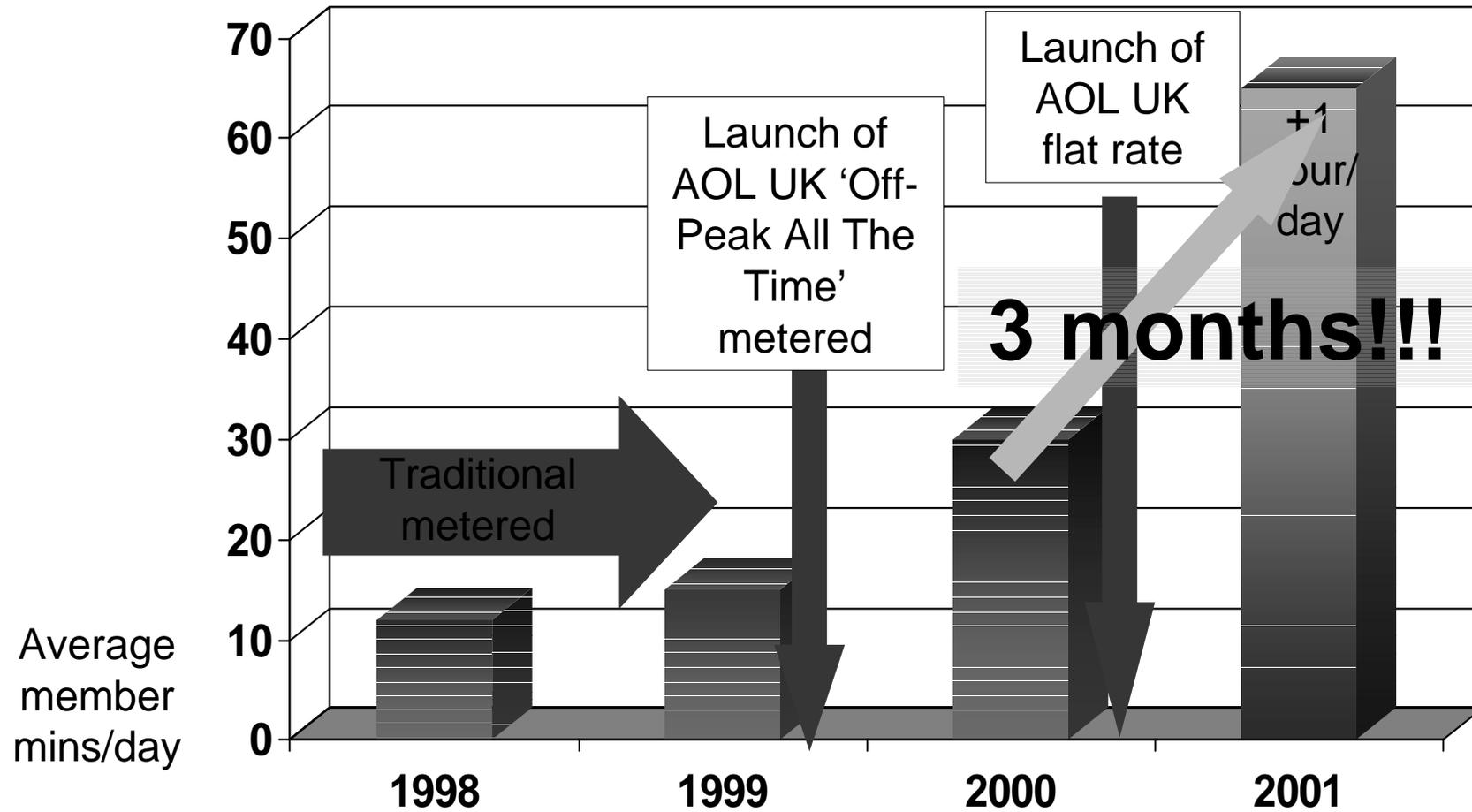
# The need for flat rate

- ➔ **Increases Internet penetration 30%**
- ➔ **Address the usage gap:**
  - ⇒ **EU:** 30% of households for 15 mins a day
  - ⇒ **US:** 50% of households for 70 mins a day
  - ⇒ Increases "e-confidence" and thus boosts e-commerce
- ➔ **Reaches the entire country today**
- ➔ **Provides an affordable "taste" of the Internet – stimulates demand for broadband (fixed & mobile)**

# "Local access pricing and e-commerce", OECD 1H00

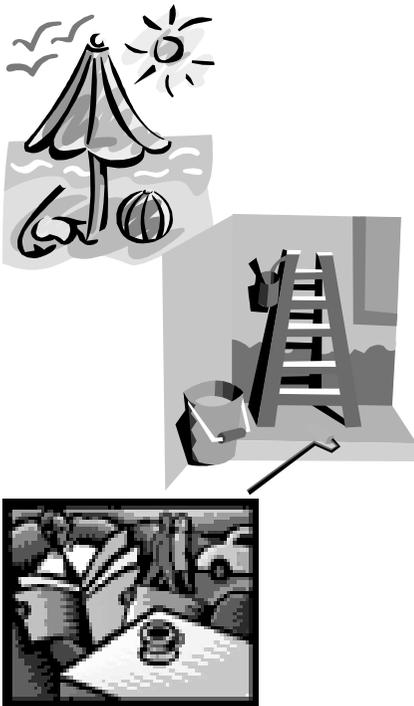


# A "taste" of the future

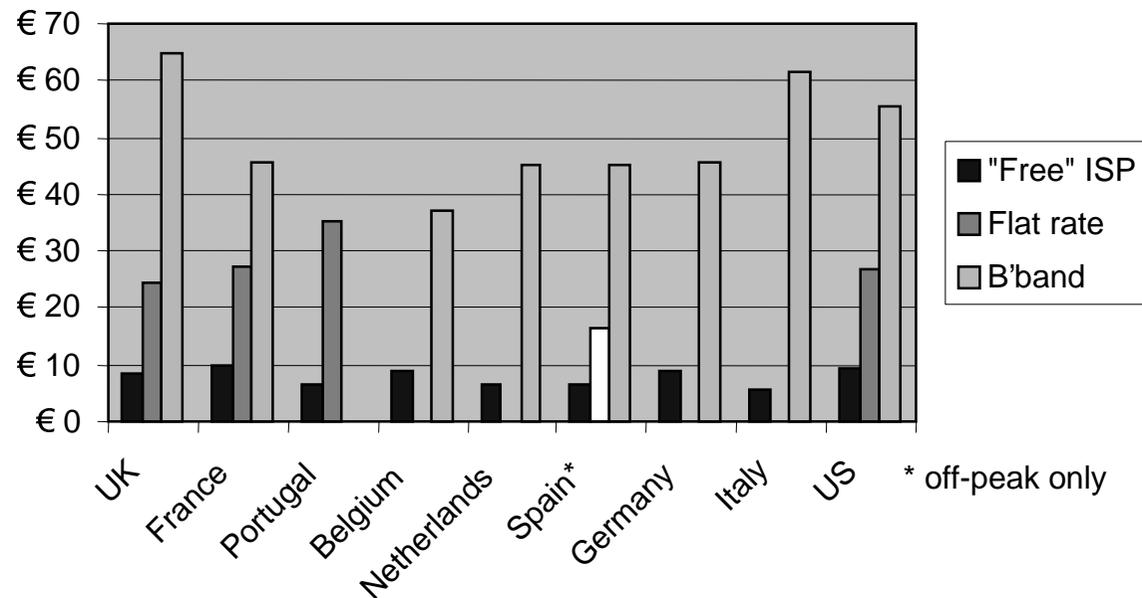


# Narrowband flat-rate redundant?

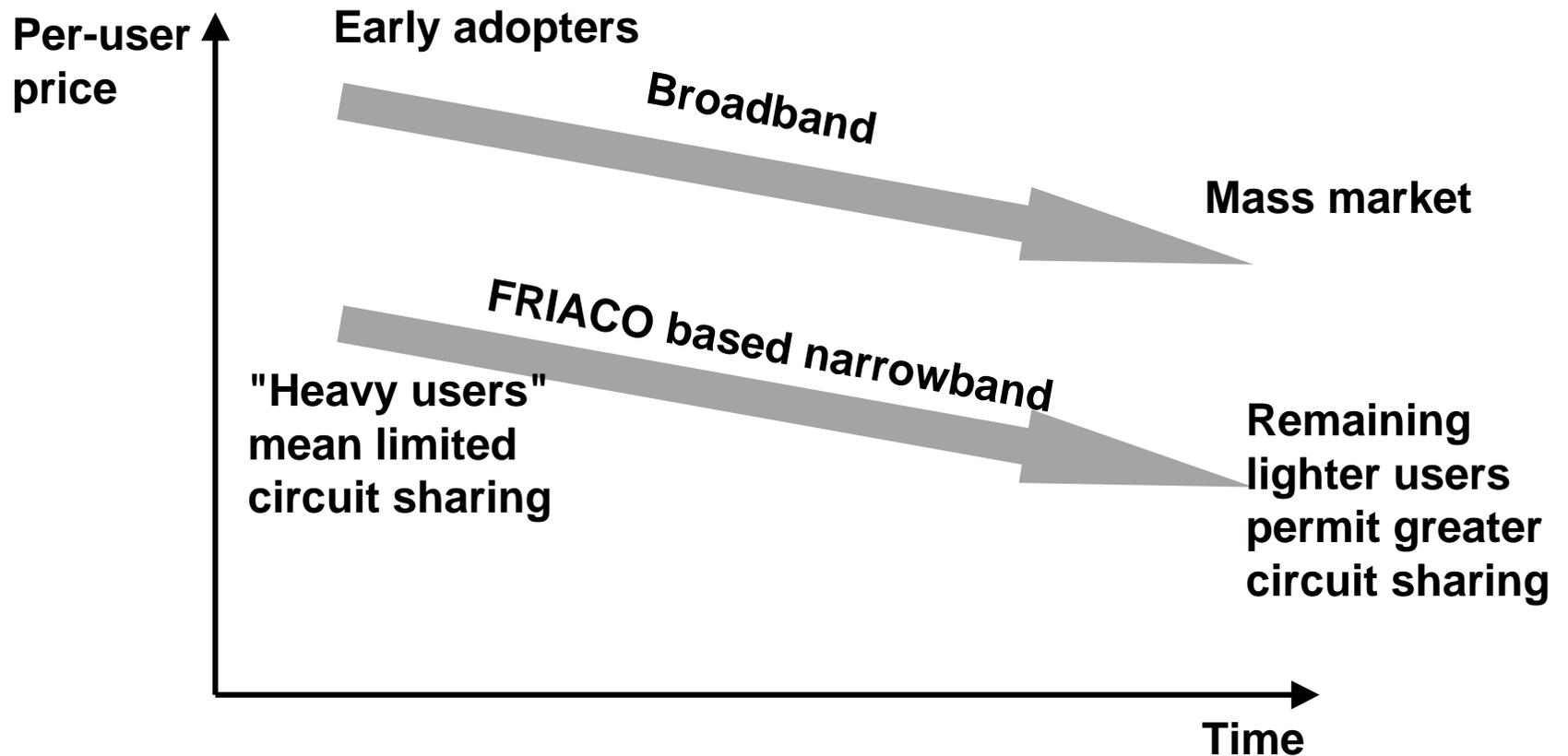
⇒ Household budgets: 90% of online households use narrowband, 70% of EU households not yet online



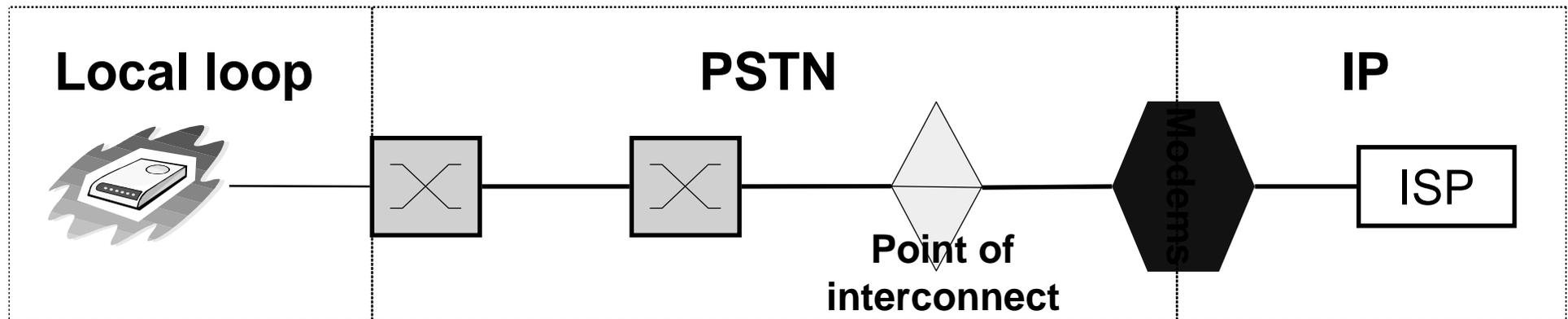
Consumer expenditure on free ISPs, unmetered ISPs and broadband



# Narrowband flat-rate redundant?



# Network costs and pricing

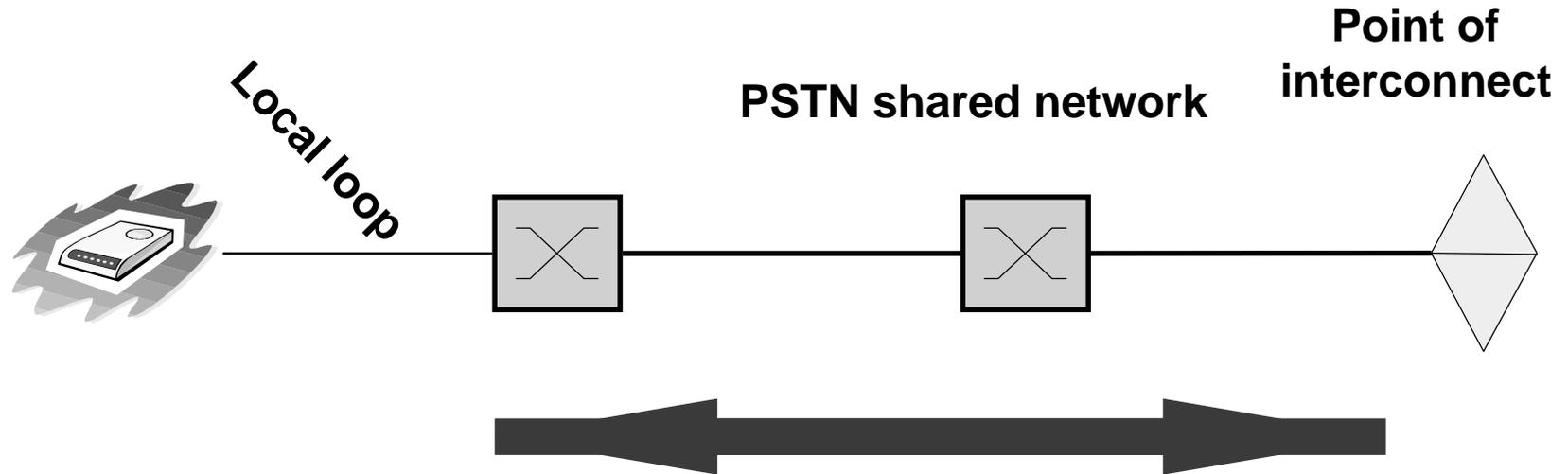


Fixed costs:  
line rental or  
LLU

Costs driven by number of  
*simultaneous* callers,  
**but charged by the minute!**

Costs driven by  
*simultaneous*  
data volumes

# Unmetered PSTN interconnection models



**ISPs can only receive unlimited calls**

→ IP based pricing

⇒ UK ⇒ France (Germany)

[www.oftel.gov.uk/publications/internet/fria0500.htm](http://www.oftel.gov.uk/publications/internet/fria0500.htm)

[www.oftel.gov.uk/publications/internet/fria0201.htm](http://www.oftel.gov.uk/publications/internet/fria0201.htm)

# Per-user pricing

## ⇒ **Lump sum interconnection charge**

⇒ Termination model: Spain

⇒ Origination model: Portugal, Japan ISDN

## ⇒ **Per-call ('set-up') charge**

⇒ Australia

## ⇒ **Unlimited call service**

⇒ Japan analogue, Brazil

## ⇒ **"Free" – included in line rental**

⇒ US, Canada

⇒ Mexico: 100 calls

⇒ New Zealand: residential only

# Per-user pricing & capacity management

- ⇒ ***“Flat rate pricing means people will stay online all day and blow up incumbents’ network”***
- ⇒ **Consumers pay for PSTN usage directly to incumbent**
- ⇒ **ISPs - running IP networks - are largely indifferent to when, and for how long, consumers are online**
  
- ⇒ **Trouble brewing...? Maybe not!**

# Capacity based pricing

## Flat Rate Internet Access Call Origination

⇒ **ISPs buy capacity to receive calls, and must use it efficiently**

⇒ The more users share a circuit, the lower the per-user cost

⇒ **ISPs' scope to stagger demand**

⇒ Price

⇒ Content

⇒ Quality of service!

⇒ **Political benefit: *privatise* the "evening-peak" problem**

# Endorsements

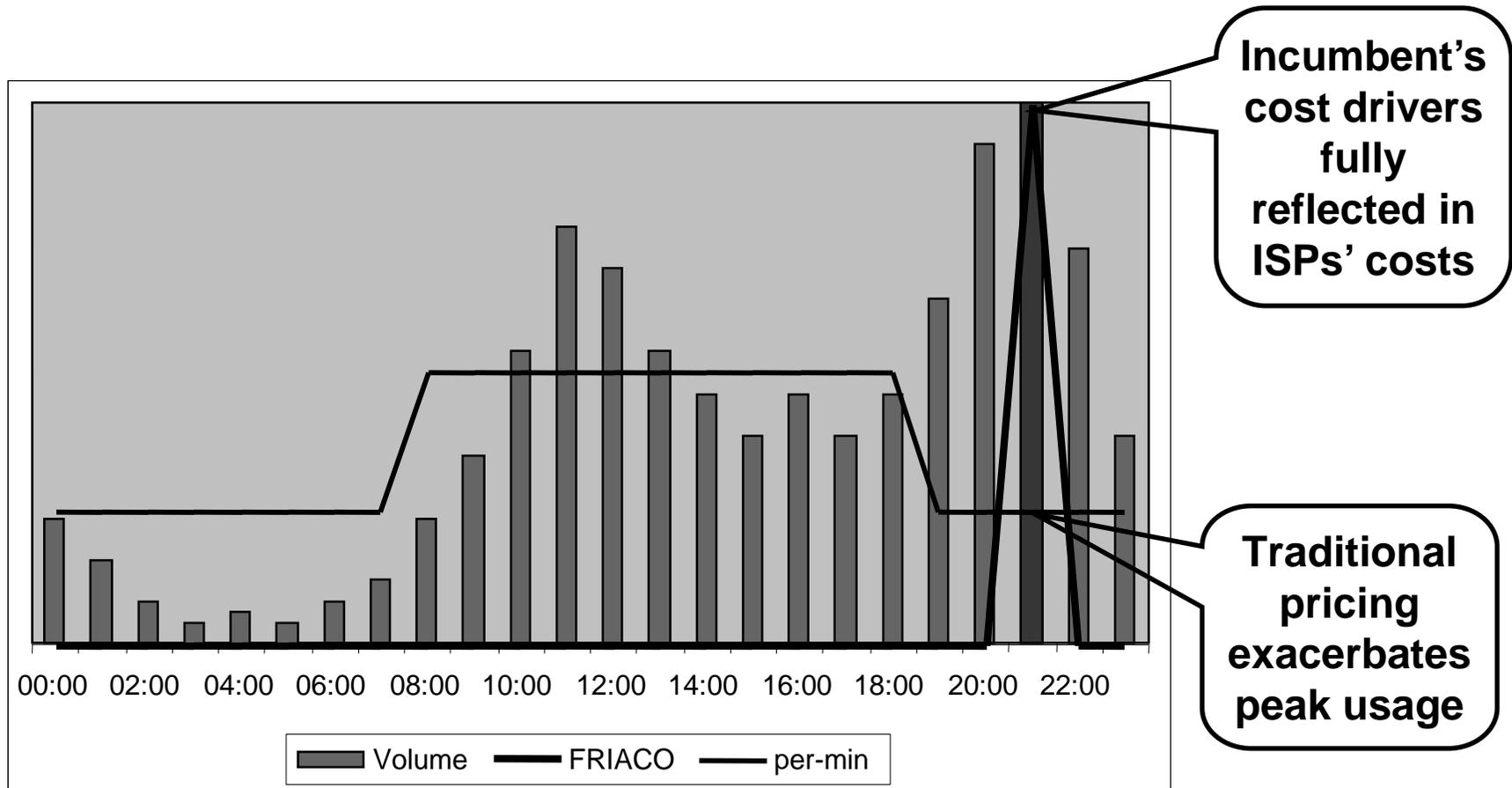
*"In an ideal situation ... capacity based charging would be the most efficient interconnect pricing rule."*

(Commission Recommendation, 1997)

*"Daher eigne sich internetverkehr besser für kapazitätsbezogene Preise"*

(RegTP, November 2000)

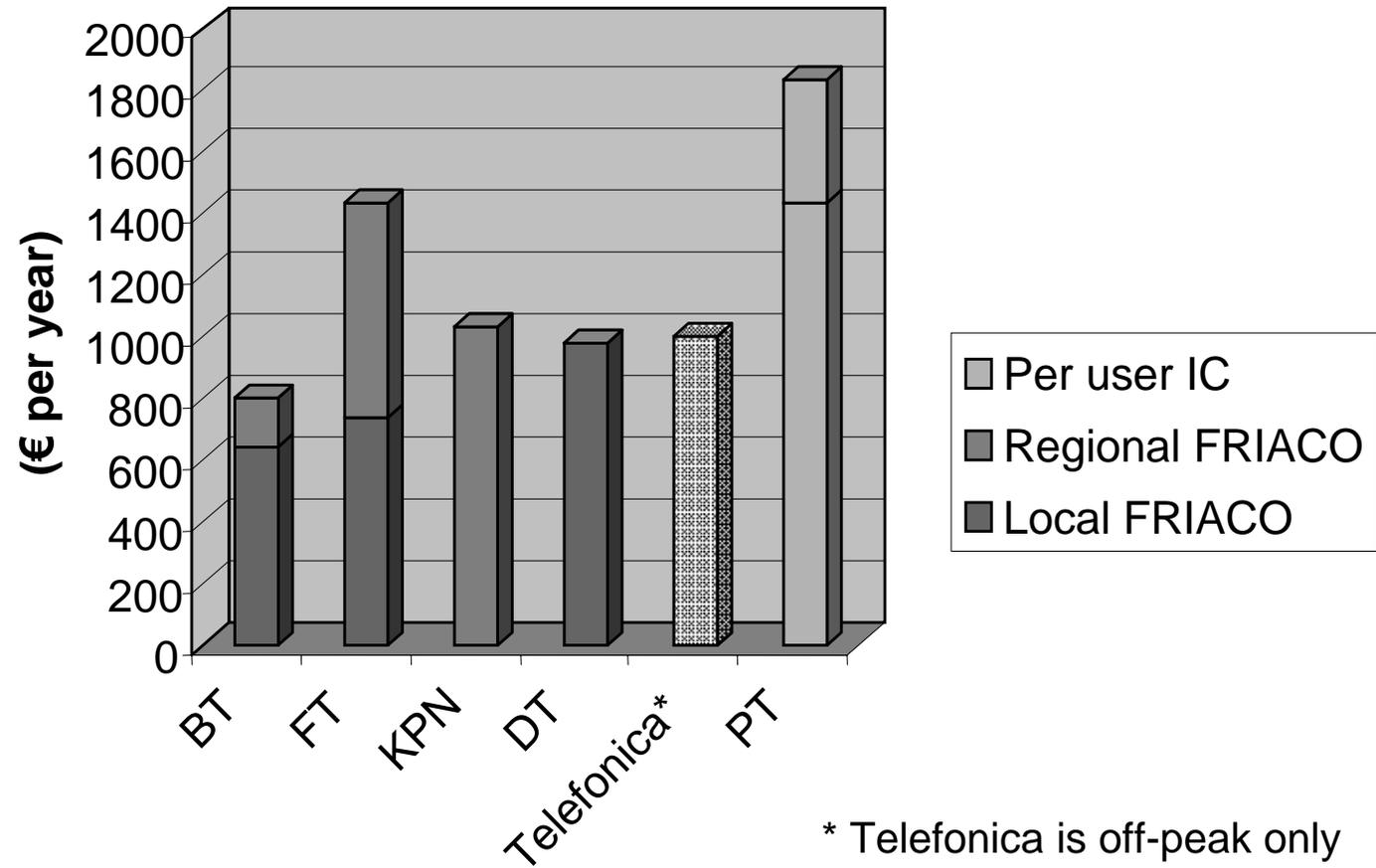
# The "evening peak" problem



**FRIACO**  
**solves, not**  
**causes,**  
**congestion**

[www.opta.nl/download/Openbare\\_versie\\_01\\_04\\_061.pdf](http://www.opta.nl/download/Openbare_versie_01_04_061.pdf)

# Interconnect benchmarks



# Local/regional interconnect

## ⇒ **ISP innovation depends on call termination competition**

- ⇒ Kickbacks
- ⇒ Call & access bundled offers
- ⇒ Carrier selection + Internet access bundle, etc

## ⇒ **Liberalisation just 3 years' old**

- ⇒ OLOs interconnected at regional level

## ⇒ **Variety of origination products used**

- ⇒ Retail minus termination outpayment
- ⇒ Indirect access
- ⇒ 0800
- ⇒ Special Internet pre-fix, and...
- ⇒ ... FRIACO

# Policy balance

## ⇒ **"Internet call origination traffic should be taken off the PSTN as early as possible"**

- ⇒ Strategic advantage for incumbent, as they are in every local exchange already
  - Need modem co-location at LEX
- ⇒ Higher OLO termination costs
  - Potentially inefficient investment in digging to LEX

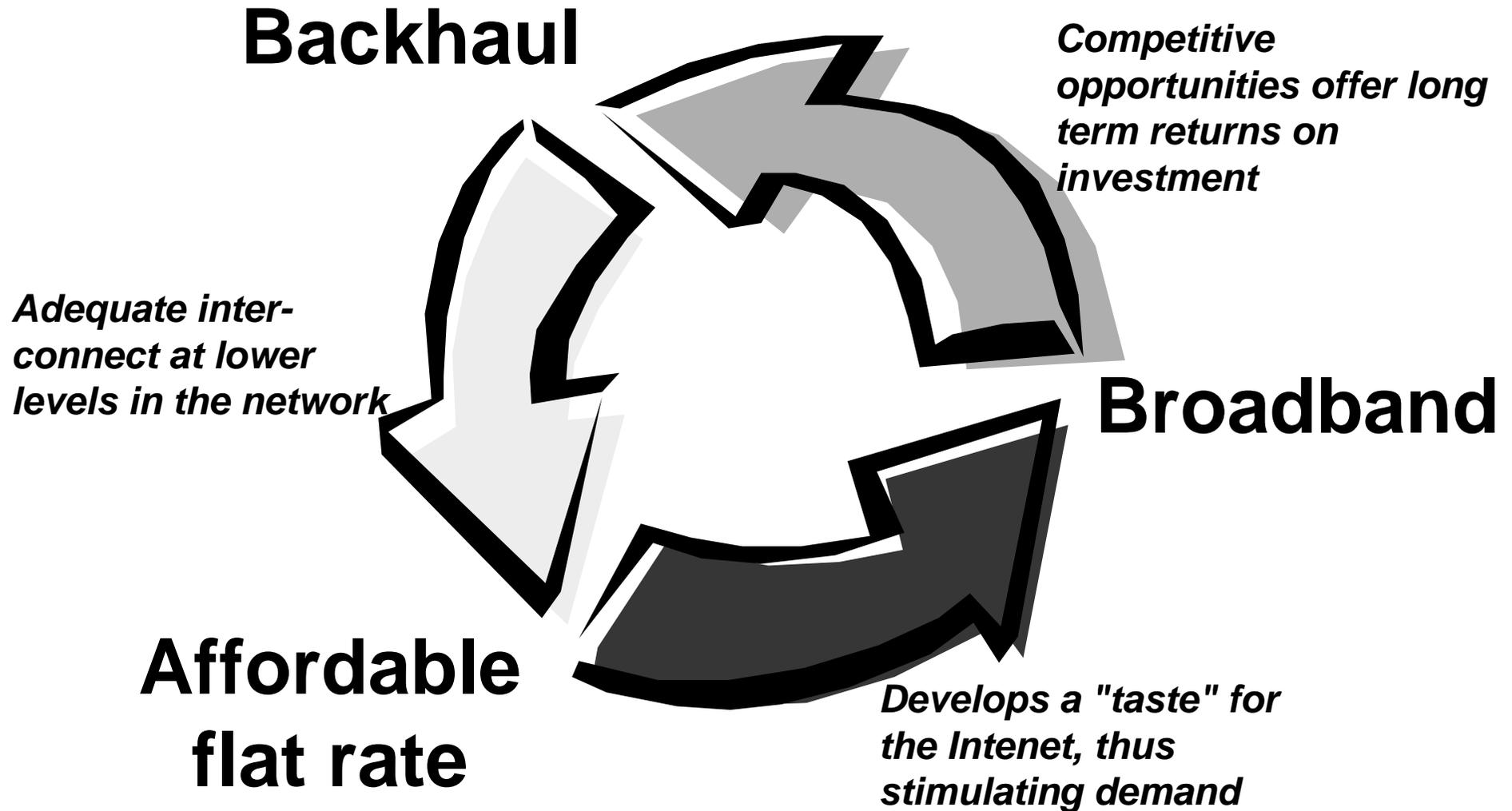
## ⇒ **Preserve call termination competition**

- ⇒ OFTEL "Single Tandem FRIACO", Feb 2001

## ⇒ **"IP interconnect"**

- ⇒ Could extend local access dominance to modems and backhaul

# A vicious circle?



# Non-discrimination

⇒ **WTO commitments**

⇒ **Anti-trust obligation on dominant companies**

⇒ **EU interconnection Directive**

⇒ Basis for German RegTP action

⇒ **"Reasonable request"**

⇒ Basis for action in UK and NL

- OFTEL prodded into faster action because of BT flat rate

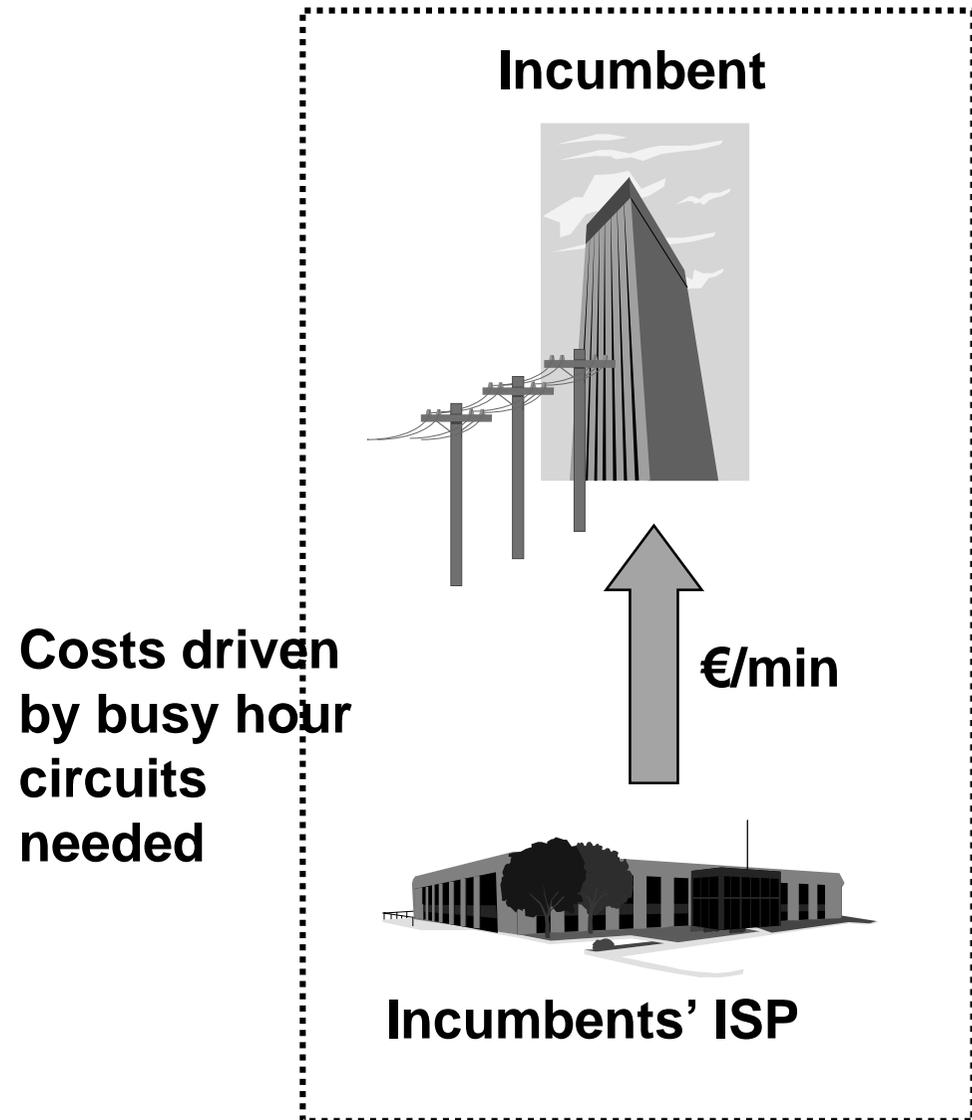
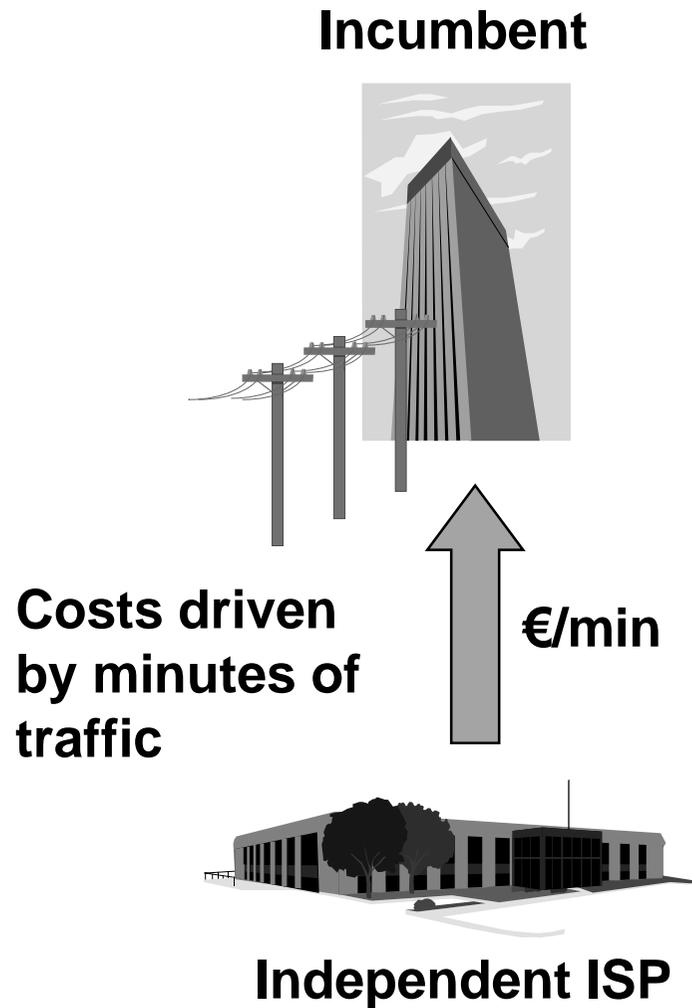
# Non-discrimination

⇒ BT and DT offered retail flat rates, but claimed they used per-minute transfer charges, so no discrimination?

⇒ The Regulators said: "no"

⇒ "21 [...] the Director does not accept BT's argument that it faces the same risk as an OLO because its retail business will also be "purchasing" metered call origination. The Director takes the view that BT does not face similar risks when its position is assessed on an end-to-end basis. Any losses incurred by BT's retail operation would be purely notional and offset by notional profits in its network business."

# Levelling the risk playing field



# Non-discrimination

## ⇒ TOL withdrew its flat-rate prices, and judge threw out RegTP's decision

⇒ RegTP had linked need for flat rate interconnect prices from DT to TOL flat rate retail prices

## ⇒ Incumbents' costs are inherently capacity based, *irrespective of transfer and/or retail prices*

⇒ option of capacity based interconnection prices is always necessary

⇒ Failure to provide is implicit discrimination

# Other shared networks

⇒ **Costs driven by simultaneous usage**

⇒ **Local access network**

⇒ SMS, GPRS, UMTS

⇒ Cable TV networks

⇒ **NOT DSL**

⇒ **All IP backbones**

⇒ **Main issue is vertical integration, and a lazy carry-over of retail models into wholesale pricing**

# Conclusions

- ➔ **Flat rate is key stepping stone to broadband on the demand side**
- ➔ **PSTN traditionally mis-priced – what will happen to off-peak pricing?**
- ➔ **FRIACO**
  - ⇒ Key ingredient for flat-rate consumer prices
  - ⇒ Addresses congestion issues head-on
  - ⇒ Both regional and local interconnection needed
- ➔ **Capacity-based pricing needed to ensure real non-discrimination**

