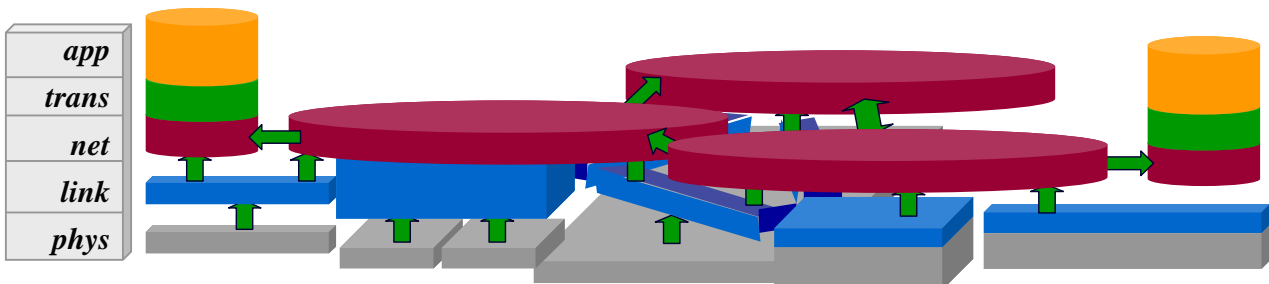
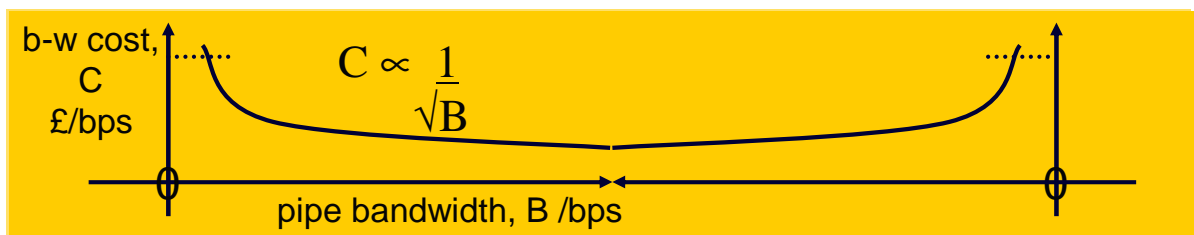


# interconnect QoS business requirements

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BT Group CTO



## context



- selling QoS = managing risk of congestion
  - if no risk of congestion, can't sell QoS
  - congestion risk always in access nets (cost economics of fan-out)
  - but *small* risk in cores/backbones (failures, anomalous demand)
- + usual motherhood requirements
  - cheap, simple (v little margin for everyone's shares)



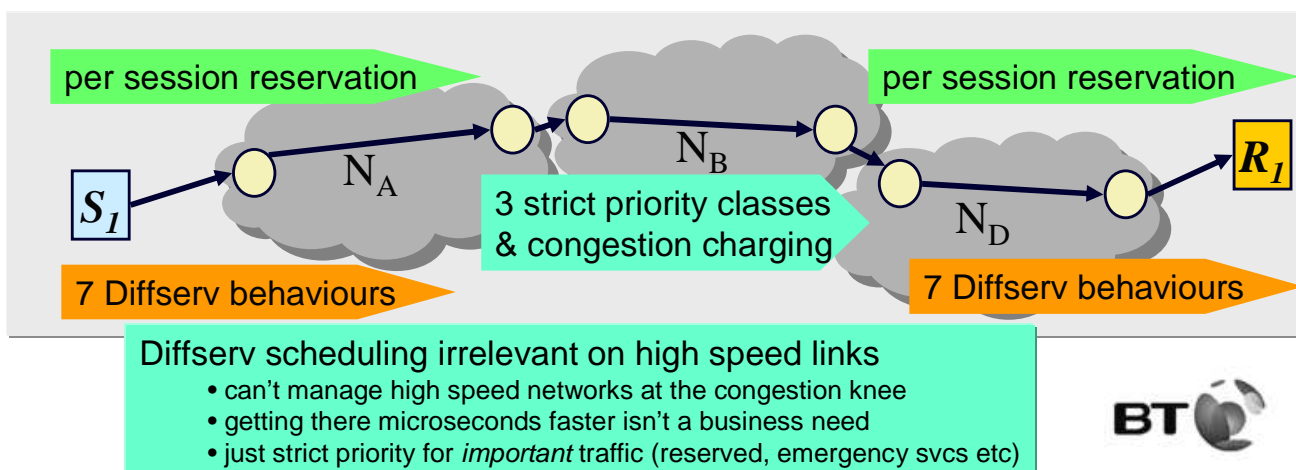
# interconnect QoS – business reqs I

- retail models
  - broadband: per-session QoS, price discrimination per application
  - corporate: VPN (not the focus of this presentation)
- but e2e QoS  $\neq$  one e2e business model, as long as:
  - back pressure from pricing passes through
  - each domain can make its profit
- per-session charge not necessary at interconnect
  - bulk charging sufficient at interconnect whatever the retail model
  - can spread risk of QoS failure rate over bulk interconnect contract



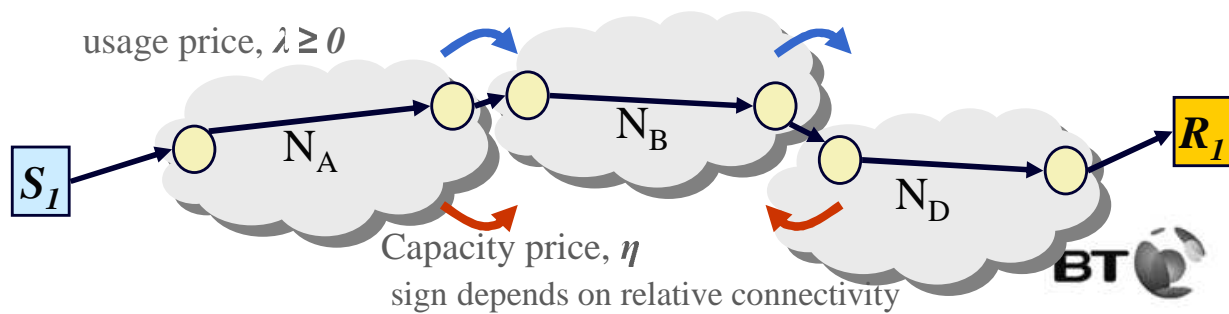
## interconnect service requirements

- per-session (or per-VPN) reservations needed across cores?
  - if large proportion of utilisation is PSTN replacement, VPN: yes
  - for emergencies, re-routes, failures: yes
  - need reservation behaviour not nec. mechanism in cores
- isn't over-provisioning/diffserv sufficient?
  - PSTN replacement esp. flash crowds & emergencies: no(?)



# sender or receiver pays? & denial of funds

- two part tariff
  - sending domain pays  $C = \eta X + \lambda Q$  to r'cvng domain per accounting period
  - $X$  is capacity @ price  $\eta$
  - $Q$  is QoS/usage-related (volume, peak demand, congestion) @ price  $\lambda$
  - both prices relatively fixed
- usage related price  $\lambda \geq 0$  (safe against 'denial of funds')
  - any receiver contribution to usage through end to end clearinghouse
  - or bias fixed charges against receiving domain to compensate



## interconnect QoS – business reqs II

- competitive differentiation
  - not much but a little, for product evolution
  - based on generic equipment & systems standards

# interconnect QoS business - summary

- business model and/or service model
  - not nec. same along e2e path

