FAB

Flexible Allocation of Bandwidth

Fabrice Saffre
Cefn Hoile
Mark Shackleton

The "take away" message

- With FAB, ISPs can
  - Offer fixed price, uncapped, always on broadband.
- Whilst
  - Maintaining customer QoS.
  - Controlling infrastructure costs.
  - Stimulating new broadband revenues.

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Peer-to-Peer and ISPs

- P2P file sharing is hurting ISPs:
    - A small minority of "heavyweight" subscribers, using always-on file sharing applications, generate huge amounts of traffic (50% download, 80% upload!)

- P2P could be a great opportunity:
    - It contributes to the value of having broadband, and as such helps attract (and retain) customers.
    - Recent developments from the BBC may be the dawn of legal P2P content distribution.
    - ISPs could gain advantages from embracing P2P and its consequences.

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FAB (Flexible Allocation of Bandwidth)

- Designed to protect QoS for <u>all</u> classes of users:
  - Prioritises lightweight users when bandwidth is scarce.
  - Allows off-peak downloads by flexible P2P enthusiasts.
  - Creates the right conditions for selling premium services to uncompromising, "heavyweight" subscribers.

- Has virtually <u>zero</u> cost:
  - FAB is just an original way of managing "best effort".
  - It makes use of existing weighting procedures (weights are simply adjusted dynamically).
  - It doesn't require any unplanned roll-out of new hardware.
  - It bypasses the implementation issues that more complex solutions would raise, so is suitable for deployment soon.
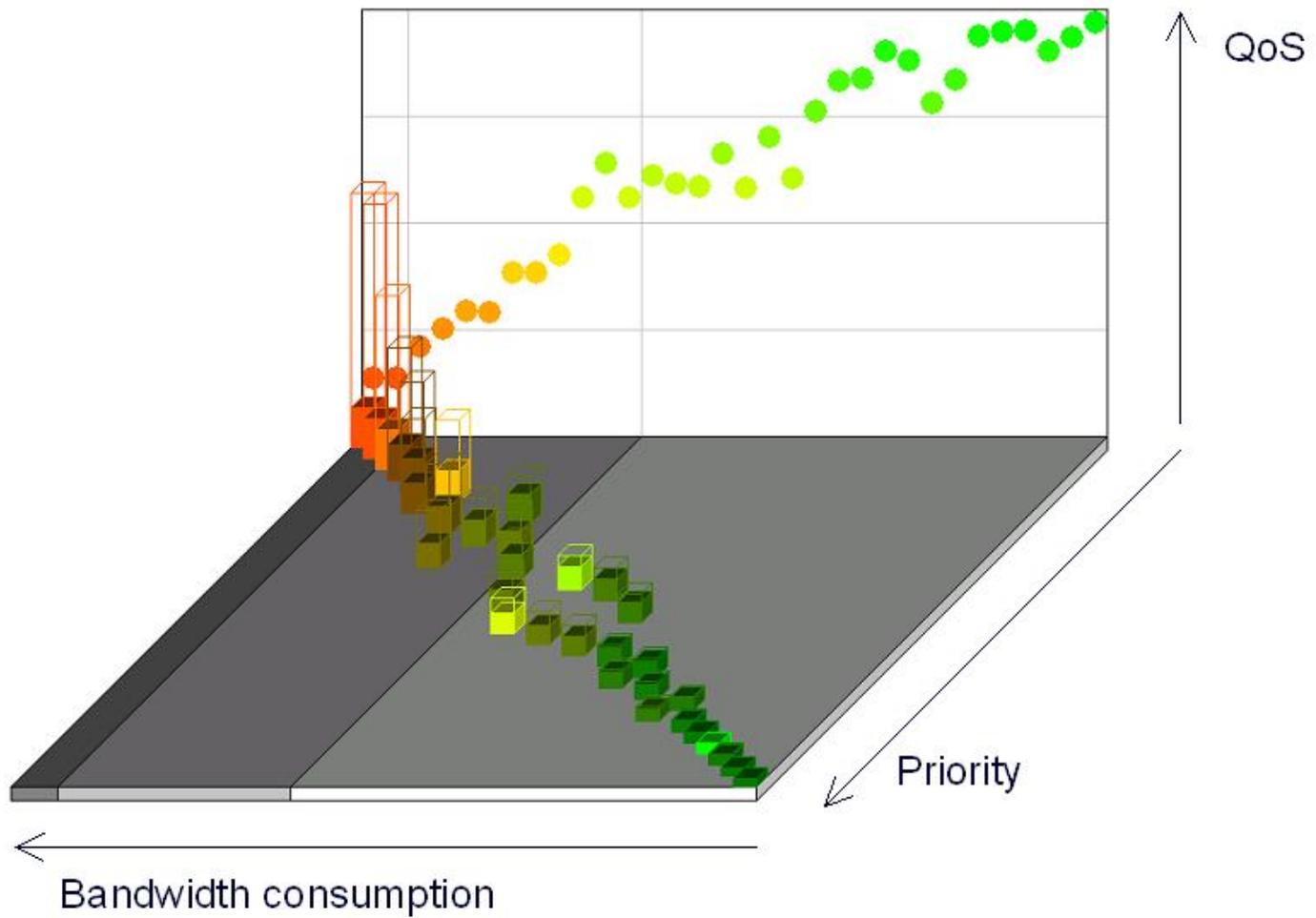
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The key customer message

- FAB is fair and open-minded:
  - "*If you've been a moderate bandwidth consumer yesterday, we'll give you VIP treatment today*":

    priority is history-based, inversely linked to usage, allocating a constrained (fixed cost) network resource between many users
  - "*Throttling occurs exclusively when required to protect fellow users: if bandwidth is available and paid for, we'll give it to you*": doesn't waste network capacity, delivers the best experience given money already spent on network resource.
  - "*Performance depends first on how much you've used the network over the last 24 hours (only second on your neighbour being online at the same time)*":

    users can manage their own QoS.
  - "*What you do online is your own business*":

    doesn't monitor or differentiate traffic types – just volume.

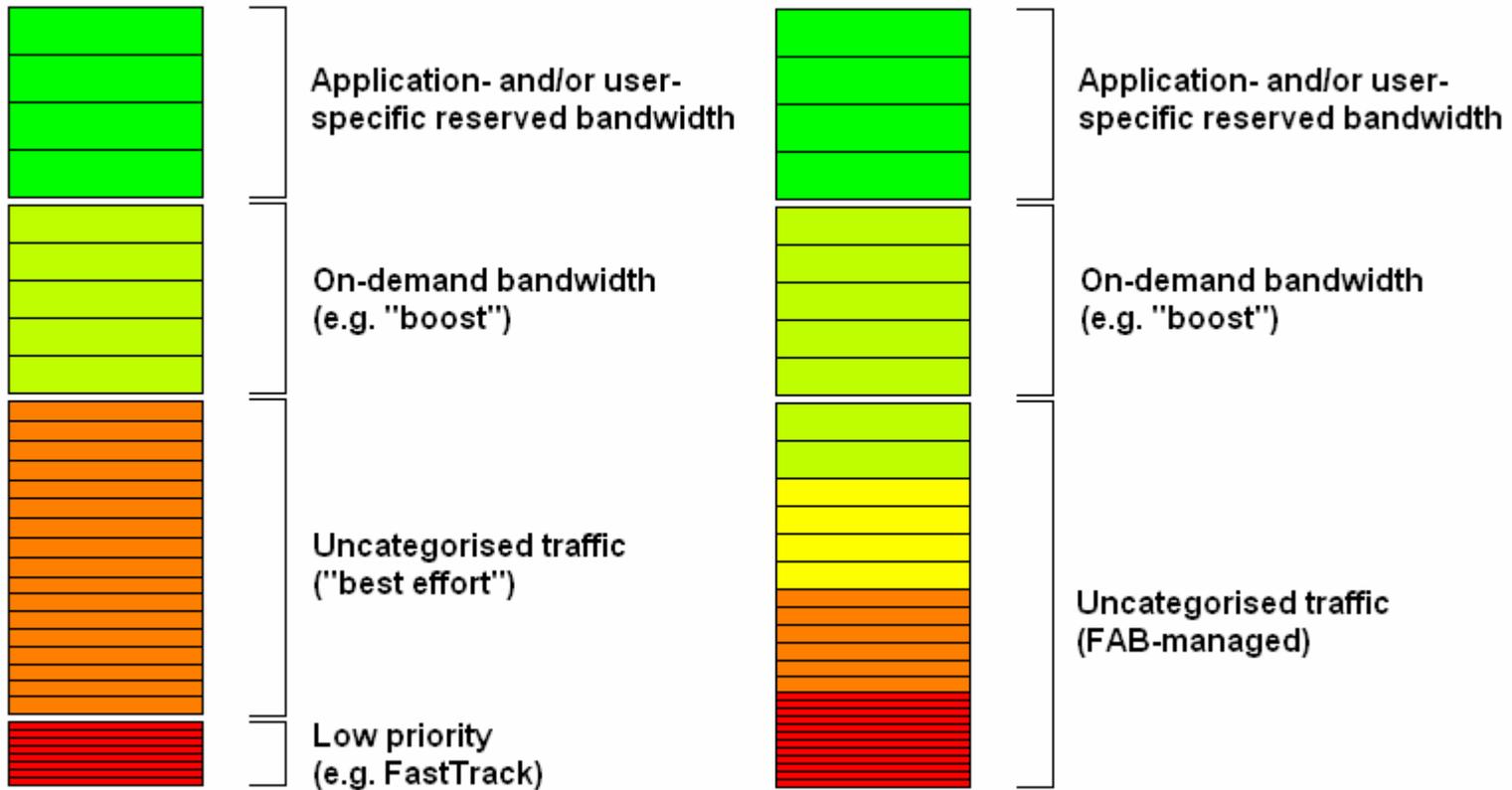# Immediate benefits

- ISPs regain cost control:
  - No more "unilateral" investment in network capacity is required to protect QoS for lightweight users.

- ISPs do not have to risk undermining the appeal of broadband in order to restore profitability:
  - It becomes viable to retain a flat rate, uncapped package in the portfolio.
  - Can reassure entry-level customers.

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FAB (Demonstration)

Managing "best effort"

Application- and/or user-specific reserved bandwidth

On-demand bandwidth (e.g. "boost")

Uncategorised traffic ("best effort")

Low priority (e.g. FastTrack)

Application- and/or user-specific reserved bandwidth

On-demand bandwidth (e.g. "boost")

Uncategorised traffic (FAB-managed)
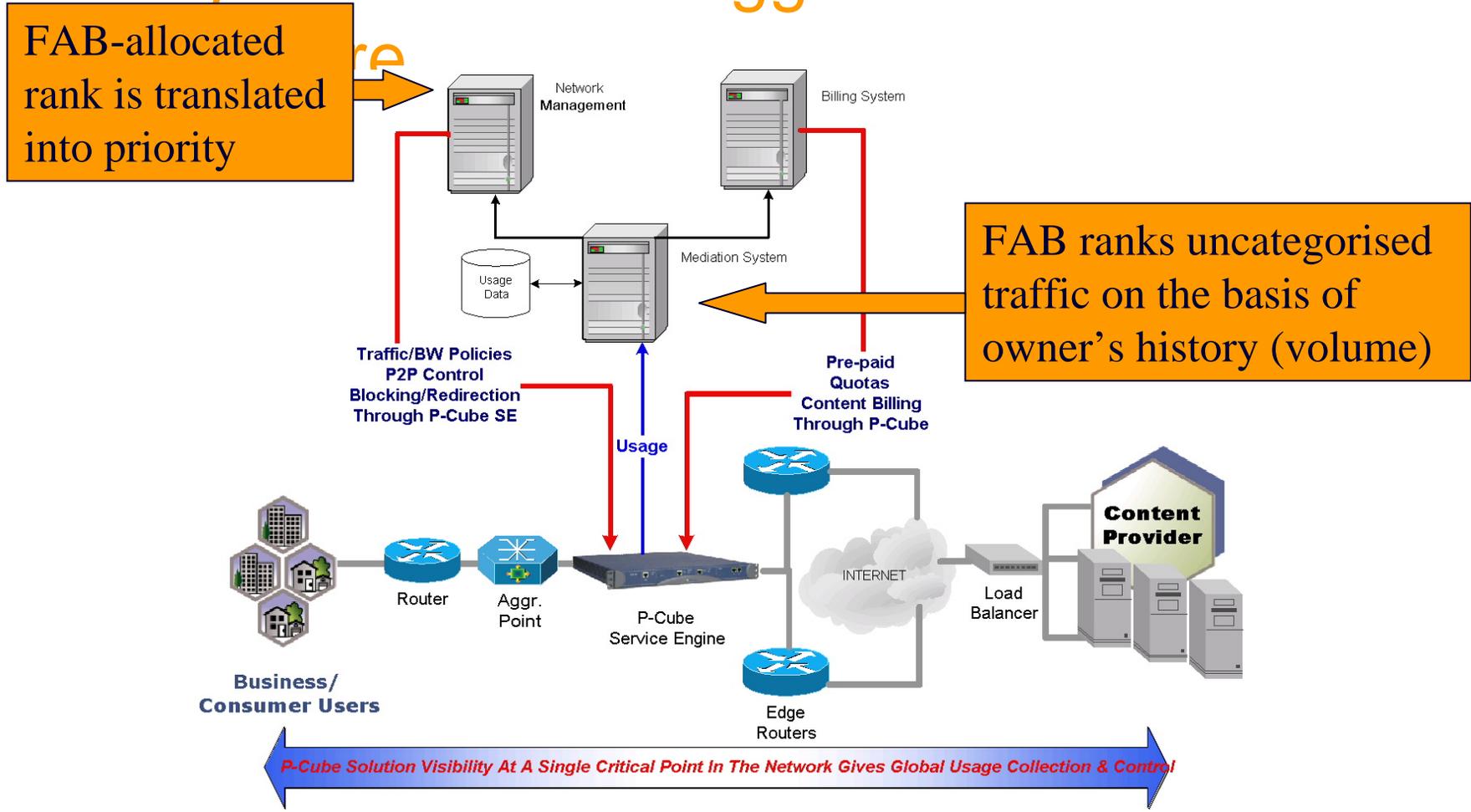
Implications

- ISPs avoid aggressive "de-prioritisation" of some categories of traffic:
  - The message to the end users is a lot more positive.
  - They can still purchase extra QoS options stimulating new revenue from broadband.
  - Occasional use of bandwidth-hungry applications is not immediately (and rigidly) penalised.

- ISPs still make full use of available monitoring and throttling capabilities (FAB is just squeezing extra value out of them).

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Where (we think) FAB sits
example: P-Cube's suggested

FAB-allocated rank is translated into priority

FAB ranks uncategorised traffic on the basis of owner's history (volume)

Network Management

Billing System

Usage Data

Mediation System

Traffic/BW Policies
P2P Control
Blocking/Redirection
Through P-Cube SE

Pre-paid
Quotas
Content Billing
Through P-Cube

Usage

Business/
Consumer Users

Router

Aggr.
Point

P-Cube
Service Engine

INTERNET

Edge
Routers

Load
Balancer

Content
Provider

P-Cube Solution Visibility At A Single Critical Point In The Network Gives Global Usage Collection & Control

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Discussion

- ISPs have a number of unpalatable options available
    - Easy to make broadbanders happy by providing more bandwidth, but makes accountants unhappy.
    - It's easy to make the network cost-efficient by denying or throttle down all demanding services, but makes customers unhappy.

- FAB provides an alternative which may be the best balance between Customer Satisfaction and QoS, Cost Control and New Revenue.

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