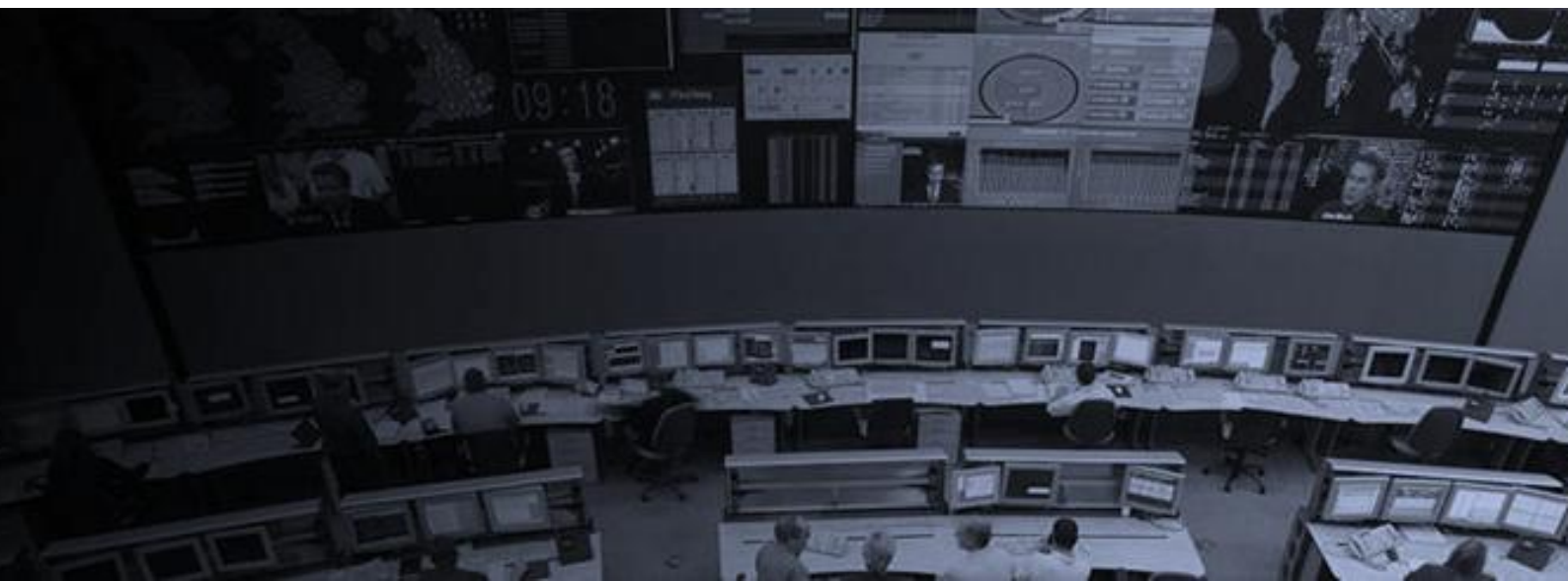


Managing Costs and Quality



The Benefits of QoE Intelligence
for ISPs

The Quality Challenge

Every day ISPs face the questions on the performance of their networks.

- Did we buy enough wholesale bandwidth?
- Have we over-provisioned and lost money?
- Do we need to buy more or can we re-distribute what we've purchased?
- Is the wholesaler actually meeting our requirements?
- Do our 3rd party providers meet our requirements?



The ultimate answer to these questions lies with customer quality of experience (QoE). By understanding the service delivered to customers, ISPs can make business decisions that improve QoE, reduce overhead and justify operational spend.

Alternatively, not addressing subscriber-affecting faults can lead to complaints, call centre queues and ultimately, churn.

What is QoE Intelligence?

QoE data is collected either from subscriber user equipment (smartphones, PC's) or specialised probes installed at the edge of the ISPs network – the customer edge - to acquire a subscriber QoE view.

Metrics that report on actual subscriber experience include those that represent;

- Surfing the web
- Downloading MP3s
- Emailing
- Playing games and
- VoIP telephony

TCP Throughput and HTTP speeds, DNS resolution time, Latency, MOS and more are all collected, analyzed and charted. Data is collected during all times of the day from as many geographical regions as possible.

With QoE Intelligence key staff such as capacity planners, customer call centre agents, NOC support engineers, customer quality managers and financial controllers can easily see the 'whole picture' – the consumption, operation and final quality of services delivered to subscribers.

Capacity Planning with QoE Intelligence

ISPs understand that wholesale bandwidth consumption can cost huge sums annually.

Capacity planners face the dual challenge of estimating the minimum required bandwidth necessary to meet subscriber quality targets without incurring unnecessary spend.

Spend too little and dissatisfied subscribers will flood the call centre or worse, churn. Spend too much and it affects the bottom line.

Typically, capacity planners have access to the wholesale consumption charts however they have no means to understand if the bandwidth consumed is sufficient or adequately distributed or over supplied, in terms of actual subscriber quality of experience.

Three examples of how subscriber QoE intelligence can be combined with typical core network data to make business decisions that improve performance without unnecessary costs.

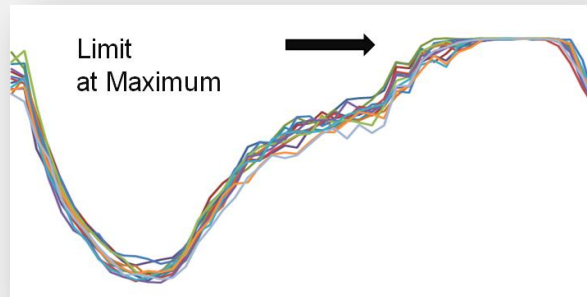


Example 1

Managing the Bandwidth Budget

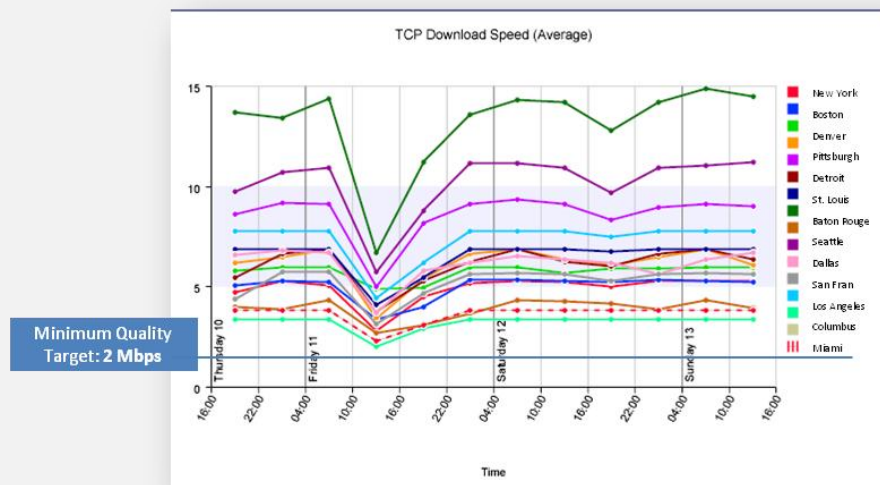
The example below shows a typical challenge faced by a Capacity Planner.

Wholesale bandwidth consumption is at its maximum and seemingly indicates that subscriber demand is outstripping supply. More bandwidth should be purchased in order to meet demand – or should it?



Wholesale Bandwidth Consumption

The QoE data (actual subscriber experience) for the same time period shows that although services slow down, all nodes meet the minimum quality target set by the ISP of 2Mbps, even during peak times.



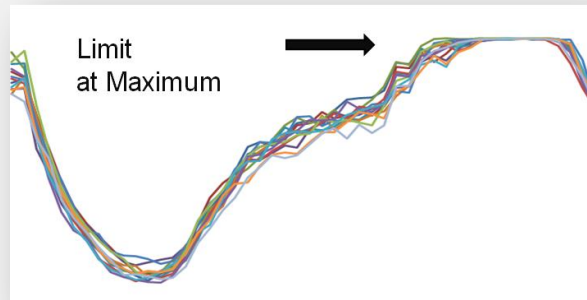
Subscriber Quality of Experience (QoE) View

In this situation, purchasing more bandwidth would not be justified as the ISP is hitting its internal quality targets for subscribers. Yet it is common practice that ISPs will purchase more bandwidth – unnecessarily - if decisions are based solely on the Wholesale Bandwidth Consumption chart.

Example 2

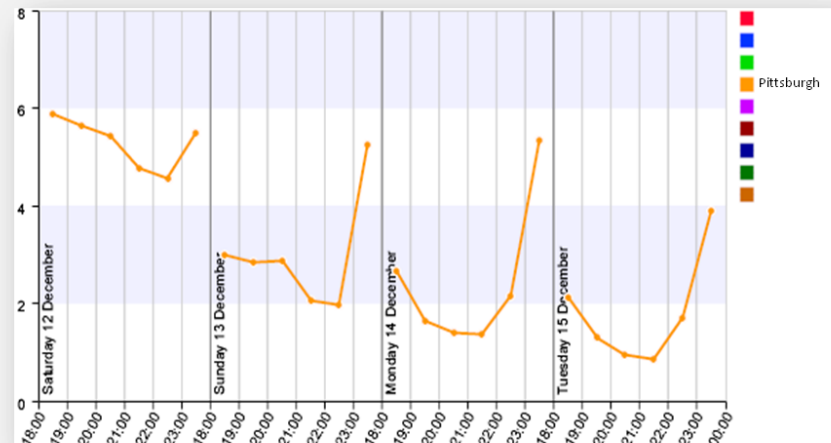
Re-distribution of Wholesale Bandwidth

In this sample wholesale consumption is again at its maximum threshold. However, as QoE data is being collected from cities across the country the ISP can further investigate the spread of bandwidth consumption to see if any one city is over-provisioned with bandwidth to spare.

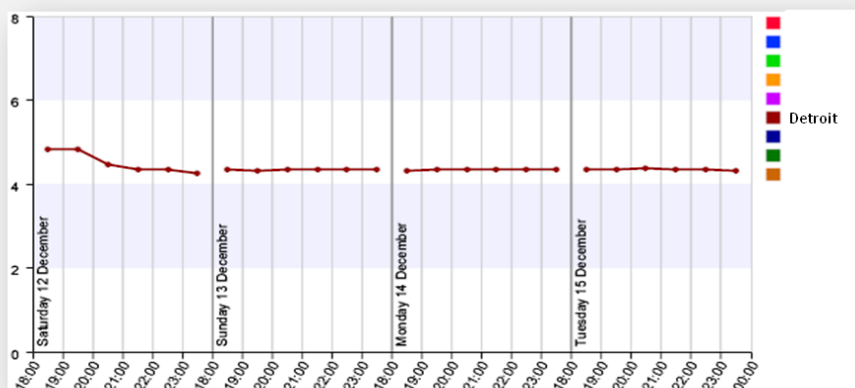


Wholesale Consumption Chart

The two QoE charts below show that Paris is definitely struggling to maintain the minimum 2 Mbps quality target set by the ISP. However, the London area appears to have a surplus of wholesale bandwidth as services there remain constant even during peak periods.



Pittsburgh Services



Detroit services

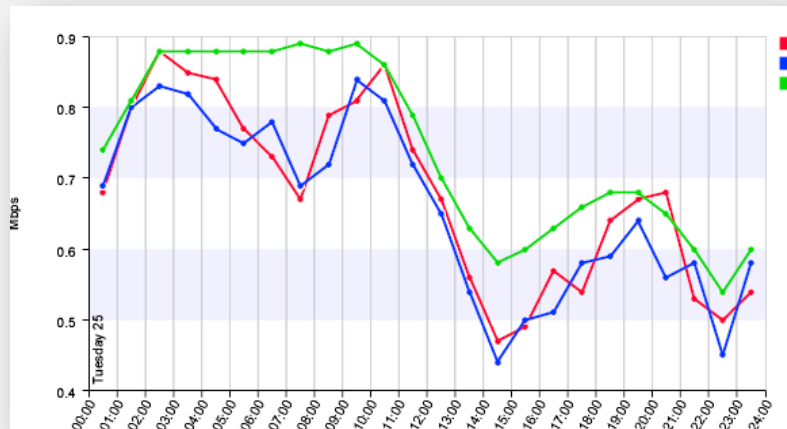
Based on seeing both the Wholesale Consumption chart and the QoE Intelligence of the two cities, the Capacity Planning Manager can redistribute bandwidth from Detroit to Pittsburgh and avoid purchasing more wholesale bandwidth. Though London will dip in speeds, it will still be above the quality targets set by the ISP.

Example 3

Proof of Insufficient Bandwidth

In this example consider that the wholesale consumption is again at its maximum threshold.

However, the quality of experience of the three sites is below show that services are well below acceptable levels. These slow speeds would definitely result in subscriber dissatisfaction and lead to complaints and possible churn.



The Capacity Planning Manager can easily and quickly receive approval for additional bandwidth spend based on presenting this conclusive data to representatives of the Customer Quality, Finance and Marketing teams.

Correlate Call Centre “Slow Speed” Calls vs. QoE

When customer experience drops, customer support calls increase. Working with the NOC, call centre managers are able to immediately correlate “slow speed” calls with confirmed network faults. Automated handling for affected areas can reduce demand on live agents while queuing callers can get immediate pre-recorded confirmation that the issue is real and being managed.



Customer Quality Targets

In such a competitive market place it is easy to lose subscribers and very difficult to win them back. Most ISPs commitment to providing consistently high-quality service including setting a minimum speed for both TCP Throughput and HTTP during peak times. Targets need to ensure favourite applications (like YouTube) operate at a standard quality level that satisfies customer expectations – or ISPs risk losing that customer to the competition.

QoE Auto-alerts can immediately indicate NOC staff when customer quality drops below a minimum threshold. Customer-affecting faults can then be prioritized in their infancy.



Customer Quality Assurance managers also consult the data to see if the root cause is systemic or likely to occur in the future, and take appropriate proactive action.

Marketing

Having spent millions on network improvements and launching new services ISPs are keen to provide independent proof that services meet advertised claims, and are superior to the competition. QoE data is frequently referenced for these purposes and has appeared in radio, TV and newspaper advertisements.



Managing Suppliers

ISPs are reliant on service suppliers and can benefit from QoE data to manage their performance quality.

For example, Email and DNS services provided by external suppliers are strictly monitored and compared to competitive suppliers to ensure they remain at the highest standard.

New Services than demand the best from Wholesale Bandwidth Suppliers can be relentlessly monitored to ensure the supply network is correctly dimensioned and meeting requirements.

The ease in which QoE data can be captured, understood and forwarded to suppliers means that when problems occur little time is spend finger-pointing or denying issues. The resulting savings in labour, cost and reputation is measurable. Full cycle SLAs can incorporate targets that can be monitored for an absolute means of achieving the performance required.

The Bottom Line

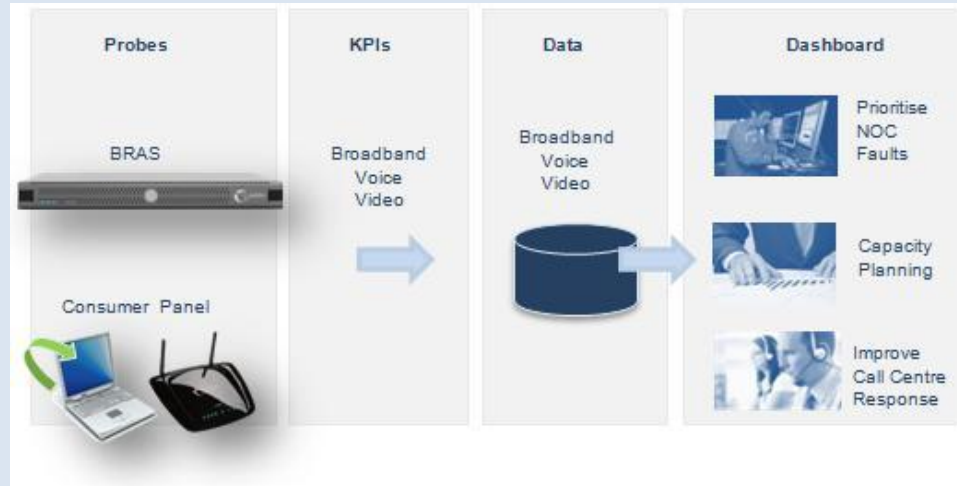
Epitiro's ISP clients rely on QoE data supplied by its **ISP-I™** solution to meet subscriber QoE targets without over-spending on wholesale bandwidth.

Our clients also use QoE data for capacity planning, maintaining quality targets, managing suppliers and successfully rolling out new superfast services.

Epitiro is able to offer an on-line demonstration the QoE levels of your network upon request. Please contact us to understand how to enhance network management processes and procedures with a QoE perspective.

About NetPartner

ISP-I™ is a true managed service that includes both key performance indicator (KPI) measurement technology and ongoing consultative analysis in order to provide ISPs with real-time QoE data.



Typical subscriber experience with web surfing, game playing, sending email, VoIP telephony and video streaming is reported from ISP-I bespoke probes deployed across your network while **isposure** software probes collect broadband performance from subscribers and those of its competitors.

The ISP-I™ on-line dashboards empower staff to readily see the quality being delivered to any part of the BT Retail network, look at historical trends and create reports on demand.

Backed by Eptiro's Consultative Analysis team, the **ISP-I™** managed service solution empowers ISPs with QoE Intelligence for Capacity Planning, Network Management, NOC Prioritization, Marketing, Customer Quality Assurance and Marketing.

About Eptiro

Eptiro is the global leader in comparative broadband benchmarking providing customer experience insight to ISPs, cellular and fixed line operators, media providers, multi-national corporations and government regulators.

Clients such as Vodafone, Orange, Telefonica O2, Mobily, Virgin Media, Telecom New Zealand, BT, IP.access, Ofcom, IDA Singapore, Tiscali, CTM China, KPN and many others benefit from Eptiro's coverage of fixed and wireless broadband performance.

Founded in 2000, Eptiro is based in Cardiff, Wales, UK.



Eptiro (UK)
Eptiro House, 10 Raleigh Walk
Waterfront 2000, Brigantine Place
Cardiff CF10 4LN

Tel: +44 (0) 870 850 6563

Eptiro (Ireland)
Unit 17, Tom Crean Business Centre
Kerry Technology Park, Tralee
County Kerry, Ireland

Tel: +353 (0)66 712 9794

Eptiro (New Zealand)
Level 27 PWC Tower
188 Quay St, Auckland
New Zealand

Tel: (+64) (0) 9 363 2995

Eptiro (Australia) Pty Ltd
Level 22, 201 Miller Street
North Sydney
NSW 2060, Australia

Tel: (+64) (0) 9 363 2995

Eptiro (Singapore) Pte
120 Telok Ayer Street
#00-00
Singapore, 068589