

## SCOTLAND: A MARKET FAILURE IN SATELLITE INTERNET PROVISION

Version 1.0, 31 August 2015, [Richard Harris](#)

### SUMMARY

*The Scottish Government makes a point in its goals for the Digital Scotland (DSSB) rollout that there will always be some areas for which provision of terrestrial broadband is impractical and that the fallback for those areas will include satellite-based broadband.*

*Unfortunately, there is a heavy dose of wishful thinking here: without direct public intervention, commercial operators cannot be guaranteed to provide a reliable and consistent service. This is borne out by experience in practice.*

### BACKGROUND

Because most satellite services are based on very expensive (~€500M and upwards) increments in service capacity, new satellite launches are usually years apart. In the meantime, commercial operators seek to extract every last iota of revenue from their existing assets. That means long periods of essentially static capacity in satellite internet provision – beam footprints can be shuffled around to address local demand hotspots to an extent, but the core limitations remain.

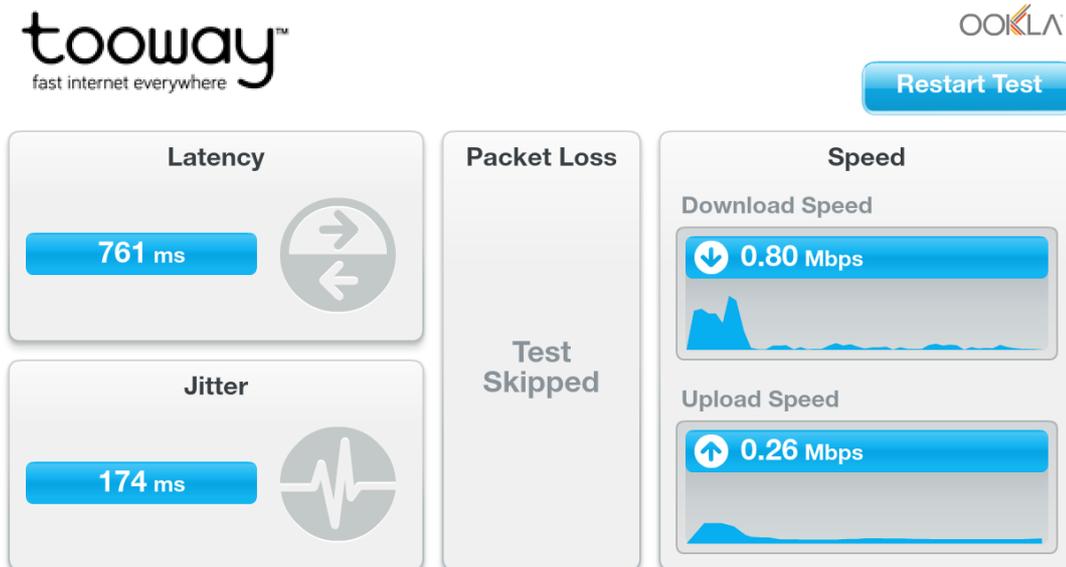
However, rather than setting and continually refining a statistically modelled upper limit to subscriber numbers that guarantees effective quality and grade of service, at a level consistent with public need, commercial providers appear to inevitably keep on selling their service to new subscribers until it simply falls apart – their metrics for network performance inevitably fall far short of what is needed for consistent and reliable connections.

### EXPERIENCE

We have seen this happen locally with the early Aramiska service (which went bust in 2006), with the Avanti K<sub>u</sub>-band service which succeeded it and now with the Eutelsat/Tooway K<sub>a</sub>-band service. In each case, people have signed up on the promise of a given level of available bandwidth, only to find, that as service use increases, link performance falls dramatically until it is effectively unusable for much of the day. This has now been the case for much of the last year with the Tooway service, and the trend to ever-poorer service continues.

Locally, those who signed up to the Tooway service in 2013 are now consistently seeing throughput of under 1Mbps through much of the day, and that alongside what appear to be significant routing issues between Tooway's terrestrial network and the rest of the internet.

It is axiomatic that those in the most remote areas have the greatest need for reliable communications, simply because they have no alternative, so the current and historical experience of commercial satellite broadband delivery is entirely unsatisfactory for them.



## ANALYSIS

This issue has been raised over an extended period with Tooway (Eutelsat) and with Avonline, a UK-based reseller. They have noted that Eutelsat has in fact capped sales on spot beams in the Southern Mediterranean and North Africa but that they see no need to do so yet for those beams covering Scotland.

That does seem to indicate a tolerance for a level of congestion far beyond the point at which their service has degenerated below usability by their customers. That in turn appears to be consistent with the behaviour of other commercial providers.

This is where the denial side of laissez-faire capitalism kicks in, at least when it comes to regarding broadband access as a strategic and essential service: we're not used to mercantilist systems of constrained resource and companies are, by and large, very very bad at managing resource allocation in fixed systems: their near-invariable tendency is to oversell the service until it nearly expires, confident that their beleaguered customers have, by definition, little alternative. Which is exactly what appears to have led to the current market failure in satellite broadband.

## ACTION

This is not something that should leave a government feeling comfortable, especially one that aspires to near-universal world-class broadband provision.

If then, there is to be a continued reliance on satellite as a service of last resort for certain areas (itself not an unreasonable argument), a degree of market intervention is required.

Given the state of the market and delivery technology, the most cost-effective way of doing so would likely be for the Scottish government to lease guaranteed capacity via a managed service, either at the transponder or spot beam level (depending on the system being used), to determine tariffs on the basis of whatever level of social intervention is thought appropriate and to then monitor quality and grade of service accordingly. That way they can ensure that the service does not saturate in the way that purely commercial providers appear to be doing. And, obviously, the greater the reach of terrestrial services, the lower the investment needed in satellite services. However, if public policy continues to include satellite provision as a component of broadband provision, a degree of investment and intervention is clearly required

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## The Author

*Richard Harris has more than thirty years experience as a technology and strategy consultant. He has been an internet user since 1979, a researcher/developer since 1985 and has consulted widely in terrestrial, satellite and mobile service provision. He is a co-founder and director of Balquhiddy Community Broadband.*