

# Summary of ViaSat Comments On USO



- HCS makes reaching *everyone* affordable
  - In the US, ViaSat today provides 12/3 service for \$50/month ([www.exede.com](http://www.exede.com))
    - No government subsidy – this is a profitable business
    - 700,000 subscribers are on the network – most beams are now full
    - Uses ViaSat-1 satellite with 140 Gbps total capacity launched in 2011
      - this is now old technology from ViaSat perspective
    - ViaSat-2 satellite on contract and scheduled for 2017 in service
      - covers North America and Atlantic Ocean (air routes)
  - In the UK, Eutelsat provides similar service over KaSat ([www.tooway.co.uk](http://www.tooway.co.uk))
    - Limited UK capacity means customer base is modest, but service is sold out
  - Eutelsat and ViaSat have formed a JV with the intent of providing next generation HCS service over Europe (including the UK)
    - ViaSat 3 Satellite is under contract (Boeing) with announced launch of 2020
    - Over 1 Terabits per second of total capacity
      - although not all can be placed in the UK, this is 1-2 orders of magnitude improvement
    - Subscriber speeds over 100 Mbps anywhere in the UK and Europe
    - The JV will be able to serve large numbers of UK subscribers
    - No other provider comes close to this capability and cost

# Volume is critical in a USO definition!

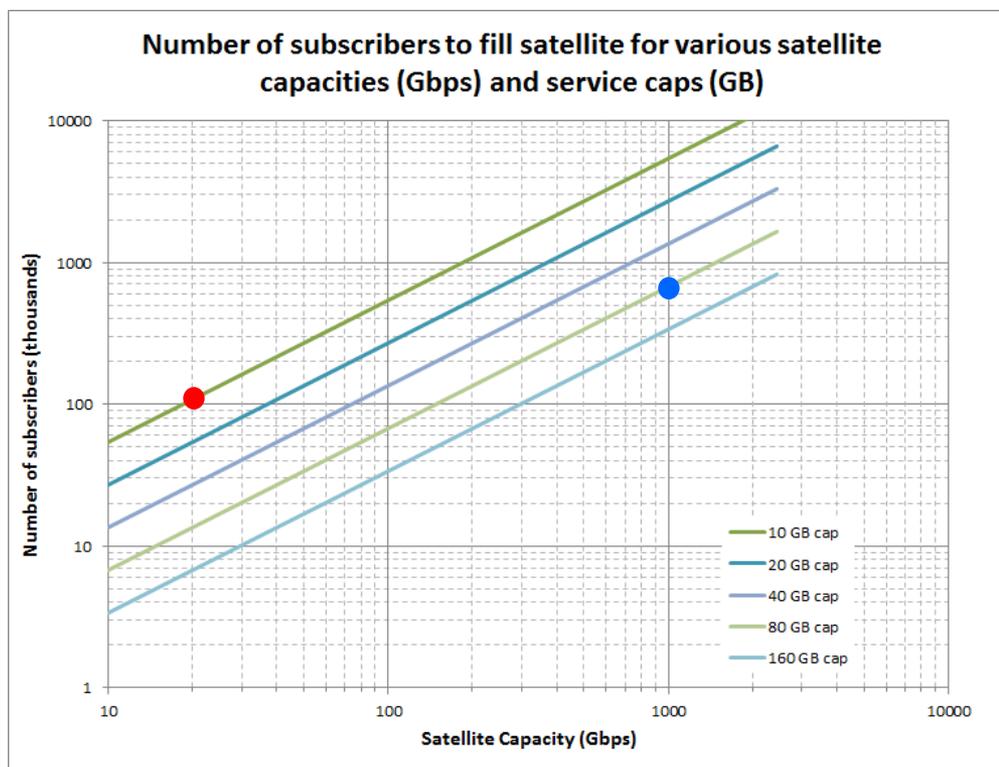
- Volume means: how many GB/month can the subscriber use?
  - A NetFlix HD movie takes “up to 3 GB/hr” (source: NetFlix website). SD is about 700 MB/hr
  - Knowing satellite capacity, can easily compute the number of subscribers that can be supported for a given volume cap
  - The figure at right assumes busy hour lasts for 4 hours

- Results:

- A 10 GB monthly cap is consumed by 1 or 2 HD movie views in a month
- This applies to Fibre too!
- A satellite with 20 Gbps capacity can only serve 100k customers with a 10 GB cap (see ●)
- An 80 GB cap is consumed by about 12 movie views in a month
- A satellite with 1 Tbps capacity can serve 700k customers with an 80 GB cap (●)

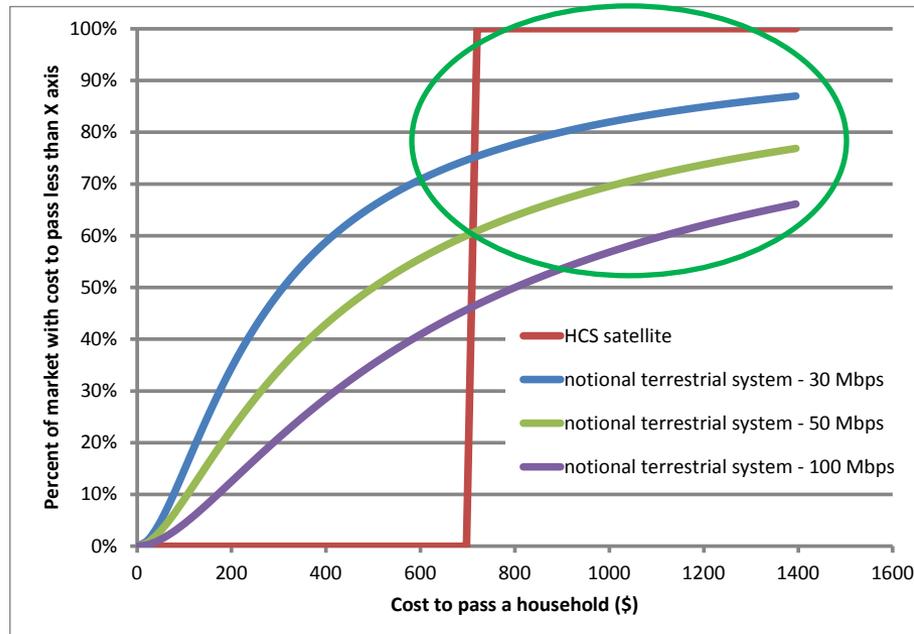
- Conclusion:

- A USO that doesn't include a volume requirement may result in a satellite solution that doesn't provide a useful service with the expected user population
- Note caps apply to terrestrial too
- Speed is not everything!



# CAPEX situation

- CAPEX is the most important cost in most broadband service offerings
- The CAPEX to reach a house with terrestrial means is situational – sometimes inexpensive, sometimes very very costly
- Satellite CAPEX is the same for all households. The number of households where satellite CAPEX is less than terrestrial is substantial (green oval).
- As the speed benchmark rises, CAPEX cost for terrestrial rises. Not so for satellite up to 100 Mbps or more.



With increasing speed expectation, more HHs are better served with satellite

Note: CAPEX for satellite is fairly accurate – based on \$700M cost for satellite design, build, launch & insurance plus ground infrastructure cost, and assuming 1M subscribers. CAPEX curves shown for terrestrial systems are notional but are not wildly unreasonable.

# “Underserved” is not the same as “rural”

- ViaSat’s Exede service has 700,000 subscribers in the United States
- We know exactly where every subscriber is located
  - we went to their house to install their terminal!
- The majority of subscribers are in urban or suburban areas
- Why?
  - The percentage of underserved is higher in rural areas
  - But there are a lot less people in those places
  - Total underserved in an area = (percent underserved in area) x (number of people in area)
- There is no reason to expect UK scenario to be substantially different
- Don’t attempt to confine satellite to rural areas
  - Weakens the business case for an unsubsidised satellite offering
  - Costs the UK a lot of money to unnecessarily subsidise terrestrial options in urban areas

# Conclusions and Takeaways

- Residential satellite broadband at 12/3 Mbps has been a proven, viable offering for 5 years without need for subsidy
- We now do a 24 Mbps in the US
- Satellite broadband at speeds over 100 Mbps will be available in the UK by 2020, and with a LOT of capacity
  - Business success will quickly lead to more launches, more capacity
- To give acceptable service, USO requirements should specify volume in addition to speed
- Satellite doesn't need ongoing subsidy as long as it is not required to compete with subsidised offerings
  - Don't constrain satellite to rural customers
  - Don't subsidise terrestrial offerings where their CAPEX is worse than satellite
- UK Govt will need to encourage and support satellite
  - Help with raising awareness of the satellite option in the market
  - Create favorable spectrum rulings (e.g., protect from 5G encroachment, support dual use). This allows satellite to provide more capacity at lower cost.
  - Don't subsidise less competitive solutions
  - Discuss about how to prioritise needed capacity over UK
  - Possible capital investment support in design phase?
- We are keen to support UK moving the nations digital infrastructure forward