Fixed Wireless Access Networks In Licensed Bands – An Alternative To Fiber For The Last Mile – Satellite backhaul

GVF - EMP – CELLULAR BACKHAUL

2019

June 13th 2019
ExCeL Venue, London
INSTER – WHO WE ARE

INSTER is a technology and engineering company that designs, develops and manufactures innovative products and solutions for Defense, Security and Telecommunications. The “core” of INSTER’s technology are communications, both satellite and terrestrial, for mobility applications in the military and railway domains, as well as high capacity Point to Multipoint Fixed Wireless Access solutions for telecom operators. Thanks to its technological and engineering capacities, INSTER can provide its customers with turnkey solutions related to telecommunications, security and surveillance. The company possesses a solid business of systems and communications integration in vehicular platforms, which has taken INSTER to be a leading company for the Spanish Ministry of Defense since 1993.
THE CHALLENGE IN FIBER DEPLOYMENTS – REMOTE AREAS

There are many areas where fiber deployments are not feasible:

• **Difficult terrain**: Mountains, desert, snow and ice, restricted or protected areas.

• **Access to the premises**: no ducts available, or they are fully occupied. Particularly in the access to the end user premises

• **In building cabling**: Old buildings and historical areas present issues when laying fiber

• **Civil works**: Aerial and façade cabling not allowed to deploy. Trenching; road opening permissions... slow, if not unfeasible and extremely costly.

• **Rural areas**: Lack of business case that discriminate the citizens in such zones (digital gap)
THE HIGH CAPACITY WIRELESS LAST MILE SOLUTION

SGOAIR EXTENDS YOUR COVERAGE TO THE LAST MILE – OVER THE AIR

Operating in the 10.5 GHz and 26 - 28 GHz frequency bands

**DOCSIS 3.x over the Air**
End to end solution to provide fiber-like services by means of a new generation high capacity Fixed Wireless Access (FWA) network working in 26 - 28 GHz and 10 GHz.

• **Last mile solution** for new generation **triple-play services** (Internet, Telephony and IPTV), corporate and governmental services (VPN) and backhauling for WiFi and IoT microcells.

• **Low latency**: typically less than 1ms DS and 4ms US.

• **Integrated and centralized** NMS for **Product Catalogue configuration**, **Provisioning** and **Fault Assurance**.

• **QoS** and guaranteed data rate similar to **FTTP** and **latest generation CATV** networks.
# FREQUENCIES, BANDS, CAPACITY AND COVERAGE

- **DOCSIS 3.0 – 28GHz Carrier Load**

<table>
<thead>
<tr>
<th></th>
<th>DS</th>
<th>US</th>
<th>DS</th>
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<th>DS</th>
<th>US</th>
</tr>
</thead>
<tbody>
<tr>
<td>Licensed spectrum (MHz)</td>
<td>56</td>
<td>28</td>
<td>112</td>
<td>28</td>
<td>224</td>
<td>56</td>
</tr>
<tr>
<td>Number of CMTS per sector</td>
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<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Total Raw Rate for all channels (Mbps)</td>
<td>262</td>
<td>70</td>
<td>525</td>
<td>70</td>
<td>1050</td>
<td>140</td>
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- **DOCSIS 3.0 – 10GHz Carrier Load**

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- **Cell Range**
  - 10.5 GHz: 10 Km radius
  - 28 GHz: 4 km radius

US: Upstream
DS: Downstream
Comparative with 5G – A Pre 5G solution for Fixed Services?

SGoAir has similar characteristics as 5G networks in terms of maximum data rate (20 Gbps), Maximum Speed perceived by the user, spectral efficiency and maximum latency (<1ms DS; <4 ms US).

Operators bidding for 5G frequency bands 26GHz and 28GHz could benefit from Fixed Wireless Access Technology for fixed services as a temporary solution before other 5G technologies are in the market.
Example of deployment – Middle East

Rural Areas where fiber deployments are not feasible →
High interest of Governments in connecting schools and rural population.
Satellite Backhauling? – Capacity and Prices – Building the Business Case

When Backhauling is not available, in remote areas:
- Is satellite a solution?

- Building the business case:
  - Pricing vs ARPU
  - Capacity – Low capacity required?
  - Governmental funding? → Schools, institutions, etc.

Agreements between ground technology integrators – Satellite Service Providers
Thank you

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