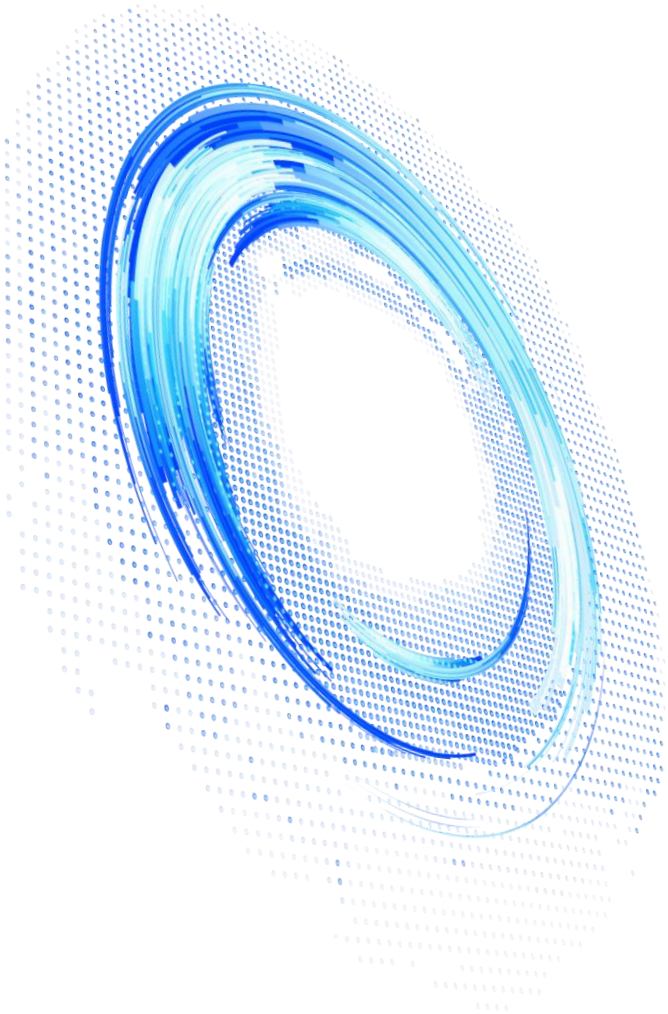


Satellites and 5G:

Beyond interconnection

January 19, 2020 Honolulu, Hawaii

Tim Logue, Senior Director

Thales Alenia Space

PACIFIC TELECOMMUNICATIONS COUNCIL

PTC'20 | VISION 2020 AND BEYOND

19-22 JANUARY 2020 | HONOLULU, HAWAII

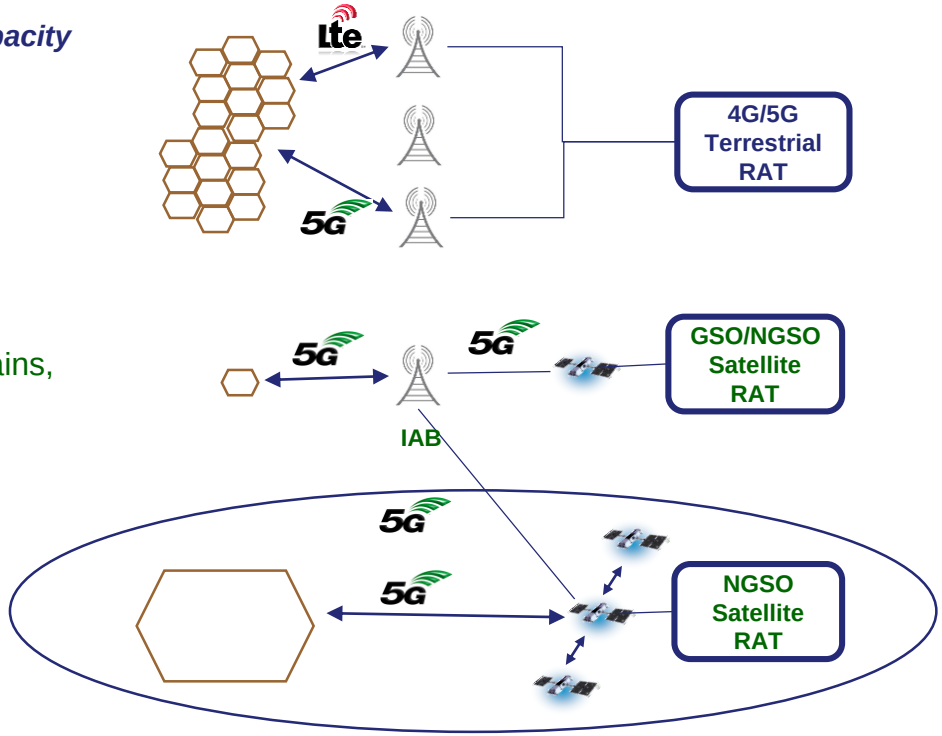
Targeted satellite services & use cases in 5G

ARPU density / data rate / capacity

Target areas
- Cities
- Suburban
- Indoor

Target areas
- Vehicular, high speed trains,
- Maritime, aeronautics,
- Village in Rural
- In building

Target areas
- Outdoor
- Deep rural



Role of each access
- Cellular Radio Access Technology (RAT) for **populated areas**
- Integrated Access & Backhaul (IAB) for **hotspots**
- Satellite Radio Access Technology (RAT) for **deep rural areas**

Combining the access
- Hand-over for **service continuity**
- Multi connectivity for **increased reliability**

Providing eMBB & mMTC services to UE with different Radio Access Technologies

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Key success factors for « seamless » integration of satellite

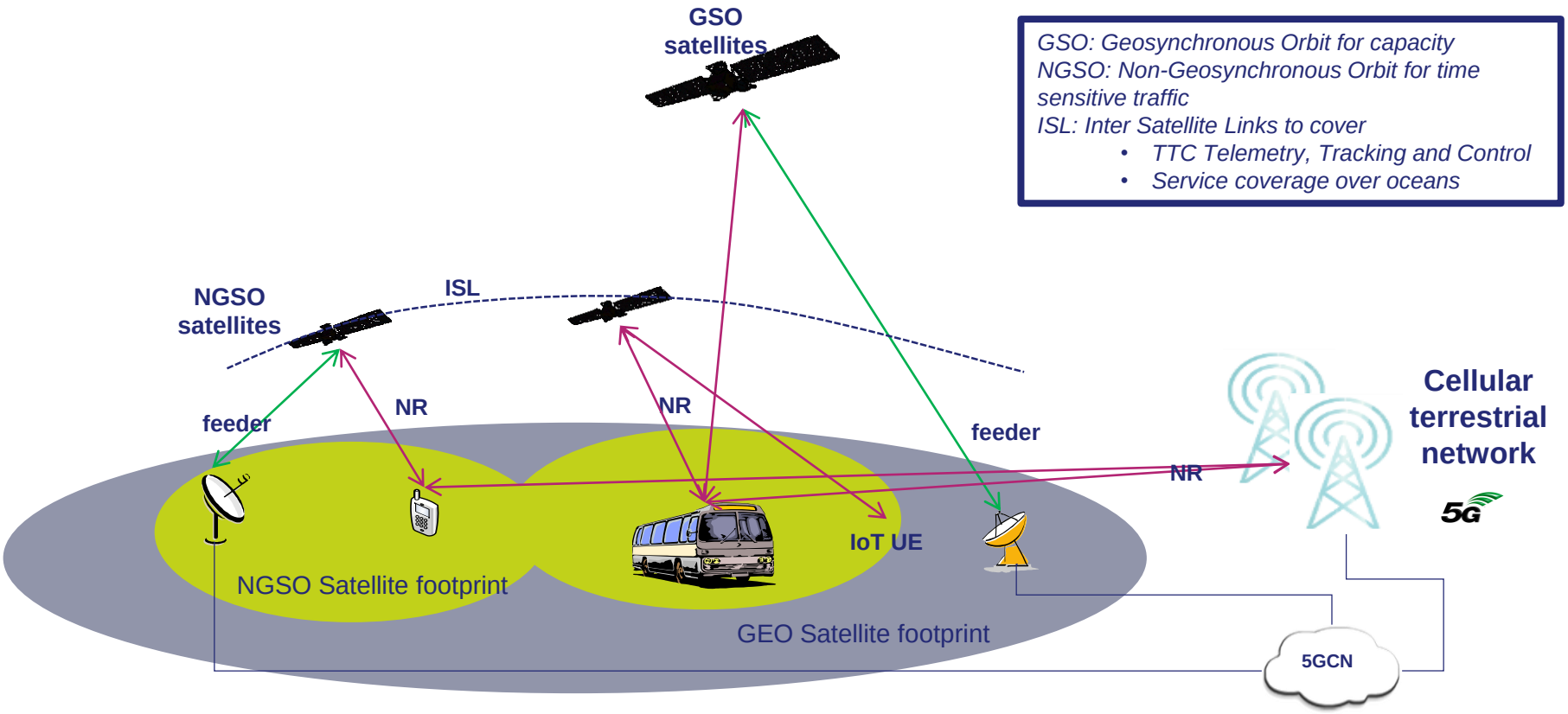
///Minimum impacts on User Equipment

///Minimum impacts on Mobile Network infrastructure

- **Core Network:** Support satellite based Next Generation-RAN
- **Radio Access Network (RAN)**
  - Mitigating satellite specifics (Channel, Latency, Doppler, cell pattern)
  - Adding Earth stations to access satellites
- **Orchestration/OSS**:
  - **Provisioning satellite capacity (Slicing)**
  - **Monitoring Key Performance Indicators**

///Infrastructure Scalability

5G satellite system concept



GSO: Geosynchronous Orbit for capacity
NGSO: Non-Geosynchronous Orbit for time sensitive traffic
ISL: Inter Satellite Links to cover

- *TTC Telemetry, Tracking and Control*
- *Service coverage over oceans*

Date: 25/02/2020
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