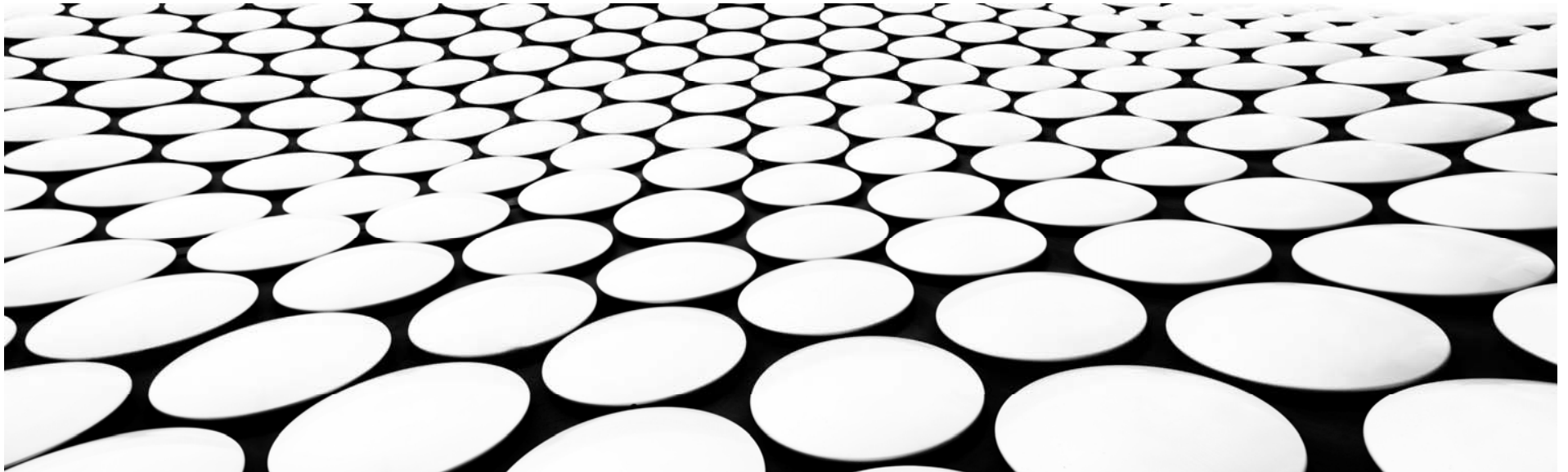

COMMERCIAL PROJECTS - NEUTRAL HOST

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METRO NEUTRAL HOST 1/3

INTRODUCTION

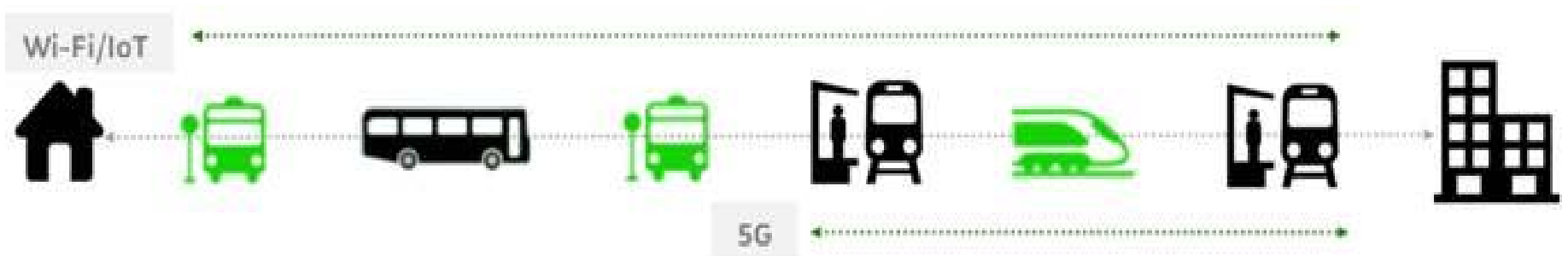
Looking at the solution for the 5G in the figure below, 5G is classified as priority 1 and Wi-Fi as priority 2

- Why outside the station you want to have a Wi-Fi/IoT solution which extends all over?

It should be either Wi-Fi or 5G

- Why would a neutral host want to provide both solutions?

The communications outside the station is provided by their mobile carrier company and offloading to Wi-Fi is done by offloading to hotspot 2.0 for example. I have focused on a 5G solution inside the station



METRO NEUTRAL HOST 2/3

I assumed that this will be a closed tunnel and not above ground. Here is how APS sees the Metro neutral host:

A 5G solution is proposed to address all needs inside the metro stations. The solution can address what is needed from two angles, the travelers, and the metro operator.

ON THE TRAVELERS' SIDE

Travelers have these essential requests:

- ❖ Speed of purchase of tickets and different tariff rates(consider paperless tickets)
- ❖ Reliable speech & data connectivity on board (can be free to customers however is price aggregated ticket tariffs)

ON THE METRO OPERATOR'S SIDE

5G applications can support the following:

- ❖ Critical environments communications for required control and switching so trains don't crash into each other (requires URLLC between train modules and train center command)
- ❖ Augmented bandwidth & high speed communications. (enhanced Mobile broadband applications)
- ❖ Mass communications and IoT. (For monitoring wears and tears of equipment on train to schedule maintenance)
- ❖ Traffic forecasts with an artificial intelligence. (M2M communications IoT connected to 5G network and AI predictive platforms)
- ❖ Monitoring peak electricity consumption; (sensors connected to 5G network)
- ❖ Traffic forecasts with an artificial intelligence. (M2M communications IoT connected to 5G network and AI predictive platforms)
- ❖ Real-time monitoring of the queues at the ticket offices; ((M2M communications IoT cameras connected to 5G network)
- ❖ Real-time train load rates and information to better schedule trips for passengers (Through IoT sensor connected to 5G network)

METRO NEUTRAL HOST 3/3

CONCLUSION:

- ✓ A 5G solution can support trains moving at speeds of 500 km/hr., and with a multiple-RRH solution, a cell of size 6-12 km can be formed on lower frequency ranges of sub 6Ghz.
- ✓ This solution will reduce handovers and cell reselections and provide more stable connections.
- ✓ A private network can be built with minimal interference from other networks inside the subway tunnels since it will constitute an indoor solution using a Virtual-RAN and Virtual core network running on clouds.
- ✓ Edge computing centers may be needed close the RRH for URLLC traffic cases if train operation and switching of train tracks is also supported by the 5G network.
- ✓ An AI platform will also be needed if forecasting of passenger loading and growth is needed so as to provide better scheduling of times and determine if addition trains or vehicle are needed.
- ✓ As for as priority 2 which is Wi-Fi/IoT, we don't understand what this means or why do you need it.

THANK YOU!

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