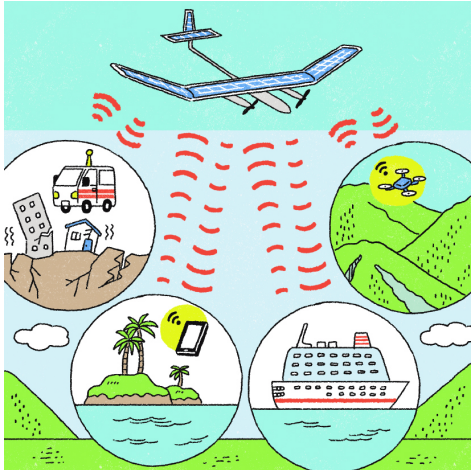


Extreme coverage extension by HAPS

IOWN Evolution New Value Creation in Wireless Network



Background

Conventional terrestrial networks have difficulty in providing coverage in areas such as mountains and the sea due to geographic restrictions hindering base station construction. In Japan, area coverage ratio remains low at around 60% because of the country's predominantly mountainous topography.

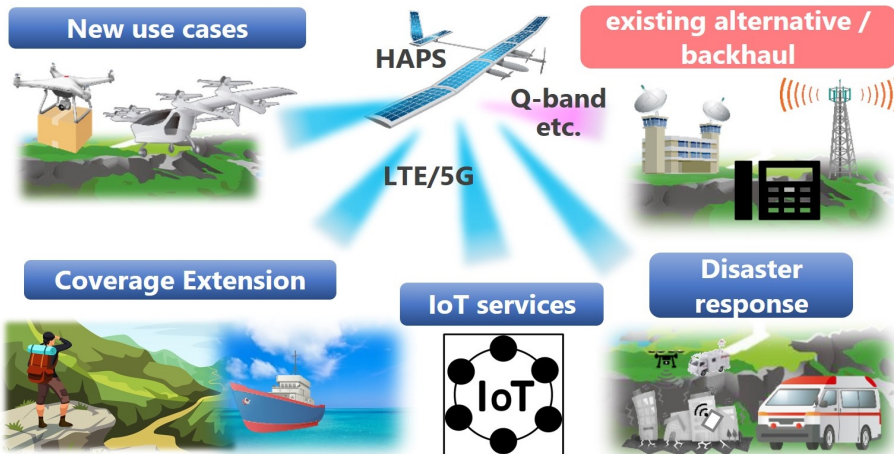
Summary

We study use cases and standards and conduct field trials to realize extreme coverage expansion by HAPS. Also, we evaluate the interference with terrestrial networks and rain attenuation compensation technology, using a simulator we developed for HAPS communication visualization.

NTN Technology for "Extreme Coverage Extension"

NTT docomo

SPACE COMPASS

5G & 6G
EVO

- Non-Terrestrial Network (NTN) using satellites and HAPS is highly expected to achieve **"extreme coverage extension"**
- Compared with satellites, HAPS features:
 - Higher speed/lower latency communication enabled by low altitude
 - Fixed-point flight for flexible Network deployment
 - Direct communication with smartphones
 ⇒ **Applicable to a variety of use cases**
- "Extreme coverage expansion" provides communication to the sky, sea and space, and achieves **"structural reform of society/industry"**

Features

- HAPS has 3 advantages over satellites, "high speed/low latency," "fixed-point flight enabling flexible network deployment" and "direct communication with smartphones"
- Evaluation of technologies to avoid frequency interference with terrestrial networks and compensate rain attenuation with a simulator developed to visualize HAPS communication area
- Newly commissioned as a national project to study early practical application and high-speed, large-capacity technology of direct communication system via HAPS in the Beyond 5G era

Future_benefits

HAPS is expected to extend coverage and support various use cases, enabling "structural reform of society and industry" by providing coverage everywhere.

Collaboration partners

AALTO HAPS LTD. , SKY Perfect JSAT Corporation

Exhibiting Company

NTT DOCOMO, INC.

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