



(Press release)

April 26, 2022

Nippon Telegraph and Telephone Corporation
SKY Perfect JSAT Corporation

NTT and SKY Perfect JSAT Agree to Establish Space Compass Corporation

-Novel Space Integrated Computing Network Enterprise to Aid Realization of a Sustainable Society-

NTT Corporation (NTT, President & CEO: Jun Sawada) and SKY Perfect JSAT Corporation (SKY Perfect JSAT, Representative Director, Executive Officer, President: Eiichi Yonekura) announced today that the parties have reached an agreement and signed a contract to establish a joint venture company that will launch a novel integrated space computing network to aid the realization of a sustainable society. The joint venture will take on the challenge of building new infrastructures in space, where business led by the private sector is expected to grow in the future, and contribute to the creation of a sustainable society.

1. Why the new company was established

There is an urgent need to ensure the sustainability of economic and social activity. This makes it all the more important to effectively and fully utilize stratospheric and near-Earth space for ICT infrastructures. This involves creating ICT infrastructures that support a number of fields, including energy, environment and climate change, disaster prevention, marine infrastructure, and security. In addition, as represented by the ARTEMIS program*¹, public and private sectors in many countries are cooperating to extend human activities not only to near-Earth space, but also to the Moon, Mars, and other bodies.

NTT and SKY Perfect JSAT have agreed to establish a joint venture company to expand the utilization of space by mankind, building on the knowledge they have gained over many years spent on technological development and in commercial activity as terrestrial and space infrastructure companies.

The establishment of the joint venture is a tangible step forward toward building the space integrated computing network*³ announced in the 2021 collaboration agreement*². By taking on the challenge of creating new infrastructures, starting with the optical and wireless communication network to be built in space and the mobile network to be built in the stratosphere, the joint venture will contribute to the development of the global space industry and the realization of a sustainable society.

2. Outline of the new company

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|--------------------------|---|
| Company name | Space Compass Corporation |
| Names of Representatives | Representative Director, Co-CEO: Shigehiro Hori Representative Director, Co-CEO: Koichiro Matsufuji |
| Establishment date | July 2022 (planned) |
| Location | Chiyoda-ku, Tokyo (planned) |
| Capital | 18 billion yen*4 (planned) |
| Shareholders | NTT 50%, SKY Perfect JSAT 50% |
| Business activities | Business planning and development, and provision of services related to space data centers, space RAN, etc. |

3. Outline of business (planned)

The following is a summary of the initial business activities to be undertaken by the new company.

1) Space data center: high-capacity communication and computing infrastructure in space

In FY2024, Space Compass will launch an optical data relay service for high-speed transmission to the ground via a geostationary orbit (GEO) satellite. This will carry a vast amount of diverse data collected in space by observation satellites. Existing services, which transmit data directly to ground stations, have communication capacity limits imposed by the use of radio waves as well as limits on the time at which ground stations can communicate with observation satellites. In contrast, optical transmission via a GEO will enable high-capacity, quasi-real-time data transmission.

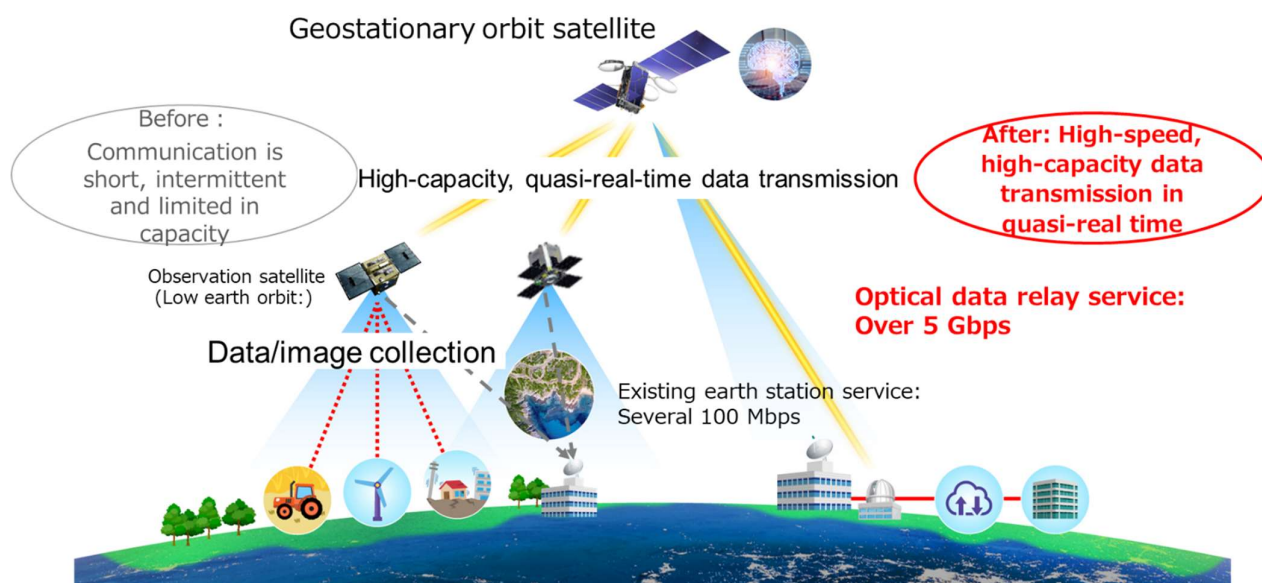


Figure 1: Overview of optical data relay service

(2) Space radio access network (RAN) business: communication infrastructure for beyond-5G/6G

Space Compass will use high altitude platform stations (HAPSs)*^{5,6} to provide low-latency communication services in Japan in FY2025. HAPSs make it easy to expand communication service coverage to a wider area. Consequently, it is possible to provide highly reliable communication in times of disaster, high-capacity communication for ships and aircraft, and communications services for distant islands and remote areas. Mobile carriers can improve the overall cost-effectiveness and energy efficiency of their mobile networks by combining HAPSs with an increase in the number of their terrestrial base stations to expand their service coverage.

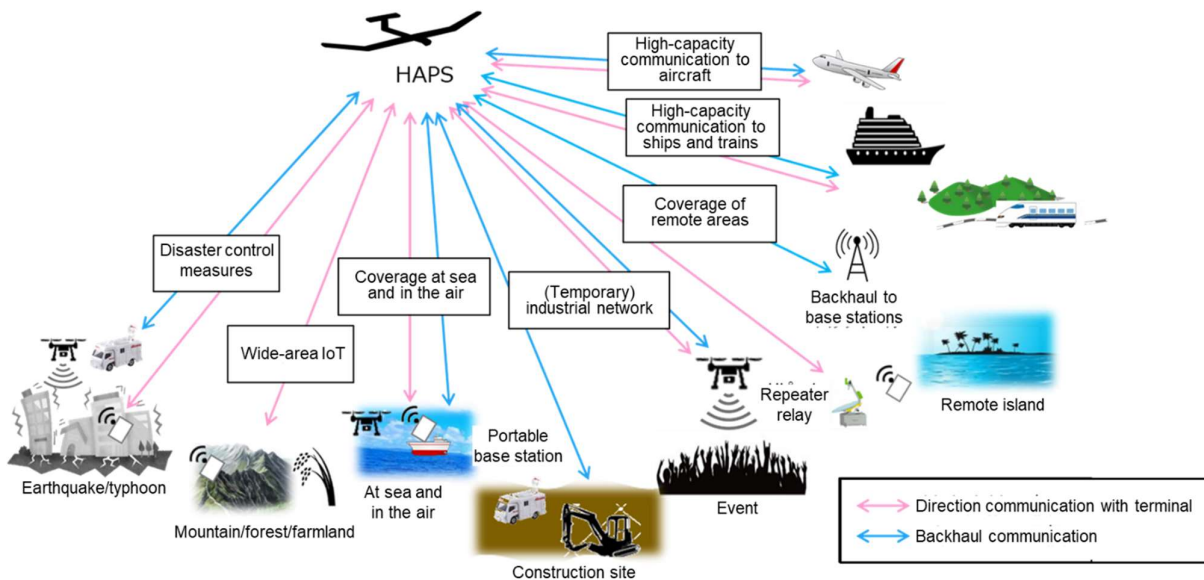


Figure 2: Overview of HAPS communication services

4. World the company envisions

Space Compass will start the two businesses/services mentioned above as the first step in the space integrated computing network initiative and then gradually strengthen them. For the space data center, the company will steadily increase the number of satellites equipped with advanced computing functions to build a high-capacity communication/computing processing infrastructure in space. In addition, the company will demonstrate NTT's high-capacity optical communication technology in space at Expo 2025 Osaka, and plans to deploy its services globally thereafter.

For space RAN, Space Compass plans to study the provision of image sensing using HAPSs. In addition, the company will add or integrate geostationary orbit satellites and low earth orbit satellites (LEOs) to expand service area coverage and increase the communication capacity per HAPS by developing radio communication band broadening technology.

Concept video: <https://youtu.be/ew9NtxIIL4Y>

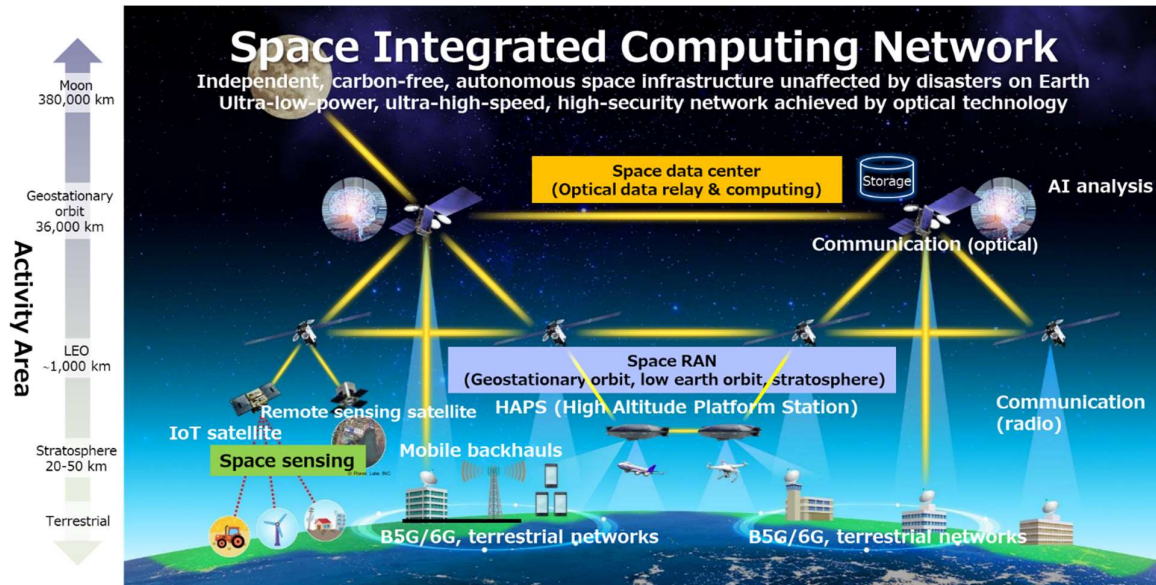


Figure 3: Space integrated computing network concept

*1 Human space flight (lunar landing) program funded by the United States government

*2 NTT and SKY Perfect JSAT signed a collaboration agreement for new space-based businesses to realize a sustainable society.

<https://group.ntt/en/newsrelease/2021/05/20/210520a.html>

*3 Space integrated computing network

A new ICT infrastructure in space that integrates HAPSs, geostationary orbit satellites, and low earth orbit satellites, connects them to the ground using an optical wireless network, and enhances various forms of data processing using distributed computing.

*4 The capital at the establishment of the new company will be 6 billion yen (including capital reserve) and will be gradually increased.

*5 DOCOMO and Airbus successfully conducted a radio wave propagation test from a HAPS during an 18-day flight.

https://www.docomo.ne.jp/english/info/media_center/pr/2021/1115_00.html

*6 Airbus, NTT, DOCOMO, and SKY Perfect JSAT concluded a memorandum of understanding to study the promotion of research and development for the early practical application of HAPSs.

<https://group.ntt/en/newsrelease/2022/01/17/220117a.html>