



STRATXX
near space technology



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High Altitude
Platforms

The X-Station™

- **Communications**
- **Remote sensing**
- **Homeland security**
- **Crisis and disaster management**

High Altitude Platforms: X-Stations™

StratXX is developing the “X-Station” – a fully integrated High Altitude Platform Station (HAPS) for fixed altitude wireless communication and remote sensing.

The X-Station™ is unique due to its innovative design, rapid deployment-redeployment characteristics, upgradeability and modular design. The technology is packaged in a simple, modular and upgradeable product range. By using emission free propulsion systems, there is minimal environmental impact. In addition, its perfect line-of-sight minimizes electro-smog at ground level.

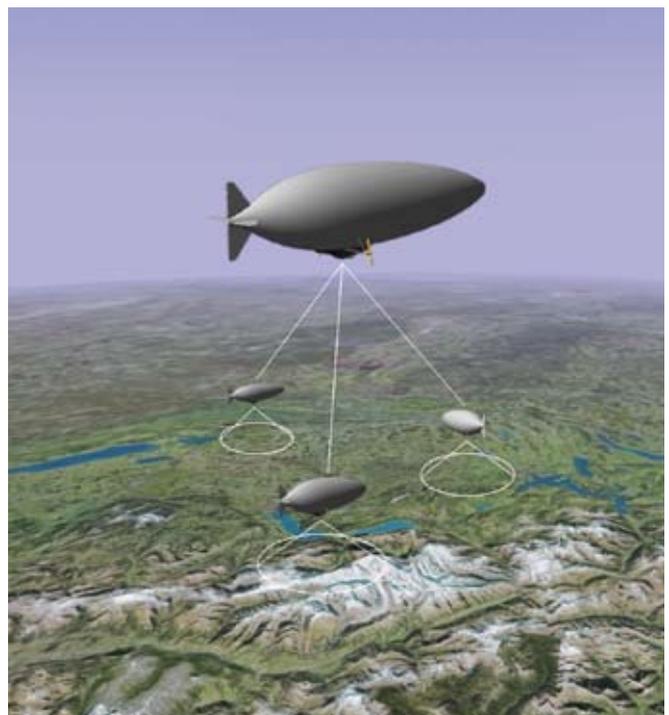
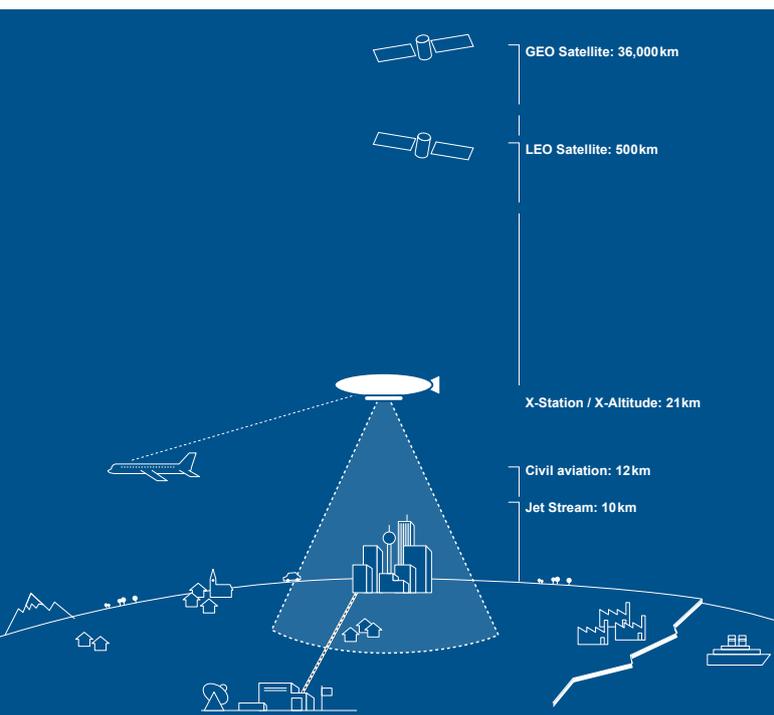
At an altitude of 21 km the X-Stations™ are intended to act as fixed stations in the stratosphere. They can deliver similar capacity to terrestrial systems and have wide-area coverage similar to satellites. X-Stations™ will extend the range of applications of current systems, both complementing and replacing them.

Each X-Station™ forms a part of the “stratospheric network”. Each element of the network consists of an X-Station command centre and several X-Bugs. X-Bugs are used to provide monitoring support for the X-Station™. X-Bugs provide high-resolution monitoring of specific geographical areas, including uneven and inaccessible terrain outside the range of conventional air surveillance devices.

X-Stations can be recalled to the ground for either replacement or reuse at any time when maintenance or an upgrade is required.

The critical technological aspects of the X-Station™ include materials, ultra-light design, stability & control, power management and thermal management.

StratXX’s X-Station™ will offer a much more cost effective solution than existing satellite- or ground-based networks.



Features & benefits

Bridging the “digital divide”

The proximity of the Station™ to the Earth will allow several transmission technologies to operate on the same platform – including TV and radio, broadcast, mobile telephony, VoIP, remote sensing and local GPS. This innovative technology offers regions, countries and companies:

- an easy-to-operate broadband infrastructure
- convergence support and network compatibility
- a bridge between “old” and “new” ICT services
- a sustainable and environmentally friendly solution to the global “digital divide”

Rapid deployment

StratXX’s unique Station™ platform technologies can be deployed, redeployed and upgraded rapidly. They are packaged in a simple modular product range. They can be rolled out step-by-step, as determined by user and market demand.

Competitive advantage

The competitive advantage of StratXX’s X-Station™ arises from its complementarities, last-mile solution and advanced technology. The X-Station™ offers users infrastructure solutions with easy upgrades. Its technology compares favourably with existing communication infrastructures, such as terrestrial wireline, wireless and satellite systems.

Low cost

X-Station™ platforms are expected to be much cheaper than existing and planned infrastructures (terrestrial wire line and wireless and satellite systems).

Environmentally friendly

The X-Station™ platforms are sustainable and environmentally friendly. They use redeployable components and modules. With their low energy exhaust-free propulsion systems, they can be deployed over urban areas. Perfect line-of-sight visibility minimizes electro-smog impact.

Cutting edge technology

StratXX is well advanced in developing its fixed 21 kilometre altitude X-Station™ composed of new super-light and super-strength material. The latest technology developed by StratXX is used in its solar power, propulsion, avionics and materials segments. Furthermore, technological development of payload equipment ensures that the performance of the X-Station™ will be sustainable at a high level.

X-Station™ will function in all stratospheric climate conditions. Its unique design elements will ensure it overcomes critical technical challenges – such as ascending, descending, fixed point stabilisation, thermal – and power management.

Superior communication technology

The X-Station™ uses latest communication technology – Free Space Optics developed by DLR (German Space Agency), which allows the inter-connection between X-Stations™. This approach uses invisible laser beams to provide optical bandwidth connections. It is capable of sending several Gbps of data, voice and video communications simultaneously through the air. The use of Free Space Optics translates into ease, speed and low cost deployment. Due to the network’s independence from ground infrastructures, it offers a flexible networking solution that delivers virtually unlimited bandwidth bringing a new dimension into wireless communications.

Cellular ground coverage

The use of spot beam antennas provides increased capacity for multiple users.

Home Away®

The unique X-Station™ technology provides opportunities for product line expansion. The Home Away® device combines the PDA and mobile phone and connects users remotely with their home PC or office server.

Services

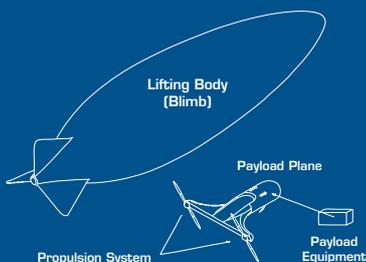
- Voice, data and video
- High speed data
- TV & TV on demand
- Fixed & mobile convergence
- Localisation, navigation, tracking
- Last-mile solutions
- Homeland security
- Local GPS

Technical specifications

	X-Station™
Volume of lifting body	> 25,000 m ³
Length/Diameter	90 m / 22 m
Take-off weight	1800 kg
Payload weight	100 kg
Payload power	1 kW
Flight speed	25 – 50 km/h
Fight duration	Up to 1 year
Packing size	8 x 2.2 x 2.2 m (LB)
Payload bay	6 x 2.2 x 2.2 m (PLP)
Deployment time	9 hours
Propulsion	Electromotor
Energy source	Batteries & Solar
Flight altitude	21,000 metres
Flight control	Autonomous piloting and / or remote control
Communication	WiMax, Free Space Optics
Coverage area	Up to 1,000 km diameter

Platform architecture X-Station™

- Balloon-like vertical ascent
- Separation of the lifting body from the payload plane before descending



Advantages

As compared to satellite networks

- Less expensive
- Better link budgets
- Easy to recover and upgrade
- Better payload capacity
- Less RF power required
- Easy to relocate
- Increased capacity
- Fast to deploy

As compared to terrestrial radio networks

- Less expensive
- Less environmental impact
- Larger coverage
- Less rain attenuation (higher elevation angle)
- Better line of sight
- Movable cell sites
- Fast to deploy

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