Plennary Session A

Impact of Communications Satellites on Information Infrastructure

16 April 2003 (10:45-12:30)

Chaired by: Y. Suzuki, Communications Research Laboratory, Tokyo, Japan

Moderator: H. Misuno

Panelists：

N.Helm –Deputy Director, Space & Advanced Communications Research Institute - Geoage Washington University, Speaker from NASA

J. Rigley –Vice-President - Communications Research Center Canada

C. Allemand – Director for Programs and Industrial Policy - CNES

Y. Furuhama -Executive Director - National Space Development Agency of Japan

Jean-Yves Le Gall（in return of P. Bertolucci – Senior Vice President)、Arianspace CEO

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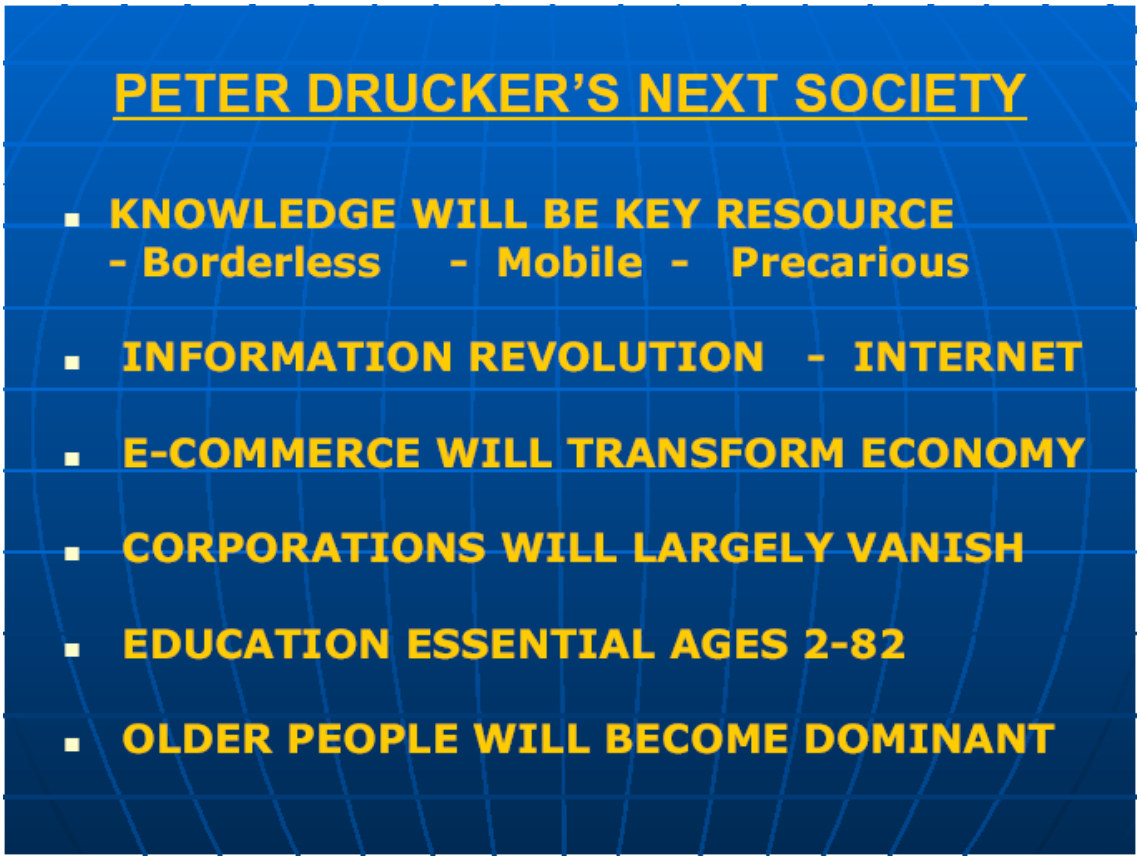
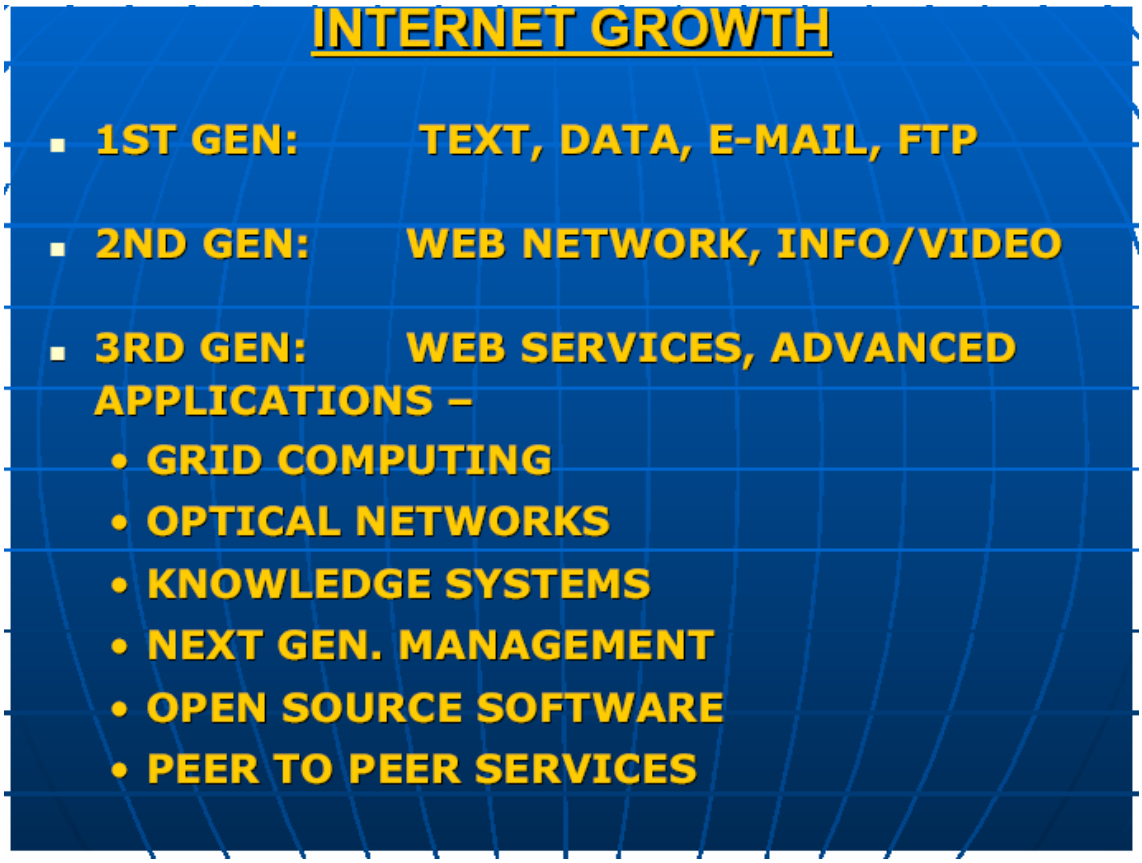


Mr. Helm showed in his lecture that there will be a revolution in society in which Internet will be a large part of it as well as necessity for satellite technology.

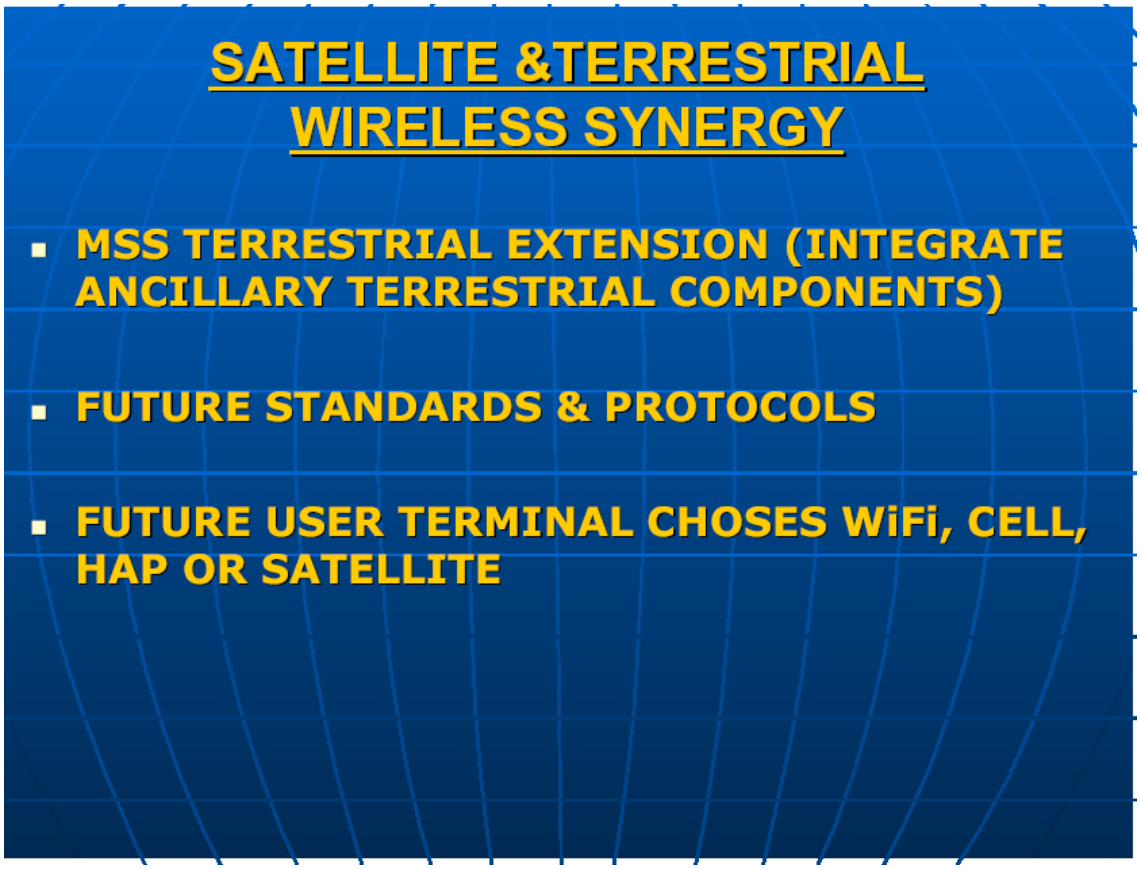
The growth of Internet is doubling every 18 months. In 2003 there are 180 million people using Internet. Also the e-commerce shall be growing. Currently the e-commerce is about 2% of all commerce. But there is prediction that in 10 to 20 years it will be 50%.

In 1980, 75% of all people employees worked for large corporations, but it will totally reverse until 2020 with the number of people working in medium or small companies.

Education from ages 2 to 82 and e-commerce's growth shall be essential. Moreover personal data as passports, driver licenses, medical records etc. shall be written in chips and the government will be able to control the citizen's position.



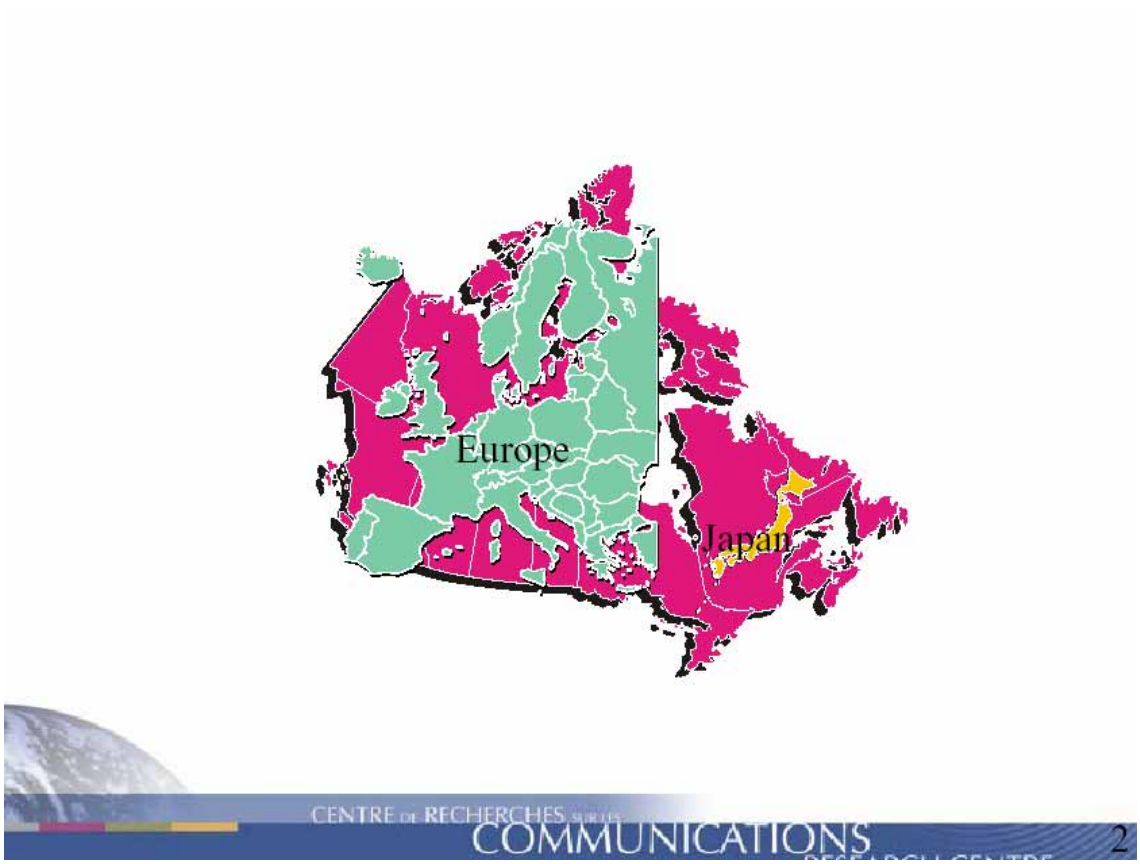
The Internet growth in the first generation it was used text, letter data but in the second generation there is video, in near future will come the third generation and new services will appear. It is possible that the grid computing and knowledge systems will expand.



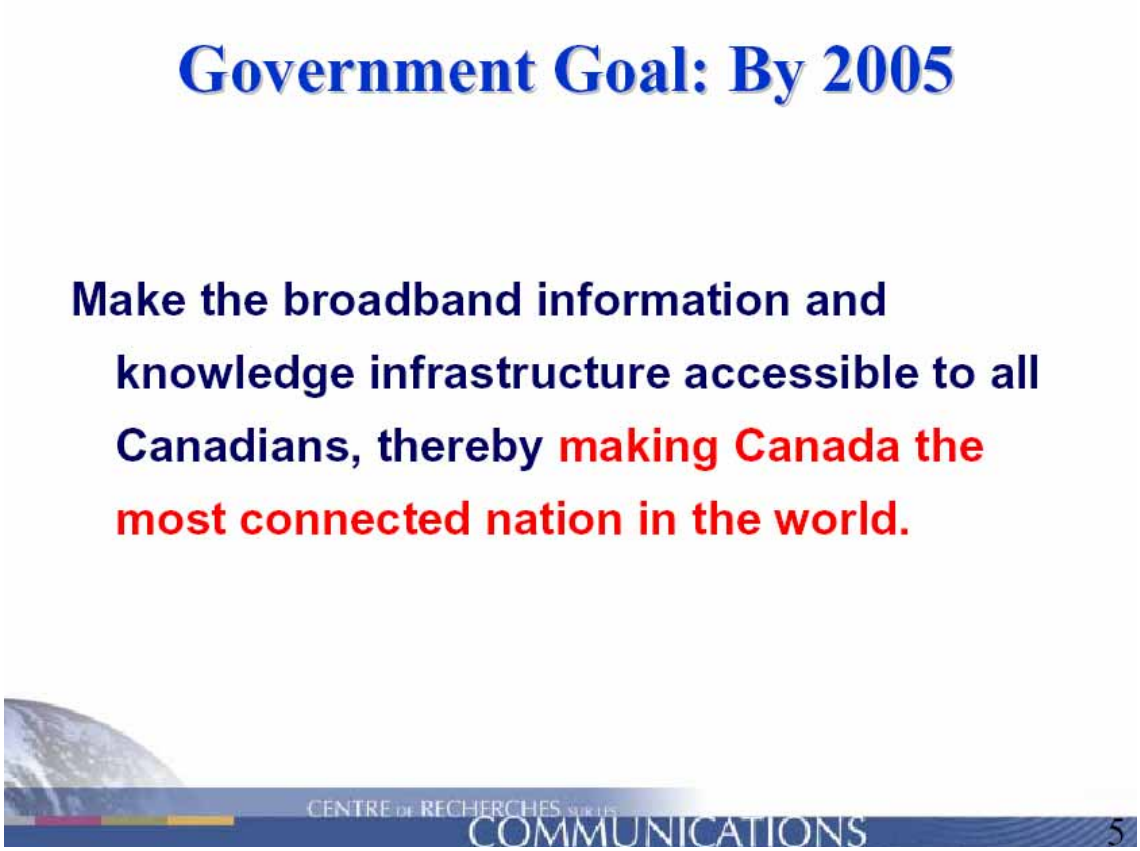
In this, satellite communication shall be necessary. For example future international travelers will have the telephone and in places where wireless LAN will be available it will send signals through wireless LAN. If it does not find wireless LAN it will look for high altitude platforms and if it does not find that it will look for satellites. In every stage it will be probably able to complete communications whichever technology will be used.

Finally communications shall be used more often than transportation.

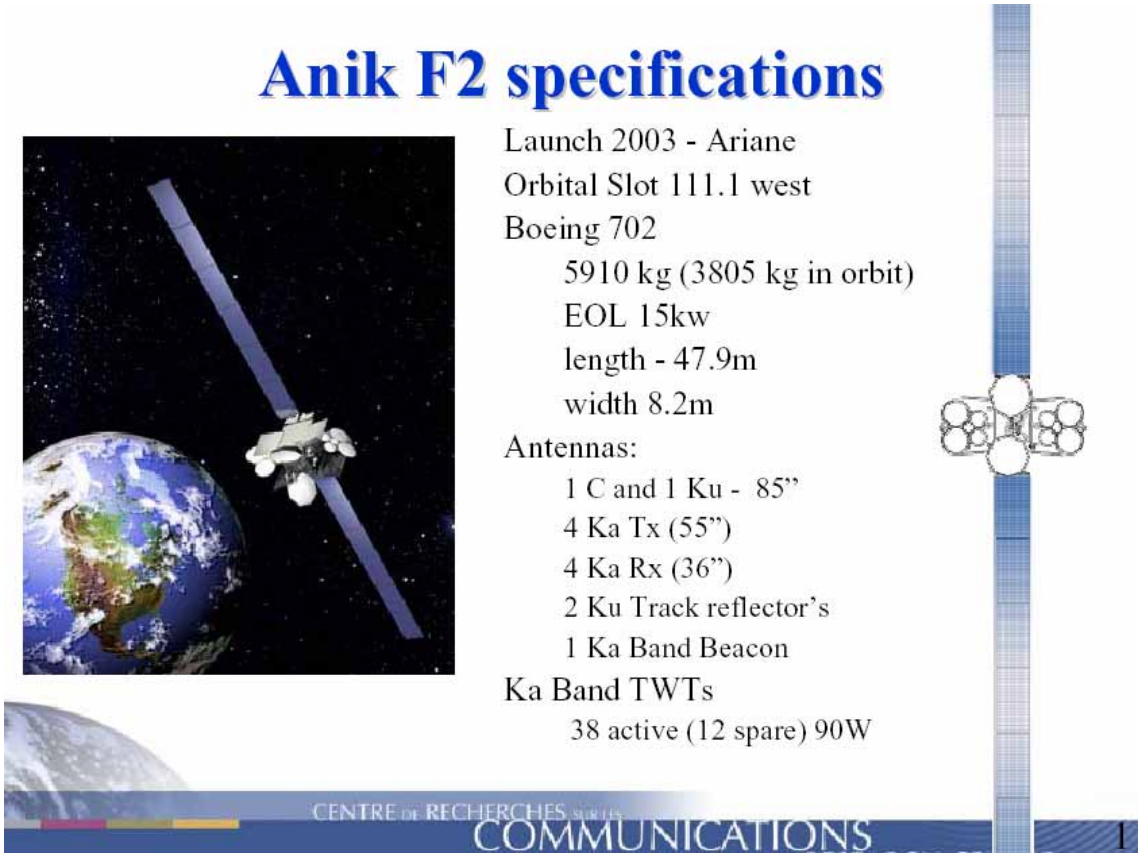
J. Rigley –Vice-President - Communications Research Center Canada



Canada is large destination, which has bigger territory than whole Europe. However it is country with population density from 1 man to 70 men per km^2 what is small comparing to the territory area. That is the reason why it is country suitable for satellite.

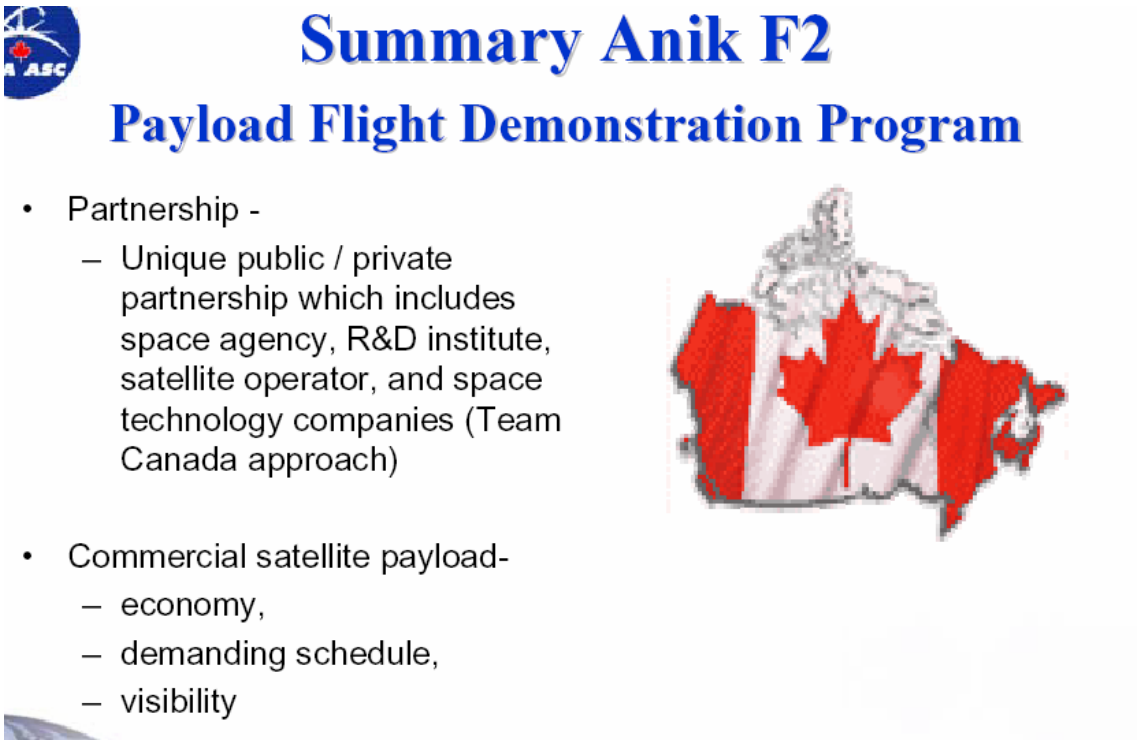


The goal of Canadian Government for 21 Century is to pursue hand in hand economic and social goals. To realize that by 2005, it is necessary to ensure broadband communication ways and to have environment for connecting with the world.



As the first step of that realization, the Canadian Government decided to launch Anik F2 in 2003. Specification of it is shown in the picture and its characteristic is that it has Ka-band transponder. There are companies in Canada, which may bring this into fruition (Telesat, Comdev, EMS) and support R&D.

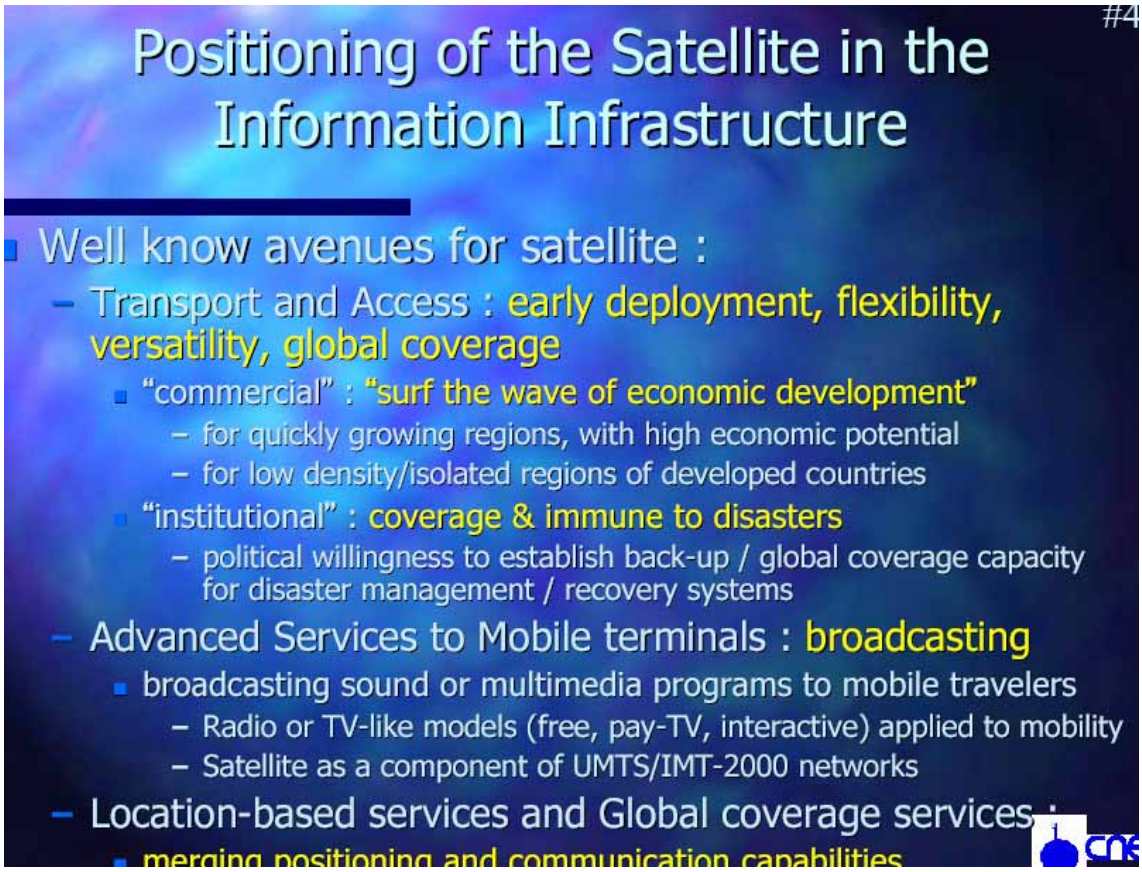
This satellite has ability to cover also United States by the system of 45 beam 6 gateways. Anik F2 may also open new future possibilities.



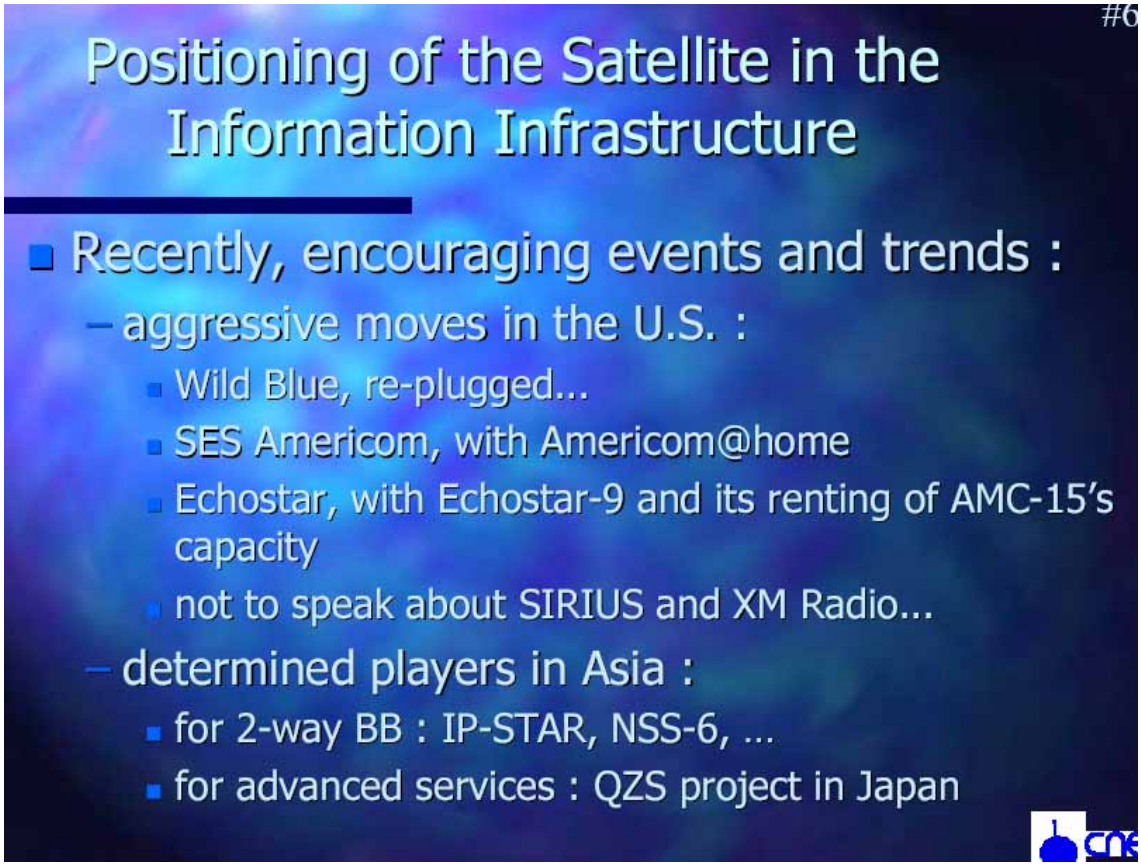
The aim of Anik F2 is partnership. Not only for government but also for technological development and space industry. By this satellite the development of programs such as tele-health or tele-education is possible as well as using high speed internet in suburbs.

All technologies are open.

C. Allemand – Director for Programs and Industrial Policy - CNES



Three main points were described: satellite positioning, France development situation and future development. This year the sale of satellite operator's reached the peak and there is need to think about future from the long-term point of view. However it is necessary to solve the digital divide and to provide backup communication systems as characteristic for satellite.



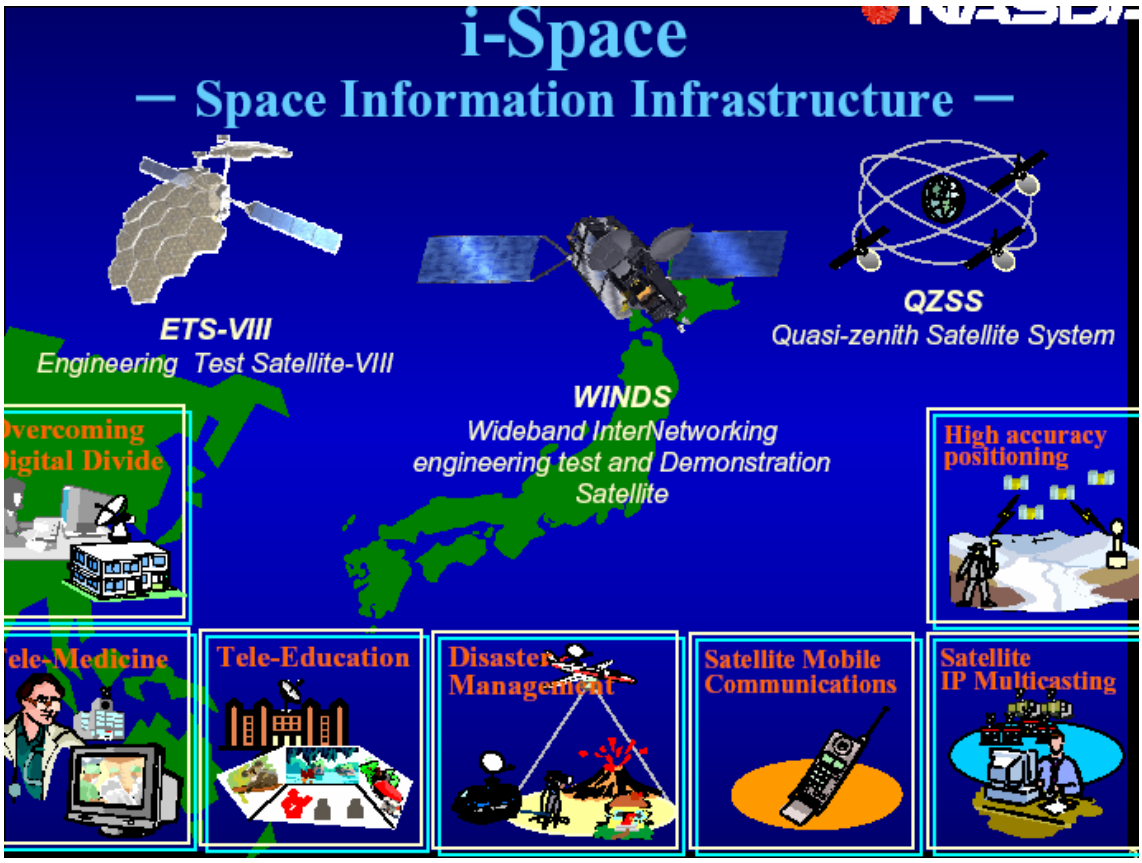
There are aggressive moves in United States like Wild Blue, Echostar, Sirius or Xm Radio, which can assure success. In Asia there are expectations put on IP-STAR, NSS-6 etc. and in Japan on QZS.

European Manufacturers have grabbed the share of world market – from 25% to 50%.

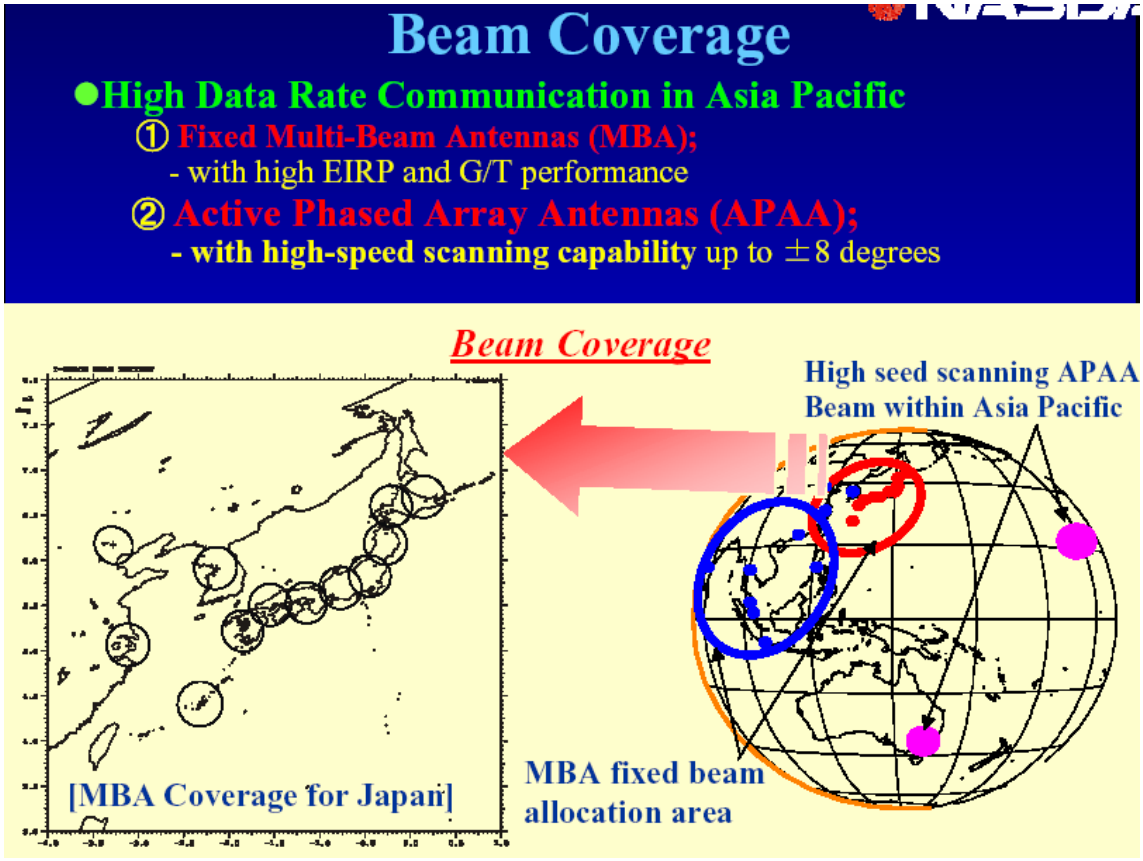
In France there is need for advanced payloads, and in Alphasat the spec to be shown is being developed. However there is also hard social mood and in its restrictions the development of telecommunications must be continued.

20 years ago Japan, United States and Europe were developing by them own, but in future it is very important to have international cooperation system. Not technology just for technology but for timely application of developed technology.

Y. Furuhama -Executive Director - National Space Development Agency of Japan



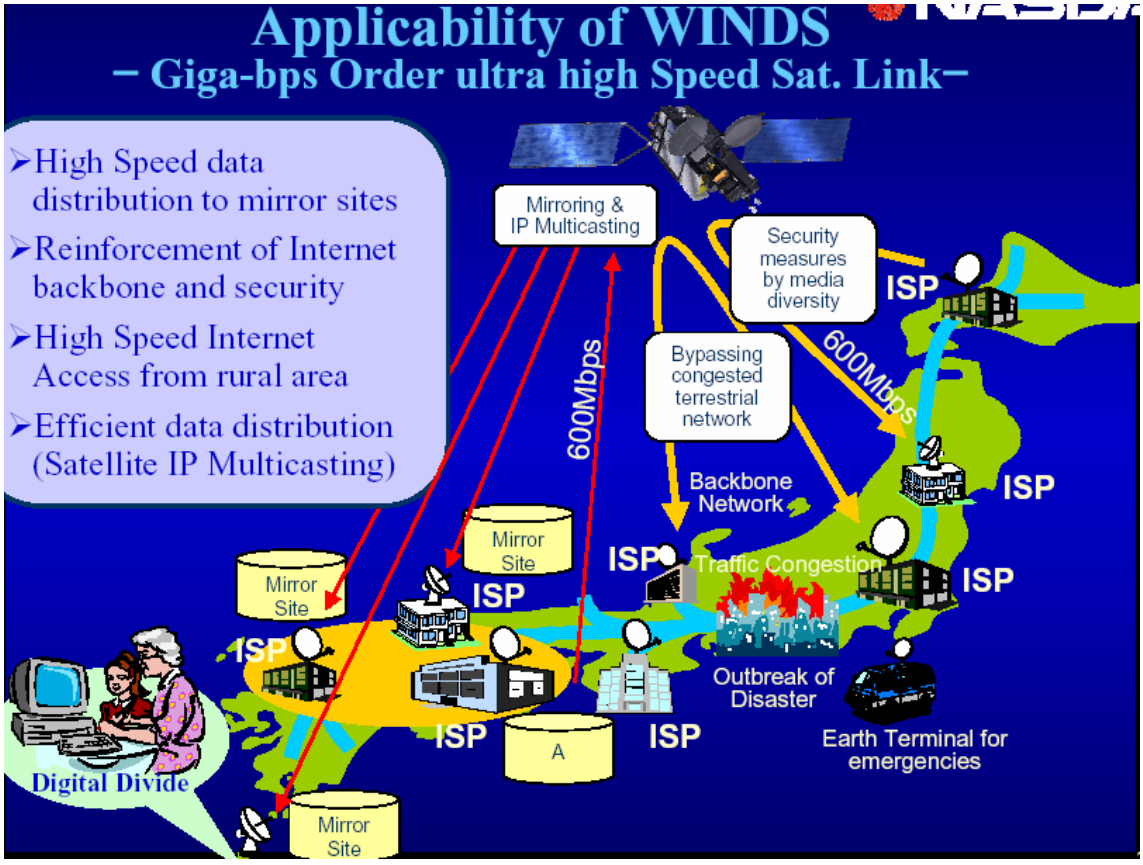
The program I-Space has been presented. It is comprehensive concept of three satellite experiments. Namely Engineering Test Satellite VIII – ETS VIII, Wideband Internet Working Test and Demonstration Satellite – WINDS and finally Quasi-zenith Satellite System – QZSS. ETS VIII is a program for mobile communication, WINDS for fixed communication and QZSS for navigation.



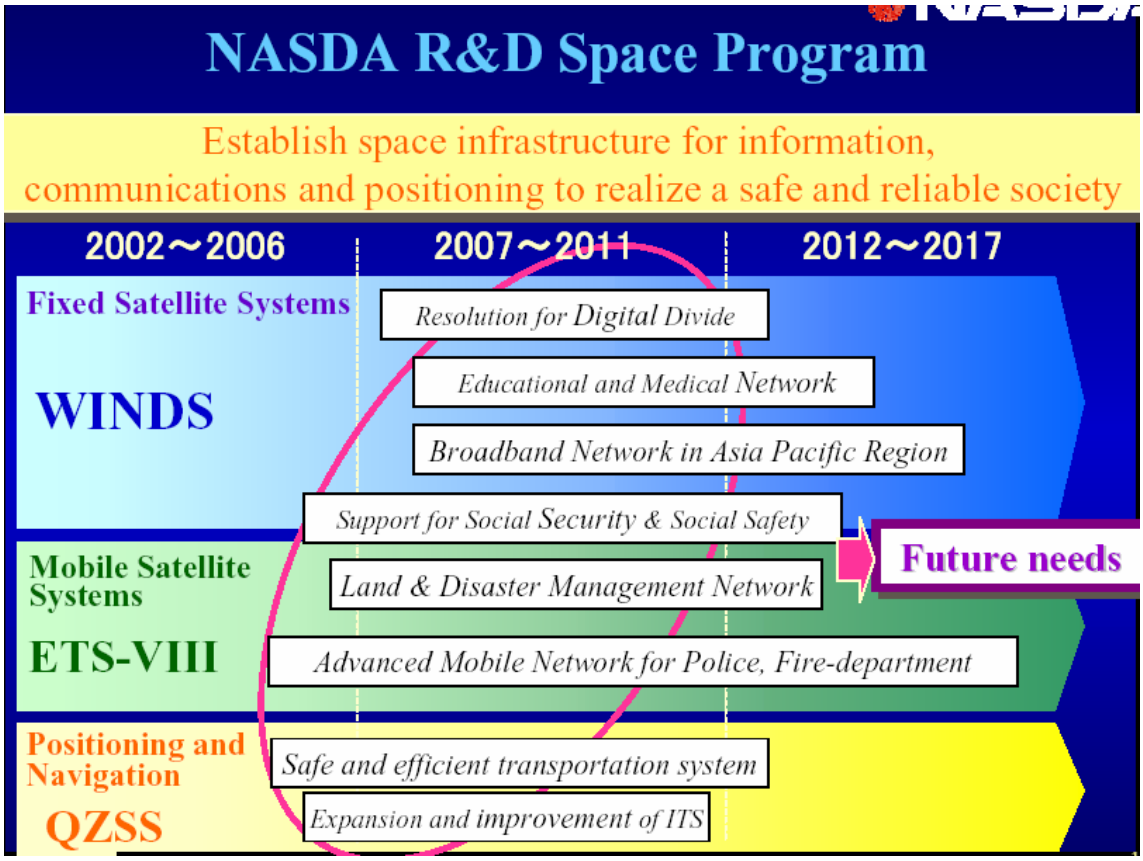
From those three, WINDS program has been explained:

The main characteristics of WINDS are: it is Ka-band satellite with onboard ATM switch to realize the efficient connection. Secondly: high-speed transmission capability with satellite switching on TDMA up to giga bps. Thirdly: high-speed access of 155 MBPS with relatively small antenna (25 cm in diameter). Fourthly: the satellite has APAA with high speed scanning capability.

The satellite has above functions and it is designed to cover Japan and Asia and Pacific Ocean countries.



By using WINDS it is possible to speedily realize shown above purposes. Namely, satellite-based Internet service and terrestrial communication such as high-speed data distribution to mirror sites, providing high speed Internet to rural areas and IP multicast.

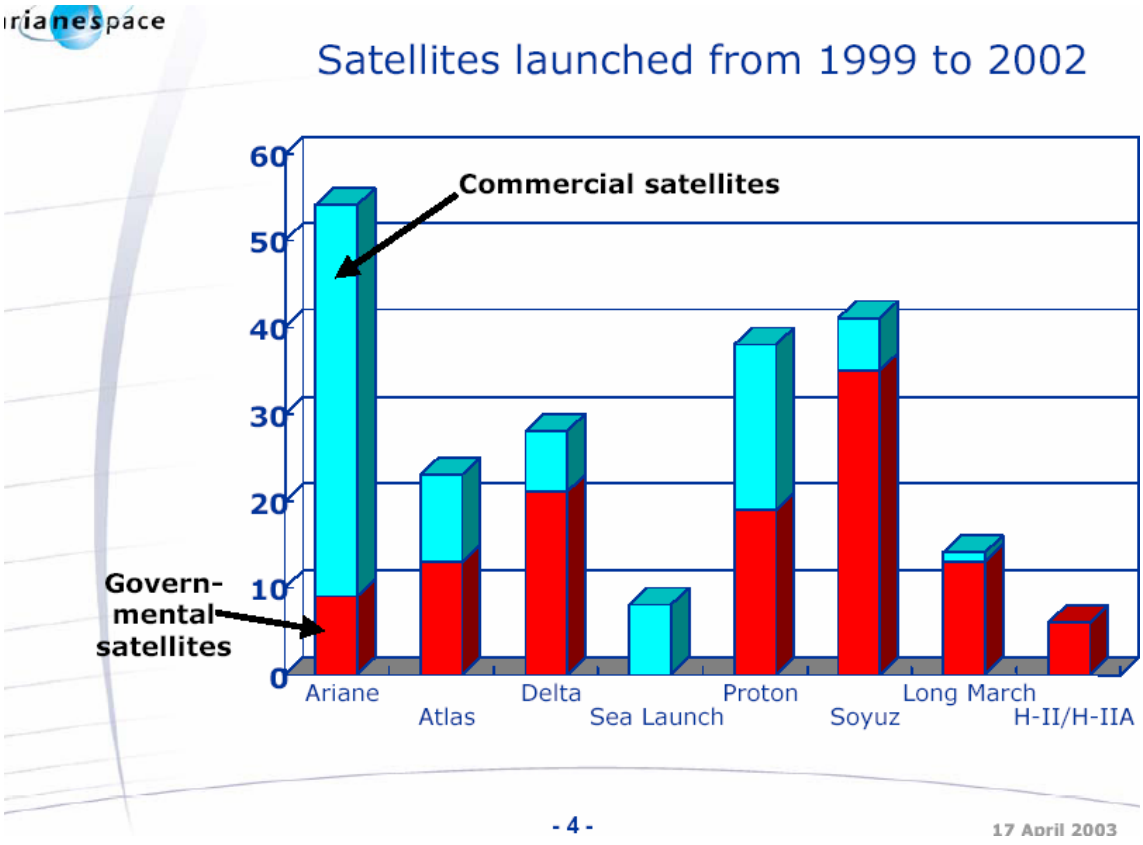


Above there is a slide concluding key points of I-Space program.

As main goal of I-Space program is aggressive contribution of save and reliable society in Asia, Pacific region by extensive use of space infrastructure via satellite.

For that, those three experimental satellites WINDS, ETS VIII and QZSS are developed. And through this space technology development NASDA contributes possibility to create save and reliable society in near future.

Jean-Yves Le Gall (in return of P. Bertolucci – Senior Vice President)、
Arianspace CEO



Above there is described analysis of launch service providers.

There are many launch systems: in Europe Ariane, in America Atlas, Delta, Sea launch, Russian Proton, Soyuz, Chinese Long March, Japanese H-II and H-IIA. In this breakdown, the biggest part of business belonged to Arian in 1999 - 2002. Red is for government investments, light blue for commercial.

Thinking of launches there are some problems, summarized above. There are troubles like extremely cheap launch for commercial, period of agreement, which becomes shorter if the program is late.

However, Arian has 23 years of launch experience from the opening commercial services and performed 159 launches till today. They have 40 satellites from 1.3 t. to 6.7 t and it will surely continue the launch business.

The strategy of Arian is

Satisfying customer, both commercial and government on bases of harmony and balance

Concentrating the launch activities on few launcher versions

According to dual launches there is possibility of decreasing costs.

The key is to provide high quality on services and technology to user from all around the world including governments as well as international cooperation.