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Bridging the Digital divide: the Space contribution

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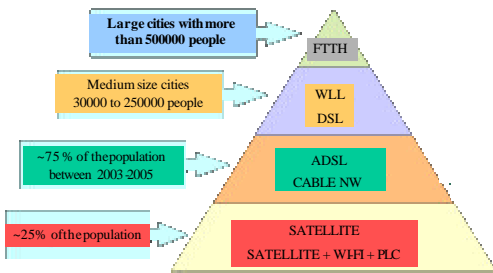
Bridging the Digital Divide: What is at stake in Europe?

- ♦ **European policy: the Lisbon strategy and e-Europe 2005 :**
An Information Society for all including new E.U. Member-States
- ♦ **Political Authorities Expectations and National Policies:**
 - ♦ *Equal access for all to broadband digital networks (residential and professionals),*
 - ♦ *Development of the knowledge and information society,*
 - ♦ *Guaranty economical and industrial local development*
 - ♦ *Balanced and harmonious territories planning*
 - ♦ *« Opening » of rural and less developed regions to the world,*
 - ♦ *Search for exemplary solutions and for business model meeting both public and private needs.*
- ♦ **Business development of Telecommunications and Space sectors:**
 - ♦ *Real opportunity to relaunch these sectors : strategic and vital for all actors in the added value chain.*



Broadband access networks: the real situation

A diversified technological offer but a very unequal coverage of territories

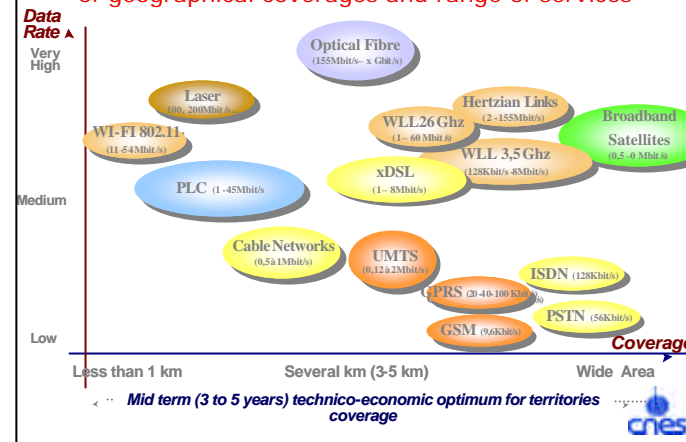


Today satellite technology can offer very rapidly broadband access for rural territories, low density population areas or less economically developed regions in enlarged Europe and worldwide (emerging countries).

FTTH: Fiber To The Home, WLL: Wireless Local Loop, DSL: Digital Subscriber Line, WI-FI: Wireless Fidelity, PLC: Power Line Communications

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Diversity and Complementarity of technologies in terms of geographical coverages and range of services



Some key aspects of the Digital Divide

- ♦ The « Technological Digital Divide »:
e.g. : inequalities between countries in the number of Internet connections
- ♦ The « Socio-economic Digital Divide ». That pinpoints:
 - ♦ Inequalities in the conditions of access to ICT,
 - ♦ Disparities in ICT literacy and skills to function in an information society.
- ♦ In addition, other factors further emphasize the Digital Divide phenomena:
 - ♦ The Internet usage development creates in itself an accentuation of the digital divide within the populations,
 - ♦ The restricted local infrastructure deployments linked to non commercial viability represents another key factor

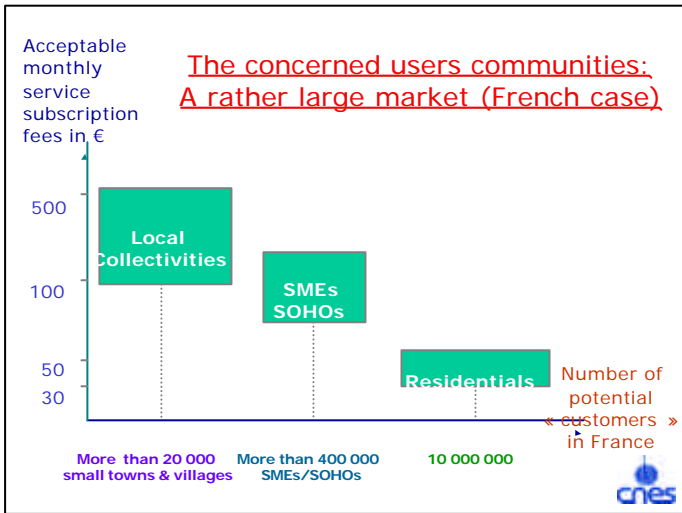
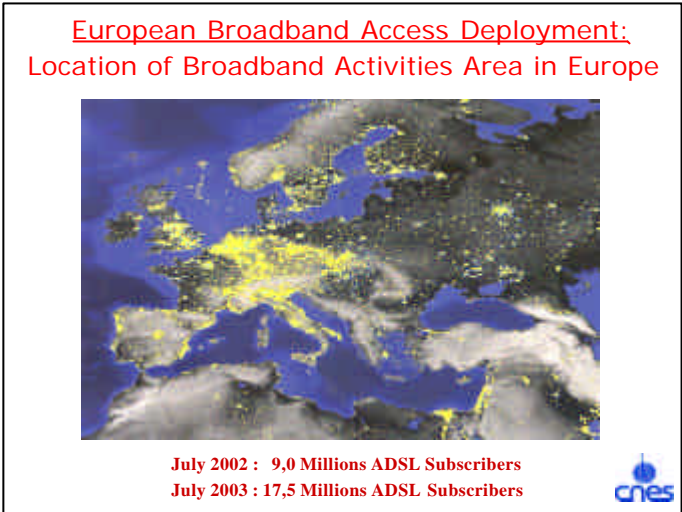
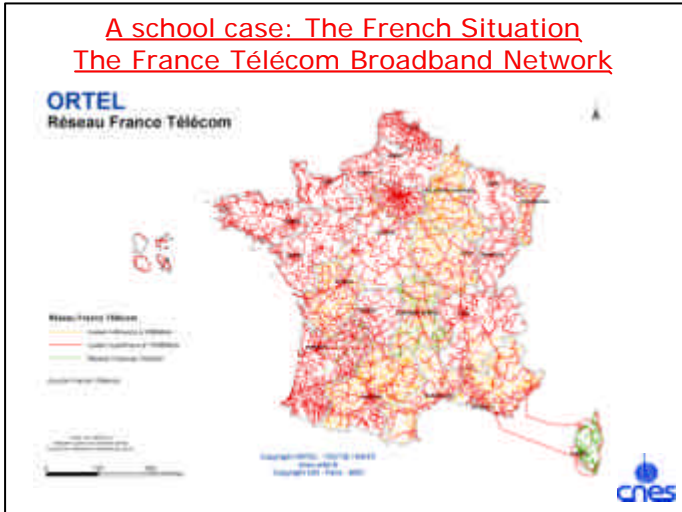
Bridging the Digital Divide needs to address all these aspects



A school case: The French Situation

ORTEL
Couverture DSL
en Octobre 2003





Ability of wired and wireless broadband access technologies to bridge the digital divide

ADSL	No : Deployment limited by density of population
Cable	No : deployment limited by coverage of cable TV network
FTTH	No : Too costly to deploy a new infrastructure at national level for a full coverage of the population
PLC	No, but... : Deployment limited by the quality and architecture of the power grid
WLL	No : Unsuccessful deployment due to high infrastructure costs
3G	Yes but... : Not deployed yet and limited bandwidth
Satellite	Yes but... : prices are still dissuasive for residential users and small companies
WLAN	Yes but... : Has to be connected to the Internet backbone via another technology

From Vista Advisers (ESA study-oct. 2003)

The Satellite can help to fulfill a real need:
The availability of universal access to high speed and broadband networks and services (everywhere, for all)

- ♦ In France : ~75 % of national territory and 20 to 25 % of population not covered by broadband terrestrial networks,
- ♦ Major consequences for the Society: unequal access to public services (government, administration, education, health,...),
- ♦ Very strong impact on local economy (risk of moving for the SMEs),
- ♦ Important action plans decided and launched by local and regional authorities to deploy and operate local BB solutions,
- ♦ Relevant legal and legislative frame adopted to encourage these local initiatives,
- ♦ Adaptation of regulations and licence fees amount for alternative satellite based solutions



A school case: The French Situation Numerous Local Public Initiatives

ORTEL

Initiatives Publiques Locales
 Informations Télécoms Haut Débit

Un document de travail
 pour les acteurs du territoire et des services

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Advantages of satellite solutions for Multimedia and high speed Internet

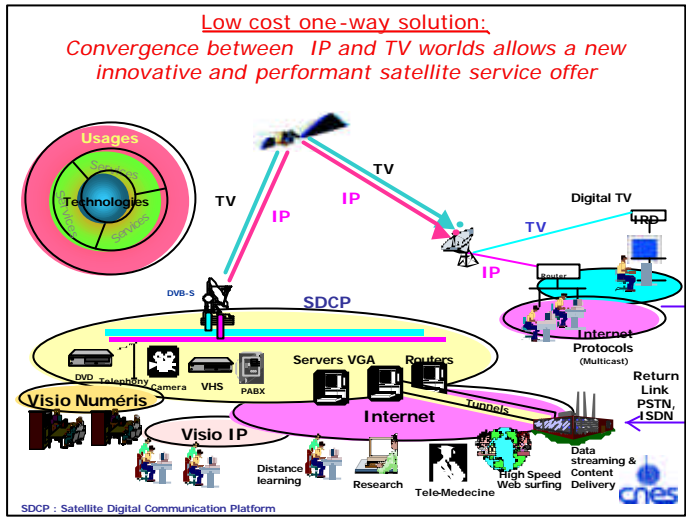
- ♦ A very large and simultaneous coverage(national, pan-european and even global);
- ♦ The same quality of service offered to any users;
- ♦ Very limited terrestrial infrastructure to be deployed to open the service;
- ♦ A rather good complementarity and an easy and seamless hybridation with existing or emerging terrestrial access networks technologies such as Wi-Fi, PLC, LMDS, Fibre, ...);
- ➔ **Satellite allows in a very simple way to offer broadband services access for rural regions or with low population density.**
- ➔ **In Europe, these rural areas represent ~80% of the territory and their population represents ~22% of european citizens (more than 20 millions home).**



The Satellite Offer for High Speed Internet Access and Broadband services

- ♦ Maturity of low cost **uni-directional solutions or one way** using terrestrial return link.
Convergence between IP and TV world.
- ♦ Very fast emergence of **bi-directional solutions or two-way**.
Cost still high (and only affordable for professionals) but it may be reduced by shared use of the satellite access and mutualisation of usages (for example public and private) thanks to the hybridation of broadband satellite access with Wireless local area network (Wi-Fi, LMDS, ...) and/or wired PLC technologies (Power Line Communications).





Two-way satellite Solutions
Commercial offers are more and more numerous

Aramiska, EON, Deuromedia The Viewer, DirecPC, Eutelsat, Divona, HexaSky, Infocast, I-Sat, NetSystem, Sat'isfaction, Satlinx, Sat2Way, Starband Communication, Xantic Broadband, Divona, ...

L'avènement des premières solutions de coût réduit pour l'accès Internet à haut débit

Fournisseur de service	Vitesses opérées	Abonnement Mensuel	Zone de couverture	Remarques
SATLYNX	1 Mbps / download 1 Mbps / upload	633 €	Europe	Base 1 Go/mois Services plus orientés vers les professionnels ou des LAN d'entreprise.
	2 Mbps / download 2 Mbps / upload	1000 €		
Aramiska	2 Mbps / download 512 kbps / upload	549 €	Allemagne Espagne Italie France	Achat et Installation 4900 € De nombreuses autres offres sont proposées. (leasing, débits)
	512 kbps / download 128 kbps / upload	149 €		
Net By Sat	1 Mbps / download 256 kbps / upload	389 €	Afrique du Nord Europe France	Achat et Installation 2490 €
Tiscalisat	400 kbps max / download 140 kbps max / upload	98 €	Allemagne Grande Bretagne Italie France	Achat + Installation 1040 € location vente / 12 mois 90 € / mois
Beam	512 kbps / download 128 kbps / upload	183 €	UK	Frais de connexion 413 € Taxe d'installation : 248€
EUTELSAT DSTAR DSAT	Offre complète et modulaire.	NC	Europe Afrique du Nord Moyen Orient	NC
Tachyon	300 kbps / download 64 kbps / upload	380 €	Nombreux pays européens dont la France	Installation: 715 à 1800 € Achat : 5340 €
Web-sat	400 kbps / download 64 à 128 kbps / upload	220 € (200 Mo)	Maghreb, UK	Projet issu d'un contrat ARTES 3

Key elements for success of high speed two-way satellite Internet access

A) Reduction of total satellite access cost for the customer:
 ___in order to reach a cost effective offering for a mass-market deployment

1 - User satellite equipment cost (20 à 30% of total cost)
 Reasonable offer level
 < 1000 à 1200 € **professional**
 < 350 à 500 € **mass market**
 (current level: 1500 to 3000€) (for 100 000 units and more)

2 - Service subscription fees (70 à 80% of total cost)
 < 75 à 250 €/month **professional**
 < 30 à 50 €/month **mass market**
 (current level ≈ 100 à 250 €/month)

which includes :

- service provider marketing and installation costs (15 à 25%)
- terrestrial infrastructure cost (hub) (5 à 10%)
- satellite bandwidth cost (40 à 60%)

Key elements for success of high speed two-way satellite Internet access

A) Reduction of total satellite access cost for the customer:

1 - Reduction of terminal cost requires:

Standardisation, simplified architecture and design, industrialisation and further integration of functions, large production volumes (100 000 units and more).

2 - Reduction of satellite channel cost imposes:

Use of a more efficient standard in terms of data rate (DVB-S2 : +30%),
New satellite architectures and design : Ka-band, multispot antenna coverages and frequency re-use, larger satellite platforms, ...
(CNES & ESA on going actions : @bus/@sat)



Key elements for success of high speed two-way satellite Internet access

B) Développement of initiatives and coordination of public and private actions aiming at :

1 - Help the regional and local infrastructures deployment based on alternatives and hybrid solutions for sharing broadband two-way satellite access and organise efficient exploitation by a local operator.

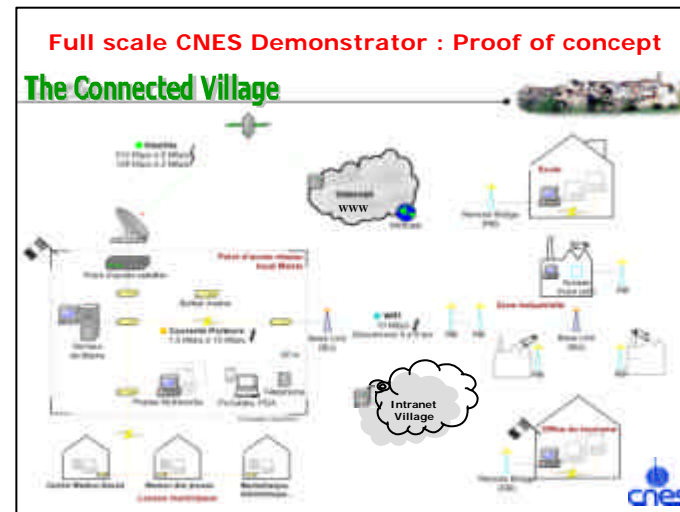
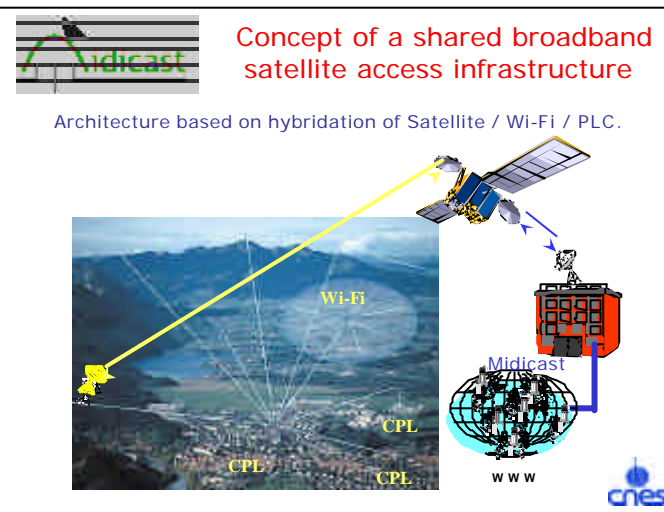
2 - Federate the available sources of fundings to:

- Support the development of standardised user terminals.
- Consolidate new satellite and network architectures in order to:
 - strongly lower the satellite bandwidth cost,
 - develop new very high capacity satellite platform

3 - Federate the efforts of concerned partners to:

- Deploy and exploit at local and regional levels shared broadband access infrastructure
- Create ad-hoc entities to supervise such deployments and the operations

(In France: DATAR, CDC, Regions, Departments, local authorities , ...)



Conclusions

- ◆ Satellite solutions have reached a technical and operational maturity level and can offer today an alternative solution to bridge every where and worldwide the digital divide: To overcome the cost barriers the current way is to share still high satellite access costs (user terminal and subscriber fees) among a group of users by hybridation of two-way satellite broadband access with a local area network for the «last mile » using wireless technology (such as Wi-Fi) and/or PLC wired solutions.
- ◆ Such approach have been demonstrated by CNES through the so-called concept «The Connected Village » and full scale deployments are on going in some French regions.
- ◆ New generation satellites with much higher capacity at much lower costs are under development to offer mid term two-way broadband access solutions competitive with terrestrial ADSL technology



Thank you for your attention
and
you are cordially invited to visit the
« Connected Village » presented on the
France stand during the december WSIS at
Geneva



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