

Optical Fiber-based Next-generation Access Network Switch-on^[1]

It costs 12€b: what should be done?

20m users should be involved in becoming owners of their last mile.

About 12€b are needed to deploy the broadband, optical fiber-based, next-generation access network, according to estimates from various sources (cfr. web links).

The amount is computed from the estimate of the length of last mile ducts and optical fibers multiplied by their unit cost, which for new deployments is about 30€k per kilometer.

The best solution, to gather the needed amount of money, is to involve the about 20m telephone users to become owners of their last mile at an average cost per user of 600€ (12b / 20m). The new access network, owned by groups of citizens who decide to link their houses to the nearest exchange / shared access point / primary switch, will share the last mile ducts which hold the fibers of the users who live in the same street, square or district.

Physically building these new fiber accesses would be very simple, and equally simple would be managing the investment, by one or more telecom operators, but this is not the solution proposed here. Actually, the "traditional" solution – i.e. the "operator's" access network – entails serious problems, clearly yet to be solved, in the areas of:

- Regulation: "How to grant the other operators access to the last mile?"
- Strategy: "Which broadband services to invent?"
- Economics: "How to make the investment return?" (*in the end, deployment is focused on few areas, thereby impairing universal service*)
- Finance: "Where to find the money?"

On the contrary, if politics and Public Administrations assume the role of "organizers and facilitators" – given the strategic importance of the next generation network for the country – gathering and managing the needed 12€b becomes reasonable:

- Users shall simply turn to investment the cost they bear today for the copper network fixed fee; net of maintenance costs (which would remain), it amounts to 150 Euros / year per user; in 4 years, the 12€b target is reached ($150 \times 4 \times 20m = 12b$).
- Politics and Public Administrations, on their part, shall:
 1. Explain the opportunity to all the telephone users of switching-on the new fiber network, while forcing the switch-off of the old copper one.
 2. Organize the territory: complete listing of ducts; simplification / "debottlenecking" of regulations; choice of the shared access point(s) / primary switches for each district; coordinated management of duct accesses / possible new excavations; transparent bids.
 3. Equalize the costs of duct and fiber of the last mile between the privileged and most densely populated areas of the country and the rural and disadvantaged ones (the average cost per user of 600€ might actually oscillate between some hundred Euros for the former and few thousand Euros for the latter).
 4. Managing the financial aspects, between the workings on one side and the cash flow of the former last mile fee on the other; it entails to:
 - Find lenders, with public and transparent bids, which advance the costs of intervention; they will be gradually repaid by the former local loop fixed fees, no longer paid to the telecom operator.
 - Plan interventions starting from the privileged and most densely populated areas (where the last mile cost is below average), in order to achieve a more favorable cash flow.

^[1] Italian example.

The indicated solution entails significant benefits, otherwise unachievable.

When the final user becomes owner of the fiber which connects him/her to the nearest shared access point / primary switch (by simply sharing a pre-existent duct, or by joint owning a new one):

- All of a sudden, the indicated regulatory, strategic, economic and financial problems "evaporate": "How to grant the other operators access to the last mile?", "Which broadband services to invent?", "How to make the investment return?", "Where to find the money?" become pointless questions.
- The roofs are freed from antennas, and the environment from the TV spectrum.
- The private wi-fi's are opened to a free external utilization (with obvious priority given to the primary user), thereby obtaining a full wireless coverage too.
- The fiber is progressively used to carry any type of services, starting with (the future will be rich of ideas...) payments of limited amount among users, to be cleared through the bills of the connectivity supplier(s).
- Most of all, an endeavor of strategic value for the country has been deployed in a short time frame, with full country coverage (universal service) and without any Government spending.

In this way, the switch-on of the optical fiber network will impact on four today privileged sectors, mono / duo / oligopolies which exploits infrastructures which should be considered "common goods" and provided for free to all citizens:

- Telecommunications;
- Television;
- Mobile telephony;
- Payment services.

The dawn of a new world!

With "their" nextgen network, the citizens have the opportunity to join in revolutionizing the new network and, through that, defending and evolving democracy for the better.

The proposal, as indicated above, has been sent to the new Minister of Economic Development, Corrado Passera, with these accompanying words:

- There are 12€b in 4 years to be spent, much better than today, to deploy the optical fiber-based next-generation access network, with full country coverage and no Government spending.
- "Only" a change in perspective is needed, to realize that the ownership of the local loop should be given to the users, rather than to a telecom operator; by doing so, all the problems which are being discussed since too long really "evaporate"...
- And it's needed "only" that politics and Public Administration put themselves in the mood of "organizing things" in an effective way.
- It's crystal clear that the interests of many players – including the creditor banks of the telecom operators... – will fiercely oppose the initiative, and therefore the deployment will encounter significant difficulties.
- But somebody, sooner or later, will need to understand that – by keeping stuck to the present approach, all focused on the operators – we really risk to put our future at stake.
- It's desirable therefore that the vested interests involved, once in a while, may be valued for what they are: just obstacles; this time to be overcome.
- If the new Government really wants to do what the country needs, the nextgen network, "done well", is a crucial component.

English web links

<http://pb.freeshell.org/interconnect.pdf>

<http://pb.freeshell.org/newown.pdf>

Italian web links

http://it.wikipedia.org/wiki/Comunicazioni_in_fibra_ottica

<http://it.wikipedia.org/wiki/Cavidotto>

<http://aing.biz/drpl/?q=node/200>

http://it.wikipedia.org/wiki/Beni_comuni

http://stage.spaziopubblico.it/wiki/Categoria:Beni_comuni

http://www.caosmanagement.it/art52_07.html

<http://www.di.unipi.it/~attardi/Paper/GARR11.pdf>

http://www.radio24.ilsole24ore.com/radio24_audio/2011/111126-2024.mp3

Other English links

EU Guide on Broadband investment models

http://ec.europa.eu/regional_policy/sources/docgener/presenta/broadband2011/broadband2011_en.pdf

Next Generation Networks. Neunen: The Fiber Revolution (see page 2 of the EU Guide Investment models - Bottom Up cooperative FTTH)

<http://www.youtube.com/watch?v=aoo6W1ovzFg&feature=related>

NEXT GENERATION NETWORKS: THE TRANSFORMATION OF SWEDEN

<http://www.youtube.com/watch?v=WeSMexPDpSI&feature=related>

Other Italian links

Next Generation Network

http://it.wikipedia.org/wiki/Next_Generation_Networking

750 km of ducts. How the digital province of Trento is developed

http://www.innovazione.provincia.tn.it/binary/pat_audiovisivi/RubricaFormat/cavidotti.1270739178.pdf

Broadband, the national plan starts becoming reality: 95€m to build 2.000 km of fiber. Government contributions will be given to the following regions: Campania, Sicily, Basilicata, Molise, Lazio, Marche, Tuscany, Sardinia, Veneto

http://www.key4biz.it/News/2012/01/05/Policy/banda_larga_fibra_ottica_infratel_digital_divide_divario_digitale_207654.html

Assoprovider writes to Paolo Romani: to review the administrative contributions in order to support broadband and foster new NGN investments. In front of the difficulties of the telecom operators in raising funds for NGAN, the citizens could be directly involved in acquiring the last mile of their house (estimated cost of 500€ per house)

http://www.key4biz.it/News/2011/11/02/Policy/assprovider_ngn_frequenze_NGAN_paolo_romani_banda_larga_spettro_radio_Dino_Bortolotto_206462.html