OPTICAL FIBRE

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ARCEP GUIDELINES following the first phase of trials and assessments of optical fibre network mutualisation

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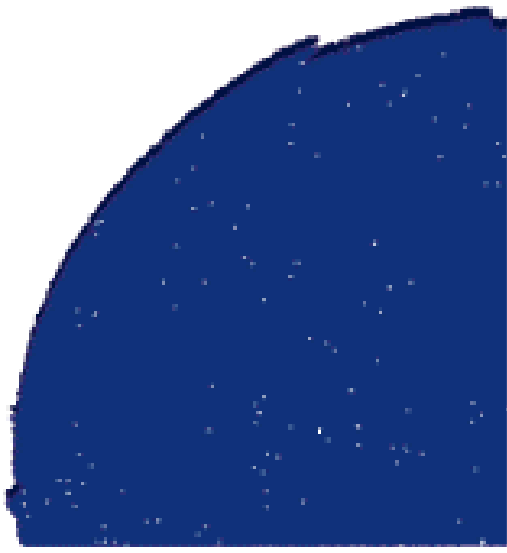
Public consultation - 7th to 30th April 2009



ARCEP
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AUTORITÉ DE RÉGULATION
des Communications électroniques
et des Postes

ARCEP guidelines following the first phase of trials and assessments of optical fibre network mutualisation

The Law on modernising the economy of 4 August 2008 introduced a set of rights and obligations for operators deploying optical fibre in buildings. One of the aims of the Law is to limit the amount of installation work that needs to be done on private property, while guaranteeing that residents can benefit from access to competing ultra-fast broadband services. The Law thus instils the principle of mutualisation, requiring the operator designated by the property owner to install the fibre in the building to provide access to its network to other operators under non-discriminatory conditions.

It is important to underscore this principle and to provide market players with the clarity and legal security needed to invest, while maintaining a certain flexibility for the future given the lack of hindsight we currently have, either nationally or internationally. Under the impetus of the Minister of State to the Prime Minister responsible for Forward Planning, Assessment of Public Policies and Development of the Digital Economy, the largest operators performed a series of trials and assessments on single fibre and multi-fibre architectures deployed in buildings, under the aegis of ARCEP.

ARCEP has just released its initial recommendations based on the results of this work, along with the directions being taken to implement the principle of optical fibre network mutualisation. These guidelines are part of a progressive approach to defining the applicable framework according to experience acquired by the market players and by ARCEP. Because these trials are very recent, some of the guidelines at this stage are confined to densely populated zones, which are also the areas where rollout projects are in the most advanced stages.

These guidelines will be made official in a first decision, which will be adopted early in the summer, as requested by the Prime Minister on 12 January of this year. A draft decision will be submitted to public consultation in May. In the meantime, this document will be subject to a public consultation running from 7 to 30 April.

1) A progressive approach

The terms to apply to implementing the principle of mutualisation can vary considerably depending on the local circumstances, notably the population density and housing structure. Based on the results of the trials, ARCEP believes it is capable of issuing its first recommendations for the terms to apply in very densely populated zones where the first trials were conducted.

a) Very densely populated zones

We need to begin by defining what constitutes a very densely populated zone. They could be defined as zones with a highly concentrated population, where it is economically possible for several operators to deploy their own infrastructure, in this case their optical fibre networks, near to customer premises. In other words, there could be several dense, overlapping networks in these areas. In most of these zones, the leading market players have planned or are involved in rollouts.

ARCEP wants to consult with these players on this definition and the geographical perimeter to which its decision will apply. It will propose defining these zones based on an evolving list of cities/towns and districts, which could then be expanded regularly based on input and requests from the players.

Question: ARCEP invites respondents to define the perimeter that they believe corresponds to very densely populated zones, preferably in the form of a list of cities, or based on any other criteria that they feel is relevant.

b) Outside of very densely populated zones

Network rollout costs per subscriber depend heavily on population density and housing structure. On the whole, below a certain population density, it becomes unlikely that several operators could earn a return on the investment made in several networks deployed close to customer premises, even over the long term. In these cases, it become necessary to mutualise the fibre network beyond just the portion located inside the buildings. In practice, this could translate into a mutualised access point serving an entire neighbourhood, or a larger area in more sparsely populated zones.

This means that, outside of very densely populated zones, there will need to be a greater degree of coordination between the players, which gives rise to a certain number of questions: how to identify the neighbourhoods/areas served by the same shared access point? What common architecture to use for these rollouts? How to assign roles between the players? What opportunities are there for shared investments in a common network, and what form would they take?

As managers of public property, local authorities will have a role to play in encouraging this mutualisation, through the creation or extension of a public initiative network or through other forms of involvement.

A second stage of work will now begin, under the aegis of ARCEP, devoted to defining the rules that will apply to operators and public initiative network rollouts outside of very densely populated zones:

- the methods for deploying fibre across the country – notably the opportunities for coordination between players, sharing the networks and making joint investments – will be examined within a dedicated working group made up of operators, local authority representatives and, particularly in accordance with its mandate, the *Caisse des dépôts et consignations*;
- the technical component – notably the architectures and the mutualisation processes outside of private property, and the corresponding trials – will be examined with the operators.

The joint efforts on ultra-fast broadband that are already underway will continue, with operators, property owner representatives, social landlords, consumers and tenants, local authorities and equipment manufacturers.

While awaiting the adoption of the rules to apply outside of very densely populated zones, players are invited to install architectures which are as simple to mutualise as possible. In the meantime, the terms applied to optical fibre installations in buildings outside very densely populated zones, as defined in part 1) a) of this document, would not be affected by any possible future decision made by ARCEP.

Question: ARCEP invites respondents to comment on how the Authority should proceed outside of very densely populated zones, as well as the terms for local authority involvement in implementing mutualisation.

2) Terms for deploying optical fibre in buildings in very densely populated zones

The methods used for implementing the principle of mutualisation depend on the local circumstances, notably the population density and housing structure. This is why certain rules, presented here below, can be specified at this stage only for very densely populated zones, as defined in part 1) a) of this document, as these are the zones that have been the focus of the work performed over the past three months.

This work has made it possible to discern the technical and economic constraints to which operators are subject, depending on the technological choices they made.

There are two main network topologies used in fibre-to-the-home rollouts: point-to-point and point-to-multipoint (*PON: passive optical network*). These two topologies correspond to different logics and needs.

Point-to-point consists of installing one fibre per household, between the customer premises and the node housing the optical line terminals (OLT) which serves several thousand households. This requires a sizeable initial investment, in exchange for streamlined network administration and virtually unlimited bitrates, in theory, hence moderate operating costs.

A PON is based on having the fibre shared by the households being served. It allows investments to be made apace with the rate of ultra high-speed penetration. Optimising a passive optical network can, however, require the installation of several points of flexibility within the network, which can mean high operating costs.

It has emerged from the first phase that an operator that has opted for a PON architecture generally wants to have a point of flexibility at its disposal, at the shared access point, for instance, to optimise the occupancy rate of its PON equipment. On the other hand, an operator that has opted for a point-to-point system will favour connection by soldering to the shared access point between its own network and the one installed by the building operator, to minimise future service calls. It is not possible to both solder and have a point of flexibility on the same fibre.

ARCEP does not want to recommend or forbid either one of the existing technologies. Allowing all operators to choose freely between a PON and a point-to-point architecture is crucial enabling innovation and competition in the still nascent ultra-fast broadband market.

The Authority is thus in favour of exploring all possible solutions that allow each operator to choose between connecting to the building operator’s network with a point of flexibility and connection by soldering, at least in cases where it is technically and economically proportionate.

Based on what has been learned up to now, a possible recommendation for responding to this objective for buildings in very densely populated zones could stipulate that before a building is equipped with optical fibre:

- any operator could exercise an option with the building operator, requesting that the building operator install an additional, dedicated fibre on its behalf for each dwelling unit, which would satisfy the demands of operators wanting to solder their fibre to the shared access point. Here, the cost of installing the additional fibre would be entirely pre-financed by the beneficiary operator, which would also share the cost of equipping the building;
- all operators would have the guarantee of being able to install a measure of flexibility, such as their own hub at the splitter level, for instance, which satisfies the demands of operators wanting that added flexibility.

To examine this system and its feasibility, especially financial, the Authority invites the player to engage in in-depth discussions on the matter during the public consultation.

The implementation of this system could require prior consultation between operators, at the city/district level for instance, which would give each party the opportunity to request the installation of a dedicated fibre or the guarantee that it can install an added connector or hub, and to organise the corresponding financing arrangements. If no operator takes part in this prior consultation, the building operator would be free to equip the premises as it sees fit, provided it complies with its general obligations.

Lastly, to satisfy the demands of any operator that may enter the market at a later date, the building operator would in any event provide an access offer: a passive offer at the splitter level, for instance, or a technically and economically equivalent solution.

More work will need to be done to measure the impact of installing additional fibre outside of very densely populated zones. In these zones, the location of the mutualised access point higher up the network could increase the risk of saturating the civil infrastructure if the size of the cable became excessive due to the number of additional fibres installed in it.

Question: ARCEP invites respondents to comment on these guidelines, and on the "operating mode" document produced based on the first phase of trial and assessments, describing a possible process for exercising the option of installing additional fibre.

3) Location of the mutualised access point

In accordance with the Law on modernising the economy, the mutualised access point is to be located outside the public property, except in cases defined by the Authority. Its location must allow third-party operators to connect to it under reasonable and non-discriminatory economic and access conditions.

In its recommendations published in October 2008, ARCEP indicated that the question of where to locate the mutualised access point depended heavily on the local circumstances:

- the greater the population density in a zone, the more economically feasible it is for an operator to deploy a network that extends to virtually all streets in the zone, and so to connect to mutualised access points located near the buildings and serving only a small number of households;
- even in very densely populated zones, where several operators could earn back their investments in dense networks and where shared points of access can be located close to the buildings, it is not always economically viable for the mutualised access point to be located inside the building. Mutualisation at the foot of the building, or the curb, should thus concern only very large apartment complexes in very densely populated zones, which allow for sufficient economies of scale.

On the matter of very densely populated zones, ARCEP wants to obtain the players' input on the minimum number of units a building needs to have for an operator to be able to install the mutualised access point at the curb. This number needs to be high enough to offer a reasonable guarantee that residents will benefit from competition created by having several operators connected to the fibre installation at the foot of the building.

The Authority calculates this number to be either 12 or 24 dwelling units. In any event, buildings that are connected to visitable sewers by tunnels which are themselves visitable, as is the case in Paris and certain other major cities, could house a mutualised point of access at the foot of the building, regardless of their size.

Provided that there is enough space available in sanitation networks for the deployment of several optical fibre networks, having a given building connected by several operators is, in theory, always possible from an operational standpoint. Moreover, some operators are connected to the building through France Telecom civil engineering while others employ the sanitation network, such that the curb constitutes the relevant point of convergence of the networks.

Outside of very densely populated zones, mutualised access points will serve several buildings in the same neighbourhood or a larger area, as indicated in part 1) b) which means that, in all likelihood, it will not be located at the curb in these zones.

ARCEP nevertheless maintains the possibility, contingent on the results of future studies, to provide for situations where the mutualised access point for installations outside very densely populated zones could be located on private property.

Question: ARCEP invites contributors to comment on the following responses to the question posed by the legislator:

- *in very densely populated zones, the mutualised access point can be located on private property in the case of buildings connected to visitable sewers, or which have a minimum number of dwelling units, the possible minimum being 12 or 24 units;*
- *outside of these very densely populated zones, the mutualised access point is not located on private property, in theory, except in cases that could be defined at a later date by the Authority.*

4) Principles that can be applied immediately, nationwide

a) Assignment of roles between the building operator and the commercial operator

In accordance with the Law on modernising the economy, the building operator has obligations both to the property owner, who has designated it to equip the building, and to third-party operators which it must provide with access to its network.

On the matter of its obligations to the property owner, in accordance with the Law, the building operator is responsible for the installation and maintenance of the network inside the building, from the mutualised access point to the optical network units inside the customer premises.

As to its obligations to other operators, in light of initial feedback, ARCEP wants to instil a certain degree of flexibility in the assignment of roles, particularly with respect to operations that require a service call in the customer's home, while imposing a formal obligation on the building operator to install and maintain the network, as stipulated in the previous point. Players will be asked for their input on the following arrangements:

- the building operator installs the connection between the riser and the apartment and performs maintenance operations, if the third-party operator so requests;
- the building operator leaves open the possibility of having third-party operators that so request perform certain operations themselves, notably this connection and the corresponding maintenance operations. In such a case, the third-party operator would be contracted by the building operator.

Question: ARCEP invites respondents to comment on the proposed arrangements, with respect to the commercial and operational issues attached to providing ultra-fast broadband services and managing the building's indoor network.

b) Pricing

In accordance with the Law on modernising the economy, access must be provided under reasonable and non-discriminatory conditions. As a result, the pricing applied to the last drop of ultra-fast broadband networks must satisfy several objectives:

- encourage operators to invest in installations deployed in the last drop;
- encourage shared investments between operators.

Shared investments can include having operators share initial costs. In particular, when operators request a dedicated fibre be installed on their behalf, they will help finance the installation of fibre in the last drop, namely the cost of their dedicated installation plus a reasonable portion of the shared costs.

In the case of operators that enter the market at a later date, it is the Authority's view that the building operator must be able to offer them tariffs that take account of a rate of return that provides an incentive to invest in equipping buildings with optical fibre. This approach is consistent with work performed at the European level, which tends to favour risk sharing and offering a risk premium to the operator that invests in deploying a new network.

Based on these principles, it is the operators' responsibility to define the adequate mechanisms and tariffs. It would only be in cases of complaints filed by an operator over pricing terms that ARCEP may be required to intervene at a later date.

Question: ARCEP invites respondents to comment on the pricing principles proposed, and to indicate whether they believe it may be necessary to alter the terms of application depending on the region where the rollout occurs.

c) Publication of access offers

When drafting their business plans and their technical and commercial strategies, third-party operators need to have a clear picture of the technical and pricing conditions being offered by the building operator. Moreover, the availability of a public offer makes it possible to treat the different client operators in a non-discriminatory fashion.

The building operator must thus publish an access offer.

d) Transmission of prior information

To be able to provide the residents of the building in question with ultra-fast broadband services, operators need to have access to prior information within a reasonable and non-discriminatory timeframe. ARCEP will specify the nature and terms of the transmission of this information.

This information will be transmitted to the operators on the list established and maintained by ARCEP, pursuant to Article R. 9-2 of the French postal and electronic communications code, CPCE.

e) Treatment of existing arrangements and rollouts outside of very densely populated zones

Buildings that are already equipped when the ARCEP decision comes into force will not be concerned by the provisions pertaining to the architecture deployed in buildings (number of fibres per customer unit, etc.). The other provisions will apply to them, however.

As to the 20,000 buildings that have been equipped with optical fibre to date, the operators that have already deployed their network in them are requested, in accordance with the Law on modernising the economy, to provide access to third-party operators which appear on the list that is maintained by ARCEP, pursuant to Decisions no. 2009-0169, dated 3 March 2009, and no. 2009-0327 dated 2 April 2009.

The terms for deploying optical fibre in buildings which could be equipped outside of very densely populated zones, as defined in part 1) a) of this document, would not be affected by any possible future decision made by ARCEP.