



SURVEY OF THE MARKET OF INTERNET SERVICES IN BULGARIA VIA LAN NETWORKS, 2008

INTRODUCTION

Broadband access via LAN networks is the technology which has found the widest application on the Bulgarian market over the past years.

The aim of the present survey is to show the market status of broadband services provided via LAN networks at the beginning of 2008 on the territory of Bulgaria. It covers the six economic regions as well as the capital of the country. The main providers on the territory of the corresponding districts within the regions have been considered. The survey focuses on the penetration of broadband access via LAN networks on a territorial principle; the structure of the networks providing the services; the kinds of the provided services; the price at which they are delivered. A comprehensive analysis of the market status and the trends of its development has been presented.

As far as household subscribers are concerned one should bear in mind the fact that all members of a household enjoy the opportunity to use the LAN Network services. That is why the survey always refers to "households" despite the occasional use of the terms "subscribers" or "end users".

A number of objective premises existed to this effect: a) the existing monopoly of the national operator of fixed telecommunication networks, imposed by law up to 2003. In this way the providers of Internet services practically had no technological possibility to reach the end users. This monopoly continued even later, despite the formal repeal of the law. The wireless solutions were not a serious alternative because of the limited technological characteristics such as limited speed, low reliability, poor quality, poor security against unauthorized access, and last but not least a rather high cost; b) the fast development of technologies, the opportunities offered by the Internet for free access to illegal content, including games, films and music, and the need of high speed access to these applications is the other serious reason for seeking possibilities to meet these demands.

Many of the problems and shortcomings listed above can be avoided by means of building-up small air cable LAN networks. Building-up these networks has started on an absolutely amateur basis. Of course there are objective premises for this, such as lack of any control whatsoever as regards the rules of designing and building, the quality of construction, network usage safety. Because these networks are built without keeping any rules and specifications, building costs are low. The use of unlicensed or free software also lowers the initial costs. The operational costs are also minimized because no taxes and insurances are paid on the consumer profits and the remuneration of providers. At the same time the only important thing for the end users is the price which they will pay.

The comparatively low investment and operational costs are a sufficient condition for the fast increase in the number of LAN operators. With the growth of the number of end users the service cost gets even lower, creating the opportunity for sufficiently good revenue for the providers. At the same time however the first serious problems arise. These unprotected aerial amateur networks are vulnerable to natural phenomena such as thunder storms, which cause serious damage on the wide spread air cable networks. The continuous development of technologies leads to lowering the prices of the optical cables and active devices needed for building up networks and therefore the infrastructure of LAN networks is intensively changing. The main routes are already becoming optic, lain down in underground cable networks and only the end sections are completed on copper cables. Opportunities such as the existing underground infrastructure built by the



Bulgarian Telecommunications Company, electricity supply enterprises, electric street lighting, municipalities etc. contribute to the speeding up of this process.

As a result of technological changes, especially after merging or takeover of a lot of small local networks by bigger operators, the name "**broadband access via LAN networks**" used for these kinds of services does not correspond to reality. The networks of the bigger companies cover partially or completely not only separate cities but whole regions as well.

ANALYSIS OF THE LAN NETWORKS AND SERVICES – STATE OF THE ART

Over 250 companies provide broadband Internet access on the territory of Bulgaria. According to the region where they operate they can be divided into several categories:

- LAN on the territory of a single residential area
- network on the territory of one or several city districts
- network covering the territory of a town/city
- networks developed in one town/city and several settlements in its vicinity
- services offered on the territory of several districts (regional coverage)

The figure below shows the distribution of LAN operators depending on the region of coverage.

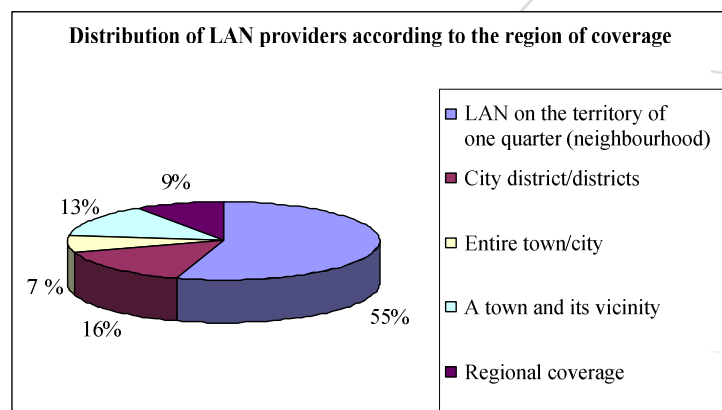


Fig. 27

As shown on **fig. 27**, 55 % of the subscribers provide their services on the territory of a single residential area. **The biggest number of such LAN operators is in Sofia. They comprise over 70 % of all providers working on the territory of the country.**

More than 50 % of them operate on the territory of Sofia. The operators who have a significant coverage in Sofia and the big cities are 16 % . The companies which own LAN networks in the cities and towns and also provide services to the surrounding settlements are 13 % . Only 7 % of the companies deliver services covering a whole town. These are providers operating in medium-size towns. Around 9 % are the companies which provide services on the territory of several districts. There is no operator yet that can be called a national operator due to the fact that the companies with regional coverage have networks developed in no more than 5-6 districts.

The penetration of broadband access via LAN networks at the end of the first quarter of 2008 is 11.8 %. This means that almost 12 % of the households in Bulgaria use the Internet services of LAN operators.



TYPES OF SERVICES

There are three main kinds of services provided by LAN networks operators to their clients. The first main group is high speed (broadband) Internet access, the second is IPTV and the third – VoIP.

High speed (broadband) Internet access

The primary service received by each customer is high speed Internet access. This service is characterized by several components and a number of versions offered by the different providers have emerged on the basis of their combination. Listed below are some of the most popular:

1. According to the kind of traffic – given in Kbps, in most cases in Mbps
 - International Internet – speed provided by the operator for access to the international Internet space
 - Bulgarian Internet – speed provided by the operator for access to the Bulgarian Internet space
 - Local traffic for a given city/town or region – in some cities, e.g. Varna, there have been set up connections among the local operators and in this way there is traffic exchange on a local level without burdening the intercity channels used for the Bulgarian Internet.
 - Access to servers within the provider's network
2. According to the mode of transmission to the customer
 - Symmetrical access – identical speed to and from the Internet space
 - Asymmetrical access – different speeds for Download and Upload respectively
3. According to the traffic quantity
 - Unlimited access – not limited by traffic
 - Limited access – the traffic quantity usually for a month
4. Number of customers sharing one and the same capacity

The great number of parameters and conditions characterizing the high speed internet access service help the providers to offer a number of options with different brands and characteristics. The service characteristics are defined according to the provider's geographical location and to the preferences and needs of the corresponding category of customers. The possibilities for high speed transmission within the LAN networks themselves give the operators the opportunity to declare services with the speed ranging from several Mbps to several dozen Mbps.

A great part of the providers do not declare the minimum speed they guarantee to their customers for Internet access but state only the maximum values they can reach. The majority of the smaller operators deliver in most cases and without additional charge different extras within their own LAN network. They offer their customers the opportunity to play various games in the network, to use different content from the provider's servers.

Since the different technological elements, forming a specific service of the kind "Internet access" have differing prime costs for the various country regions, it is impossible to compare service prices within a national context. This is so because the customers get a service with the same brand name but with different parameters at one and the same price for the different regions or towns. If we translate the term "**different parameters**" into the customer's language it will have the meaning of "**different quality**".



Unlike the household customers, the business end users are not only price sensitive, but quality sensitive as well. That is why in the services description targeted to this consumer category emphasis is laid upon the guaranteed parameters and the additional services that a customer can get from the same provider. In most of the cases the providers, especially the smaller ones, show flexibility and offer various discounts from the prices advertised for business end users.

IPTV

This is the service that enables the providers to offer television programmes via their LAN network using Internet protocol. We should note that this has not become a very popular service so far and it is being used only by household end users. The service has more pronounced distribution in the North Central Region thanks to *Telnet* and *Evo* companies. In some districts from 20 to 30 % of their customers use IPTV. This service is also offered in the Southeastern region. Almost all the companies in Burgas and some of the companies in the other districts of the region offer IPTV.

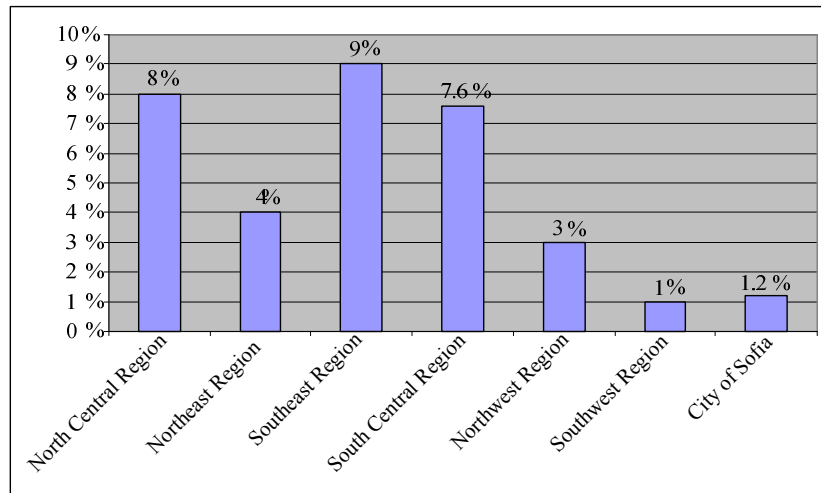
The *Comnet* company is a leader in the offering of this service. In some districts around 10 % of its clients use this service. However the service is not offered in the majority of the regions. Very few companies in Sofia offer it and the number of the customers is negligible. The main reason for the low percentage of end users is the serious presence of cable operators on the market and recently of satellite operators. The product they offer is analogue cable television in over 95 % of the cases. It does not have the wealth of possibilities offered by IPTV but the mass consumer has not so far felt the need of something different than the service he currently uses. Any significant growth in this service's sales is unlikely at least within the current year.

VoIP

The distribution of this kind of service is different for the separate regions of the country. All companies operation in the Southeastern Region advertise VoIP services in every district. Voice services are being offered by 22 % of the companies providing broadband services on the territory of the South Central region. **VoIP is also provided by 30 % of the companies in the North Central Region.**

Two of the big operators – *Spectrum Net* and *SKAT* have their own license for providing voice services. The rest of the companies offering this kind of service are distributors of *TPN*, *Transtelecom*, *Nexcom* etc.

Fig. 28 shows the percentage of LAN service customers using VoIP as well. The penetration of this service is highest in the Southeastern Region – 8 % and in the South Central Region – 7.6 %. The lowest penetration is in the Southwestern region – 1 % and the city of Sofia – 1.2 %.



Фиг. 28

There are no conditions for a substantial growth in the use of VoIP in the near future. Although the conversations in the networks of the alternative operators are free of charge the service itself is not attractive enough when the customers have to talk to other network's clients. It is well known that 98 % of the fixed telephone subscribers are clients to the BTC (Bulgarian Telecommunications Company). All state and municipal administration institutions, almost all organizations, banks, public utilities providers, as well as the main part of home customers are BTC subscribers. Therefore the major part of traffic interest is directed to these customers' groups, which are outside the alternative operator's network.

The possibility to perform free VoIP conversations to all destinations via the Internet, using Windows Messenger, Google Talk and especially Skype contributes additionally to the low percentage of the number of end users for this kind of services.

PON

From a marketing point of view this is the latest service, currently being launched by *Spectrum Net* only on the territory of Sofia and just in some residential areas. In fact this is a new different technology by which the operator provides high speed Internet access from his technical centre to the subscriber's premises entirely on optical fibre. In this case FTTH (fibre to the home) or "optical fibre to the home" is the exact name of this service. As it is well known, with the rest of optical fibre technologies the last section always is a copper cable.

This service has several advantages:

- Along the whole length of the route there are no active devices that need electrical supply and installation space,
- Opportunities are created for providing very high speeds to the end user,
- A great number of services can be realized simultaneously.



FUTURE PROSPECTS

There is a tendency for building LAN networks by cable operators who own licenses for the delivery of TV programmes via cable. This is due to the fact that the existing cable networks have serious technological limitations (restrictions) as regards the speed they can provide for Internet access. That is why along with the networks for the transmission of television programmes they have also started to build optical networks for broadband Internet access. More and more frequent become the cases of takeovers by cable operators of companies providing broadband services via LAN networks.

As it is seen from the data for the different regions, **IPTV does not have any special commercial impact on the activities of LAN operators.** The main reasons for the slow market penetration of this service are not the technological problems which are inevitable when launching a new product. **Cable television in Bulgaria has reached its maximum penetration and market growth and new clients can hardly be expected.** Meanwhile the end users of this service do not find sufficient reasons to give up their current television programmes provider and become IPTV service customers.

The market of broadband Internet access service continues to grow and the increase in the number of new customers exceeds the migration figures. BTC (the Bulgarian Telecommunications Company) has been trying to enter the niche of LAN operators since the beginning of this year by shortening the terms of the agreements and increasing the speeds offered by them. **The LAN operators' immediate response was the increase in the speeds within the same price margins.**

The operators having received license for WiMax develop their networks in the big cities and the densely populated regions. And indeed these are the areas with the greatest concentration of customers, where the same capital investments can be used for servicing a larger number of clients rather than in the more scarcely populated regions. **At the same time however, the LAN operators there provide higher speed access at even a lower price. This means that a migration of clients from LAN networks to WiMax operators is not to be expected.**

At this stage of development of broadband access there is rather a migration of customers from the cable operators' networks to LAN operators. A process of completing the consolidation similar to the one that happened to the cable operators is not expected shortly. The reason is that unlike the cable operators the maximum level of penetration has not been reached yet and there are different ways for increasing the number of customers either by building their own network on the territory where there has already been built a local operator's network or by bypassing the respective region without being necessary for this local provider to be bought at any cost.

Пазарна ситуация на широколентовия интернет достъп

Откъс от работния документ към 13-я Доклад за единен европейски телекомуникационен пазар (COM (2008(153)).

The broadband penetration rate in Bulgaria is still the lowest in the EU (7.56% in January 2008, compared to 4.48% in January 2007) and far below the EU27 average (20.04%). There is competition between platforms in the broadband market.

Cable operators as well as local area networks (LANs) and the fixed incumbent are present in this market. Bulgaria had 580 226 broadband lines, 28.3% of which were DSL lines, in January 2008, a slight increase from 27.5% in January 2007. The incumbent had 99% of the DSL market share in January 2008 (it was 100% one year ago).



71.8% of broadband lines are non-DSL (cable, satellite, wireless local loop, PLC, FTTH) and the only DSL offer in the market comes from the incumbent. The incumbent has 28% of the broadband market share.

LAN, RLAN, VLAN and MAN technologies, which are used mostly by alternative operators, have 55 % market share among the broadband technologies. Cable operators had 15.80% as at January 2008.

There is no investment in LLU and only two lines are currently unbundled (shared access). Despite the interest of alternative operators in a bitstream offer, as a first tool to start offering broadband services, no agreements had been signed by the end of 2007. The controversial point was the high wholesale prices, which created a price-squeeze effect.

