



Macedonian Internet Exchange Point Matrix

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MARnet



Background

- 🌐 **Macedonian academic research network-MARnet**
 - 🌐 MARnet is part of “Ss. Cyril and Methodius ” state university in Skopje – till 2010
 - 🌐 The only one which is connected to MARnet is the university of “Ss. Cyril and Methodius ”
 - 🌐 In order to connect all the universities to MARnet it is founded by state Law
 - 🌐 2011 Marnet is established as a independent public institution

Background

according to Agency for electronic communications(AEC)




Internet penetration

-  Broadband penetration (fixed broadband subscribers, w/o 3G mobile subscribers) = 12.87% (263.713 subscribers from about 2.060.000 population in R.M.)
-  Broadband penetration (only 3G mobile subscribers) = 18.79 % (384.897 subscribers from 2.048.619 population in R.M.)


Number of ISP-s

-  84 ISP Operators, including all three mobile operators provinding narrowband connections

Key players

-  Macedonian Government in 2008 adopted the National Strategy for Development of Electronic Communications with Information Technologies which. It was provided for initiating a dialogue between all stakeholders (private sector, state and MARnet) for establishing the Macedonian Internet exchange point within the MARnet as an independent institution.
-  Ministry of Transport and Communications in 2009 and 2010 regarding the establishment of Matrix, initiated dialogue and held meetings with relevant government institutions: Ministry of Information Society, Ministry of Education and Science, Agency for Electronic Communications, MARnet and all relevant ISPs.
-  The attitude of all parties was that in Macedonia as soon as possible Matrix should be established within MARnet.

Why Internet XP in Macedonia

-  The establishment of the Macedonian internet exchange point will provide an overall economic development of society, development of competition, reducing prices for Internet access, entry of foreign providers, increasing the overall safety and reliability in using the Internet, or put in a word, it's a strong driver for information society development in the RM.

Why Internet XP in Macedonia

- 🌐 Macedonia will gain national recognition on the world map of national public access points for Internet traffic exchange.
- 🌐 Better regional connectivity, increase of overall security and privacy in Internet use (eg buying and selling via the Internet), optimization and rationalization of Internet bandwidth and network resources, low transmission delay, reliability, opening new opportunities and new content offering.
- 🌐 Entry of new international ISPs and their establishment in the Republic of Macedonia.

Why Internet XP in Macedonia

- 🌐 Development of effective and efficient competition in the market offering access to the Internet, significantly reducing total cost of existing ISPs that will result in reduced prices for using the Internet.
- 🌐 The emergence of new domestic Internet providers specialized in certain services and content.
- 🌐 Better conditions for the provision of Internet to economically unattractive areas in the country (rural, remote areas etc.).
- 🌐 Reduction of traffic that transits to international Internet links that will further contribute to reducing the cost of domestic providers.

Current status

- 🌐 In July 2011 MARNet in cooperation with the Ministry of Information Society a working group is formed with representatives from the Ministry of Transport and Communications, the Agency for Electronic Communications, Ministry of Education and the relevant ISP-s.
- 🌐 The working group prepared an action plan to build **MatrIX**
- 🌐 **Funds to build MatrIX already provided.**

Action plan

Activity	Begin	Ending
Preparation of tender documentation	October 2011	January 2012
Call for tender	February 2012	May 2012
Execution of the contract	May 2012	September 2012
Development of rules of procedure, contracts and establishment of the Council of Matrix	October 2011	September 2012

Organisational structure of MatrIX

- 🌐 MatrIX on a neutral and non-profit basis to provide benefits for its members.
- 🌐 The management of MatrIX is collective and it is realized through regular meetings.
- 🌐 MARnet adopts rules of procedure of MatrIX's work .
- 🌐 The manager of MARnet is responsible for the organization and operation of Matr IX.
- 🌐 The Council of MatrIX will be constituted with representatives of all participating ISP – members and Manager of MARnet.
- 🌐 MARNet is responsible for creating and maintaining the web site of Matr IX.

Council of MatrIX

- 🌐 Adopt an act which defines MatrIX's membership requirements.
- 🌐 Adopt an act which defines the technical specifications of the services of MatrIX.
- 🌐 Discuss regarding the functioning of MatrIX and proposes to MARnet changes of a technical nature related to the work of MatrIX.

MatrIX membership

- 🌐 MatrIX is available to entities that qualify for membership, and intend to exchange traffic based on peering contracts.
- 🌐 Legal entity acquires membership in MatrIX, meeting the conditions laid down in the Act which defines the requirements for membership and with signing a contract with MARnet.
- 🌐 The manager of MARnet determine whether the applicant meets the requirements for membership.

Determination of the prices

ensuring the principle of transparency and non-profit

- 🌐 All prices for Matr IX services should be based on the principle of non-profit.
- 🌐 MARnet determines the prices for access of new members and monthly fee, based on the Act which defines the technical specifications of the services of Matrix.
- 🌐 For the pricing, MARnet should consults the Council of Matrix.
- 🌐 The pricelist should be published on the Matrix web site.

Determination of the prices

- 🌐 After it's constitution, the Council of MatrIX should decide whether the Rules of Procedure of the Matr IX will determine that the Internet traffic originating from their network members will be exchanged free of charge (equally shared costs) or will be subject of editing in bilateral peering agreements.

Technological structure

- **Matrix is a separate LAN (which provides exchange of traffic between members of Matrix) and should be placed in special conditions at the MARnet in Skopje.**
- **Interconnection on IP level and the exchange of traffic between members of Matrix will be realized on the basis of concluded agreements and on the basis of appropriate configuration of their equipment.**
- **Matrix does not offer services for connections on IP level, only connections on LAN level.**
- **Member of Matrix realizes the exchange of traffic by setting up its own adequate equipment and joining the same to Matrix LAN from one side, and with its own network through a telecommunications link on the other.**

**Thank you for
your attention**