IPV6 Migration
Towards a National Roadmap for IPV6 transition

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University of Montenegro (UoM)

- Academic network is one of the largest WAN networks in Montenegro that provides private and public services for over 20 000 users.

- UoM network is based on fiber optic infrastructure. Connected to GEANT- multi- gigabit pan-European data communications network via fiber optic link of 1Gbps.

- Center of Information System (CIS) is the main network operation center (NOC) of the academic network.

- Located in 6 cities accross Montenegro: Podgorica, Nikšić, Cetinje, Budva, Kotor, Bjelo Polje.

- Every unit of University of Montenegro has local computer networks connected to CIS, and through CIS to academic network and Internet.

- At present, 95% of research and education institutions is connected (faculties, institutes, student campus, libraries and National Academy of Siences and Arts – CANU)

Public services

- Internet access,
- VPN,
- DNS,
- LDAP,
- Web hosting,
- E-Mail hosting,
- Video Conference,
- E-Learning,
- CA,
- LIR (Local Internet Registry) RIPE NCC,
- Network equipment management and service monitoring.

Private services

- Student register,

- Staff register,

- Financial accounting and bookkeeping,

- WEB access to student register – SNIKE,

- Student accounting,

- Portal for student's surveys that are part of the procedure for quality assurance at University,

- Academic grid cluster.

Government of Montenegro

- University of Montenegro and Center of Information Systems are recognized and selected by Government of Montenegro as the best solution for the implementation of two very important projects:
  - technical administrator of country code top level domain (ccTLD) for Montenegro (.me),
  - Montenegro Internet Exchange Point - MIXP (designed, implanted and configured the first IXP in Montenegro).

RIPE NCC

- UoM have following resources
  - University
    - ASN   AS40981
    - IPv4   89.188.32.0/19   04.05.2006.
    - IPv6   2a02:4280::/32   11.07.2011.
  - MIXP
    - ASN   AS200608
    - IPv4   185.1.44.0/24   26.05.2015.
    - IPv6   2001:7f8:22::/48   26.05.2015 .
- Sponsored Resources
  - Domen d.o.o
    - ASN   AS47451
    - IPv4   195.242.169.0/24
    - IPv6   2001:678:408::/48

Obstacles to implement IPv6

- Most of the network equipment old and do not support IPv6.

- Lack of knowledge.

- Needed:
  - training for employees,
  - plan for implementation and
  - support from relevant bodies EKIP, RIPE NCC, ITU, GEANT…

Why implement IPv6

- Increased Capacity and everything can be interconnected.
- Elimination of NAT to extend address space from 32 to 128 bits. Peer-to-peer networks are easier to create and maintain, and services such as VoIP and Quality of Service (QoS) become more robust.
- More efficient routing without fragmenting packets.
- Built-in Quality of Service (QoS) that distinguishes delay-sensitive packets.
- Network layer security built-in (IPsec).
- Stateless address auto-configuration for easier network administration.
- Improved header structure with less processing overhead.

Conclusion

- Ready and willing to be a part of initiative for implementation of IPv6 in Montenegro.

- **If you are not part of solution, you are part of the problem!**

Thank you for your attention!!!

Questions?

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