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HAKOM



FER

# Findings of the Public Consultation on Network Neutrality in Croatia:

## Report and Analysis

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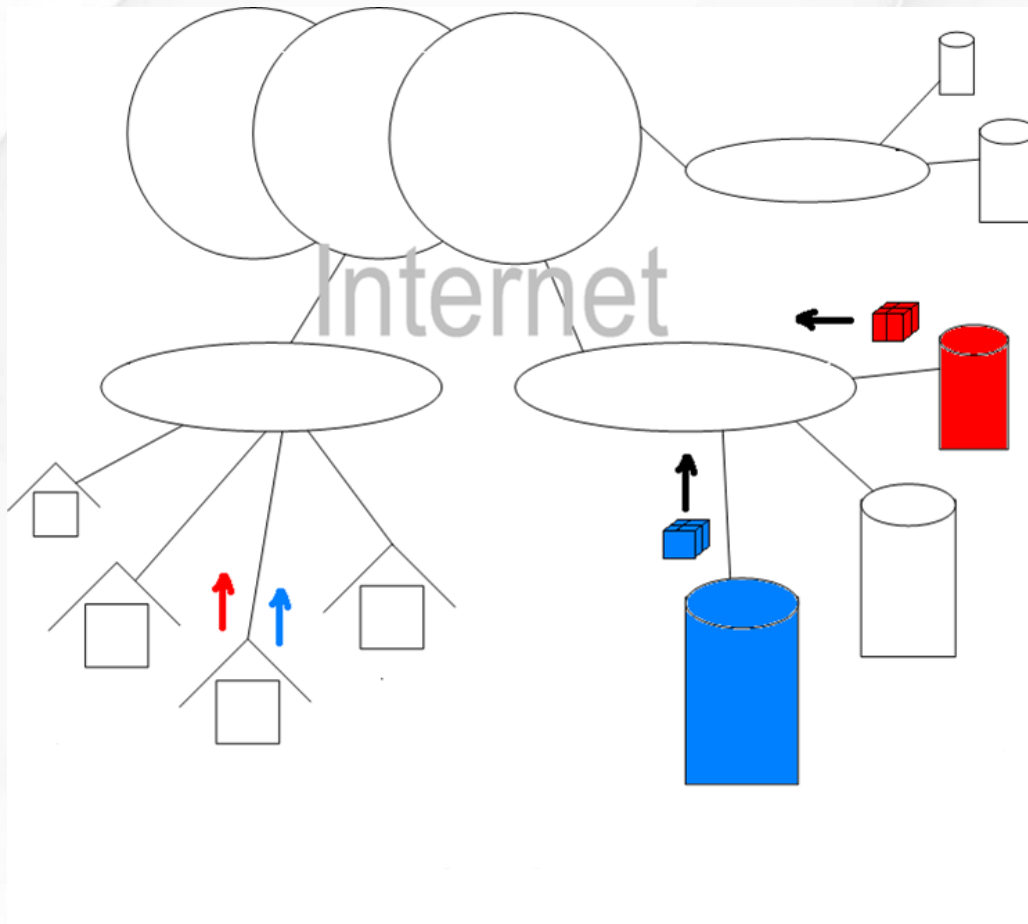
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*Maja Matijašević, University of Zagreb, Faculty of Electrical Engineering  
and Computing*

- What is Network Neutrality?
- History
- Main issues
- Public Consultations in Croatia – Q&A
- Conclusion



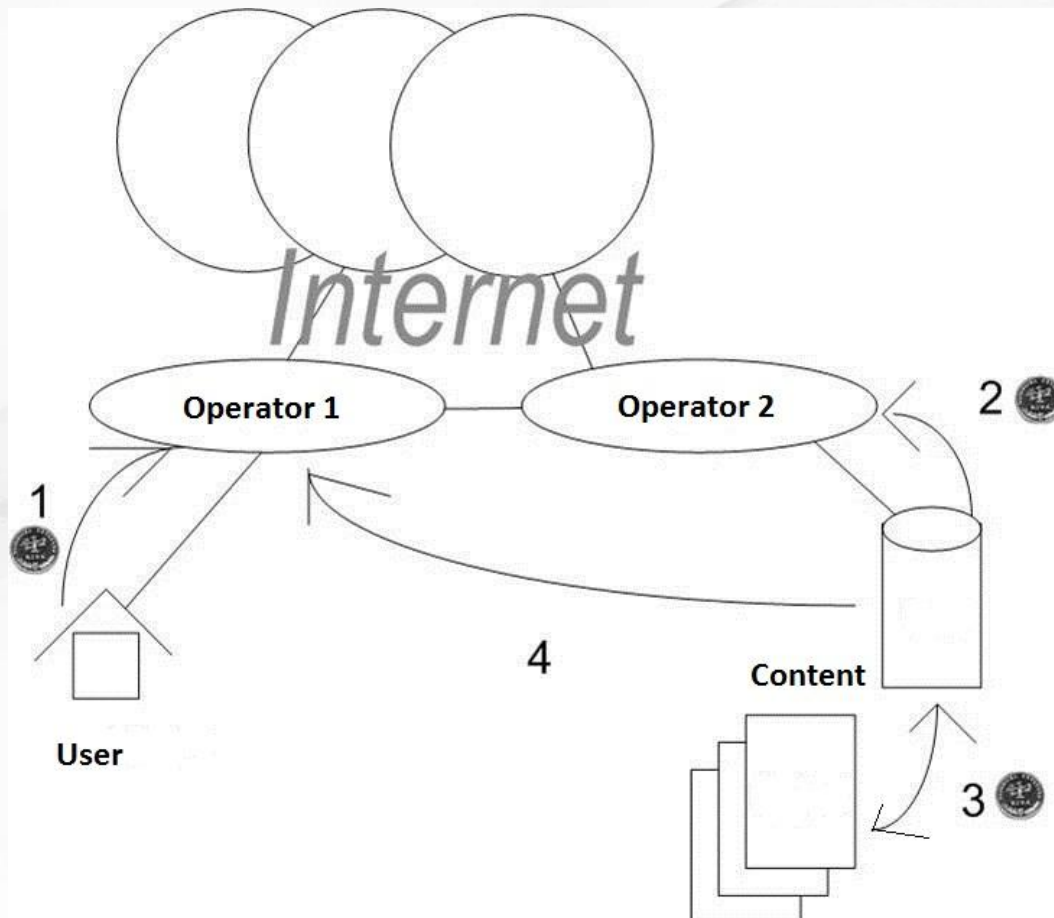
# What is Network Neutrality?



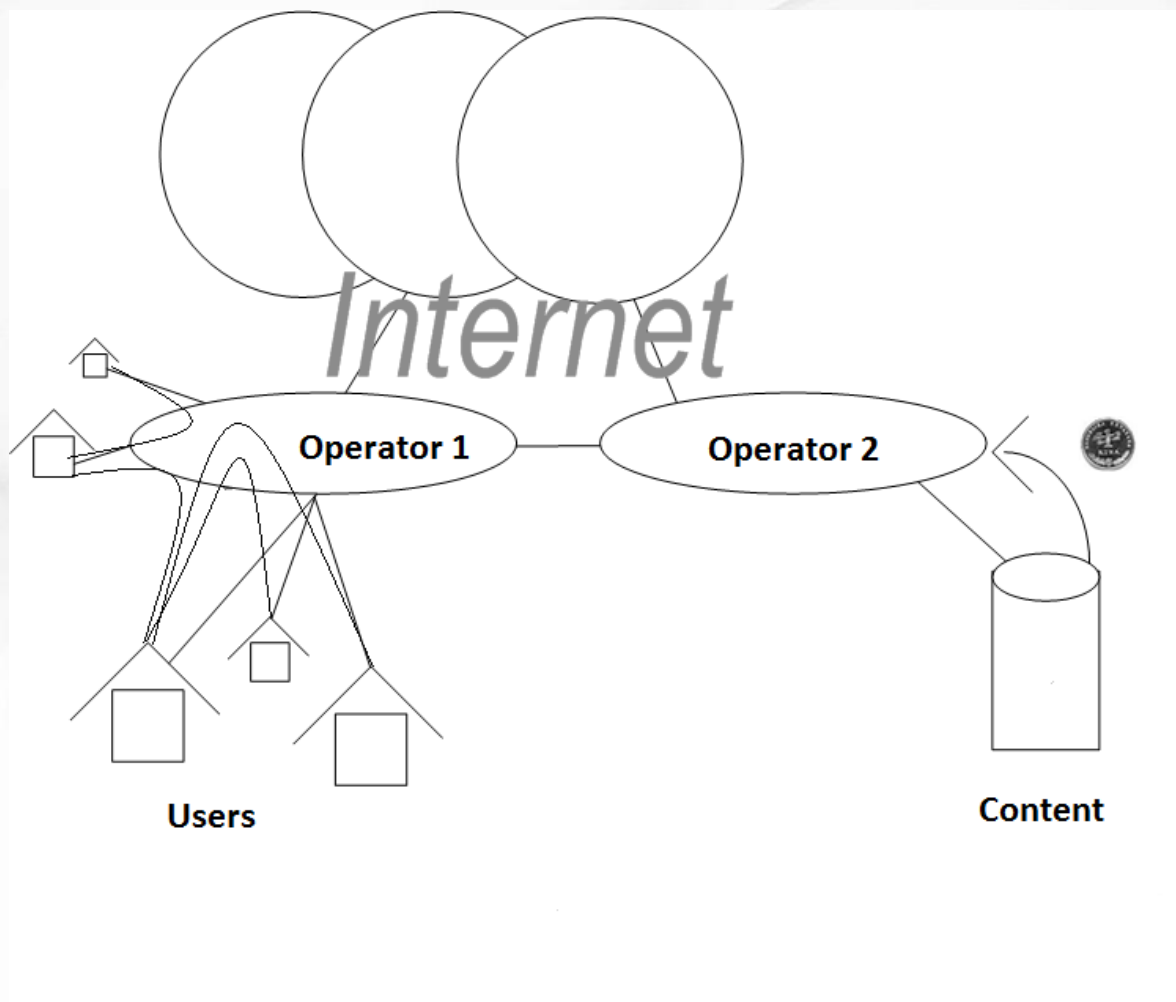
- User:
  - Can access content of choice
  - Can choose the applications and devices
  - Can choose access provider
- Service provider (ISP):
  - May not discriminate content and applications
  - Must provide transparent information to user about traffic management practice

- Discussions started in the USA in 2004.
- Regulatory Reform 2009 and Commission Declaration on NN
- Few EU NRAs had produced some reports and/or guidelines related to the Network Neutrality before 2010. (Norway, Denmark, Sweden)
- February 2010. BEREC project team on Network Neutrality established
- HAKOM participates in the BEREC NN project team.
- France: Public consultations from May 20th 2010 to July 2nd 2010
- UK: Public consultations from June 24th 2010 to September 9th 2010
- European Commission: Public consultations from June 30th 2010 to September 30th 2010
- Croatia:
  - ❖ Public consultation from January 15th 2011 to February 28th 2011
  - ❖ FER and HAKOM joint work on Network Neutrality under „Looking to the Future Project”

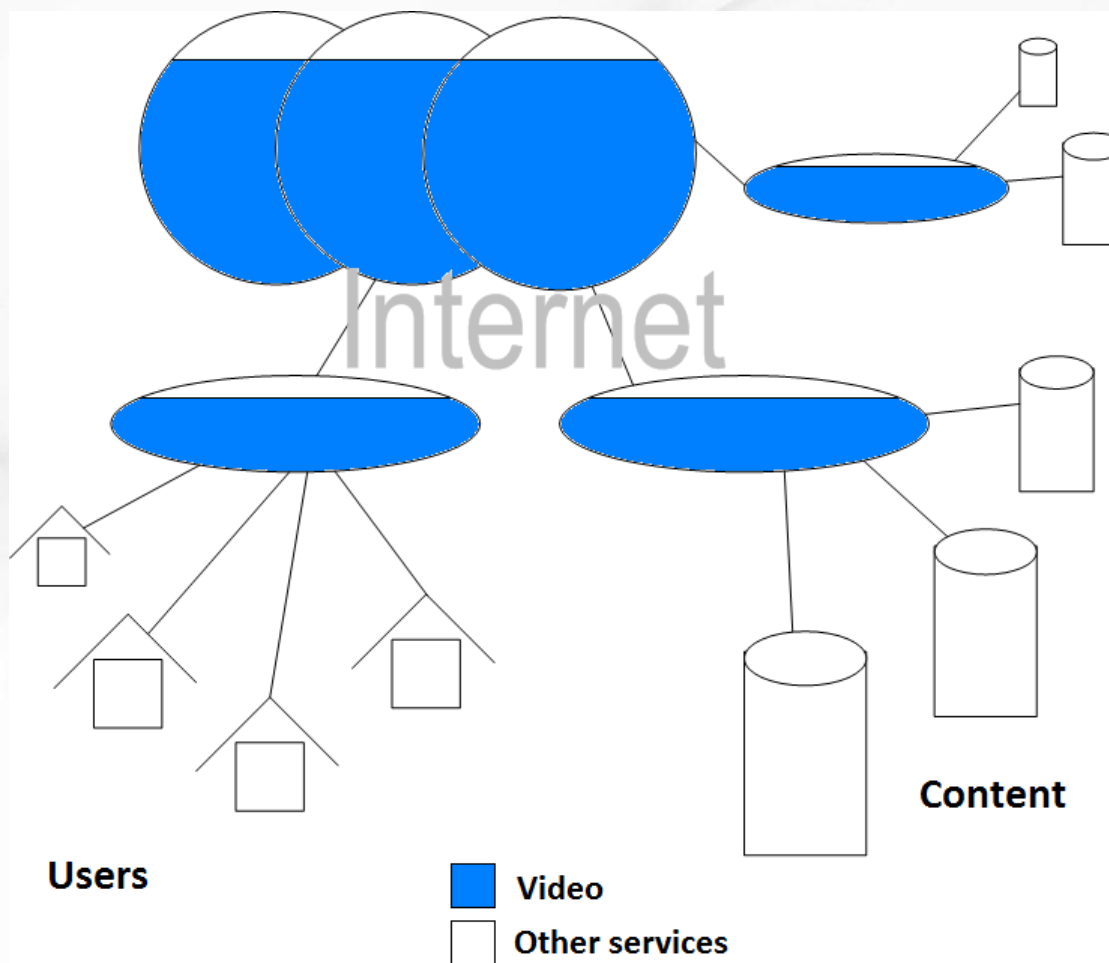
# Main issues – Payments Overview



# Main issues – Free file sharing

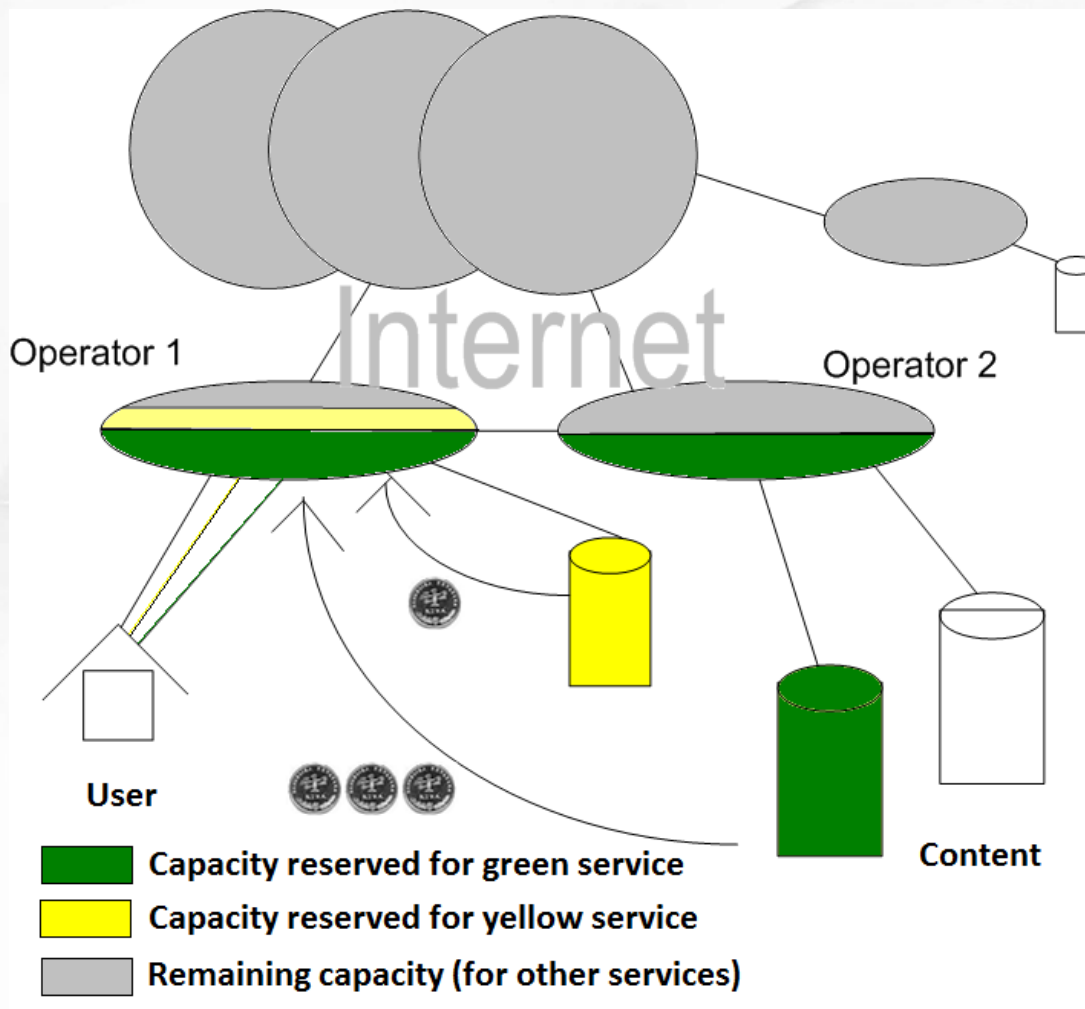


# Main issues – Rapid Increase of Video Traffic





# Main issues – Managed Services







# Different traffic characteristics

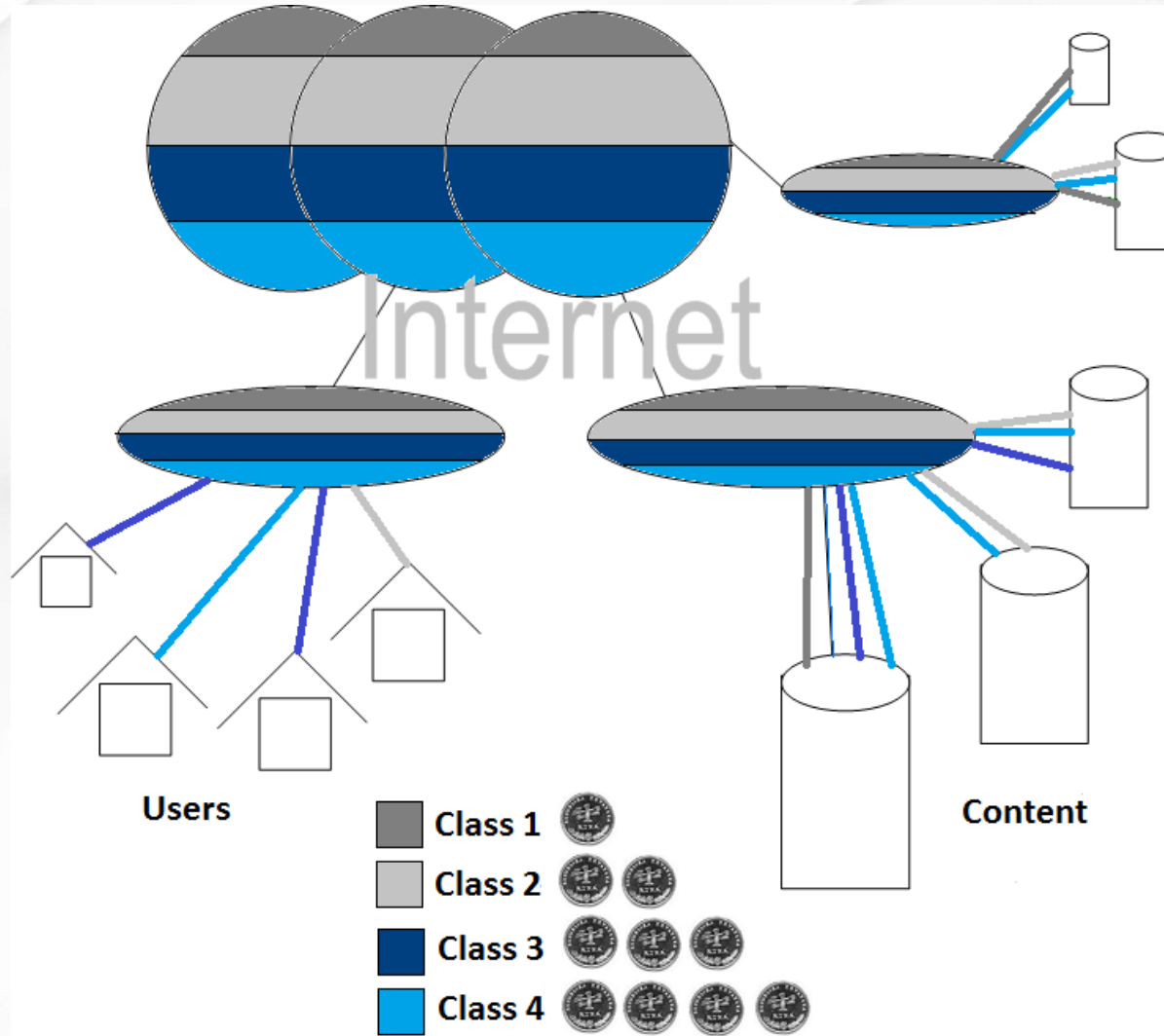


Application	Delay	Jitter	Capacity
E-mail	+	+	+
File transfer	+	+	++
Web access	++	+	++
Internet games	+++	++	+
Video on demand	+	+++	+++
VoIP	+++	+++	+
Video konference	+++	+++	+++

+ low    +++ high



# Main issues





- Lasted from January 15th to February 28th 2011
- Answers received:
  - ❖ End users (2 answers)
  - ❖ End users (1 collective response)
  - ❖ ISPs (1 answer)
  - ❖ Telecom vendors (1 answer)
  - ❖ Telecom operators – Fixed networks/ISPs (1 answer)
  - ❖ Telecom operators – Mobile networks/ISPs (1 collective answer)
  - ❖ Other parties – NGO (1 answer)

Is there currently a problem with neutrality in the Republic of Croatia? If you think there are problems, please give some examples.

Participant	Y/N	Examples/Comments
End users	Yes	<ul style="list-style-type: none"><li>• No clear examples</li></ul>
Other parties	Yes	<ul style="list-style-type: none"><li>• “Connection sharing” problems at Bnet?</li><li>• “Lack of definition of the Internet access service”</li><li>• “Some throttling of p2p”</li><li>• General transparency problems</li></ul>
Equipment vendors	No	
Operators	No	<ul style="list-style-type: none"><li>• “Users can vote with their feet”</li><li>• See no problems</li></ul>

What problems related to network neutrality can we expect in the future?

Participant	Examples/Comments
End users	<ul style="list-style-type: none"><li>• Specialized services prevailing</li><li>• Increased load,</li><li>• Increased TM</li><li>• Reduced quality and speed</li></ul>
Other parties	<ul style="list-style-type: none"><li>• Risk of problems if no clear rules</li><li>• Risk of absolute control over information channel by ISP</li><li>• Risk of specialized services eating up all the capacity</li><li>• Lack of choice of services</li></ul>
Equipment vendors	<ul style="list-style-type: none"><li>• General network capacity problems</li></ul>
Operators	<ul style="list-style-type: none"><li>• General network capacity problems</li><li>• TM vs Capacity increase</li></ul>



How much freedom should operators have in the application of traffic management?

Participant	Examples/Comments
End users	<ul style="list-style-type: none"><li>• Limited in order to protect neutrality</li><li>• Very precisely defined</li></ul>
Other parties	<ul style="list-style-type: none"><li>• Limited</li><li>• Rules should exist</li><li>• Limited and proportional, non-discriminatory and relevant</li></ul>
Equipment vendors	<ul style="list-style-type: none"><li>• Should be free to use all TM methods</li></ul>
Operators	<ul style="list-style-type: none"><li>• Max. Freedom as long as competition rules are respected</li><li>• Need it to be able to offer differentiated services</li></ul>

Do customers in Croatia receive enough detailed information on application of traffic management methods that affect the quality of service?

Participant	Y/N	Examples/Comments
End users	No	<ul style="list-style-type: none"><li>• Confusion through packages</li><li>• Clear information needed</li></ul>
Other parties	No	<ul style="list-style-type: none"><li>• Transparency must be enhanced</li><li>• Detailed „Service Description” needed</li></ul>
Equipment vendors	-	<ul style="list-style-type: none"><li>• -</li></ul>
Operators	Yes	<ul style="list-style-type: none"><li>• If TM does not negatively influence QoE, no need to inform users</li></ul>

Are you aware of traffic management practice where content of a certain content provider is given preferential treatment?

Participant	Examples/Comments
End users	<ul style="list-style-type: none"><li>• Positive discrimination Free Facebook over VIPnet</li></ul>
Other parties	<ul style="list-style-type: none"><li>• -</li></ul>
Equipment vendors	<ul style="list-style-type: none"><li>• -</li></ul>
Operators	<ul style="list-style-type: none"><li>• Not at the moment. Maybe in the future if there is such demand on the market.</li></ul>



- Will the relations between participants on the market ensure the preservation of neutral and open character of the Internet? If not, what should be changed?

Participant	Y/N	Examples/Comments
End users	No	<ul style="list-style-type: none"><li>Protect network neutrality!</li></ul>
Other parties	No	<ul style="list-style-type: none"><li>It is still not easy to switch operators</li></ul>
Equipment vendors	Yes	<ul style="list-style-type: none"><li>-</li></ul>
Operators	Yes	<ul style="list-style-type: none"><li>There is enough competition</li></ul>

- Do you think that existing legislation is sufficient to solve issues related to network neutrality?

Participant	Y/N	Examples/Comments
End users	No	
Other parties	No	<ul style="list-style-type: none"><li>It is not clear what measures would be useful and not cause more problems – careful evaluation is need</li></ul>
Equipment vendors	Yes	<ul style="list-style-type: none"><li>2009 regulatory framework is sufficient</li></ul>
Operators	Yes	<ul style="list-style-type: none"><li>Any additional regulation would make things worse</li></ul>

In your opinion, how could transparency towards the customers be improved?

Participant	Examples/Comments
End users	<ul style="list-style-type: none"><li>• Clear information on the packages</li><li>• Packages must be comparable</li></ul>
Other parties	<ul style="list-style-type: none"><li>• Transparency is the key</li><li>• Internet access service needs to be defined</li><li>• Product specification data needs to be mandated, including TM and limitations</li></ul>
Equipment vendors	<ul style="list-style-type: none"><li>• Transparency the key</li><li>• Detailed info needed</li></ul>
Operators	<ul style="list-style-type: none"><li>• Transparency on TM only when it leads to degradation of QoE</li></ul>

Should minimum quality of service for the internet access be defined? If yes, how should it be controlled?

Participant	Examples/Comments
End users	<ul style="list-style-type: none"><li>-</li></ul>
Other parties	<ul style="list-style-type: none"><li>Yes, it could be introduced and controlled with available technology.</li></ul>
Equipment vendors	<ul style="list-style-type: none"><li>Only once the access to Internet becomes part of the Universal service</li></ul>
Operators	<ul style="list-style-type: none"><li>Not feasible and not needed at the moment</li><li>Market forces will preserve the QoS</li></ul>

- **Two opposing ideas groups on the way forward coming from the two interest groups, as in the EU**
- **Very careful evaluation of the possible regulatory measures needed!**
  - **Protect investments!**
  - **Protect innovation!**
  - **Promote competition**

**If (T + M) not enough  
=>  
Consider min QoS**

**T=Transparency  
M=Market**



**Thank you!**