TE000013

# QoS at ADSL/ADSL2+/VDSL2

## Scope:

The document describes the mechanism of QoS at ADSL/ADSL2+/VDSL2 port of a networking device. The original version is English.

## Applicability:

This specification is a valid document issued by the company O2 Czech Republic a.s.

## Process:

Zajištění služby - broadband a hlasové služby

| Document Garant | | Process Owner | | Approbator | |
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# 1 Initial provisions

## 1.1 Scope

The purpose of the document is to describe mechanism of QoS at ADSL/ADSL2+/VDSL2 port of a networking device. The original version of this document is English.

## 1.2 Validity and obligation

This document is a valid recommendation of the company O2 Czech Republic a.s. specially for supplier and producer end equipment. This document shall be read in context with next internal and supporting document, listed in part 1.6 for understanding featured parameters and functionalities and actual network settings shall be taken into account.

## 1.3 Document history

Example:

| Ver. | Date | Title | Note |
|---|---|---|---|
| 1. | 05/2008 | QoS at ADSL | New document |
| 2. | 04/2012 | QoS at ADSL | Revision |
| 3. | 08/2012 | QoS at ADSL/ADSL2+/VDSL2 | Revision |
| 4. | 09/2018 | QoS at ADSL/ADSL2+/VDSL2 | Revision |

## 1.4 Definitions

- not used -

## 1.5 Abbreviations

| | |
|---|---|
| **ADSL** | Asymmetrical Digital Subscriber Line |
| **ADSL2+** | Asymmetrical Digital Subscriber Line - extends the capability - ITU G.992.5 |
| **VDSL** | Very High Speed Digital Subscriber Line Line – ITU-T G.993.1 |
| **VDSL2** | Very High Speed Digital Subscriber Line - ITU-T G.993.2 |
| **DiffServ** | Differentiated Services |
| **IETF** | Internet Engineering Task Force |
| **IP** | Internet Protocol |
| **QoS** | Quality of Service |
| **TCP/IP** | Transmission Control Protocol/Internet Protocol |
| **RTP** | Real Time Protocol |
| **UDR** | User Datagram Protocol |
| **VoG** | Voice Gateway |
| **VoIP** | Voice over IP |

## 1.6 Reference

### 1.6.1 Related internal documents

TR000015 - ADSL2+ Universal Customer Splitter - (int. publ. O2 Czech Republic a.s.)

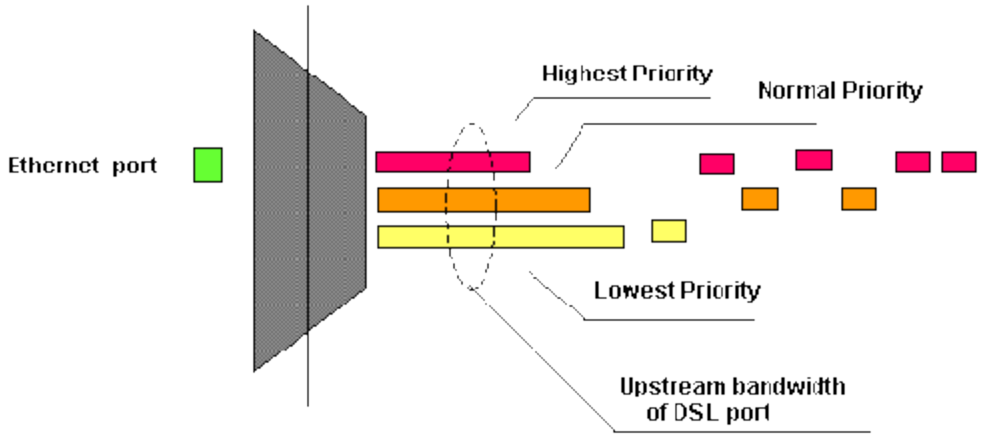
### 1.6.2 Related external documents

| | |
|---|---|
| IETF RFC 791 | Internet Protocol |
| IETF RFC 1878 | Variable Length Subnet Table for Ipv4 |
| IETF RFC 2474 | Definition of the Differentiated Services Field (DS Field) in the IPv4 and IPv6 Headers |
| IETF RFC 2475 | An Architecture for Differentiated Services |
| IETF RFC 2597 | Assured Forwarding PHB Group |
| IETF RFC 3140 | Per Hop Behaviour Identification Codes |
| IETF RFC 3246 | An Expedited Forwarding PHB |
| IETF RFC 4594 | Configuration Guidelines for DiffServ Service Classes |

# 2 IP QoS in Upstream Direction - Priority Scheduling

## 2.1 Strict priority

Strict priority is recommended for queuing of the scheduling mechanism at ADSL/ADSL2+/VDSL2 port of a networking device. Scheduler is servicing the Highest Priority queue. After servicing of IP packet, the scheduler re-scans IP packet to be sent starting from the Highest Priority queue.




## 2.2 Priority mapping

VoIP speech channel should be sent through the Highest Priority queue, VoIP signalling channel should be serviced with Normal Priority queue. Remaining the Lowest Priority queue should be used for non-priority traffic.

## 2.3 Classification and DSCP Marking

Network traffic entering QoS domain is subjected to priority classification and conditioning. Traffic may be classified to differentiate priority by many different parameters, such as source address, destination address, source port, destination port etc.

## 2.4 VoIP speech Channel DSCP marking

IP traffic that is bearing IP/UDP/RTP VoIP speech channel should be marked with EF DSCP pattern to assure correct processing within DiffServ domain. Binary code of EF DSCP is 10111. It is recommended to mark IP packet at Voice Gateway.

## 2.5 VoIP signalling Channel DSCP marking

IP traffic that is bearing VoIP SIP signalling channel should be marked with CS3 DSCP pattern to assure correct processing within DiffServ domain. Binary code of the EF is 011000. It is recommended to mark IP packet at Voice Gateway.

# 3 Conclusive statements and/or temporary measures (the last but one or the last numbered chapter)

- not used -

# 4 Annexes

- not used -

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