3GPP FS_TyTrac: Media Service Description

Dear Media Service colleagues , as part of its ongoing Work Item on “Typical Traffic Characteristics of Media Services” 3GPP SA4 is collecting information about deployed and possibly emerging media services over 3GPP networks. We would appreciate your input according to the below template. For more details on the study item, please refer to SP-180666: New SID on Typical Traffic Characteristics of Third-Party and Operator Media Services (FS_TyTraC). http://www.3gpp.org/ftp/tsg_sa/TSG_SA/TSGS_81/Docs/SP-180666.zip

If you have any questions, please feel free to contact the Rapporteur of the work item as provided in the above referenced document.

Alternatively to this online form, you may also fill in the template provided in the output document and return it to the Rapporteur of the work item as provided in the above referenced document.
http://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_100_Kochi/Docs/S4-181204.zip

Email address *

ali.begen@networked.media

Service and Submission Overview

Media Service Name *

Comcast VIPER - Xfinity

Date of Submission *

MM DD YYYY

10 / 26 / 2018

Source of Submission (Name, Company) *

Ali C. Begen, Technical Consultant, Comcast

Description of Service *

OTT services and managed IP video services

Additional Information

Service Categorization

Please help us to categorize the service

Type of Service *

- (●) Operator Service
- ( ) Third-Party Service
- ( ) Mixed Operator/Third-Party Service
- ( ) Other: _____

Status of Service *

[e.g. planned, PoC, trialed, commercialy deployed]

Commercially deployed

Category *

- [x] On-demand Streaming
- [x] Live Streaming
- [x] Broadcast
- [x] Download and Play
- [ ] Interactive
- [ ] Gaming
- [ ] Conversational
- [ ] Other: _____

Used Technologies

Please provide an overview on the used technologies

What codecs do you use? *

Please provide video and audio codecs in use, preferably with the profiles and levels.

H264 (main and high), AAC, Dolby AC-3

What are the media types in use? *

Video formats (e.g. HD, UHD, HDR), Audio Formats (e.g., stereo, multi-channel, Next Generation audio, etc.)

HD, UHD, stereo, multichannel.

What media protocols and containers are in use? *

- [x] DASH
- [x] HLS
- [ ] CMAF
- [ ] ISO Base Media File Format
- [ ] MP4
- [x] MPEG-2 TS
- [ ] WebM
- [ ] RTP
- [ ] RTMP
- [ ] Other: _____

What are the transport protocols in use? *

- [x] HTTP/1.1
- [ ] HTTP/2.0
- [x] TCP/IP
- [ ] FLUTE/UDP
- [ ] QUIC
- [ ] UDP
- [ ] Other: _____

What type of platforms are targeted? *

- [x] iOS app
- [x] Android app
- [x] Browser
- [x] set-top box
- [x] TV Set
- [ ] game consoles
- [x] others

Other Technologies

for example: DRM,. interactivity frame work, QoE and analytics, etc.

DRM, analytics

Characteristics and Statistics

Do you have any deployment statistics?

[e.g. number of clients, traffic volumes]

# of clients is in the order of millions. # of live channels is > 13K.

Do you have any traffic characteristics?

KPIs: [e.g. IP level bitrates, minimum and average bitrates, adaptive bitrate ranges, latencies, tune-in times,]

Average streaming bitrate to settops is around 4-6 Mbps. For the mobile apps and browsers it is a bit less. 4K content is around 10-15 Mbps. Average segment duration is about 6 seconds.

Potential Mapping to 5QIs *

Potential mapping to 5QIs (5G QoS Identifier – See TS 23.501 Clause 5.7.4 and Table 5.7.4-1 copied below): [which 5QIs among 1, 2, 3, 4, 6, 7, 8, 9, 80, e.g. 6, "video buffered streaming and TCP based"] fits ?]

Table 5.7.4-1: Standardized 5QI to QoS characteristics mapping

5QI Value	Resource Type	Default Priority Level	Packet Delay Budget	Packet Error Rate	Default Maximum Data Burst Volume (NOTE 2)	Default Averaging Window	Example Services
1	GBR (NOTE 1)	20	100 ms	10^{-2}	N/A	2000 ms	Conversational Voice
2		40	150 ms	10^{-3}	N/A	2000 ms	Conversational Video (Live Streaming)
3		30	50 ms	10^{-3}	N/A	2000 ms	Real Time Gaming, V2X messages Electricity distribution – medium voltage, Process automation - monitoring
4		50	300 ms	10^{-6}	N/A	2000 ms	Non-Conversational Video (Buffered Streaming)
65		7	75 ms	10^{-2}	N/A	2000 ms	Mission Critical user plane Push To Talk voice (e.g., MCPTT)
66		20	100 ms	10^{-2}	N/A	2000 ms	Non-Mission-Critical user plane Push To Talk voice
67		15	100 ms	10^{-3}	N/A	2000 ms	Mission Critical Video user plane
75		25	50 ms	10^{-2}	N/A	2000 ms	V2X messages
5	Non-GBR (NOTE 1)	10	100 ms	10^{-6}	N/A	N/A	IMS Signalling
6		60	300 ms	10^{-6}	N/A	N/A	Video (Buffered Streaming) TCP-based (e.g., www, e-mail, chat, ftp, p2p file sharing, progressive video, etc.)
7		70	100 ms	10^{-3}	N/A	N/A	Voice, Video (Live Streaming) Interactive Gaming
8		80	300 ms	10^{-6}	N/A	N/A	Video (Buffered Streaming) TCP-based (e.g., www, e-mail, chat, ftp, p2p file sharing, progressive video, etc.)
9		90					
69		5	60 ms	10^{-6}	N/A	N/A	Mission Critical delay sensitive signalling (e.g., MC-PTT signalling)
70		55	200 ms	10^{-6}	N/A	N/A	Mission Critical Data (e.g. example services are the same as QCI 6/8/9)
79		65	50 ms	10^{-2}	N/A	N/A	V2X messages
80		68	10 ms	10^{-6}	N/A	N/A	Low Latency eMBB applications Augmented Reality
82	Delay Critical GBR	19	10 ms (NOTE 4)	10^{-4}	255 bytes	2000 ms	Discrete Automation (see TS 22.261 [2])
83		22	10 ms (NOTE 4)	10^{-4}	1358 bytes (NOTE 3)	2000 ms	Discrete Automation (see TS 22.261 [2])
84		24	30 ms (NOTE 6)	10^{-5}	1354 bytes	2000 ms	Intelligent transport systems (see TS 22.261 [2])
85		21	5 ms (NOTE 5)	10^{-5}	255 bytes	2000 ms	Electricity Distribution-high voltage (see TS 22.261 [2])

NOTE 1: A packet which is delayed more than PDB is not counted as lost, thus not included in the PER.
NOTE 2: It is required that default MDBV is supported by a PLMN supporting the related 5QIs.
NOTE 3: This MDBV value is set to 1354 bytes to avoid IP fragmentation for the IPv6 based, IPSec protected GTP tunnel to the 5G-AN node (the value is calculated as in Annex C of TS 23.060 [56] and further reduced by 4 bytes to allow for the usage of a GTP-U extension header).
NOTE 4: A delay of 1 ms for the delay between a UPF terminating N6 and a 5G-AN should be subtracted from a given PDB to derive the packet delay budget that applies to the radio interface.
NOTE 5: A delay of 2 ms for the delay between a UPF terminating N6 and a 5G-AN should be subtracted from a given PDB to derive the packet delay budget that applies to the radio interface.
NOTE 6: A delay of 5 ms for the delay between a UPF terminating N6 and a 5G-AN should be subtracted from a given PDB to derive the packet delay budget that applies to the radio interface.

NOTE 1: For Standardized 5QI to QoS characteristics mapping, the table will be extended/updated to support service requirements for 5G, e.g. ultralow latency service.

NOTE 2: It is preferred that a value less than 64 is allocated for any new standardised 5QI of non-GBR Resource Type. This is to allow for option 1 to be used as described in clause 5.7.1.3 (as the QFI is limited to less than 64).

- [ ] 1
- [ ] 2
- [ ] 3

- [ ] 4
- [x] 6
- [ ] 7
- [x] 8
- [ ] 9
- [ ] 80
- [ ] Other: _____

Additional Information

References

[list of public documentation in support of the present description e.g. a URL, a scientific publication, an industry or standards organization specification]

Not very inclusive, but see https://2018.packet.video/wp-content/uploads/sites/6/2017/12/PV2018KeyNote.pdf

Any additional information

You may contact me or other VIPER guys to get more detailed info.

Additional Information

Consent

Do you permit to publish the provided information in TR26.925? *

- ○ Yes
- ○ No
- ◉ Partially after discussion
- ○ Other: _____

Can we contact you if we have any question on your submission? *

- ◉ Yes
- ○ No

This content is neither created nor endorsed by Google.

Google Forms

3GPP FS_TyTrac: Media Service Description

Dear Media Service colleagues , as part of its ongoing Work Item on “Typical Traffic Characteristics of Media Services” 3GPP SA4 is collecting information about deployed and possibly emerging media services over 3GPP networks. We would appreciate your input according to the below template. For more details on the study item, please refer to SP-180666: New SID on Typical Traffic Characteristics of Third-Party and Operator Media Services (FS_TyTraC). http://www.3gpp.org/ftp/tsg_sa/TSG_SA/TSGS_81/Docs/SP-180666.zip

If you have any questions, please feel free to contact the Rapporteur of the work item as provided in the above referenced document.

Alternatively to this online form, you may also fill in the template provided in the output document and return it to the Rapporteur of the work item as provided in the above referenced document.
http://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_100_Kochi/Docs/S4-181204.zip

Email address *

nicoweil@elemental.com

Service and Submission Overview

Media Service Name *

AWS Media Services

Date of Submission *

MM DD YYYY

10 / 26 / 2018

Source of Submission (Name, Company) *

AWS Elemental

Description of Service *

Native cloud services for live and on-demand media workflows (see complete description in https://www.elemental.com/resources/white-papers/practical-guide-aws-media-services)

Additional Information

Service Categorization

Please help us to categorize the service

Type of Service *

- ○ Operator Service
- ◉ Third-Party Service
- ○ Mixed Operator/Third-Party Service
- ○ Other: _____

Status of Service *

[e.g. planned, PoC, trialed, commercialy deployed]

Commercially deployed

Category *

- [x] On-demand Streaming
- [x] Live Streaming
- [ ] Broadcast
- [ ] Download and Play
- [ ] Interactive
- [ ] Gaming
- [ ] Conversational
- [ ] Other: _____

Used Technologies

Please provide an overview on the used technologies

What codecs do you use? *

Please provide video and audio codecs in use, preferably with the profiles and levels.

AVC/AAC for live, AVC or HEVC with AAC for on-demand

What are the media types in use? *

Video formats (e.g. HD, UHD, HDR), Audio Formats (e.g., stereo, multi-channel, Next Generation audio, etc.)

Can be up to UHD/HDR for on-demand, HD SDR for live. Audio is only stereo for the moment

What media protocols and containers are in use? *

- [x] DASH
- [x] HLS
- [x] CMAF
- [x] ISO Base Media File Format
- [x] MP4
- [x] MPEG-2 TS
- [ ] WebM
- [ ] RTP
- [ ] RTMP
- [ ] Other: _____

What are the transport protocols in use? *

- [x] HTTP/1.1
- [ ] HTTP/2.0
- [x] TCP/IP
- [ ] FLUTE/UDP
- [ ] QUIC
- [ ] UDP
- [ ] Other: _____

What type of platforms are targeted? *

- [x] iOS app
- [x] Android app
- [x] Browser
- [x] set-top box
- [x] TV Set
- [x] game consoles
- [ ] others

Other Technologies

for example: DRM,. interactivity frame work, QoE and analytics, etc.

Standardized integration with DRM service providers through the SPEKE API (based on CPIX)

Characteristics and Statistics

Do you have any deployment statistics?

[e.g. number of clients, traffic volumes]

N/A

Do you have any traffic characteristics?

KPIs: [e.g. IP level bitrates, minimum and average bitrates, adaptive bitrate ranges, latencies, tune-in times,]

N/A

Potential Mapping to 5QIs *

Potential mapping to 5QIs (5G QoS Identifier – See TS 23.501 Clause 5.7.4 and Table 5.7.4-1 copied below): [which 5QIs among 1, 2, 3, 4, 6, 7, 8, 9, 80, e.g. 6, "video buffered streaming and TCP based"] fits ?]

Table 5.7.4-1: Standardized 5QI to QoS characteristics mapping

5QI Value	Resource Type	Default Priority Level	Packet Delay Budget	Packet Error Rate	Default Maximum Data Burst Volume (NOTE 2)	Default Averaging Window	Example Services
1	GBR (NOTE 1)	20	100 ms	10^{-2}	N/A	2000 ms	Conversational Voice
2		40	150 ms	10^{-3}	N/A	2000 ms	Conversational Video (Live Streaming)
3		30	50 ms	10^{-3}	N/A	2000 ms	Real Time Gaming, V2X messages Electricity distribution – medium voltage, Process automation - monitoring
4		50	300 ms	10^{-6}	N/A	2000 ms	Non-Conversational Video (Buffered Streaming)
65		7	75 ms	10^{-2}	N/A	2000 ms	Mission Critical user plane Push To Talk voice (e.g., MCPTT)
66		20	100 ms	10^{-2}	N/A	2000 ms	Non-Mission-Critical user plane Push To Talk voice
67		15	100 ms	10^{-3}	N/A	2000 ms	Mission Critical Video user plane
75		25	50 ms	10^{-2}	N/A	2000 ms	V2X messages
5	Non-GBR (NOTE 1)	10	100 ms	10^{-6}	N/A	N/A	IMS Signalling
6		60	300 ms	10^{-6}	N/A	N/A	Video (Buffered Streaming) TCP-based (e.g., www, e-mail, chat, ftp, p2p file sharing, progressive video, etc.)
7		70	100 ms	10^{-3}	N/A	N/A	Voice, Video (Live Streaming) Interactive Gaming
8		80	300 ms	10^{-6}	N/A	N/A	Video (Buffered Streaming) TCP-based (e.g., www, e-mail, chat, ftp, p2p file sharing, progressive video, etc.)
9		90					
69		5	60 ms	10^{-6}	N/A	N/A	Mission Critical delay sensitive signalling (e.g., MC-PTT signalling)
70		55	200 ms	10^{-6}	N/A	N/A	Mission Critical Data (e.g. example services are the same as QCI 6/8/9)
79		65	50 ms	10^{-2}	N/A	N/A	V2X messages
80		68	10 ms	10^{-6}	N/A	N/A	Low Latency eMBB applications Augmented Reality
82	Delay Critical GBR	19	10 ms (NOTE 4)	10^{-4}	255 bytes	2000 ms	Discrete Automation (see TS 22.261 [2])
83		22	10 ms (NOTE 4)	10^{-4}	1358 bytes (NOTE 3)	2000 ms	Discrete Automation (see TS 22.261 [2])
84		24	30 ms (NOTE 6)	10^{-5}	1354 bytes	2000 ms	Intelligent transport systems (see TS 22.261 [2])
85		21	5 ms (NOTE 5)	10^{-5}	255 bytes	2000 ms	Electricity Distribution-high voltage (see TS 22.261 [2])

NOTE 1: A packet which is delayed more than PDB is not counted as lost, thus not included in the PER.
NOTE 2: It is required that default MDBV is supported by a PLMN supporting the related 5QIs.
NOTE 3: This MDBV value is set to 1354 bytes to avoid IP fragmentation for the IPv6 based, IPSec protected GTP tunnel to the 5G-AN node (the value is calculated as in Annex C of TS 23.060 [56] and further reduced by 4 bytes to allow for the usage of a GTP-U extension header).
NOTE 4: A delay of 1 ms for the delay between a UPF terminating N6 and a 5G-AN should be subtracted from a given PDB to derive the packet delay budget that applies to the radio interface.
NOTE 5: A delay of 2 ms for the delay between a UPF terminating N6 and a 5G-AN should be subtracted from a given PDB to derive the packet delay budget that applies to the radio interface.
NOTE 6: A delay of 5 ms for the delay between a UPF terminating N6 and a 5G-AN should be subtracted from a given PDB to derive the packet delay budget that applies to the radio interface.

NOTE 1: For Standardized 5QI to QoS characteristics mapping, the table will be extended/updated to support service requirements for 5G, e.g. ultralow latency service.

NOTE 2: It is preferred that a value less than 64 is allocated for any new standardised 5QI of non-GBR Resource Type. This is to allow for option 1 to be used as described in clause 5.7.1.3 (as the QFI is limited to less than 64).

- [ ] 1
- [ ] 2
- [ ] 3

- [x] 4
- [x] 6
- [ ] 7
- [ ] 8
- [ ] 9
- [ ] 80
- [ ] Other: _____

Additional Information

References

[list of public documentation in support of the present description e.g. a URL, a scientific publication, an industry or standards organization specification]

https://www.elemental.com/resources/white-papers/practical-guide-aws-media-services

Any additional information

_____

Additional Information

Consent

Do you permit to publish the provided information in TR26.925? *

- (●) Yes
- ( ) No
- ( ) Partially after discussion
- ( ) Other: _____

Can we contact you if we have any question on your submission? *

- (●) Yes
- ( ) No

This content is neither created nor endorsed by Google.

Google Forms

3GPP FS_TyTrac: Media Service Description

Dear Media Service colleagues , as part of its ongoing Work Item on “Typical Traffic Characteristics of Media Services” 3GPP SA4 is collecting information about deployed and possibly emerging media services over 3GPP networks. We would appreciate your input according to the below template. For more details on the study item, please refer to SP-180666: New SID on Typical Traffic Characteristics of Third-Party and Operator Media Services (FS_TyTraC). http://www.3gpp.org/ftp/tsg_sa/TSG_SA/TSGS_81/Docs/SP-180666.zip

If you have any questions, please feel free to contact the Rapporteur of the work item as provided in the above referenced document.

Alternatively to this online form, you may also fill in the template provided in the output document and return it to the Rapporteur of the work item as provided in the above referenced document.
http://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_100_Kochi/Docs/S4-181204.zip

Email address *

zachary.cava@hulu.com

Service and Submission Overview

Media Service Name *

Hulu

Date of Submission *

MM DD YYYY

10 / 29 / 2018

Source of Submission (Name, Company) *

Zachary Cava, Hulu

Description of Service *

An over the top media provider for both on-demand and live streaming of network and premium content

Additional Information

Service Categorization

Please help us to categorize the service

Type of Service *

- (●) Operator Service
- ( ) Third-Party Service
- ( ) Mixed Operator/Third-Party Service
- ( ) Other: _____

Status of Service *

[e.g. planned, PoC, trialed, commercialy deployed]

commercially deployed

Category *

- [x] On-demand Streaming
- [x] Live Streaming
- [ ] Broadcast
- [ ] Download and Play
- [ ] Interactive
- [ ] Gaming
- [ ] Conversational
- [ ] Other: _____

Used Technologies

Please provide an overview on the used technologies

What codecs do you use? *

Please provide video and audio codecs in use, preferably with the profiles and levels.

H264 High 4.2, H265 Main 10 5.1, AAC 2 channel, EC-3 6 channel

What are the media types in use? *

Video formats (e.g. HD, UHD, HDR), Audio Formats (e.g., stereo, multi-channel, Next Generation audio, etc.)

Video: Up to UHD with HDR (HDR10, Dolby Vision), Audio: 2.0 and 5.1

What media protocols and containers are in use? *

- [x] DASH
- [x] HLS
- [x] CMAF
- [x] ISO Base Media File Format
- [ ] MP4
- [x] MPEG-2 TS
- [ ] WebM
- [ ] RTP
- [ ] RTMP
- [ ] Other: _____

What are the transport protocols in use? *

- [x] HTTP/1.1
- [ ] HTTP/2.0
- [x] TCP/IP
- [ ] FLUTE/UDP
- [ ] QUIC
- [ ] UDP
- [ ] Other: _____

What type of platforms are targeted? *

- [x] iOS app
- [x] Android app
- [x] Browser
- [x] set-top box
- [x] TV Set
- [x] game consoles
- [ ] others

Other Technologies

for example: DRM,. interactivity frame work, QoE and analytics, etc.

DRM (Widevine, PlayReady, Fairplay), dynamic ad insertion, interactive ad creatives, in-house and third party QoE measurement

Characteristics and Statistics

Do you have any deployment statistics?

[e.g. number of clients, traffic volumes]

Do you have any traffic characteristics?

KPIs: [e.g. IP level bitrates, minimum and average bitrates, adaptive bitrate ranges, latencies, tune-in times,]

video start time, video playback failure, rebuffering ratio, connection induced rebuffering, minimum/average bitrates, abr adaptation frequency

Potential Mapping to 5QIs *

Potential mapping to 5QIs (5G QoS Identifier – See TS 23.501 Clause 5.7.4 and Table 5.7.4-1 copied below): [which 5QIs among 1, 2, 3, 4, 6, 7, 8, 9, 80, e.g. 6, "video buffered streaming and TCP based"] fits ?]

Table 5.7.4-1: Standardized 5QI to QoS characteristics mapping

5QI Value	Resource Type	Default Priority Level	Packet Delay Budget	Packet Error Rate	Default Maximum Data Burst Volume (NOTE 2)	Default Averaging Window	Example Services
1	GBR (NOTE 1)	20	100 ms	10^{-2}	N/A	2000 ms	Conversational Voice
2		40	150 ms	10^{-3}	N/A	2000 ms	Conversational Video (Live Streaming)
3		30	50 ms	10^{-3}	N/A	2000 ms	Real Time Gaming, V2X messages Electricity distribution – medium voltage, Process automation - monitoring
4		50	300 ms	10^{-6}	N/A	2000 ms	Non-Conversational Video (Buffered Streaming)
65		7	75 ms	10^{-2}	N/A	2000 ms	Mission Critical user plane Push To Talk voice (e.g., MCPTT)
66		20	100 ms	10^{-2}	N/A	2000 ms	Non-Mission-Critical user plane Push To Talk voice
67		15	100 ms	10^{-3}	N/A	2000 ms	Mission Critical Video user plane
75		25	50 ms	10^{-2}	N/A	2000 ms	V2X messages
5	Non-GBR (NOTE 1)	10	100 ms	10^{-6}	N/A	N/A	IMS Signalling
6		60	300 ms	10^{-6}	N/A	N/A	Video (Buffered Streaming) TCP-based (e.g., www, e-mail, chat, ftp, p2p file sharing, progressive video, etc.)
7		70	100 ms	10^{-3}	N/A	N/A	Voice, Video (Live Streaming) Interactive Gaming
8		80	300 ms	10^{-6}	N/A	N/A	Video (Buffered Streaming) TCP-based (e.g., www, e-mail, chat, ftp, p2p file sharing, progressive video, etc.)
9		90					
69		5	60 ms	10^{-6}	N/A	N/A	Mission Critical delay sensitive signalling (e.g., MC-PTT signalling)
70		55	200 ms	10^{-6}	N/A	N/A	Mission Critical Data (e.g. example services are the same as QCI 6/8/9)
79		65	50 ms	10^{-2}	N/A	N/A	V2X messages
80		68	10 ms	10^{-6}	N/A	N/A	Low Latency eMBB applications Augmented Reality
82	Delay Critical GBR	19	10 ms (NOTE 4)	10^{-4}	255 bytes	2000 ms	Discrete Automation (see TS 22.261 [2])
83		22	10 ms (NOTE 4)	10^{-4}	1358 bytes (NOTE 3)	2000 ms	Discrete Automation (see TS 22.261 [2])
84		24	30 ms (NOTE 6)	10^{-5}	1354 bytes	2000 ms	Intelligent transport systems (see TS 22.261 [2])
85		21	5 ms (NOTE 5)	10^{-5}	255 bytes	2000 ms	Electricity Distribution-high voltage (see TS 22.261 [2])

NOTE 1: A packet which is delayed more than PDB is not counted as lost, thus not included in the PER.
NOTE 2: It is required that default MDBV is supported by a PLMN supporting the related 5QIs.
NOTE 3: This MDBV value is set to 1354 bytes to avoid IP fragmentation for the IPv6 based, IPSec protected GTP tunnel to the 5G-AN node (the value is calculated as in Annex C of TS 23.060 [56] and further reduced by 4 bytes to allow for the usage of a GTP-U extension header).
NOTE 4: A delay of 1 ms for the delay between a UPF terminating N6 and a 5G-AN should be subtracted from a given PDB to derive the packet delay budget that applies to the radio interface.
NOTE 5: A delay of 2 ms for the delay between a UPF terminating N6 and a 5G-AN should be subtracted from a given PDB to derive the packet delay budget that applies to the radio interface.
NOTE 6: A delay of 5 ms for the delay between a UPF terminating N6 and a 5G-AN should be subtracted from a given PDB to derive the packet delay budget that applies to the radio interface.

NOTE 1: For Standardized 5QI to QoS characteristics mapping, the table will be extended/updated to support service requirements for 5G, e.g. ultralow latency service.

NOTE 2: It is preferred that a value less than 64 is allocated for any new standardised 5QI of non-GBR Resource Type. This is to allow for option 1 to be used as described in clause 5.7.1.3 (as the QFI is limited to less than 64).

- [ ] 1
- [ ] 2
- [ ] 3

- [x] 4
- [x] 6
- [x] 7
- [x] 8
- [ ] 9
- [ ] 80
- [ ] Other: _____

Additional Information

References

[list of public documentation in support of the present description e.g. a URL, a scientific publication, an industry or standards organization specification]

_____

Any additional information

_____

Additional Information

Consent

Do you permit to publish the provided information in TR26.925? *

- ○ Yes
- ○ No
- ○ Partially after discussion
- ◉ Other: We would need to review information prior to inclusion in any publication

Can we contact you if we have any question on your submission? *

- ◉ Yes
- ○ No

This content is neither created nor endorsed by Google.

Google Forms

3GPP FS_TyTrac: Media Service Description

Dear Media Service colleagues , as part of its ongoing Work Item on “Typical Traffic Characteristics of Media Services” 3GPP SA4 is collecting information about deployed and possibly emerging media services over 3GPP networks. We would appreciate your input according to the below template. For more details on the study item, please refer to SP-180666: New SID on Typical Traffic Characteristics of Third-Party and Operator Media Services (FS_TyTraC). http://www.3gpp.org/ftp/tsg_sa/TSG_SA/TSGS_81/Docs/SP-180666.zip

If you have any questions, please feel free to contact the Rapporteur of the work item as provided in the above referenced document.

Alternatively to this online form, you may also fill in the template provided in the output document and return it to the Rapporteur of the work item as provided in the above referenced document.
http://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_100_Kochi/Docs/S4-181204.zip

Email address *

reinhard@bitmovin.com

Service and Submission Overview

Media Service Name *

Bitmovin

Date of Submission *

MM DD YYYY

11 / 12 / 2018

Source of Submission (Name, Company) *

Reinhard, Bitmovin

Description of Service *

Software based Encoding Solution, Player SDKs, Analytics

Additional Information

Service Categorization

Please help us to categorize the service

Type of Service *

- ○ Operator Service
- ◉ Third-Party Service
- ○ Mixed Operator/Third-Party Service
- ○ Other: _____

Status of Service *

[e.g. planned, PoC, trialed, commercialy deployed]

commercially deployed

Category *

- [x] On-demand Streaming
- [x] Live Streaming
- [ ] Broadcast
- [x] Download and Play
- [ ] Interactive
- [ ] Gaming
- [ ] Conversational
- [ ] Other: _____

Used Technologies

Please provide an overview on the used technologies

What codecs do you use? *

Please provide video and audio codecs in use, preferably with the profiles and levels.

AVC, HEVC, VP8, VP9, AV1, AAC, (E-)AC3

What are the media types in use? *

Video formats (e.g. HD, UHD, HDR), Audio Formats (e.g., stereo, multi-channel, Next Generation audio, etc.)

SD, HD, UHD, HDR, stereo, multi-channel

What media protocols and containers are in use? *

- [x] DASH
- [x] HLS
- [x] CMAF
- [x] ISO Base Media File Format
- [x] MP4
- [x] MPEG-2 TS
- [x] WebM
- [x] RTP
- [ ] RTMP
- [ ] Other: _____

What are the transport protocols in use? *

- [x] HTTP/1.1
- [x] HTTP/2.0
- [x] TCP/IP
- [ ] FLUTE/UDP
- [ ] QUIC
- [ ] UDP
- [ ] Other: _____

What type of platforms are targeted? *

- [x] iOS app
- [x] Android app
- [x] Browser
- [x] set-top box
- [x] TV Set
- [x] game consoles
- [x] others

Other Technologies

for example: DRM,. interactivity frame work, QoE and analytics, etc.

DRM, Watermarking, Analytics - QoE/QoS, Ads (VAST, VPAID, SSAI, CSAI)

Characteristics and Statistics

Do you have any deployment statistics?

[e.g. number of clients, traffic volumes]

Do you have any traffic characteristics?

KPIs: [e.g. IP level bitrates, minimum and average bitrates, adaptive bitrate ranges, latencies, tune-in times,]

Potential Mapping to 5QIs *

Potential mapping to 5QIs (5G QoS Identifier – See TS 23.501 Clause 5.7.4 and Table 5.7.4-1 copied below): [which 5QIs among 1, 2, 3, 4, 6, 7, 8, 9, 80, e.g. 6, "video buffered streaming and TCP based"] fits ?]

Table 5.7.4-1: Standardized 5QI to QoS characteristics mapping

5QI Value	Resource Type	Default Priority Level	Packet Delay Budget	Packet Error Rate	Default Maximum Data Burst Volume (NOTE 2)	Default Averaging Window	Example Services
1	GBR (NOTE 1)	20	100 ms	10^{-2}	N/A	2000 ms	Conversational Voice
2		40	150 ms	10^{-3}	N/A	2000 ms	Conversational Video (Live Streaming)
3		30	50 ms	10^{-3}	N/A	2000 ms	Real Time Gaming, V2X messages Electricity distribution – medium voltage, Process automation - monitoring
4		50	300 ms	10^{-6}	N/A	2000 ms	Non-Conversational Video (Buffered Streaming)
65		7	75 ms	10^{-2}	N/A	2000 ms	Mission Critical user plane Push To Talk voice (e.g., MCPTT)
66		20	100 ms	10^{-2}	N/A	2000 ms	Non-Mission-Critical user plane Push To Talk voice
67		15	100 ms	10^{-3}	N/A	2000 ms	Mission Critical Video user plane
75		25	50 ms	10^{-2}	N/A	2000 ms	V2X messages
5	Non-GBR (NOTE 1)	10	100 ms	10^{-6}	N/A	N/A	IMS Signalling
6		60	300 ms	10^{-6}	N/A	N/A	Video (Buffered Streaming) TCP-based (e.g., www, e-mail, chat, ftp, p2p file sharing, progressive video, etc.)
7		70	100 ms	10^{-3}	N/A	N/A	Voice, Video (Live Streaming) Interactive Gaming
8		80	300 ms	10^{-6}	N/A	N/A	Video (Buffered Streaming) TCP-based (e.g., www, e-mail, chat, ftp, p2p file sharing, progressive video, etc.)
9		90					
69		5	60 ms	10^{-6}	N/A	N/A	Mission Critical delay sensitive signalling (e.g., MC-PTT signalling)
70		55	200 ms	10^{-6}	N/A	N/A	Mission Critical Data (e.g. example services are the same as QCI 6/8/9)
79		65	50 ms	10^{-2}	N/A	N/A	V2X messages
80		68	10 ms	10^{-6}	N/A	N/A	Low Latency eMBB applications Augmented Reality
82	Delay Critical GBR	19	10 ms (NOTE 4)	10^{-4}	255 bytes	2000 ms	Discrete Automation (see TS 22.261 [2])
83		22	10 ms (NOTE 4)	10^{-4}	1358 bytes (NOTE 3)	2000 ms	Discrete Automation (see TS 22.261 [2])
84		24	30 ms (NOTE 6)	10^{-5}	1354 bytes	2000 ms	Intelligent transport systems (see TS 22.261 [2])
85		21	5 ms (NOTE 5)	10^{-5}	255 bytes	2000 ms	Electricity Distribution-high voltage (see TS 22.261 [2])

NOTE 1: A packet which is delayed more than PDB is not counted as lost, thus not included in the PER.
NOTE 2: It is required that default MDBV is supported by a PLMN supporting the related 5QIs.
NOTE 3: This MDBV value is set to 1354 bytes to avoid IP fragmentation for the IPv6 based, IPSec protected GTP tunnel to the 5G-AN node (the value is calculated as in Annex C of TS 23.060 [56] and further reduced by 4 bytes to allow for the usage of a GTP-U extension header).
NOTE 4: A delay of 1 ms for the delay between a UPF terminating N6 and a 5G-AN should be subtracted from a given PDB to derive the packet delay budget that applies to the radio interface.
NOTE 5: A delay of 2 ms for the delay between a UPF terminating N6 and a 5G-AN should be subtracted from a given PDB to derive the packet delay budget that applies to the radio interface.
NOTE 6: A delay of 5 ms for the delay between a UPF terminating N6 and a 5G-AN should be subtracted from a given PDB to derive the packet delay budget that applies to the radio interface.

NOTE 1: For Standardized 5QI to QoS characteristics mapping, the table will be extended/updated to support service requirements for 5G, e.g. ultralow latency service.

NOTE 2: It is preferred that a value less than 64 is allocated for any new standardised 5QI of non-GBR Resource Type. This is to allow for option 1 to be used as described in clause 5.7.1.3 (as the QFI is limited to less than 64).

- [ ] 1
- [x] 2
- [ ] 3

- [x] 4
- [x] 6
- [x] 7
- [x] 8
- [x] 9
- [ ] 80
- [ ] Other: _____

Additional Information

References

[list of public documentation in support of the present description e.g. a URL, a scientific publication, an industry or standards organization specification]

_____

Any additional information

_____

Additional Information

Consent

Do you permit to publish the provided information in TR26.925? *

- ○ Yes
- ○ No
- ◉ Partially after discussion
- ○ Other: _____

Can we contact you if we have any question on your submission? *

- ◉ Yes
- ○ No

This content is neither created nor endorsed by Google.

Google Forms

3GPP FS_TyTrac: Media Service Description

Dear Media Service colleagues , as part of its ongoing Work Item on “Typical Traffic Characteristics of Media Services” 3GPP SA4 is collecting information about deployed and possibly emerging media services over 3GPP networks. We would appreciate your input according to the below template. For more details on the study item, please refer to SP-180666: New SID on Typical Traffic Characteristics of Third-Party and Operator Media Services (FS_TyTraC). http://www.3gpp.org/ftp/tsg_sa/TSG_SA/TSGS_81/Docs/SP-180666.zip

If you have any questions, please feel free to contact the Rapporteur of the work item as provided in the above referenced document.

Alternatively to this online form, you may also fill in the template provided in the output document and return it to the Rapporteur of the work item as provided in the above referenced document.
http://www.3gpp.org/ftp/TSG_SA/WG4_CODEC/TSGS4_100_Kochi/Docs/S4-181204.zip

Email address *

schmalohr@irt.de

Service and Submission Overview

Media Service Name *

Mediathek, Germany

Date of Submission *

MM DD YYYY

11 / 14 / 2018

Source of Submission (Name, Company) *

IRT - Institut fuer Rundfunktechnik GmbH

Description of Service *

R&D Institute of ARD, ZDF, DRadio, ORF and SRG/SSR

Additional Information

Service Categorization

Please help us to categorize the service

Type of Service *

- (●) Operator Service
- ( ) Third-Party Service
- ( ) Mixed Operator/Third-Party Service
- ( ) Other: _____

Status of Service *

[e.g. planned, PoC, trialed, commercialy deployed]

non commercial public service deployed

Category *

- [x] On-demand Streaming
- [x] Live Streaming
- [x] Broadcast
- [x] Download and Play
- [ ] Interactive
- [ ] Gaming
- [ ] Conversational
- [ ] Other: _____

Used Technologies

Please provide an overview on the used technologies

What codecs do you use? *

Please provide video and audio codecs in use, preferably with the profiles and levels.

H.264, H.265, LC-AAC

What are the media types in use? *

Video formats (e.g. HD, UHD, HDR), Audio Formats (e.g., stereo, multi-channel, Next Generation audio, etc.)

HD, stereo (Planned: multichannel, NGA HLG-HDR)

What media protocols and containers are in use? *

- [x] DASH
- [x] HLS
- [ ] CMAF
- [x] ISO Base Media File Format
- [x] MP4
- [ ] MPEG-2 TS
- [ ] WebM
- [ ] RTP
- [x] RTMP
- [x] Other: CMAF planned, not yet deployed

What are the transport protocols in use? *

- [x] HTTP/1.1
- [x] HTTP/2.0
- [ ] TCP/IP
- [ ] FLUTE/UDP
- [x] QUIC
- [ ] UDP
- [x] Other: WebRTC under test, not likely to be deployed due to GDPR

What type of platforms are targeted? *

- [x] iOS app
- [x] Android app
- [x] Browser
- [x] set-top box
- [x] TV Set
- [ ] game consoles
- [x] others

Other Technologies

for example: DRM,. interactivity frame work, QoE and analytics, etc.

Apple TV, Fire TV, Chromecast, Tizen

Characteristics and Statistics

Do you have any deployment statistics?

[e.g. number of clients, traffic volumes]

Akamai Server Side, IRT ARGOS client side

Do you have any traffic characteristics?

KPIs: [e.g. IP level bitrates, minimum and average bitrates, adaptive bitrate ranges, latencies, tune-in times,]

some broadcasters internally

Potential Mapping to 5QIs *

Potential mapping to 5QIs (5G QoS Identifier – See TS 23.501 Clause 5.7.4 and Table 5.7.4-1 copied below): [which 5QIs among 1, 2, 3, 4, 6, 7, 8, 9, 80, e.g. 6, "video buffered streaming and TCP based"] fits ?]

Table 5.7.4-1: Standardized 5QI to QoS characteristics mapping

5QI Value	Resource Type	Default Priority Level	Packet Delay Budget	Packet Error Rate	Default Maximum Data Burst Volume (NOTE 2)	Default Averaging Window	Example Services
1	GBR (NOTE 1)	20	100 ms	10^{-2}	N/A	2000 ms	Conversational Voice
2		40	150 ms	10^{-3}	N/A	2000 ms	Conversational Video (Live Streaming)
3		30	50 ms	10^{-3}	N/A	2000 ms	Real Time Gaming, V2X messages Electricity distribution – medium voltage, Process automation - monitoring
4		50	300 ms	10^{-6}	N/A	2000 ms	Non-Conversational Video (Buffered Streaming)
65		7	75 ms	10^{-2}	N/A	2000 ms	Mission Critical user plane Push To Talk voice (e.g., MCPTT)
66		20	100 ms	10^{-2}	N/A	2000 ms	Non-Mission-Critical user plane Push To Talk voice
67		15	100 ms	10^{-3}	N/A	2000 ms	Mission Critical Video user plane
75		25	50 ms	10^{-2}	N/A	2000 ms	V2X messages
5	Non-GBR (NOTE 1)	10	100 ms	10^{-6}	N/A	N/A	IMS Signalling
6		60	300 ms	10^{-6}	N/A	N/A	Video (Buffered Streaming) TCP-based (e.g., www, e-mail, chat, ftp, p2p file sharing, progressive video, etc.)
7		70	100 ms	10^{-3}	N/A	N/A	Voice, Video (Live Streaming) Interactive Gaming
8		80	300 ms	10^{-6}	N/A	N/A	Video (Buffered Streaming) TCP-based (e.g., www, e-mail, chat, ftp, p2p file sharing, progressive video, etc.)
9		90					
69		5	60 ms	10^{-6}	N/A	N/A	Mission Critical delay sensitive signalling (e.g., MC-PTT signalling)
70		55	200 ms	10^{-6}	N/A	N/A	Mission Critical Data (e.g. example services are the same as QCI 6/8/9)
79		65	50 ms	10^{-2}	N/A	N/A	V2X messages
80		68	10 ms	10^{-6}	N/A	N/A	Low Latency eMBB applications Augmented Reality
82	Delay Critical GBR	19	10 ms (NOTE 4)	10^{-4}	255 bytes	2000 ms	Discrete Automation (see TS 22.261 [2])
83		22	10 ms (NOTE 4)	10^{-4}	1358 bytes (NOTE 3)	2000 ms	Discrete Automation (see TS 22.261 [2])
84		24	30 ms (NOTE 6)	10^{-5}	1354 bytes	2000 ms	Intelligent transport systems (see TS 22.261 [2])
85		21	5 ms (NOTE 5)	10^{-5}	255 bytes	2000 ms	Electricity Distribution-high voltage (see TS 22.261 [2])

NOTE 1: A packet which is delayed more than PDB is not counted as lost, thus not included in the PER.
NOTE 2: It is required that default MDBV is supported by a PLMN supporting the related 5QIs.
NOTE 3: This MDBV value is set to 1354 bytes to avoid IP fragmentation for the IPv6 based, IPSec protected GTP tunnel to the 5G-AN node (the value is calculated as in Annex C of TS 23.060 [56] and further reduced by 4 bytes to allow for the usage of a GTP-U extension header).
NOTE 4: A delay of 1 ms for the delay between a UPF terminating N6 and a 5G-AN should be subtracted from a given PDB to derive the packet delay budget that applies to the radio interface.
NOTE 5: A delay of 2 ms for the delay between a UPF terminating N6 and a 5G-AN should be subtracted from a given PDB to derive the packet delay budget that applies to the radio interface.
NOTE 6: A delay of 5 ms for the delay between a UPF terminating N6 and a 5G-AN should be subtracted from a given PDB to derive the packet delay budget that applies to the radio interface.

NOTE 1: For Standardized 5QI to QoS characteristics mapping, the table will be extended/updated to support service requirements for 5G, e.g. ultralow latency service.

NOTE 2: It is preferred that a value less than 64 is allocated for any new standardised 5QI of non-GBR Resource Type. This is to allow for option 1 to be used as described in clause 5.7.1.3 (as the QFI is limited to less than 64).

- [ ] 1
- [ ] 2
- [ ] 3

- [x] 4
- [x] 6
- [ ] 7
- [x] 8
- [ ] 9
- [ ] 80
- [ ] Other: _____

Additional Information

References

[list of public documentation in support of the present description e.g. a URL, a scientific publication, an industry or standards organization specification]

HbbTV 1.1, HbbTV 1.5, HbbTV 2.0.2, DVB-DASH, DVB-S2,T2,IP

Any additional information

_____

Additional Information

Consent

Do you permit to publish the provided information in TR26.925? *

- ○ Yes
- ○ No
- ○ Partially after discussion
- ◉ Other: Yes, on behalf of the german public broadcasters

Can we contact you if we have any question on your submission? *

- ◉ Yes
- ○ No

This content is neither created nor endorsed by Google.

Google Forms