

# 3GPP TS 29.199-17 V9.0.0 (2009-12)

---

*Technical Specification*

**3rd Generation Partnership Project;  
Technical Specification Group Core Network and Terminals;  
Open Service Access (OSA);  
Parlay X Web Services;  
Part 17: Application-driven Quality of Service (QoS)  
(Release 9)**



The present document has been developed within the 3<sup>rd</sup> Generation Partnership Project (3GPP™) and may be further elaborated for the purposes of 3GPP. The present document has not been subject to any approval process by the 3GPP Organizational Partners and shall not be implemented. This Specification is provided for future development work within 3GPP only. The Organizational Partners accept no liability for any use of this Specification. Specifications and reports for implementation of the 3GPP™ system should be obtained via the 3GPP Organizational Partners' Publications Offices.

---

---

**Keywords**

---

UMTS, API, OSA, QoS**3GPP**

---

**Postal address**

---

**3GPP support office address**

---

650 Route des Lucioles - Sophia Antipolis  
Valbonne - FRANCE  
Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

---

**Internet**

---

<http://www.3gpp.org>

---

**Copyright Notification**

---

No part may be reproduced except as authorized by written permission.  
The copyright and the foregoing restriction extend to reproduction in all media.

©2009, 3GPP Organizational Partners (ARIB, ATIS, CCSA, ETSI, TTA, TTC).  
All rights reserved.

UMTS™ is a Trade Mark of ETSI registered for the benefit of its members

3GPP™ is a Trade Mark of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners

LTE™ is a Trade Mark of ETSI currently being registered for the benefit of its Members and of the 3GPP Organizational Partners

GSM® and the GSM logo are registered and owned by the GSM Association

# Contents

|  |    |
|--|----|
| Foreword .....   | 5  |
| Introduction .....   | 5  |
| 1 Scope .....  | 6  |
| 2 References.....  | 6  |
| 3 Definitions and abbreviations .....                      | 6  |
| 3.1 Definitions .....                                      | 6  |
| 3.2 Abbreviations .....                                    | 7  |
| 4 Detailed service description .....                       | 7  |
| 5 Namespaces.....  | 10 |
| 6 Sequence diagrams.....                                   | 10 |
| 6.1 Interface Flow overview .....                          | 10 |
| 7 XML Schema data type definition .....                    | 13 |
| 7.1 QoSFeatureProperties structure .....                   | 13 |
| 7.2 Void .....   | 13 |
| 7.3 QoSFeatureData structure .....                         | 13 |
| 7.4 QoSStatus structure.....                               | 13 |
| 7.5 TrafficClass structure.....                            | 14 |
| 7.6 QoSHistory structure .....                             | 14 |
| 7.7 QoSEvent enumeration.....                              | 14 |
| 8 Web Service interface definition .....                   | 15 |
| 8.1 Interface: ApplicationQoS .....                        | 15 |
| 8.1.1 Operation: apply QoSFeature .....                    | 15 |
| 8.1.1.1 Input message: applyQoSFeatureRequest .....        | 16 |
| 8.1.1.2 Output message : applyQoSFeatureResponse.....      | 16 |
| 8.1.1.3 Referenced faults .....                            | 16 |
| 8.1.2 Operation: modify QoSFeature .....                   | 17 |
| 8.1.3.1 Output message: modify QoSFeature Response.....    | 17 |
| 8.1.3.3 Referenced faults .....                            | 17 |
| 8.1.4 Operation: removeQoSFeature .....                    | 18 |
| 8.1.4.1 Input message: removeQoSFeatureRequest.....        | 18 |
| 8.1.4.2 Output message: removeQoSFeatureResponse .....     | 18 |
| 8.1.4.3 Referenced faults .....                            | 18 |
| 8.1.5 Operation: getQoSStatus.....                         | 19 |
| 8.1.5.1 Input message: getQoSStatusRequest .....           | 19 |
| 8.1.5.2 Output message: getQoSStatusResponse.....          | 19 |
| 8.1.5.3 Referenced Faults .....                            | 19 |
| 8.1.6 Operation: getQoSHistory .....                       | 20 |
| 8.1.6.1 Input message: getQoSHistoryRequest.....           | 20 |
| 8.1.6.2 Output message: getQoSHistoryResponse .....        | 20 |
| 8.1.6.3 Referenced Faults .....                            | 20 |
| 8.2 Interface: ApplicationQoSNotificationManager .....     | 21 |
| 8.2.1 Operation: startQoSNotification .....                | 21 |
| 8.2.1.1 Input message: startQoSNotificationRequest .....   | 21 |
| 8.2.1.2 Output message : startQoSNotificationResponse..... | 21 |
| 8.2.1.3 Referenced faults .....                            | 21 |
| 8.2.2 Operation: stopQoSNotification .....                 | 22 |
| 8.2.2.1 Input message: stopQoSNotificationRequest.....     | 22 |
| 8.2.2.1 Output message: stopQoSNotificationResponse.....   | 22 |
| 8.2.2.3 Referenced faults .....                            | 22 |
| 8.3 Interface: ApplicationQoSNotification .....            | 23 |
| 8.3.1 Operation: notifyQoSEvent .....                      | 23 |

|                               |   |           |
|-------------------------------|---|-----------|
| 8.3.1.1                       | Input message: notifyQoSEventRequest.....   | 23        |
| 8.3.1.2                       | Output message : notifyQoSEventResponse.....  | 23        |
| 8.3.1.3                       | Referenced faults .....   | 23        |
| 9                             | Fault definitions .....   | 24        |
| 9.1                           | ServiceException .....  | 24        |
| 9.1.1                         | SVC0340: InsufficientConnectionResources .....  | 24        |
| 9.1.2                         | SVC0341: UnknownQoSFeatureIdentifier.....   | 24        |
| 9.1.3                         | SVC0342: EndUserIsNotOnline.....  | 24        |
| 9.1.4                         | SVC0343: SpecifiedAndTemporaryQoSFeaturesConflict .....   | 24        |
| 9.1.5                         | SVC0344: Specified QoSFeatureNotPermittableAsDefault .....  | 24        |
| 10                            | Service policies .....  | 24        |
| <b>Annex A (normative):</b>   | <b>WSDL of Application-driven QoS API .....</b>   | <b>25</b> |
| <b>Annex B (informative):</b> | <b>Description of Parlay X Web Services Part 17: Application-driven<br/>Quality of Service (QoS) for 3GPP2 cdma2000 networks.....</b> | <b>26</b> |
| B.1                           | General Exceptions .....  | 26        |
| B.2                           | Specific Exceptions .....   | 26        |
| B.2.1                         | Clause 1: Scope.....  | 26        |
| B.2.2                         | Clause 2: References .....  | 26        |
| B.2.3                         | Clause 3: Definitions and abbreviations .....   | 26        |
| B.2.4                         | Clause 4: Detailed service description .....  | 26        |
| B.2.5                         | Clause 5: Namespaces .....  | 26        |
| B.2.6                         | Clause 6: Sequence diagrams .....   | 27        |
| B.2.7                         | Clause 7: XML Schema data type definition .....   | 27        |
| B.2.8                         | Clause 8: Web Service interface definition.....   | 27        |
| B.2.9                         | Clause 9: Fault definitions .....   | 27        |
| B.2.10                        | Clause 10: Service policies .....   | 27        |
| B.2.11                        | Annex A (normative): WSDL of Application-driven QoS API.....  | 27        |
| <b>Annex C (informative):</b> | <b>Change history.....</b>  | <b>28</b> |

---

# Foreword

This Technical Specification has been produced by the 3<sup>rd</sup> Generation Partnership Project (3GPP).

3GPP acknowledges the contribution of the Parlay X Web Services specifications from The Parlay Group. The Parlay Group is pleased to see 3GPP acknowledge and publish the present document, and the Parlay Group looks forward to working with the 3GPP community to improve future versions of the present document.

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit:
  - 1 presented to TSG for information;
  - 2 presented to TSG for approval;
  - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

---

# Introduction

The present document is part 17 of a multi-part deliverable covering the 3<sup>rd</sup> Generation Partnership Project; Technical Specification Group Core Network and Terminals; Open Service Access (OSA); Parlay X Web Services, as identified below:

|                 |  |
|-----------------|--|
| Part 1:         | "Common"   |
| Part 2:         | "Third party call"                                   |
| Part 3:         | "Call Notification"                                  |
| Part 4:         | "Short Messaging"                                    |
| Part 5:         | "Multimedia Messaging"                               |
| Part 6:         | "Payment"  |
| Part 7:         | "Account management"                                 |
| Part 8:         | "Terminal Status"                                    |
| Part 9:         | "Terminal location"                                  |
| Part 10:        | "Call handling"                                      |
| Part 11:        | "Audio call"   |
| Part 12:        | "Multimedia conference"                              |
| Part 13:        | "Address list management"                            |
| Part 14:        | "Presence"   |
| Part 15:        | "Message Broadcast"                                  |
| Part 16:        | "Geocoding"  |
| <b>Part 17:</b> | <b>"Application driven Quality of Service (QoS)"</b> |
| Part 18:        | "Device Capabilities and Configuration"              |
| Part 19:        | "Multimedia streaming control"                       |
| Part 20:        | "Multimedia multicast session management"            |
| Part 21:        | "Content management"                                 |
| Part 22:        | "Policy"   |

---

# 1 Scope

The present document is Part 17 of the Stage 3 Parlay X Web Services specification for Open Service Access (OSA).

The OSA specifications define an architecture that enables application developers to make use of network functionality through an open standardized interface, i.e. the OSA APIs. The concepts and the functional architecture for the OSA are contained in 3GPP TS 23.198 [3]. The requirements for OSA are contained in 3GPP TS 22.127 [2].

The present document specifies the Application-driven Quality of Service (QoS) Web Service aspects of the interface. All aspects of the Application-driven QoS Web Service are defined here, these being:

- Name spaces.
- Sequence diagrams.
- Data definitions.
- Interface specification plus detailed method descriptions.
- Fault definitions.
- Service policies.
- WSDL Description of the interfaces.

The present document has been defined jointly between 3GPP TSG CT WG5, ETSI TISPAN and The Parlay Group.

Maintenance of up to 3GPP Rel-8 and new OSA Stage 1, 2 and 3 work beyond Rel-9 was moved to OMA in June 2008.

---

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- I. References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- II. For a specific reference, subsequent revisions do not apply.
- III. For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [2] 3GPP TS 22.127: "Service Requirement for the Open Services Access (OSA); Stage 1".
- [3] 3GPP TS 23.198: "Open Service Access (OSA); Stage 2".
- [4] 3GPP TS 22.101: "Service aspects; Service principles".
- [5] W3C Recommendation (2 May 2001): "XML Schema Part 2: Datatypes".  
<http://www.w3.org/TR/2001/REC-xmlschema-2-20010502/>.
- [6] 3GPP TS 29.199-1: "Open Service Access (OSA); Parlay X Web Services; Part 1: Common".

---

# 3 Definitions and abbreviations

## 3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TS 29.199-1 [6] apply.

## 3.2 Abbreviations

For the purposes of the present document, the abbreviations given in 3GPP TS 29.199-1 [6] and the following apply:

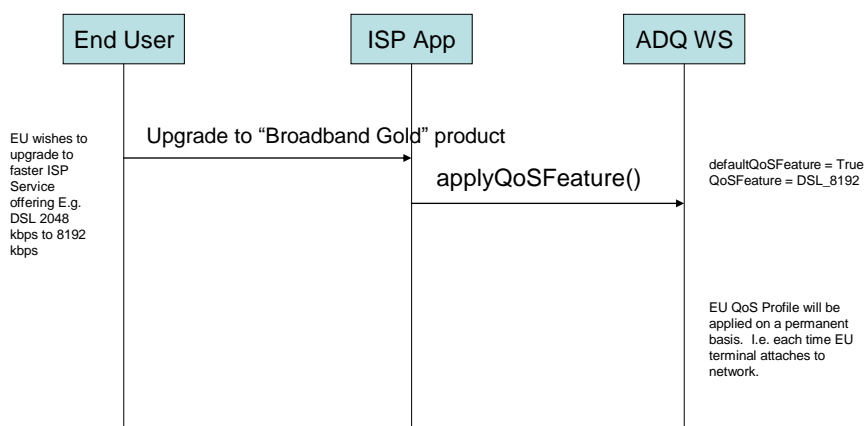
|     |                                       |
|-----|---------------------------------------|
| ADQ | Application-Driven Quality of Service |
| QoS | Quality of Service                    |

## 4 Detailed service description

‘Application Driven QoS’ is a service which enables applications to dynamically change the quality of service (e.g. bandwidth) available on end user network connections. Changes in QoS may be applied on either a temporary basis (i.e. for a defined period of time), or as the default QoS to be applied for a user each time they connect to the network.

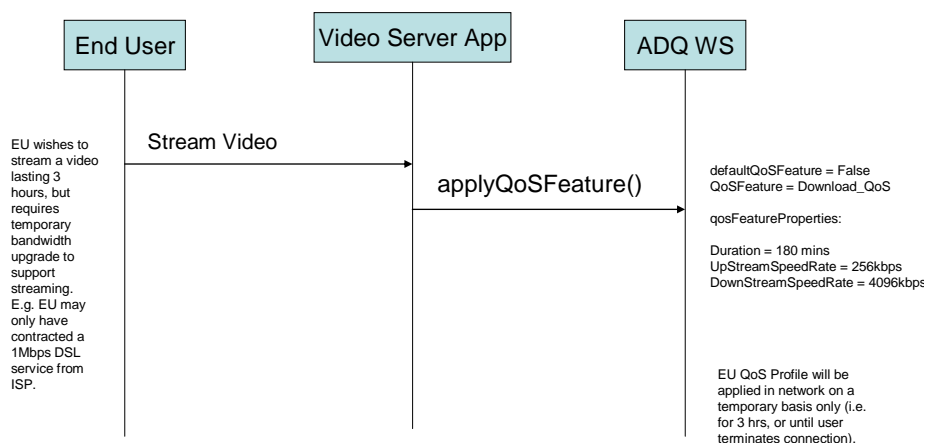
Applications will govern the quality of service available to the end user by requesting that pre-defined QoS Feature profiles are applied on the end user’s connection. It is the responsibility of the Service Provider to define these QoS Features and share them beforehand with application providers, along with a clear indication as to which of these can be used as temporary QoS Features and which can be used to set the default QoS on an end user connection.

The following scenarios provide example business use-cases to further illustrate the difference between default and temporary QoS Features and when they may be applied by the application.



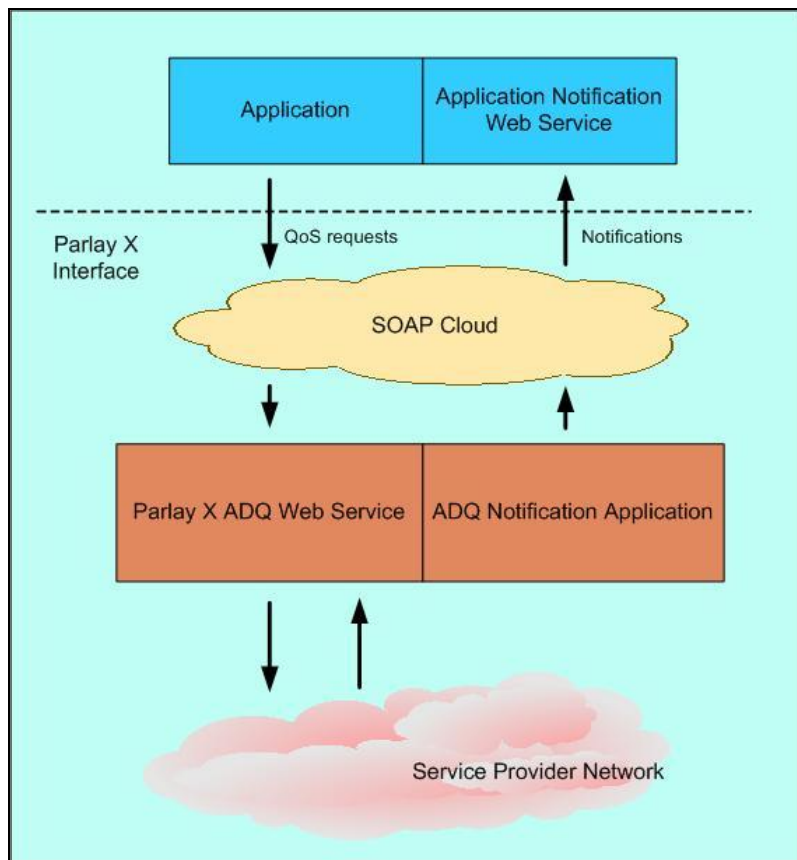
**Figure 4.1: Example Default QoS Feature Use-Case**

Figure 4.1 provides an example of where a default QoS Feature could be applied to an end user connection. The scenario given shows the end user of a DSL service requesting a permanent upgrade from their existing service offering (e.g. 2048 kbps) to a higher bandwidth service (e.g. 8192 kbps). The application subsequently makes a request to the ADQ web service to apply the pre-defined ‘DSL\_8192’ QoS Feature to the end user connection on a permanent, or default, basis. Following successful completion of this use-case, each time the end user’s terminal equipment attaches to their DSL service, the default QoS (in this case DSL\_8192) will be applied.



**Figure 4.2: Example Temporary QoS Feature Use-Case**

Figure 4.2 provides an example of where a temporary QoS Feature could be applied to an end user connection. The scenario given shows an end user of a DSL service who wishes to stream a piece of video content. Their current service offering (e.g. 1024 kbps DSL) however will not support video streaming and hence they require a temporary bandwidth upgrade for the duration of the video stream. The streaming application then makes a request to the ADQ web service to apply the pre-defined 'Download\_QoS' QoS Feature to the end user connection, specifying the upstream and downstream bandwidth rate and the duration for which the temporary QoS Feature should be applied. Assuming that the network supports the requested bandwidth rate, the end user's bandwidth will be increased to the rate requested by the application for the specified duration. Once the requested duration has expired, the end user's service will resume to their original (in this example 1024 kbps bandwidth) QoS.



**Figure 4.3: ADQ Web Service**



The ADQ service is enabled as a Web Service interface, as depicted in figure 4.3, and will accept four logical kinds of requests from the Applications viz.,

- Requests to change the default quality of service available on the end user's connection,
- Requests to change the quality of service available on the end user's connection on a temporary basis,
- Requests to manage event registrations and
- Self-care requests.

Applications can register with the service for notifications about network events that affect the quality of service temporarily configured on the end user's connection. Whenever such events occur, the Service generates notifications to inform Applications about the impact that these events had on the temporary QoS features set up on the end user's connection.

Self-care requests enable Applications to view transaction history and current quality of service status.

---

## 5 Namespaces

The ApplicationQoS interface uses the namespace:

`http://www.csapi.org/wsdl/parlay x/adq/v4_0`

The ApplicationQoSImpactNotificationManager interface uses the namespace:

`http://www.csapi.org/wsdl/parlay x/adq/notification_manager/v4_0`

The ApplicationQoSImpactNotification uses the namespace:

`http://www.csapi.org/wsdl/parlay x/adq/notification/v4_0`

The data types are defined in the namespace:

`http://www.csapi.org/schema/parlay x/adq/v4_0`

The 'xsd' namespace is used in the present document to refer to the XML schema data types defined in XML schema [5]. The use of the name 'xsd' is not semantically significant.

---

## 6 Sequence diagrams

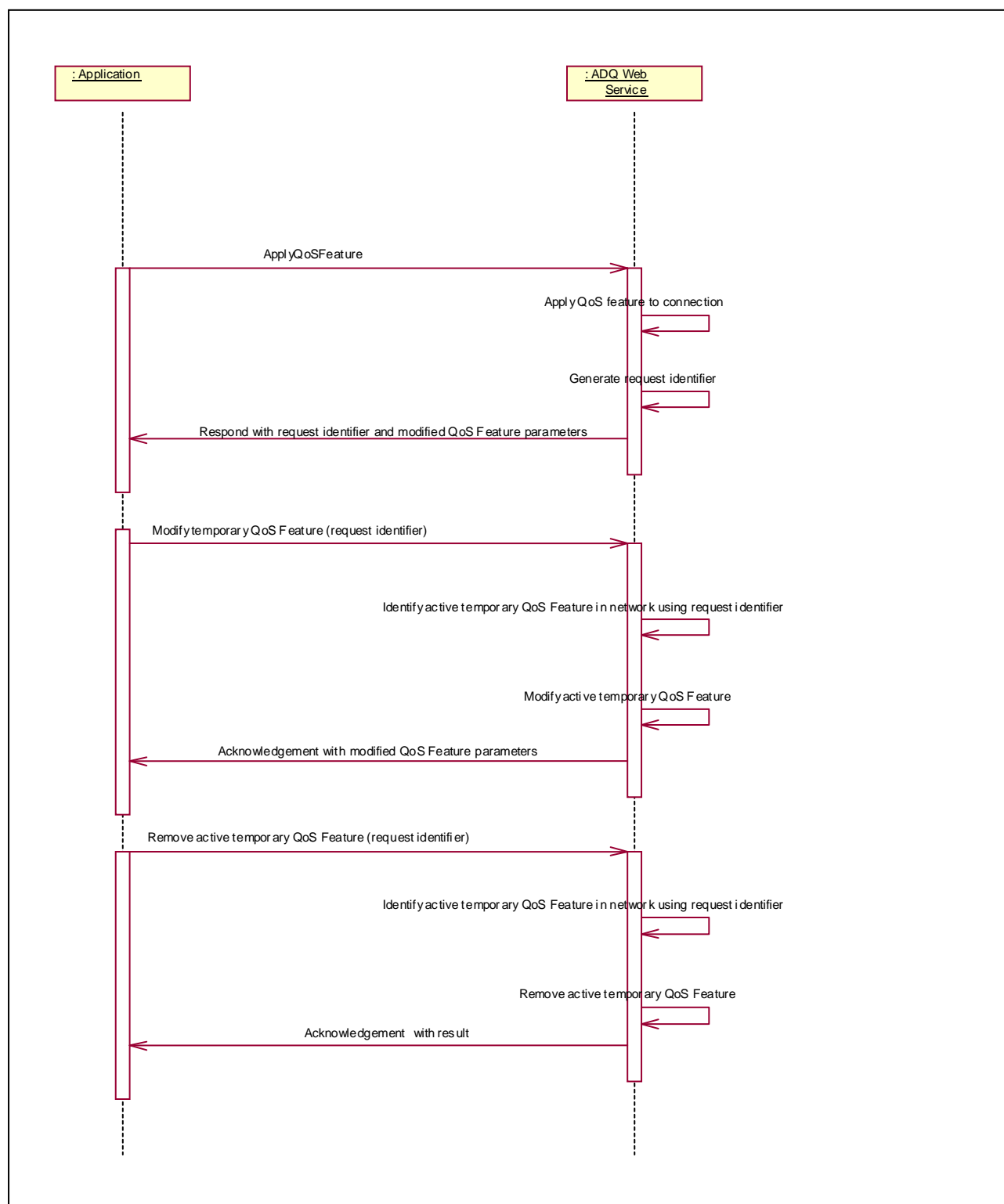
### 6.1 Interface Flow overview

The sequence diagrams show the interaction where the Application Provider has a Web Service compliant Application capable of sending requests to the service and receiving notifications from the service.

Every method defined in the interface is synchronous, in the sense, that the response to the request is instantaneous and contains the status of the request. There is no polling required on part of the Application to determine the status of a request.

Notifications are unsolicited. The Application will indicate their interest in receiving notifications by registering for events. When an event occurs in the network that merits a notification to be raised, interested Applications will receive a notification and its implications on the temporary QoS features active on the end user connection.

The sequence diagrams do not show the internal logic within the server implementing this service, which is required for processing the requests. It is assumed that such a server is capable of interacting with the network to service requests sent by the Application.

**Figure 6.1.1:**

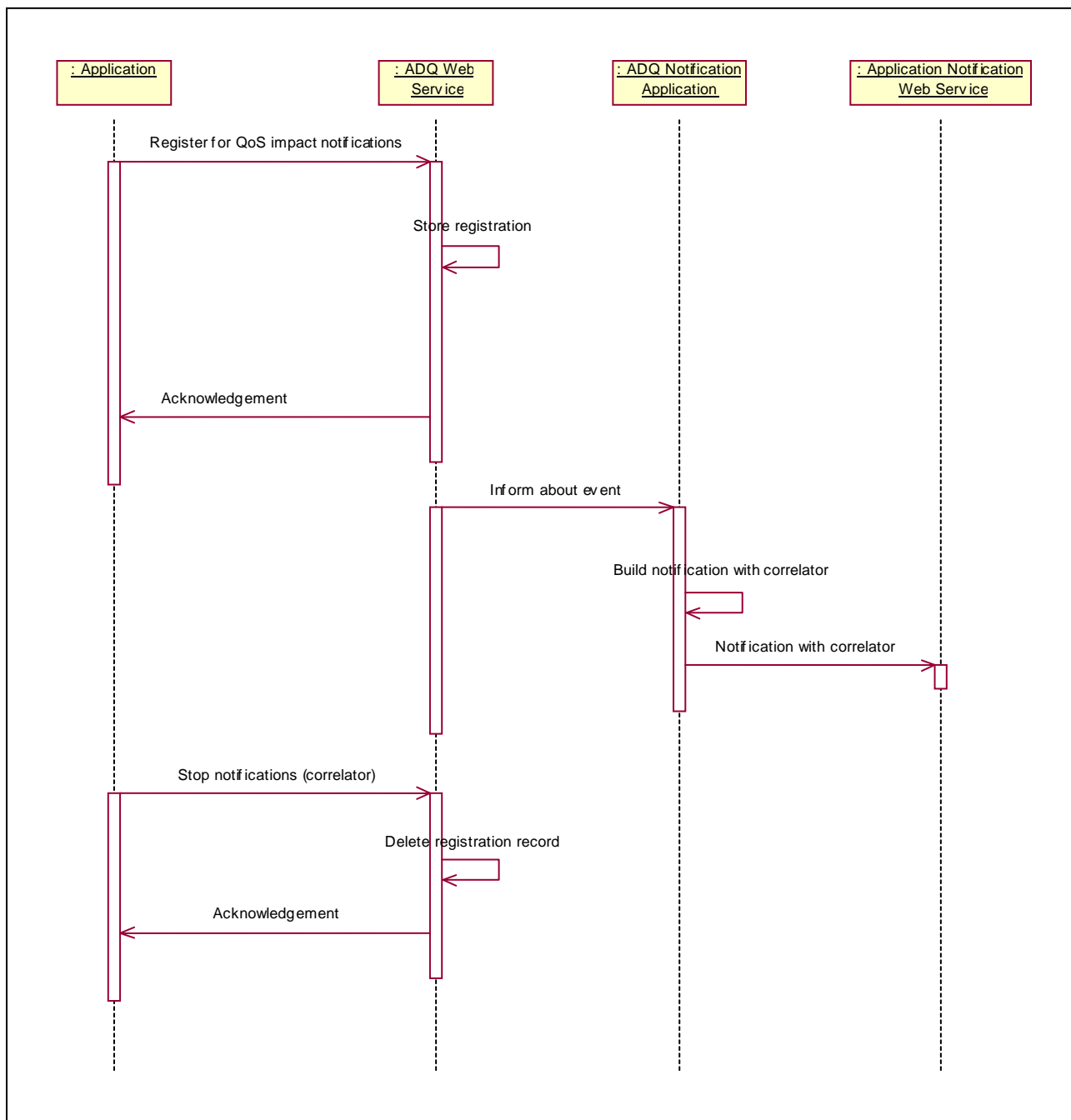


Figure 6.1.2:

## 7 XML Schema data type definition

### 7.1 QoSFeatureProperties structure

| Element name        | Element type               | Optional | Description  |
|---------------------|----------------------------|----------|--|
| Duration            | common:TimeMetric          | Yes      | e.g. "15 minutes"  |
| UpStreamSpeedRate   | xsd:string                 | Yes      | e.g. "256 kbps"  |
| DownStreamSpeedRate | xsd:string                 | Yes      | e.g. "1.5 Mbps".   |
| OtherProperties     | Property<br>[0..unbounded] | Yes      | Additional configurable properties relating to the QoS Feature which may be specified by the service provider and hence not defined in this specification. |

### 7.2 Void

### 7.3 QoSFeatureData structure

Uniquely identifies the temporary QoS feature instance that is currently active on the end user connection, and any additional parameter values.

| Element name         | Element type         | Optional | Description   |
|----------------------|----------------------|----------|---|
| requestID            | xsd:string           | No       | Contains a unique request identifier generated by the Web Service, which can be used by the application to identify this specific invocation to the applyQoSFeature operation.  |
| qoSFeatureIdentifier | xsd:string           | No       | Uniquely identifies the QoS feature that was applied on a temporary basis to the end user connection  |
| actualProperties     | QoSFeatureProperties | Yes      | Contains the current value of the configurable service attributes. Note: Values may be altered by the service from those stated in the original applyQoSFeature request if they do not fit the service definition of the QoS Feature. |

### 7.4 QoSStatus structure

The status of an end user connection, including information about the temporary QoS features that are currently activated

| Element name                | Element type                     | Optional | Description  |
|-----------------------------|----------------------------------|----------|--|
| userIsConnected             | xsd:boolean                      | No       | Specifies whether the user is connected (i.e. online) or not connected (i.e. offline)  |
| defaultQoSFeatureIdentifier | xsd:string                       | Yes      | The default QoS feature that is currently applied to the end user connection. Do not specify if no default feature is applied. |
| trafficClasses              | TrafficClass<br>[0..unbounded]   | Yes      | The traffic classes supported in this end user connection including the speed rates that these traffic classes support.        |
| qosFeatureStatuses          | QoSFeatureData<br>[0..unbounded] | Yes      | The array containing status of every temporary QoS feature that is currently active on the end user connection                 |

## 7.5 TrafficClass structure

Information about the traffic class supported on an end user connection

| Element name      | Element type | Optional | Description  |
|-------------------|--------------|----------|--|
| trafficClassName  | xsd:string   | No       | Name of the traffic class  |
| maxUpstreamRate   | xsd:int      | No       | The applicable maximum speed rate in the upstream direction for this traffic class   |
| maxDownstreamRate | xsd:int      | No       | The applicable maximum speed rate in the downstream direction for this traffic class |

## 7.6 QoSHistory structure

Information about individual transactions retrieved as part of the historical QoS FeatureData

| Element name        | Element type | Optional | Description                              |
|---------------------|--------------|----------|--|
| transactionDateTime | xsd:dateTime | No       | Identifies when the transaction occurred |
| transactionDetails  | xsd:string   | No       | The details of the transaction           |

## 7.7 QoSEvent enumeration

Specifies the events that may occur on any active QoS features on the end user connection(s).

| Enumeration Value             | Description   |
|-------------------------------|---|
| AbnormalConnectionTermination | End user connection(s) terminated abnormally because of a fault in the network causing all the temporary QoS features that were active on the connection(s) to be released as well.     |
| NormalConnectionTermination   | End user connection(s) terminated normally – e.g. user(s) have logged off – causing all temporary QoS features active on the connection(s) to be automatically released                 |
| TemporaryQoSFeatureReleased   | A temporary QoS feature that was active on an end user connection has been released because the threshold set by one of the service attributes (e.g. elapsed duration) has been reached |

---

## 8 Web Service interface definition

### 8.1 Interface: ApplicationQoS

This interface provides methods for:

- Applying a new QoS feature to an end user connection. Either:
  - rapidly provisioning a re-grade, which results in a permanent change in the class of service provided over the end user connection
  - dynamically controlling temporary QoS features in the network which will be active for a specified period of time.
- Modifying an active temporary QoS Feature on an end user connection.
- Self-care like operations

#### 8.1.1 Operation: applyQoSFeature

This method is used by Application to request either a temporary or a default QoS feature to be set up on the end user connection.

The **defaultQoSFeature** parameter identifies if the requested QoS Feature is to be applied to the end user connection as the default (i.e. long-lived) QoS Feature, or if this parameter is set to false, the requested QoS Feature shall be applied on a temporary basis only.

Note that there is no session associated with a default QoS Feature, as it is the permanent default QoS Feature associated with the connection until it is replaced. A default QoS feature governs the traffic flow on the end user connection whenever there are no temporary QoS features active on the connection. If a default QoS Feature is replaced by an Application, it can potentially affect other Applications, which may require a certain level of QoS to be available on the connection when there are no active temporary QoS Features. To achieve this, the service implementation should allow only a Super Application (e.g. Service Provider owned) to change the default QoS Feature of a connection. The authorization scheme required for allowing this facility is service implementation specific and is not covered in the scope of this specification.

For default QoS Feature requests, the value of the **modifyExistingSession** parameter should be taken into account before applying the default QoS Feature to the end user connection. Default QoS Features will not have any configurable parameters.

### 8.1.1.1 Input message: applyQoSFeatureRequest

| Part name             | Part type            | Optional | Description  |
|-----------------------|----------------------|----------|--|
| endUserIdentifier     | xsd:anyURI           | No       | Identifies the end user in the network   |
| qoSFeatureIdentifier  | xsd:string           | No       | Identifies the QoS feature that is applied to the end user connection - e.g. "Gold724"   |
| defaultQoSFeature     | xsd:boolean          | No       | Specifies whether the requested QoS Feature is to be applied as the default QoS Feature on an end users connection.  |
| modifyExistingSession | xsd:boolean          | Yes      | Only required where defaultQoSFeature = TRUE.<br><br>Specifies whether the default QoS feature should be applied to the ongoing connection of the end user or to the subsequent connection when the end user next comes online.                                  |
| qosFeatureProperties  | QoSFeatureProperties | Yes      | Not required for a default QoS Feature request – i.e. where defaultQoSFeature = True.<br><br>Optional for a temporary QoS Feature request.<br><br>Specifies values for the configurable service attributes that govern the temporary QoS feature (e.g. Duration) |

### 8.1.1.2 Output message : applyQoSFeatureResponse

| Part name | Part type      | Optional | Description   |
|-----------|----------------|----------|---|
| result    | QoSFeatureData | Yes      | Only returned for a temporary QoS Feature request – i.e. where defaultQoSFeature = FALSE<br><br>Returns the result of the request to add the temporary QoS feature. |

### 8.1.1.3 Referenced faults

Service Exception from 3GPP TS 29.199-1 [6]:

SVC0001 – Service error

SVC0002 – Invalid input value

SVC0340 – Insufficient connection resources

SVC0341 – Unknown QoS feature identifier

- SVC0342 – End User is not online
- SVC0343 – Specified and existing temporary QoS features conflict
- SVC0344 – QoS Feature cannot be applied as default.

Policy Exception from 3GPP TS 29.199-1 [6]:

POL0001 – Policy error



## 8.1.2 Operation: modifyQoSFeature

This method will be used to alter the configurable service attributes (e.g. duration) of an active temporary QoS feature instance.

Input message: modifyQoSFeatureRequest

| Part name         | Part type            | Optional | Description   |
|-------------------|----------------------|----------|---|
| requestID         | xsd:string           | No       | Contains the unique request identifier generated by the Web Service, in response to the invocation of the original <b>applyQoSFeature</b> operation   |
| requestProperties | QoSFeatureProperties | No       | Specifies new values for the service attributes that govern the temporary QoS feature instance (e.g. Duration). Those attributes of requestProperties not provided in this request shall not be modified from those stated in the original applyQoSFeature request. |

### 8.1.3.1 Output message: modifyQoSFeatureResponse

| Part name | Part type            | Optional | Description  |
|-----------|----------------------|----------|--|
| result    | QoSFeatureProperties | No       | Returns the modified values of the configurable service attributes |

### 8.1.3.3 Referenced faults

Service Exception from 3GPP TS 29.199-1 [6]:

SVC0001 – Service error

SVC0002 – Invalid input value

SVC0340 – Insufficient connection resources

SVC0341 – Unknown QoS feature identifier

SVC0342 – End User is not online

Policy Exception from 3GPP TS 29.199-1 [6]:

POL0001 – Policy error

## 8.1.4 Operation: removeQoSFeature

This method will be used by the Applications to release a temporary QoS Feature, which is currently active on the end user connection.

### 8.1.4.1 Input message: removeQoSFeatureRequest

| Part name | Part type  | Optional | Description   |
|-----------|------------|----------|---|
| requestID | xsd:string | No       | Contains the unique request identifier generated by the Web Service, in response to the invocation of the original <b>applyQoSFeature</b> operation . |

### 8.1.4.2 Output message: removeQoSFeatureResponse

| Part name | Part type   | Optional | Description  |
|-----------|-------------|----------|--|
| result    | xsd:boolean | No       | Boolean flag indicating whether the QoS Feature was successfully removed (True) or not (False) from the end user connection. |

### 8.1.4.3 Referenced faults

Service Exception from 3GPP TS 29.199-1 [6]:

SVC0001 – Service error

SVC0002 – Invalid input value

SVC0342 – End User is not online

Policy Exception from 3GPP TS 29.199-1 [6]:

POL0001 – Policy error

## 8.1.5 Operation: getQoSStatus

This method falls in the category is a self-care and will be used to retrieve the status of an end user connection. The response to this method will contain information about the characteristics of the end user connection including information about the temporary QoS features that are currently active on the end user connection.

### 8.1.5.1 Input message: getQoSStatusRequest

| Part name         | Part type  | Optional | Description                            |
|-------------------|------------|----------|--|
| endUserIdentifier | xsd:anyURI | No       | Identifies the end user in the network |

### 8.1.5.2 Output message: getQoSStatusResponse

| Part name | Part type | Optional | Description   |
|-----------|-----------|----------|---|
| result    | QoSStatus | No       | Returns the status of an end user connection, including information about the temporary QoS features that are currently activated |

### 8.1.5.3 Referenced Faults

Service Exception from 3GPP TS 29.199-1 [6]:

SVC0001 – Service error

SVC0002 – Invalid input value

Policy Exception from 3GPP TS 29.199-1 [6]:

POL0001 – Policy error

## 8.1.6 Operation: getQoSHistory

This method will return an historical list of all QoS transactions previously requested against an end user's connection. The transactions to be returned may be filtered by specifying a QoS Feature identifier, a maximum number of transactions, a date / time limit, or additional filter criteria defined by the service provider.

### 8.1.6.1 Input message: getQoSHistoryRequest

| Part name            | Part type                  | Optional | Description   |
|----------------------|----------------------------|----------|---|
| endUserIdentifier    | xsd:anyURI                 | No       | Identifies the end user in the network  |
| qosFeatureIdentifier | xsd:string                 | Yes      | Allows the transaction history to be filtered by QoS Feature Identifier   |
| date                 | xsd:dateTime               | Yes      | This part specifies the date and time from which the transaction history should be returned. If this part is not present, the current date and time will be used as defined by the service policy             |
| maxEntries           | xsd:int                    | Yes      | This part indicates the maximum number of entries that shall be returned. If this part is not present, or a value of zero is specified, then the maximum is determined according to the web service's policy. |
| additionalCriteria   | Property<br>[0..unbounded] | Yes      | Allows additional criteria/filters to be applied, as specified by the service provider.   |

### 8.1.6.2 Output message: getQoSHistoryResponse

| Part name | Part type                    | Optional | Description  |
|-----------|------------------------------|----------|--|
| result    | QoSHistory<br>[0..unbounded] | Yes      | Returns the historical list (filtered by the supplied search criteria) of QoS transactions applied to a specified end user connection. |

### 8.1.6.3 Referenced Faults

Service Exception from 3GPP TS 29.199-1 [6]:

SVC0001 – Service error

SVC0002 – Invalid input value

Policy Exception from 3GPP TS 29.199-1 [6]:

POL0001 – Policy error

## 8.2 Interface: ApplicationQoSNotificationManager

This interface is used by the Applications to manage their registration for notifications.

### 8.2.1 Operation: startQoSNotification

This method will be used by the Application to register their interest in receiving notifications of a specific event type(s) in context of specific end users.

The correlator provided in the reference must be unique for this Web Service at the time the notification is initiated, otherwise a ServiceException (SVC0005) will be returned to the application.

#### 8.2.1.1 Input message: startQoSNotificationRequest

| Part name         | Part type                    | Optional | Description   |
|-------------------|------------------------------|----------|---|
| reference         | common:SimpleReference       | No       | Notification end point definition at which the Application wishes to receive the event notification |
| endUserIdentities | xsd:anyURI<br>[1..unbounded] | No       | The end user(s) in the network to monitor for events  |
| events            | QoSEvent<br>[1..unbounded]   | No       | The events to be monitored  |

#### 8.2.1.2 Output message : startQoSNotificationResponse

| Part name | Part type | Optional | Description |
|-----------|-----------|----------|-------------|
| None      |           |          |             |

#### 8.2.1.3 Referenced faults

Service Exception from 3GPP TS 29.199-1 [6]:

SVC0001 – Service error

SVC0002 – Invalid input value

SVC0005 – Duplicate Correlator

SVC0008 – Overlapping Criteria

Policy Exception from 3GPP TS 29.199-1 [6]:

POL0001 – Policy error

## 8.2.2 Operation: stopQoSNotification

This method will be used by the Applications to stop receiving notifications by cancelling an existing registration.

### 8.2.2.1 Input message: stopQoSNotificationRequest

| Part name  | Part type  | Optional | Description                                      |
|------------|------------|----------|--|
| correlator | xsd:string | No       | Correlator identifying the original registration |

### 8.2.2.1 Output message: stopQoSNotificationResponse

| Part name | Part type | Optional | Description |
|-----------|-----------|----------|-------------|
| None      |           |          |             |

### 8.2.2.3 Referenced faults

Service Exception from 3GPP TS 29.199-1 [6]:

SVC0001 – Service error

SVC0002 – Invalid input value

Policy Exception from 3GPP TS 29.199-1 [6]:

POL0001 – Policy error

## 8.3 Interface: ApplicationQoSNotification

This interface provides the methods for notifying the Application about the impact of certain events on QoS features that were active on the end user connection when these events occurred.

### 8.3.1 Operation: notifyQoSEvent

This notification will report a network event that has occurred against end user(s) active QoS features.

#### 8.3.1.1 Input message: notifyQoSEventRequest

| Part name         | Part type                    | Optional | Description  |
|-------------------|------------------------------|----------|--|
| correlator        | xsd:string                   | No       | Correlator identifying the original registration         |
| endUserIdentities | xsd:anyURI<br>[1..unbounded] | No       | The end user(s) in the network associated with the event |
| eventType         | QoSEvent                     | No       | The event that is being reported                         |

#### 8.3.1.2 Output message : notifyQoSEventResponse

| Part name | Part type | Optional | Description |
|-----------|-----------|----------|-------------|
| None      |           |          |             |

#### 8.3.1.3 Referenced faults

None

---

## 9 Fault definitions

The following faults are defined for this service.

### 9.1 ServiceException

#### 9.1.1 SVC0340: InsufficientConnectionResources

| Part name | Description   |
|-----------|---|
| messageId | SVC0340   |
| text      | Insufficient connection resources to fulfil the request |
| variables | None  |

#### 9.1.2 SVC0341: UnknownQoSFeatureIdentifier

| Part name | Description                    |
|-----------|--------------------------------|
| messageId | SVC0341                        |
| text      | Unknown QoS Feature Identifier |
| variables | None                           |

#### 9.1.3 SVC0342: EndUserIsNotOnline

| Part name | Description            |
|-----------|------------------------|
| messageId | SVC0342                |
| text      | End user is not online |
| variables | None                   |

#### 9.1.4 SVC0343: SpecifiedAndTemporaryQoSFeaturesConflict

| Part name | Description                                   |
|-----------|---|
| messageId | SVC0343                                       |
| text      | Specified and temporary QoS features conflict |
| variables | None  |

#### 9.1.5 SVC0344: SpecifiedQoSFeatureNotPermittableAsDefault

| Part name | Description   |
|-----------|---|
| messageId | SVC0344   |
| text      | Specified QoS Feature is not permittable as a default QoS Feature |
| variables | None  |

---

## 10 Service policies

| Name                          | Type         | Description  |
|-------------------------------|--------------|--|
| DefaultTransactionHistoryTime | Xsd:dateTime | Default time to be used when a date / time is not supplied in the getQoSHistory request    |
| MaxHistoricalTransactions     | Xsd:int      | Maximum number of historical QoS transactions to be returned by the getQoSHistory request. |



---

## Annex A (normative): WSDL of Application-driven QoS API

The document/literal WSDL representation of this interface specification is compliant to 3GPP TS 29.199-1 [6] and is contained in text files;

- parlay\_x\_adq\_interface\_4\_0.wsdl
- parlay\_x\_adq\_notification\_interface\_4\_0.wsdl
- parlay\_x\_adq\_notification\_manager\_interface\_4\_0.wsdl
- parlay\_x\_adq\_notification\_manager\_service\_4\_0.wsdl
- parlay\_x\_adq\_notification\_service\_4\_0.wsdl
- parlay\_x\_adq\_service\_4\_0.wsdl
- parlay\_x\_adq\_types\_4\_0.xsd

which accompany the present document.

The WSDL files have been verified using the following files:

- 17\_wsdl2Java\_axis-1\_4.bat
- 17\_wsdl2Java\_axis2-1\_4\_1.bat

which accompany the present document.

---

## Annex B (informative): Description of Parlay X Web Services Part 17: Application-driven Quality of Service (QoS) for 3GPP2 cdma2000 networks

This annex is intended to define the OSA Parlay X Web Services Stage 3 interface definitions and it provides the complete OSA specifications. It is an extension of OSA Parlay X Web Services specifications capabilities to enable operation in cdma2000 systems environment. They are in alignment with 3GPP2 Stage 1 requirements and Stage 2 architecture defined in:

- [1] 3GPP2 X.S0011-D: "cdma2000 Wireless IP Network Standard ", Version 1.1
- [2] 3GPP2 S.R0037-0: "IP Network Architecture Model for cdma2000 Spread Spectrum Systems", Version 3.0
- [3] 3GPP2 X.S0013-A: "All-IP Core Network Multimedia Domain"

These requirements are expressed as additions to and/or exclusions from the 3GPP specification.

The information given here is to be used by developers in 3GPP2 cdma2000 network architecture to interpret the 3GPP OSA specifications.

---

### B.1 General Exceptions

The terms 3GPP and UMTS are not applicable for the cdma2000 family of standards. Nevertheless these terms are used (3GPP TR 21.905) mostly in the broader sense of "3G Wireless System". If not stated otherwise there are no additions or exclusions required.

CAMEL mappings are not applicable for cdma2000 systems.

---

### B.2 Specific Exceptions

#### B.2.1 Clause 1: Scope

There are no additions or exclusions.

#### B.2.2 Clause 2: References

There are no additions or exclusions.

#### B.2.3 Clause 3: Definitions and abbreviations

There are no additions or exclusions.

#### B.2.4 Clause 4: Detailed service description

There are no additions or exclusions.

#### B.2.5 Clause 5: Namespaces

There are no additions or exclusions.

## B.2.6 Clause 6: Sequence diagrams

There are no additions or exclusions.

## B.2.7 Clause 7: XML Schema data type definition

There are no additions or exclusions.

## B.2.8 Clause 8: Web Service interface definition

There are no additions or exclusions.

## B.2.9 Clause 9: Fault definitions

There are no additions or exclusions.

## B.2.10 Clause 10: Service policies

There are no additions or exclusions.

## B.2.11 Annex A (normative): WSDL of Application-driven QoS API

There are no additions or exclusions.

## Annex C (informative): Change history

| Change history |       |           |      |     |   |     |       |       |
|----------------|-------|-----------|------|-----|---|-----|-------|-------|
| Date           | TSG # | TSG Doc.  | CR   | Rev | Subject/Comment   | Cat | Old   | New   |
| Nov 2006       | CT_34 | CP-060612 | --   | --  | Submitted to TSG CT#34 for Information.   | --  | 1.0.0 |       |
| Dec 2006       | --    | --        | --   | --  | Completed in Introduction the list of TS-family with the new R7 members.                        | --  | 1.0.0 | 1.0.1 |
| Mar 2007       | CT_35 | CP-070051 | --   | --  | Submitted to TSG CT#35 for Approval.  | --  | 2.0.0 | 7.0.0 |
| Mar 2007       | --    | --        | --   | --  | removed old code attachment WSDL doclit folder  | --  | 7.0.0 | 7.0.1 |
| Jun 2007       | --    | --        | --   | --  | Renamed in Introduction Part 18: "Device management" to "Device Capabilities and Configuration" | --  | 7.0.1 | 7.0.2 |
| Dec 2008       | CT_42 | --        | --   | --  | Upgraded unchanged from Rel-7   | --  | 7.0.2 | 8.0.0 |
| Sep 2009       | CT_45 | Cp-090605 | 0001 | --  | Completion of Parlay X Part 17: Application-driven Quality of Service (QoS) for Release 8       | F   | 8.0.0 | 8.1.0 |
| 2009-12        | -     | -         | -    | -   | Update to Rel-9 version (MCC)   |     | 8.1.0 | 9.0.0 |