Project	**IEEE 802.16 Broadband Wireless Access Working Group <http://ieee802.org/16>**
Title	**Global Service Flows Definitions - Revisited**
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Re:	Response to IEEE 802.16e-04/06 (Call for Contributions on IEEE 802.16e/D1)
Abstract	Proposal of transmission media neutral, global Service Flow definitions.
Purpose	Stimulate discussion on a more flexible definition and mechanism for facilitating multimedia Service Flow migration/hand-over between foreign networks.
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Global Service Flows Definitions

Phillip Barber & Ken Stanwood

Remedy 1:
*[Add new subsection to **6.4.13.4 Service classes**, page 211 in 16e/D3; editor will make appropriate allocation of Management Message Type and set appropriate Table numbers:]*

6.4.13.4.1 Global Service Flows

Mobile networks require common definitions of Service Class Names and associated AuthorizedQoSParamSets in order to facilitate operation across a distributed topology. Global Service Class Names may be supported to enable operation in this context.

In operation, Global Service Class Names are employed as a baseline convention for communicating Authorized- or AdmittedQoSParamSet. Global Service Class Name is similar in function to Service Class Name except that 1) Global Service Class Name use may not be modified by BS, 2) Global Service Class Names remain consistent among all BS, and 3) Global Service Class Names are a rules based naming system whereby the Global Service Class Name itself contains referential QoS Parameter codes. In practice, Global Service Class Names are intended to be accompanied by extending or modifying 11.13 TLV QoS Param Set defining parameters, as needed, to provide a complete and expedited method for transferring Authorized- or AdmittedQoSParamSet information.

Global Service Class Name—A rules based, composite name parsed in six, one-byte parts of format *ISBRLS*, elements reference extensible look-up tables. Byte placeholders must be expressed values; may not be omitted

Table *nn*—Global Service Flow Class Name Parameters

Position	Name	Size	Value
I	Uplink/Downlink indicator	1 Byte	U or D; U=uplink; D=downlink
S	Maximum sustained traffic rate	1 Byte	Extensible look-up Table *oo* (value FF indicates TLV to follow)
B	Maximum traffic burst	1 Byte	Extensible look-up Table *oo* (value FF indicates TLV to follow)
R	Minimum reserved traffic rate	1 Byte	Extensible look-up Table *oo* (value FF indicates TLV to follow)
L	Maximum latency	1 Byte	Extensible look-up Table *pp* (value FF indicates TLV to follow)
S	Fixed-length versus variable-length SDU indicator	1 Byte	V or F; V=variable length; F=fixed length

Global Service Flow Class Name Parameters

Uplink/Downlink indicator—this parameter identifies the defined service flow direction from the originating entity

Maximum sustained traffic rate—this parameter defines the peak information rate of the service. The rate is expressed in bits per second and pertains to the service data units (SDUs) at the input to the system. Explicitly, this parameter does not include transport, protocol, or network overhead such as MAC

headers or CRCs, or non-payload session maintenance overhead like SIP, MGCP, H.323 administration, etc…. This parameter does not limit the instantaneous rate of the service since this is governed by the physical attributes of the ingress port. However, at the destination network interface in the uplink direction, the service shall be policed to conform to this parameter, on the average, over time. On the network in the downlink direction, it may be assumed that the service was already policed at the ingress to the network. If this parameter is set to zero, then there is no explicitly mandated maximum rate. This field specifies only a bound, not a guarantee that the rate is available. The algorithm for policing to this parameter is left to vendor differentiation and is outside the scope of the standard. Maximum sustained traffic rate set to zero shall mean no Maximum sustained traffic rate reservation requirement.

Table *oo*— Maximum sustained traffic rate, Maximum traffic burst, and Minimum reserved traffic rate values

Code (Hex)	Value (bits per second)
00	No requirement
01	1200
02	2400
03	4800
04	9600
05	14400
06	19200
07	24000
08	26400
09	28000
0A	36000
0B	44000
0C	48000
0D	56000
0E	64000
0F	128000
10	192000
11	256000
12	384000
13	512000
14	768000
15	1024000
16	1536000
17	1921000
18-FE	Reserved
FF	TLV follows

Maximum traffic burst—this parameter defines the maximum burst size that must be accommodated for the service. Since the physical speed of ingress/egress ports, any air interface, and the backhaul will in general be greater than the maximum sustained traffic rate parameter for a service, this parameter describes the maximum continuous burst the system should accommodate for the service assuming the service is not currently using any of its available resources. Max traffic burst set to zero shall mean no Maximum traffic burst reservation requirement.

Minimum reserved traffic rate—this parameter specifies the minimum rate, in bits per second, reserved for this Service Flow. The BS should be able to satisfy bandwidth requests for a Service Flow up to its Minimum Reserved Traffic Rate. If less bandwidth than its Minimum Reserved Traffic Rate is requested for a Service Flow, the BS may reallocate the excess reserved bandwidth for other purposes. The aggregate Minimum Reserved Traffic Rate of all Service Flow may exceed the amount of available bandwidth. The value of this parameter is calculated excluding all protocol, transport, and network overhead. Minimum reserved traffic set to zero shall mean no Minimum reserved traffic rate requirement.

Maximum latency—the value of this parameter specifies the maximum latency between the reception of a packet into the network gateway or boundary network interface and the forwarding of the packet to its destination interface. If defined, this parameter represents a service commitment (or admission criteria) and shall be guaranteed. A network does not have to meet this service commitment for Service Flows that exceed their DL Minimum reserved traffic rate. A value of zero for Maximum latency shall be interpreted as infinite tolerance—timing insensitive traffic.

Table *pp*— Maximum latency values

Code (Hex)	Value (ms)
00	No requirement
01	1
02	2
03	5
04	10
05	20
06	30
07	40
08	50
09	100
0A	150
0B	200
0C	500
0D	1000
0E	2000
0F	5000
10	10000
11-FE	Reserved
FF	TLV follows

SDU indicator—the value of this parameter specifies whether the SDUs on the Service Flow are fixed-length or variable-length.

*[Add new subsection to **11.13 Service Flow management encodings**, page 644 in 16d/D3; editor will allocate new section number ??, make appropriate allocation of Management Message Type, set appropriate Table numbers, and adjust referenced Table 310 to include new Management Message Type reference:]*

11.13.?? Global Service Class Name

The value of this field refers to a predefined BS service configuration to be used for this service flow. The Global Service Class Name itself contains coded references to extensible tables defining QoS Parameters.

Table *qq*—Global Service Flow Class Name

Type	Length	Value	Scope
[145/146].*rr*	6	Variable; combination of ASCII characters and hex values	DSx-REQ DSx-RSP DSx-ACK

When the Global Service Class Name is used in a service flow encoding, it indicates that all the unspecified QoS Parameters of the service flow need to be provided by the BS. Global Service Class Names are by definition synchronized among all BS.