Project	**IEEE 802.16 Broadband Wireless Access Working Group** <http://ieee802.org/16>
Title	**Group DSx TLV**
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Re:	LB26b, Working Group Letter Ballot on P802.16REV2/D3
Abstract	
Purpose	Modify the text to add support for a Group DSx TLV
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Group DSx TLV

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Problem

MS participating in MBS services may need provisioning of multiple, sometimes a multitude of MBS flows. Each MBS flow requires an individual DSA exchange to instantiate the flow. These multiple DSA exchanges have both an overhead effect on the air interface, as well as latency effect in establishing these services.

The following table is a simple analysis of the overhead effect, and benefit of using a group create/change method:

Assumptions:
No L2 data ciphering/No SA
Use Global Service Class Name to define QoSParamSet encodings
15 Service Flows/MBS flows
All Service Flows are DL only (Type 146 service flow encoding)
All Service Flows have same QoSParamSet
All Service Flows have same CS type
All Service Flows are IPv4
All Service Flows are in the Same MBS Zone at time of creation
All Service Flows have same source IP Address for Classification
All Service Flows have same destination IP Address for Classification
All Service Flows have the same Paging Preference (No Paging)
Individual Flows are differentiated by Protocol Destination Port Number

Comparison of DSA-REQ message(s) size

DSA Message Construction

	Calculations			
	Group DSx		Individual DSx	
	Qty	bytes	Qty	bytes
GMH (6 bytes)	1	6	15	90
DSx message type=1 byte + Transaction ID=2 bytes + CC=1 byte (CC only for DSx-RSP)	1	4	15	60
COMMON ENCODINGS				
Group parameter Create/Change (Msg Type 49=1 + Length = variable + Value=compound encodings)	1	1		

Common Parameters (Msg Type 49.1=1 + Length = variable + Value=compound encodings)	1	1		
Packet Classification Rule parameter (Type 146=1 byte + cst=1 byte + Msg Type 3=1 byte + Length=1 bytes + compound encodings)	1	4		
IP Masked Source Address parameter (Msg Type 4=1 byte, Length =1 byte, Value=8 bytes for IPv4)	1	10		
IP Masked Destination Address parameter (Msg Type 5=1 byte, Length =1 byte, Value=8 bytes for IPv4)	1	10		
Global Service Class Name TLV (Type 146=1 byte + Msg Type 35=1 byte, Length=1 byte, Value=5 bytes for a DL flow)	1	8	15	120
MBS service TLV (Type 146=1 byte + Msg Type 4=1 byte, Length=1 byte, Value=1 byte)	1	4	15	60
MBS Zone Identifier Assignment parameter TLV (Type 146=1 byte + Msg Type 33=1 byte, Length=1 byte, Value=1 byte)	1	4	15	60
Paging Preference parameter TLV (Type 146=1 byte + Msg Type 32=1 byte, Length=1 byte, Value=1 byte)	1	4	15	60
UNIQUE ENCODINGS				
SFID TLV (Type 146=1 byte + Msg Type 1=1 byte, Length=4 bytes, Value=4 bytes)			15	150
SFID parameter list (Msg Type 49.4=1 + Length = variable + Value=compound encodings)	15	15		
SFID	15	60		
non-Common Parameters (Value=compound encodings)				
CID TLV (Type 145=1 byte + Msg Type 2=1 byte, Length=2 bytes, Value=2 bytes)	15	90	15	90
CS Specification Paramter TLV (Type 146=1 byte + Msg Type 28=1 byte, Length=1 byte, Value=1 byte)	15	60	15	60

Packet Classification Rule parameter (Type 146=1 byte + cst=1 byte + Msg Type 3=1 byte + Length=1 bytes + compound encodings)	15	60	15	60
IP Masked Source Address parameter (Msg Type 4=1 byte, Length =1 byte, Value=8 bytes for IPv4)			15	150
IP Masked Destination Address parameter (Msg Type 5=1 byte, Length =1 byte, Value=8 bytes for IPv4)			15	150
Protocol Destination Port Range field (Msg Type 7=1 byte, Length =1 byte, Value=4 bytes)	15	90	15	90
Packet Classification Rule Index field (Msg Type 14=1 byte, Length =1 byte, Value=2 bytes)	15	60	15	60
Total Size (bytes)		491		1260
Estimated byte count savings				769

So, by using a group create/change method for MBS flows, we can reduce the byte overhead by something over 700 bytes in the example for creation of 15 MBS flows, about a 60% reduction in the byte count for the air interface transactions.

Remedy

In P802.16REV2/D3, page 1184, line 64, insert as:

11.13.40 Group parameter Create/Change TLV

Group Parameter Create/Change provides a method to allow an MS or BS to create or change a number of service flows, in a single DSx message exchange.

Name	Type	Length	Value	Scope
Group parameter Create/Change	49	*variable*	Compound Only one instance of the Group parameter Create/Change TLV may be included in any DSx message.	DSA-REQ, DSA-RSP, DSC-REQ, DSC-RSP

Name	Type	Length	Value
Common Parameters	49.1	*variable*	Common Parameters is a compound TLV value that encapsulates the common related service flow management encodings that are common to all service flows specified in this Group parameter Create/Change TLV. Only common related service flow encodings shall be included in this TLV. All the rules and settings that apply to the service flow management encodings when used in a DSA or DSC message apply to the contents encapsulated in this TLV. If included in the Group parameter Create/Change TLV, Common Parameters shall be the first attribute of the Group parameter Create/Change TLV. Common Parameters shall be included only once in a Group parameter Create/Change TLV.

Name	Type	Length	Value
Qty SFID request	49.2	1	Qty SFID request is the quantity of service flows, of the same common parameter set configuration, that the MS is requesting. Qty SFID request shall only be sent by the MS, only as the last attribute of a Group parameter Create/Change TLV, and only in a DSA-REQ.

Name	Type	Length	Value
SFID List	49.3	*n**4	List of *n* SFIDs. See 11.13.1

Name	Type	Length	Value
SFID parameter list	49.4	*variable*	SFID parameter list is a compound TLV value that encapsulates an SFID and associated non-common service flow management encodings for that service flow, specified in this Group parameter Create/Change TLV. See the following Table for the format of the SFID parameter list. All the rules and settings that apply to the service flow management encodings when used in a DSA or DSC message apply to the contents encapsulated in this TLV. If included in the Group parameter Create/Change TLV, SFID parameter list shall be the last attribute.

			SFID parameter list may be included more than once in a DSx Group Create/Change TLV.

Name	Length	Value
SFID	4	See 11.13.1 If the SFID value is unassigned, the MS shall use an SFID value of '0', though each iteration of 'SFID' in SFID parameter list represents a separate and individual service flow.
non-Common Parameters	*variable*	non-Common Parameters is a compound TLV value that encapsulates the non-common related service flow management encodings that are specific to individual service flows specified in this Group parameter Create/Change TLV. Only non-common related service flow management encodings shall be included in this TLV. All the rules and settings that apply to the service flow management encodings when used in a DSA or DSC message apply to the contents encapsulated in this TLV.