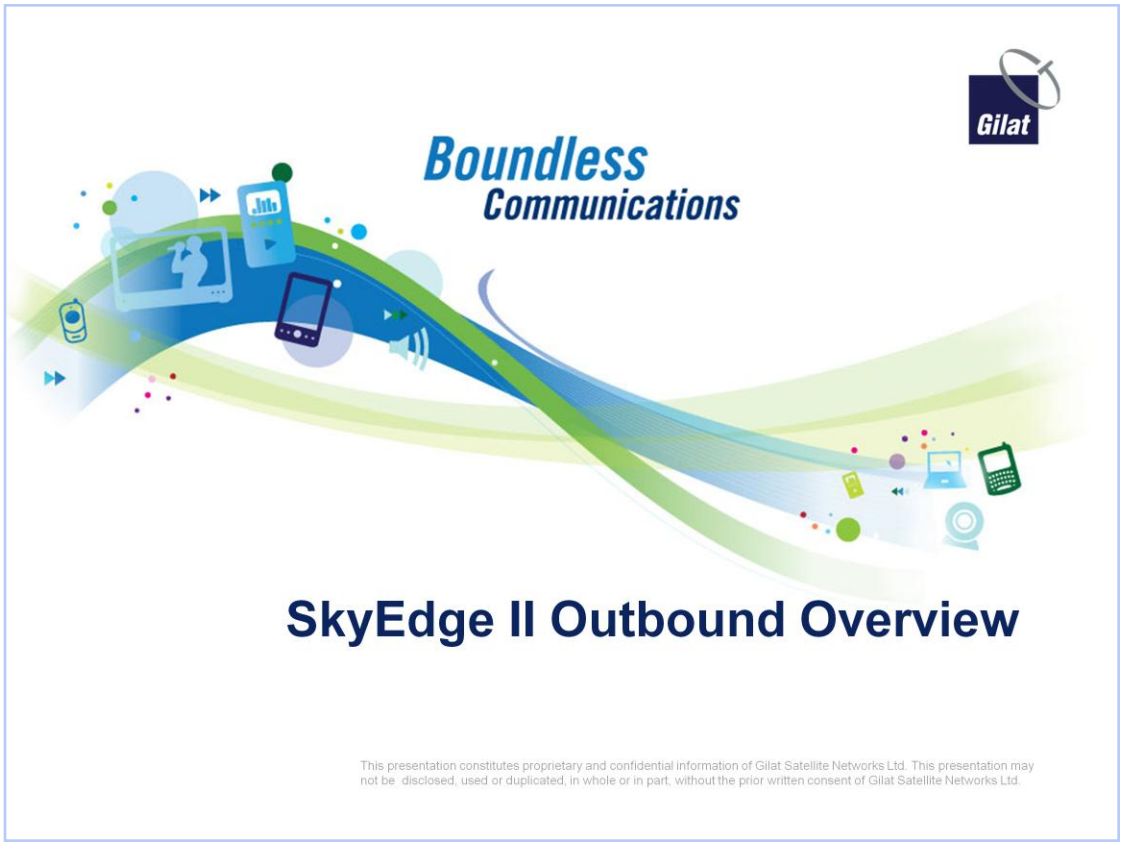
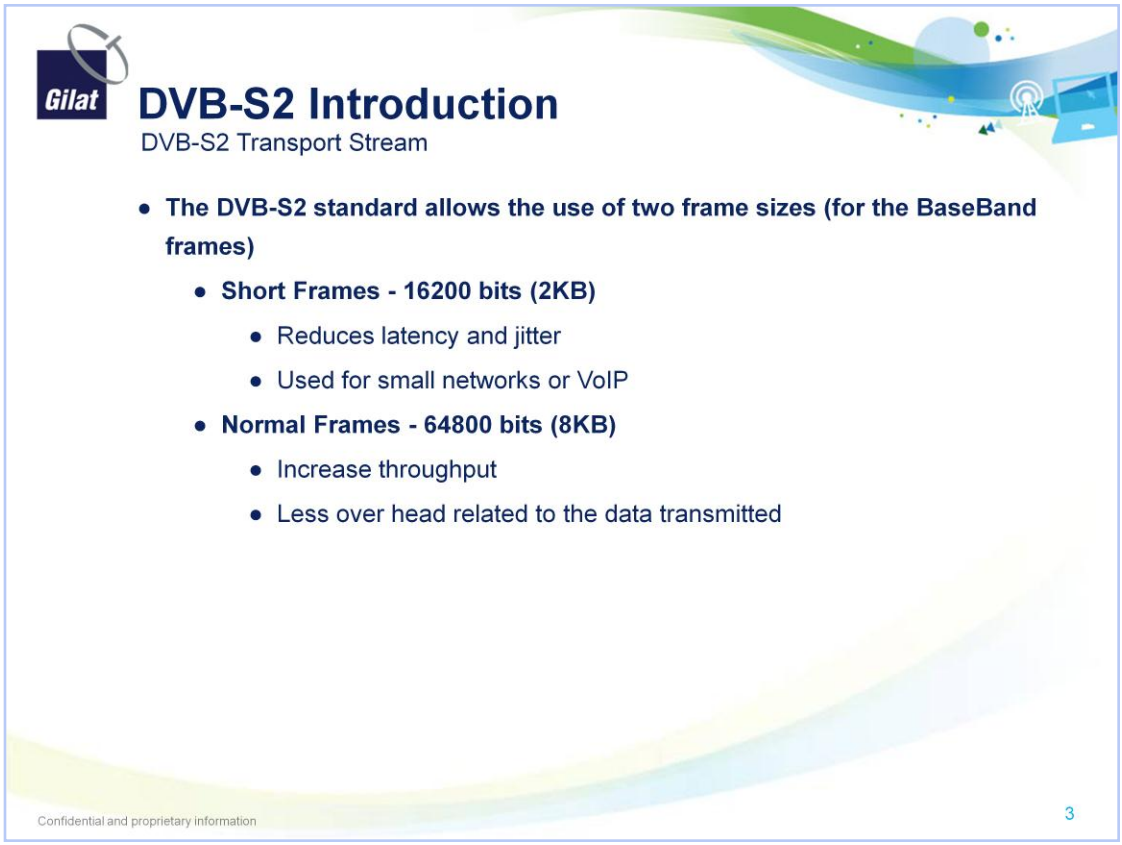


DVB-S2 Introduction

- SE II Outbound channel is based on DVB-S2 (EN302 307)
- The DVB-S2 system has been designed for several satellite broadband applications
- DVB-S2 offers better Spectral efficiency compared with DVB-S
  - Advance modulation schemes
  - Stronger FECs
  - Roll off factor of 0.2
  - The use of ACM



To achieve a more efficient packing of the MPEG frames. SEII allows concatenation. A packet is split across two adjacent BB frames even if the next frame uses a more robust MODCOD.

The frame size is decided in the sizing process of the network, and does not change.

DVB-S2 Introduction

MODCOD list and Characteristics - Normal

MODCOD	Data Bits per Symbol	Minimum Es/N0 (dB)
QPSK 1/4	0.478577	-1.4
QPSK 1/3	0.640827	-0.54
QPSK 2/5	0.770627	0.1
QPSK 1/2	0.965327	1.5
QPSK 3/5	1.160026	2.7
QPSK 2/3	1.290788	3.6
QPSK 3/4	1.452076	4.5
QPSK 4/5	1.549426	5.2
QPSK 5/6	1.615288	5.7
QPSK 8/9	1.724416	6.8
QPSK 9/10	1.746049	7.0
8PSK 3/5	1.739569	6
8PSK 2/3	1.935658	7
8PSK 3/4	2.177525	8.3

MODCOD	Data Bits per Symbol	Minimum Es/N0 (dB)
8PSK 5/6	2.422276	10.3
8PSK 8/9	2.585924	11.5
8PSK 9/10	2.618365	11.8
16APSK 2/3	2.574613	10.2
16APSK 3/4	2.896932	11.4
16APSK 4/5	3.090495	12.2
16APSK 5/6	3.221863	12.8
16APSK 8/9	3.43953	14.1
16APSK 9/10	3.48268	14.4
32APSK 3/4	3.623332	14.3
32APSK 4/5	3.866247	15.5
32APSK 5/6	4.030589	16.5
32APSK 8/9	4.302894	18.5
32APSK 9/10	4.356875	18.9

The above table refers to **normal** frame length

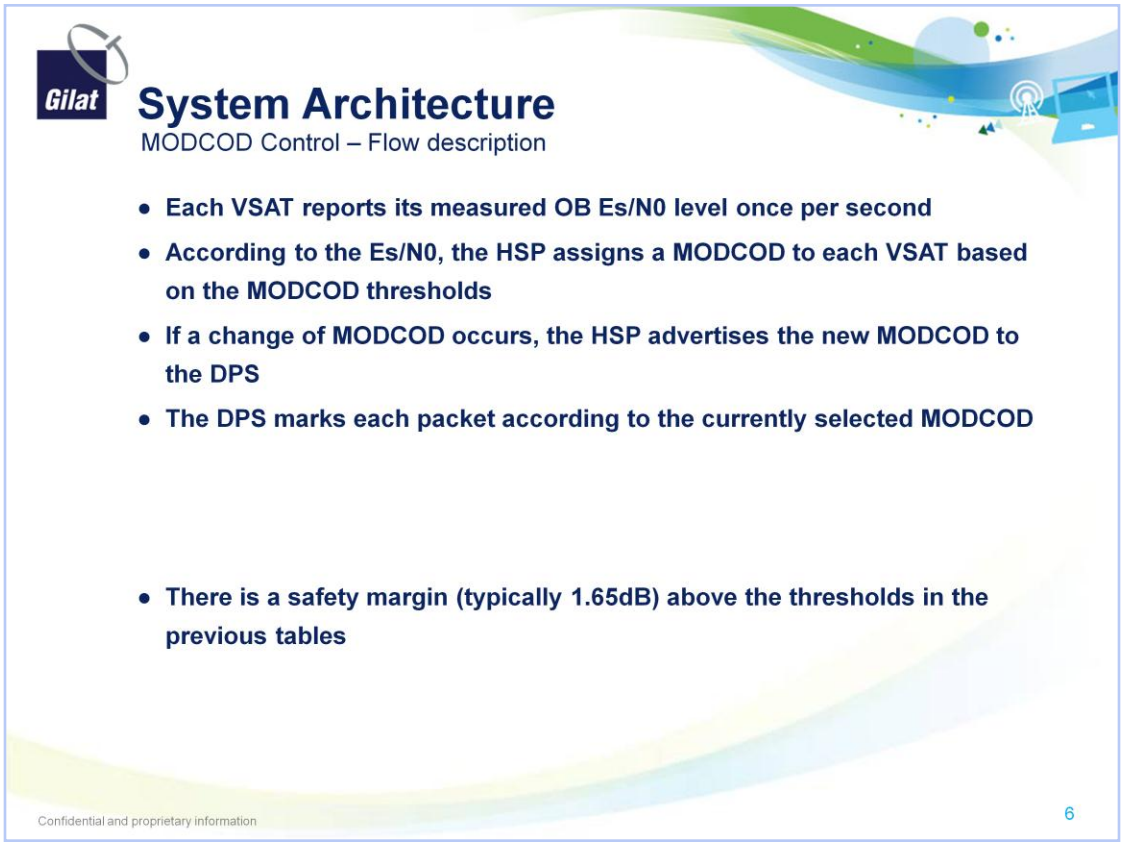
DVB-S2 Introduction

MODCOD list and Characteristics - Short

MODCOD	Data Bits per Symbol	Minimum Es/N0 (dB)
QPSK 1/4	0.357467	-0.4
QPSK 1/3	0.615532	0.0
QPSK 2/5	0.744564	0.1
QPSK 1/2	0.830585	1.5
QPSK 3/5	1.131661	2.9
QPSK 2/3	1.260694	3.8
QPSK 3/4	1.389725	4.7
QPSK 4/5	1.475747	5.4
QPSK 5/6	1.561768	5.9
QPSK 8/9	1.6908	7.3
8PSK 3/5	1.692033	7
8PSK 2/3	1.884959	7.5
8PSK 3/4	2.077885	8.8

MODCOD	Data Bits per Symbol	Minimum Es/N0 (dB)
8PSK 5/6	2.33512	10.8
8PSK 8/9	2.528046	12.0
16APSK 2/3	2.505223	10.5
16APSK 3/4	2.761633	11.7
16APSK 4/5	2.932574	12.5
16APSK 5/6	3.103514	13.1
16APSK 8/9	3.359924	14.4
32APSK 3/4	3.419165	14.7
32APSK 4/5	3.630805	15.2
32APSK 5/6	3.842446	16.7
32APSK 8/9	4.159906	17.7

The above table refers to **short** frame length

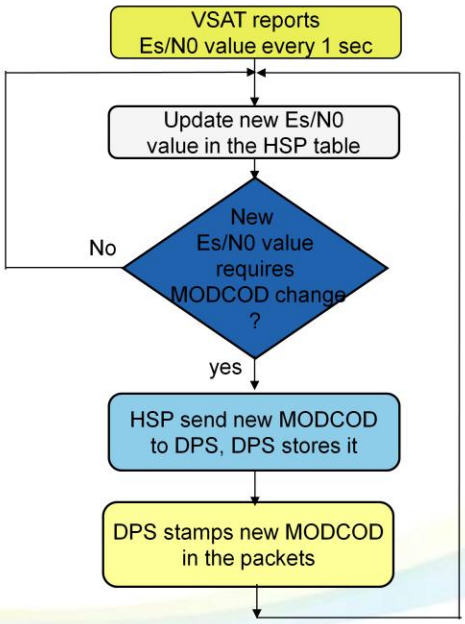


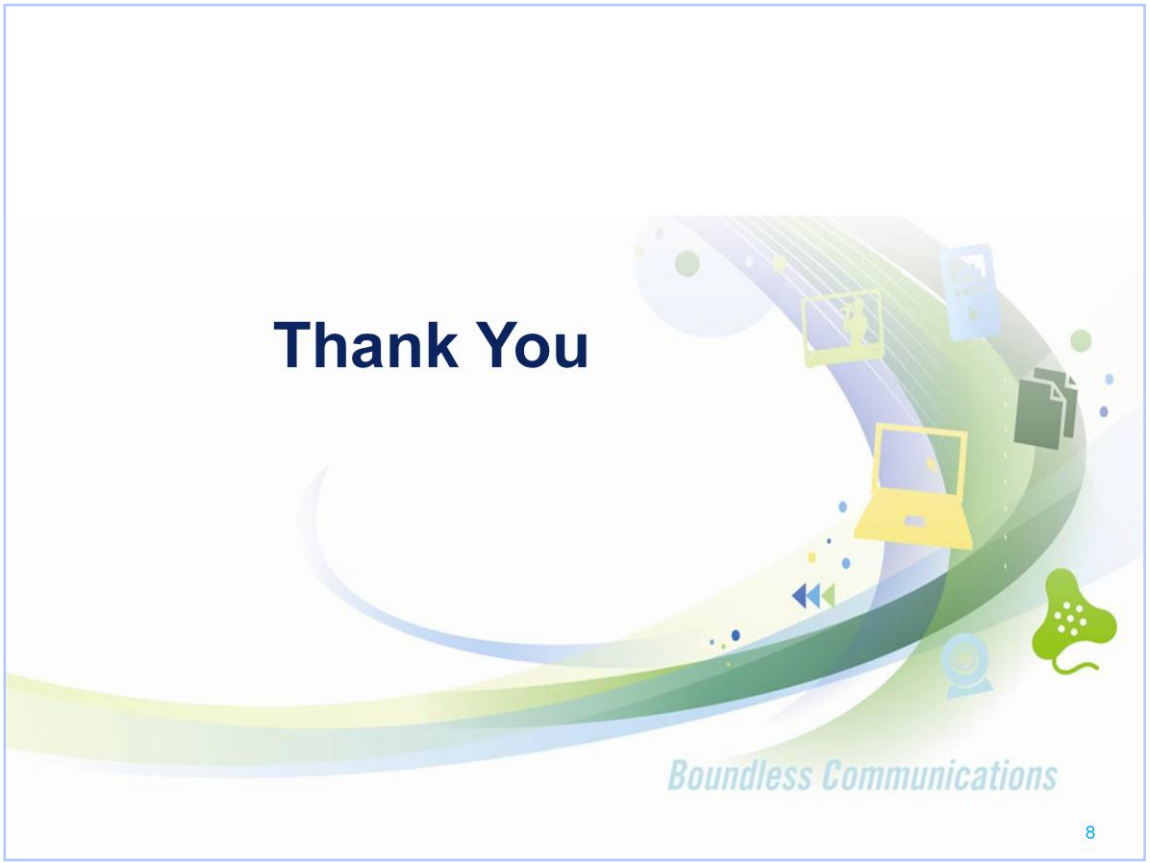
The HSP advertises MODCOD changes as a multicast message to the DPS and NMS via 224.0.1.20 on UDP port 5418.

The MODCOD change can be to a more efficient one if the Es/N0 level rises above a threshold, or to a more robust MODCOD if the Es/N0 falls.

MODCOD Algorithm

Flow Diagram




Thank You
Boundless Communications
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