

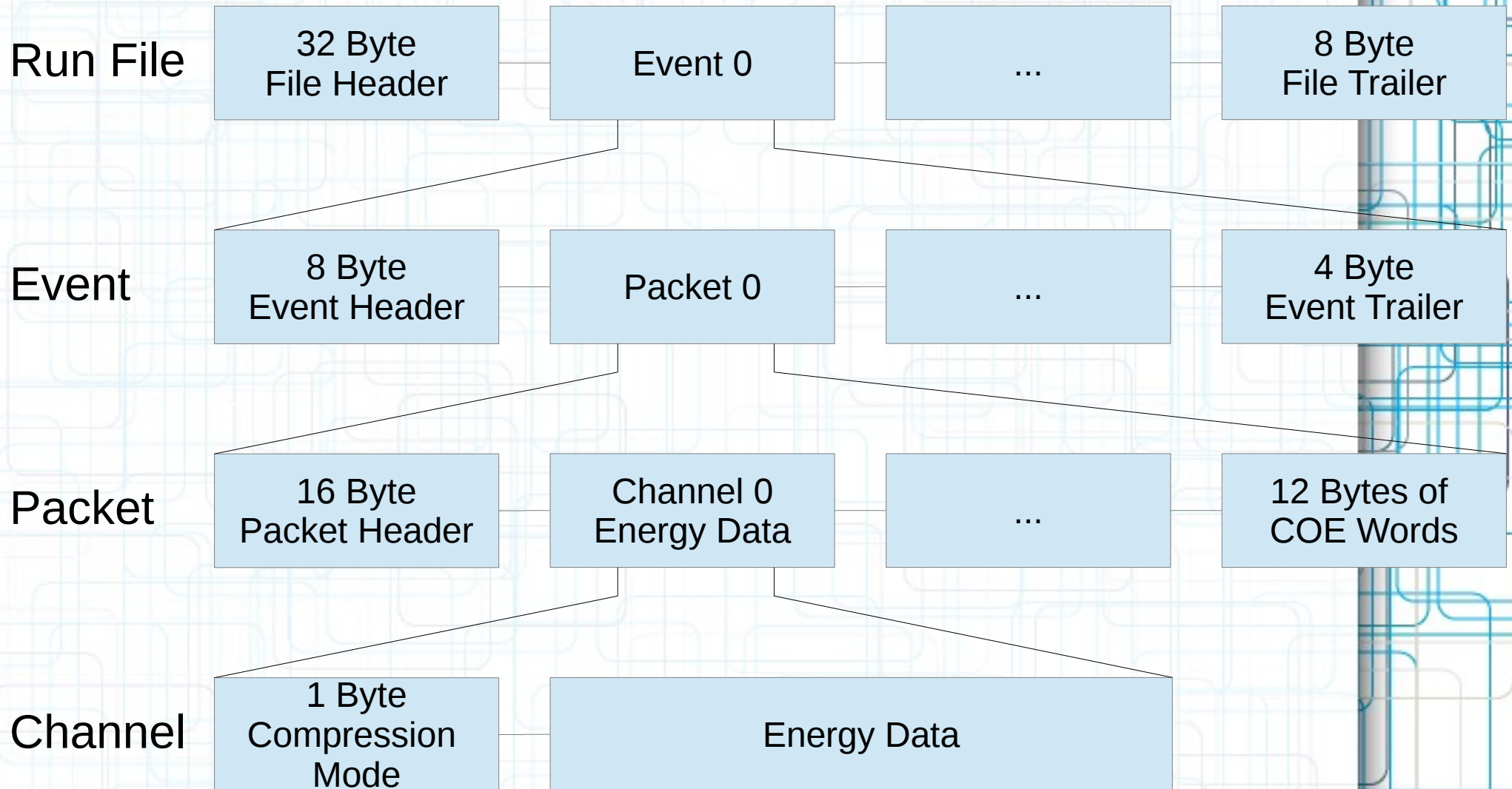
KOTO Run File Format 6

Nikola Whallon

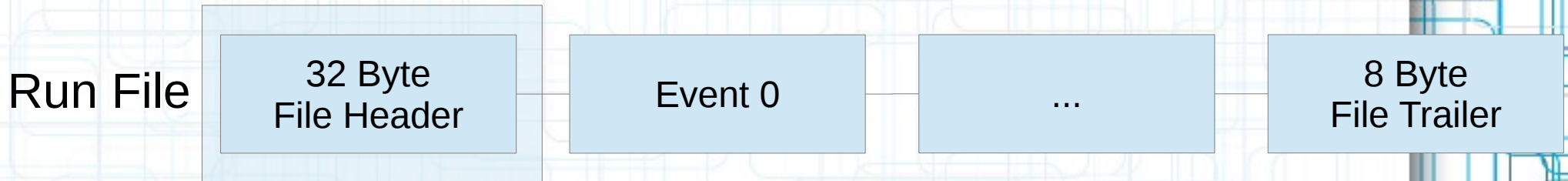
Format 6 Features

- Format 6 was first used in March, 2013.
- Channels of data are compressed using a variable bit compression algorithm.
- The energy word header 0x8 is stripped from energy words.
- The byte order of uncompressed 16-bit energy words is big-endian.

Data Format Overview



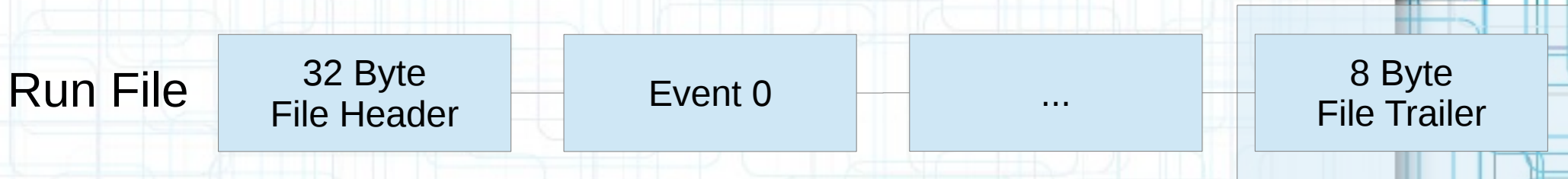
File Header



- File headers consist of the following 8 4-byte, little-endian, words, in order.

File Header Header	0x12341234
File Format Version	6
Run ID	indicates the run
Node Number	indicates the mandolin node
Timestamp	a chronological timestamp
Sample Number	64*
Total Channel Number	245*
File Header Trailer	0x12121212

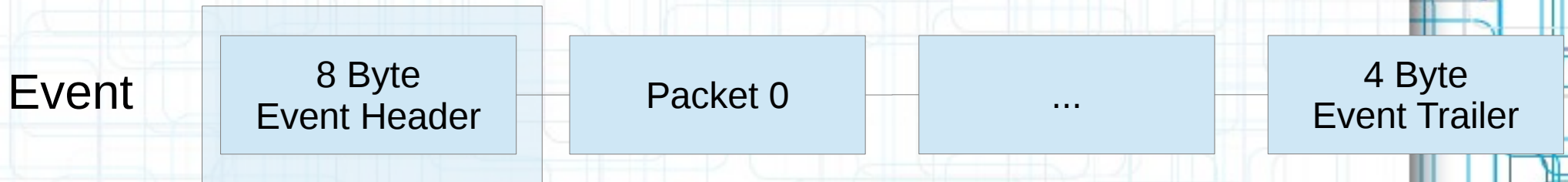
File Trailer



- File trailers consist of the following 2 4-byte, little-endian, words, in order.

Event Number	total number of events in the file
File Trailer	0x43214321

Event Header



- Event headers consist of the following 2 4-byte, little-endian, words, in order.

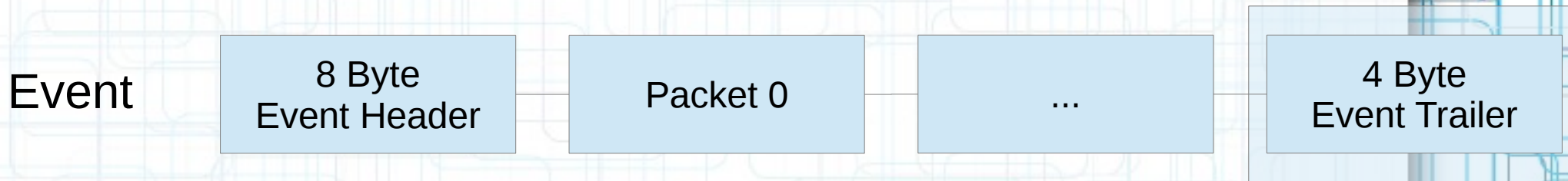
Event Header Header

0xaaaaaaaa

Event Bytes

total number of bytes in the event

Event Trailer

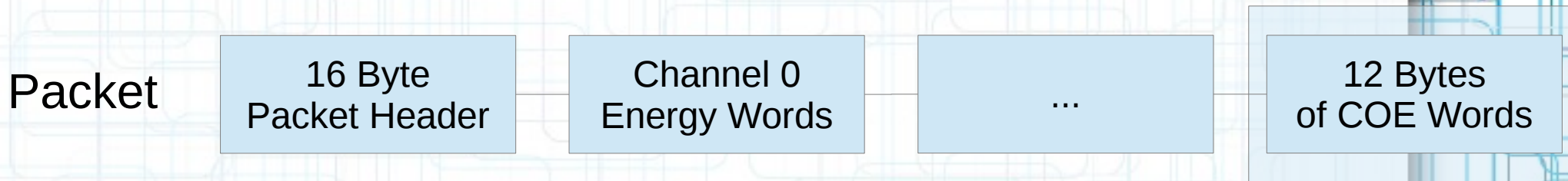


- Event trailers consist of the following 4-byte, little-endian, word.

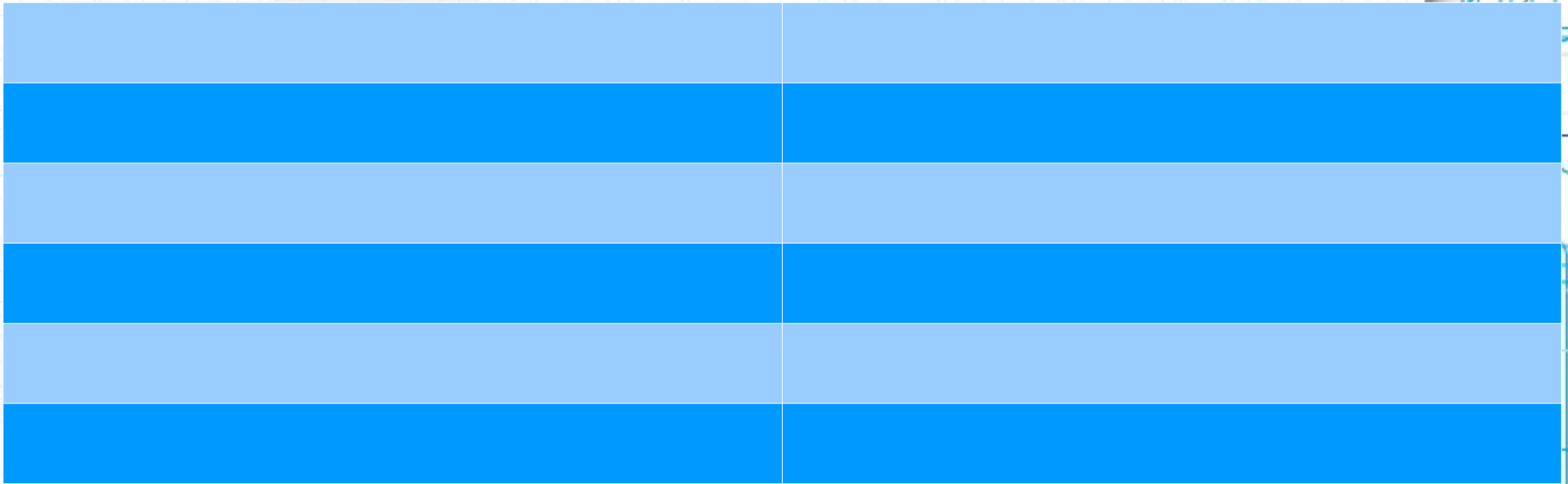
Event Trailer

0xffffffff

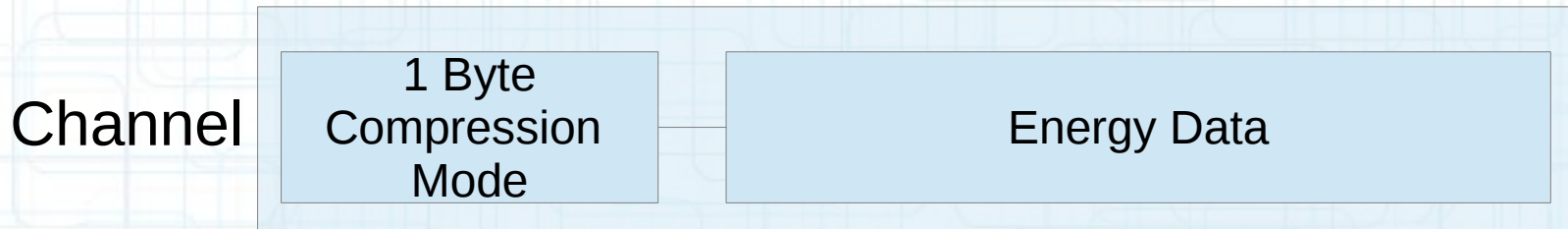
COE Words



- COE words consist of the following 6 2-byte, little-endian, words, in order.



Channel Data



- The first byte of channel data is a `uint8_t` value, n , of the number of bits per energy word.
- If n is not 16, the following 2 bytes of channel data is a big-endian `uint16_t` value of the minimum energy of the channel.
- The following $n * 64 / 8$ bytes contain 64 big-endian, bit-packed energy words.