

ROHC Implementation Experience

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Overview

- First steps towards a full ROHC implementation
 - Initial feel for memory and processor load
- Updating original reference implementation
- Clean separation of ROHC framework and EPIC packet processing
- Make use of time and memory efficient algorithms (but still scope for optimisation...)
- Designed to be used
 - In a test environment (e.g. running over UDP or TCP)
 - For initial tests in a 'real' environment
 - As an extensible test-bed for other protocols

ROHC 09 Compatible Headers

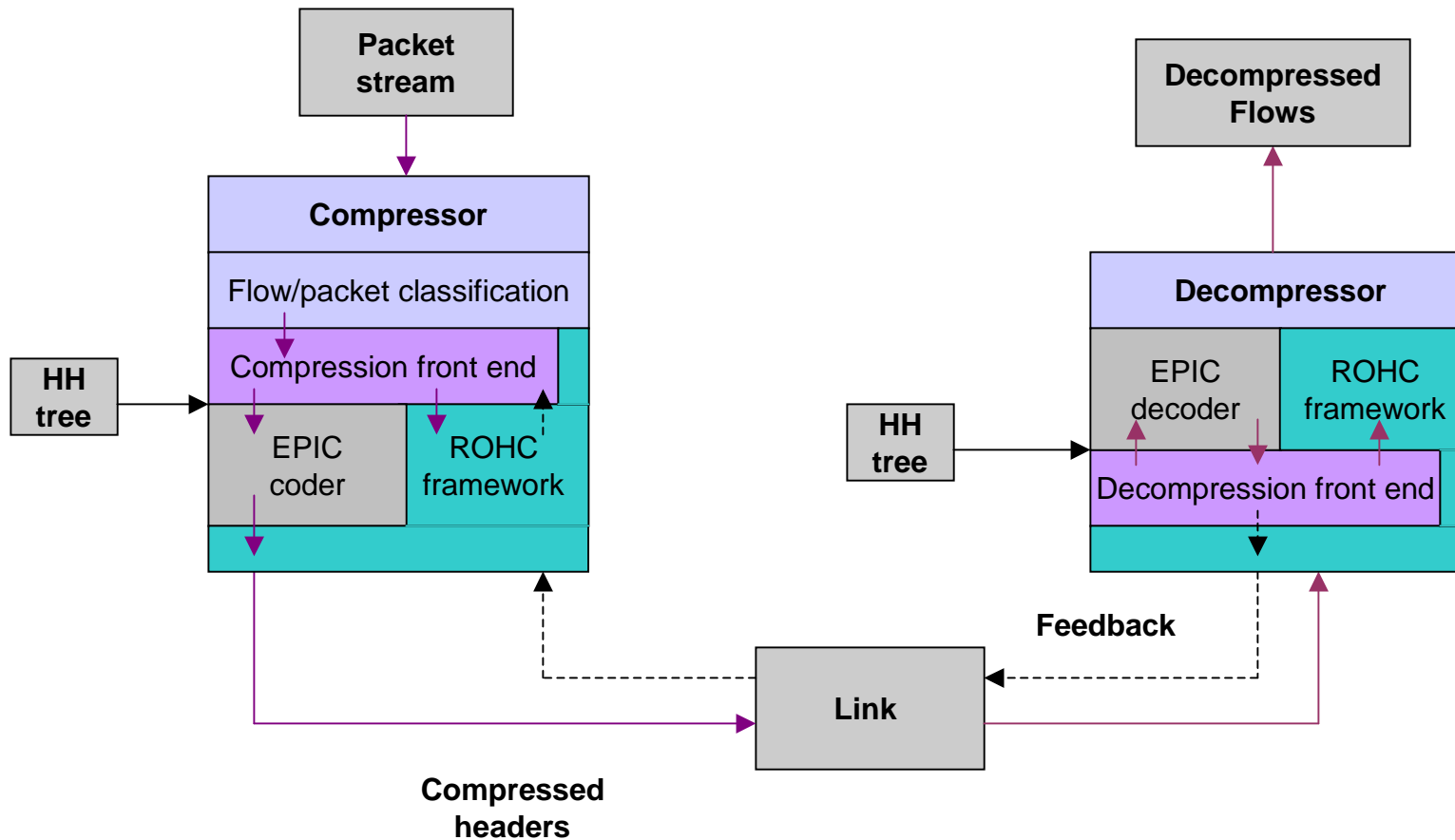
- Described in draft-price-rohc-epic-compatibility-00.txt
- Bitwise identical compressed headers to ROHC 09

Example input table for UOR-2 headers:

Field(s)	Encoding Method	Probability
TS	IRREGULAR(6)	100%
M	IRREGULAR(1)	100%
SN	LSB(6,-1)	100%
X	IRREGULAR(1)	100%
CRC	IRREGULAR(7)	100%
Tsc	VALUE("0")	100%

Architecture

- Architecture of ROHC 09 implementation including EPIC



Processing Requirements

- Processing load

	Encoder MIPS	Decoder MIPS	Total MIPS
ROHC + EPIC			0.8
GSM EFR codec	14.4	1.6	16.0

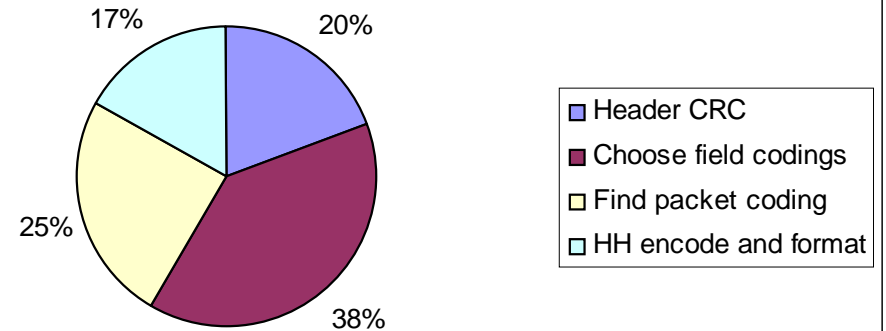
- Memory usage

	Program (Kbytes)	Static tree data (Kbytes)	RAM (Kbytes)
ROHC + EPIC	50	13	0.4
GSM EFR codec	14.4		1.6

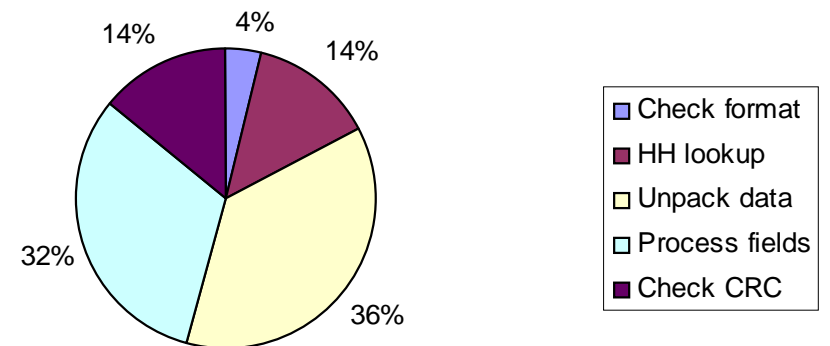
- Implementation efficiency can be increased

Timing Breakdown

- Compress 1 header 41 μ s



- Decompress 1 header 56 μ s



(all timings on 270MHz SUN Ultra-5)

Efficient Implementation

- Existing techniques such as Canonical Huffman work with Hierarchical Huffman
- Most mathematical operations can be simplified
- Processing cost includes:
 - CRC
 - Reduce by lookup based CRC implementation
 - Selecting header format
 - Optimise by looking for most common format

A ROHC Bay Cough?

'Interoperability Test'



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Questions

- When?
- Who?
- What?
- Where?
- How?

Questions

- When?
 - Just before IETF-51?
- Who?
 - Anyone with enough of an implementation...
- What?
 - Aim for basic interoperability
- Where?
 - Siemens/Roke Manor
- How?
 - Take technical aspects of getting implementations to 'talk together' to the list