

# **Robust Header Compression (ROHC)**

**Bakeoff July/August 2001**  
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## RFC 3095 Interop Testing ('Bay Cough')

- ◆ **When?**
  - Just before IETF-51 (31st July – 3rd August)
- ◆ **Who?**
  - Anyone with enough of an implementation...  
(half a dozen “expressions of interest” so far)
- ◆ **What?**
  - Focus on RTP profile with IPv4
- ◆ **Where?**
  - Siemens/Roke Manor, Southampton
- ◆ **How?**
  - Currently discussing technical details on the ROHC mailing list



## Who was there

### ◆ Implementations

- Effnet
- Ericsson
- Nokia
- Siemens

### ◆ Testers

- Ericsson

### ◆ Support

- Universität Bremen
- University of Arizona



## What did we test

- ◆ **ROHC over PPP**
  - But without the negotiation protocol
  - Also: ROHC over Ethernet (as test harness, only)
- ◆ **Context setup, CID numbering, Mode changes, Packet formats, Feedback formats**
- ◆ **Continuous stream of RTP packets**
- ◆ **Basic voice call, including silence suppression/talkspurts**
- ◆ **IP ID:**
  - Irregular IP ID increments\*, Byte swapped IP ID\*, Random IP ID\*
- ◆ **Change of IP TOS, Change of IP TTL, Change of RTP PT**
- ◆ **Combination of IP / RTP field changes\***
- ◆ **Wrap-around test (for IP ID, SN and TS)**
- ◆ **Different TS\_STRIDE (900 / 30ms)**
- ◆ **Timer-based compression**

## What were the problems

### ◆ CRCs

- LSB or MSB, and what exactly is the initialization
- Solved: use PPP CRC (RFC1662, = Ethernet CRC) as guidance
- <http://www.dmn.tzi.org/ietf/rohc/rohc-crc.pl>
- Include this as example code in draft standard

### ◆ Inefficiency in mode transition figures

- The decompressor can stop sending CRCs in the middle of not only 5.6.3, but 5.6.5 or 5.6.6 as well (set D\_TRANS to P)

### ◆ Transition to timer-based compression requires care

- In uncertainty period, need to keep k large enough to cover *both* interpretation intervals (window-based and timer-based)

## Other clarifications

- ◆ **Padding is not included in CRC (5.9.1)**
- ◆ **In dynamic chain, there is one zero byte (or, if GP is set, two bytes) for the generic header extension list**
- ◆ **NBO=1 really means network byte order**
- ◆ **SN updates with CRC update TS and ID implicitly, *unless* there are explicit TS and ID fields in the packet**
- ◆ **Switch type-0/-1 decoder between modes *before* mode transition completes**
- ◆ **Yes, we are really sending CC twice in the RTP dynamic chain (ouch, but very little efficiency loss)**

## Results

- ◆ **RFC 3095 appears to be a solid spec**
- ◆ **Four implementations are out there that interoperate**
- ◆ **Packet traces and example programs on ROHC web site**
- ◆ **Another interop is needed to complete the work!**
  - Re-test where implementation bugs were found
  - Profiles 0, 2, 3
  - IPv6, extension headers, GRE, ...
  - List-based compression (extension headers, CSRC)
  - More rigorous robustness testing
- ◆ **November in Tucson, AZ?**
  - Avg day high 22 °C

<http://www.dmn.tzi.org/ietf/rohc>

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