Cross-Layer Robust Header Compression (ROHC) Compressor Design

Tech ID: 27065 / UC Case 2016-890-0

ABSTRACT

Researchers at the University of California, Davis have developed a ROHC compressor that adaptively adjusts the compression level based on an underlying Partially Observable Markov Decision Process (POMDP) model.

FULL DESCRIPTION

The popularity of smartphones and high speed networks has placed a great deal of pressure on existing wireless networks. This growing demand has made it essential to improve bandwidth efficiency. One way of doing this is through the ROHC approach which compresses data where capacity is strained. Although ROHC compressors exist, they either have no means of receiving an error recovery request, or they require their own feedback channel.

Researchers at the University of California, Davis have developed a ROHC compressor that adaptively adjusts the compression level based on an underlying POMDP model. The model makes use of the estimation of the channel status, and looks at results from previous transmissions in order to determine if they have been acquired from lower layers in the protocol stack. This novel method is advantageous in that it is both more efficient than a traditional U-mode ROHC compressor, and unlike O and R mode compressors, does not require its own ROHC feedback channel.

APPLICATIONS

- Compressing data
- Bandwidth efficiency

FEATURES/BENEFITS

- Higher efficiency than U model ROHC compressor
- No need for a dedicated ROHC feedback channel (which is required in both R and O mode compressors)

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,623,230	04/14/2020	2016-890

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Deep Learning Network and Compression Framework over Limited Bandwidth Network Links
- Wireless Data Transmission with Efficient Radio Resource Usage

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OTHER INFORMATION

KEYWORDS

ROHC, data compression, bandwidth efficiency, POMDP model

CATEGORIZED AS

- **Communications**
  - Internet
  - Wireless
- **Computer**
  - Other
- **Engineering**
  - Engineering

RELATED CASES

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