- Software fully compliant with the IETF standards RFC 6282 & RFC 7400

- Integrated compression solution with the same API for RFC 6282 and RFC 7400

- Lightweight implementation including all features suitable for low-end devices

- Highly portable ANSI C code with no operating system dependencies
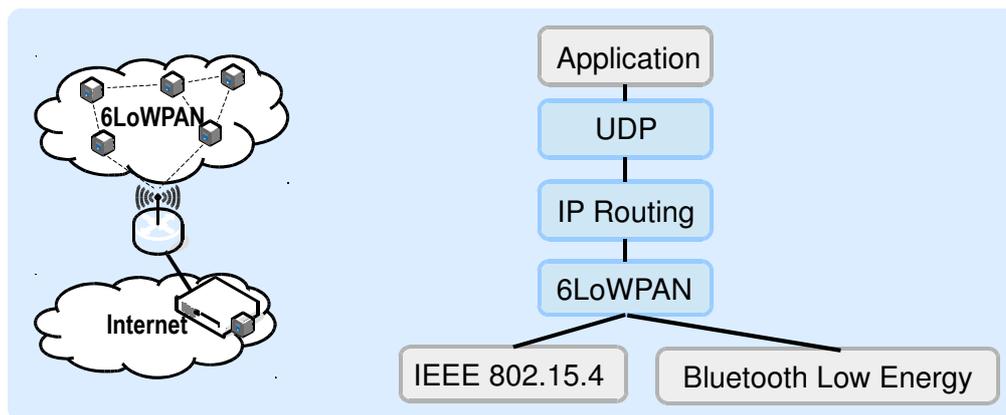
- Platform and endianness (byte-order) independent

Effnet Header Compression for IoT, IoT-HC™, compresses and decompresses traffic according to both IETF RFC 6282 and 7400. The focus is on achieving optimal compression efficiency, however when compressing traffic according to IETF RFC 7400, the level of compression efficiency can be balanced against the available computational resources.

The typical applications of 6LoWPAN networks are home and building automation, transportation, medical and health care systems, energy and infrastructure management and environmental monitoring. The devices on this network communicate using IPv6 protocol for its capability to address billions of devices and auto-configuration. In the original 6LoWPAN RFC (RFC 4944), a basic header compression mechanism for IPv6 datagrams was introduced but found to be insufficient. It was superseded by the header compression mechanism specified in "Compression Format for IPv6 Datagrams over IEEE 802.15.4-Based Networks" (RFC 6282). Effnet IoT-HC™ fully supports the new header compression mechanism described in RFC 6282.

As RFC 6282 describes specific compression methods for the typical headers in use today, it does not provide the equivalent of ROHC (RFC 3095) profiles for future expansion. This was addressed with the add-on "6LoWPAN-GHC: Generic Header Compression for 6LoWPANs", RFC 7400. It provides a generic LZ77-like compression algorithm which can compress both the full header chain as well as the payload. It can be used today for compression of the payload in RFC 6282-compressed header chains, and in the future for new types of header chains not supported by RFC 6282. Effnet IoT-HC™ fully supports the header compression mechanism described in RFC 7400.

Effnet IoT-HC™ is intended for use whenever RFC 6282 and RFC 7400 compression and decompression of 6LoWPAN traffic to and from regular IPv6 traffic is required, i.e. in the Edge Router in 6LoWPAN networks and also in 6LoWPAN devices, the "Things" in "Internet of Things".

Work is underway within the IETF to extend 6LoWPAN connectivity over Bluetooth Low Energy, *draft-ietf-6lo-btle*. Effnet IoT-HC™ supports 6LoWPAN over Bluetooth Low Energy as per the current draft and it is updated as the standards evolve.

Effnet IoT-HC™ is highly portable, platform and endianness (byte-order) independent, software without operating system dependencies. Effnet IoT-HC™ focuses on standards compliance and efficiency, compression, system as well as operational level.

Effnet IoT-HC™ is designed to be easily integrated into a variety of operating systems and hardware platforms. The implementation is developer-friendly and available both in user space, for debugging and testing and kernel space, for link layer integration. Effnet can assist in the link layer integration process as an engineering service.

Effnet IoT-HC^{TM}

Key enabler of 6LoWPAN services

An example of network packet compression by Effnet IoT-HC^{TM}
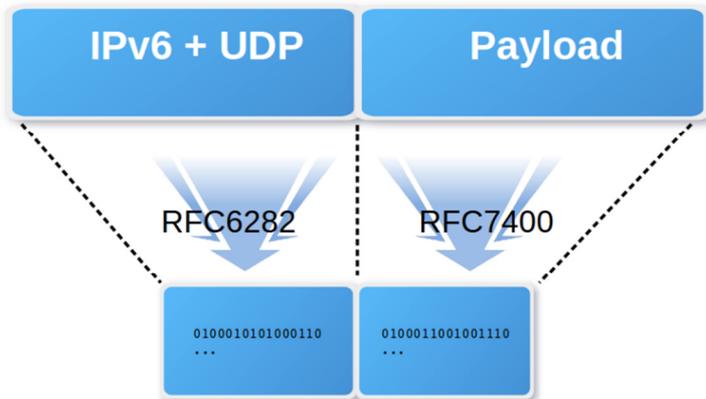
Platforms

Effnet IoT-HC^{TM} has been tested on ARM, PowerPC, MIPS and x86 platforms, and its portable design makes it straightforward to port to other platforms as well.

Support

Effnet products are offered with a full range of support services, including problem reporting, bug fixes, updates, training, consulting and integration services. A sample application code is provided which demonstrates the use of API and speed-up the integration process.

About Effnet AB

Since its beginnings in 1997, Effnet has been involved in research and development of technologies that improve the performance and efficiency of IP based networks. Effnet is committed to continue to provide leading edge IP technology.

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