

INVENTION DISCLOSURE

1. Invention Title.

Optimized Bandwidth Request Using Small Request Frames

2. Invention Summary.

A bandwidth request frame designed to incur minimum upstream overhead while enabling support of upstream QoS at gigabit per second data rates.

3. Invention Description.

a. Describe the invention in detail.

A bandwidth request frame designed to incur minimum upstream overhead while enabling support of upstream QoS at gigabit per second data rates. This request frame structure is described in Section 4.5 of the “MAC Layer Design for Efficient Multigigabit Transport over CATV Networks” portions of CableLabs provisional patent application S.N. 61/266,653 filed December 4, 2009.

b. Why was the invention developed? What problem(s) does the invention solve? How is it better?

In systems where there are a large number of end-stations the overhead due to bandwidth request frames can be considerable in particular for high traffic loads. This provides flexibility in the design of a bandwidth request mechanism as it can be tailor to activity levels of each flow based on the latency requirements. For example, a low latency service requires frequent polling and an efficient request frame solution to reduce overhead. This design enables granular QoS (per flow) strategies while maintaining low request overhead. In addition this request frame structure enables the implementation of an efficient bandwidth request approach using single dedicated slot per time interval per flow.

c. Briefly outline the potential commercial value and customers of the invention.

This invention enables implementations of efficient bandwidth request mechanisms and granular QoS. This invention increases the maximum capacity that can be obtained out of the upstream, enabling cable operators to provide higher speed services or to support a larger number of users. It would also allow operator to delay network upgrades. Broadband network operators and vendors could take advantage of such an invention.

4. HOW is your invention different from existing products, processes, systems?

DOCSIS uses small request frames that are 6 to 7 Bytes long and used for a contention request mechanism while the proposed request frame in this disclosure is 4 Bytes in length and is tailored to multi-tier polling and dedicated slot bandwidth request approaches. Not aware of other existing products, processes or systems.