**Available Online at www.ijcsmc.com**

**International Journal of Computer Science and Mobile Computing**

**A Monthly Journal of Computer Science and Information Technology**

**ISSN 2320–088X**
**IMPACT FACTOR: 6.199**

***IJCSMC, Vol. 9, Issue. 3, March 2020, pg.38 – 42***

# TO IMPROVE NETWORK PERFORMANCE MEASUREMENT USING INCREMENTAL COUNTER ESTIMATION BROADCAST ALGORITHM

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***Abstract— Networks are collection of autonomous system, generally networks degradation problem are upcoming research challenge for researchers to improve performance measurement proposing a new novel based algorithm.***
***Keywords— Introduction, ICEB Problems, ICEB.***

## I. Introduction

Measurement applications track several million flows and their counters are updated with the arrival of every packet. These capabilities are an important enabling factor for networking algorithms in many fields such as load balancing, routing, fairness, network caching and intrusion detection  Counter arrays are also used in popular approximate counting sketches such as multi stage filters and count min sketch [9], as well as in network monitoring architectures. Such architectures are used to collect and analyze statistics from many networking devices.

## II. Related Work

**In Existing Work,** the problem of transmitting energy consumption optimization is referred to a Minimum-Energy Multicast (MEM) problem, and has been extensively studied in static networks. Since both MEM problem and Minimum- Energy Broadcast (MEB) problem, a special case of MEM, are proven to be NP-hard, the community focuses on designing efficient heuristics energy efficient multicast/broadcast algorithms for specific applications is also an active topic as noted earlier, prior literature only focuses on the minimization of transmitting energy, relies on the assumption that the receiving energy is directly proportional to the number of receivers or considers the receiving energy in the context of network-wide broadcast.

In contrast, the proposed framework in our work jointly minimizes the transmitting and receiving energy, with applicability to more general scenarios. The major limitations are there is no Accurate Less Energy Node detection due to absence of filtering techniques. More packets drops frequently.

## III. PROPOSED WORK

**The Proposed Work,** formulated our problem called solution for energy consumption and end-to-end delay constrained problems in sensor networks using DMET scheme for optimizing the problem and the approximation ratio of polynomial distribution-based algorithm for NP-hardness issues, which yields to improve energy and delay constrained problems.

### CONTRUBUTION OF WORK

The contribution scheme of algorithms works as follows, It combines shared counter and multistage filters. A tiny table with estimates. ICEB offers law error, replacing the counters in the estimates could potentially improve their space to accuracy ratio. Finally this study extensively achieves, the estimators can return the estimated value in 0(1)time, and maintains the access efficiency of such combined schemes.

## IV. PROPOSED RELATED WORK

While all counter arrays are required to monitor traffic at line speed, their implementations differ in the availability of the monitored data. Specifically, an online counter array can be updated and read at line speed while an offline counter array can only be updated at line speed. Naturally, offline counter arrays are used for high level tasks such as data analysis and identifying performance bottlenecks. On the other hand, online counter arrays are used to answer low level queries such as what priority to give a certain flow, how much bandwidth it requires and where to route its packets. Hybrid DRAM/SRAM counter arrays [1], [2] store only the least significant bits of each counter in SRAM and the rest of the counter in (slower) DRAM. In CounterBraids [15], counters are compressed in order to fit inside SRAM, but the decoding process is slow. Alternatively, Randomized Counter Sharing (RCS) [16] reduces the overhead required to maintain a flow to counter association. In that solution, each flow is randomly associated

**Proposed Algorithms**

In ICE-Buckets we partition the counter array into small independent buckets and each bucket utilizes a different estimation function according to its maximal counter. Intuitively, in ICE-Buckets a large counter only increases the estimation error for its own bucket rather than to every other counter. This architecture is illustrated in Figure 3.To make the discussion more concrete, we first intro- duce additional notations specific to this section in Table II. ICE-Buckets employs a base error parameter that is called $s_{step}$. As mentioned, symbols are separated into buckets. Each bucket maintains a scale parameter $w_i$ of size $\log_2 E$ bits, where $E$ is a parameter of the data structure. To estimate counters in a bucket with scale $w$, we use the estimation function $A_{s_{step}} \cdot w$ .

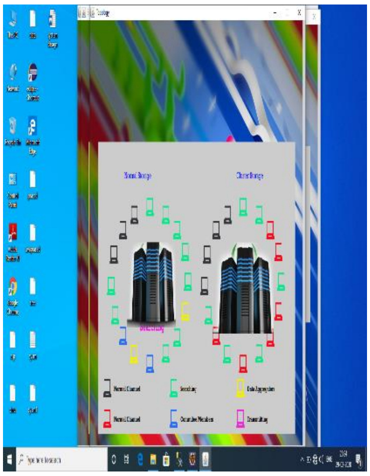
**Dynamic Configuration**

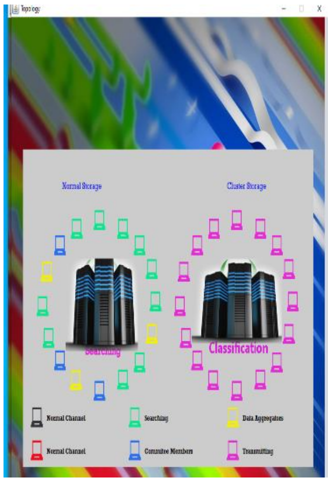
In Theorem 7 below we show that there is an ICE-Buckets configuration for which the error is low. However, that low error configuration is unknown. In this section, we present an algorithm that dynamically configures ICE-Buckets to achieve a low error for any workload. This process is composed of local and global upscale operations.

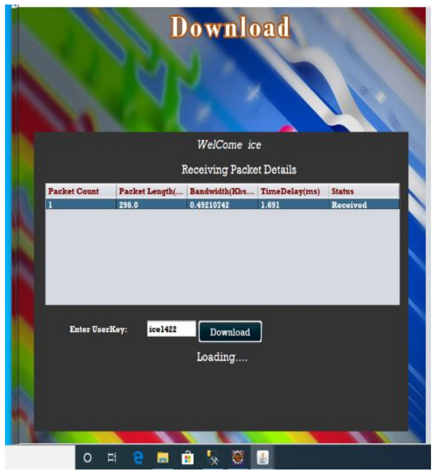
**Algorithm 1 Global Upscale**

Upscale is a way to dynamically adjust the counter scale to the actual workload [30]. It is useful in case the counting capacity M is unknown. We begin with a small that gives a counting capacity of A(L−1) and dynamically increase it when necessary. That is, when a symbol approaches L−1, we increase to >. Then, we update all symbols to maintain unbiased estimation under the new scale.

## V. COMPARATIVE RESULTS








## VI. CONCLUSIONS

A novel counter estimation data structure that minimizes the relative error. ICE-Buckets uses the optimal estimation function with a scale that is optimized independently for each bucket.

## VII. ACKNOWLEDGEMENT

The authors would like to thank the anonymous reviewers for their comments that helped improve the presentation of this work.

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