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Efficient Misplaced-Tag Pinpointing in Large RFID Systems

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I. PROBLEM

Product Misplacement could take $1.1 Billion from WAL★MART

II. BACKGROUND

RFID-enabled supply chains:

Products are attached with **RFID tags;**

Misplaced Products = Misplaced Tags;

Misplaced-Tag Pinpointing (MTP)

III. MOTIVATION

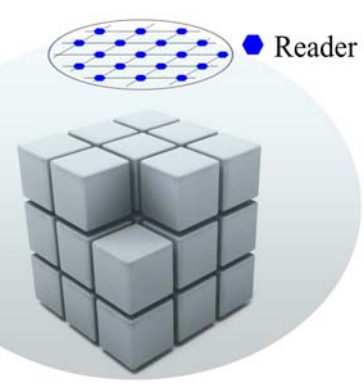
A **misplaced tag**

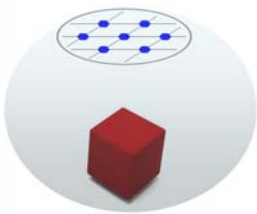
Locates away from the area where **the majority of tags in the same category as it** locate.

IV. IDEA

Detect misplaced tags using separate **reader clusters;**

Locate only misplaced tags.





IDEA+

Form reader clusters without all tags responding.

V. PERFORMANCE

Comparison Other: RPCV [EDBT'10]

stick to product layout plans;

tag-wise layout position match;

misplaced tags out of **tag clusters.**

>70% time/energy reduction!

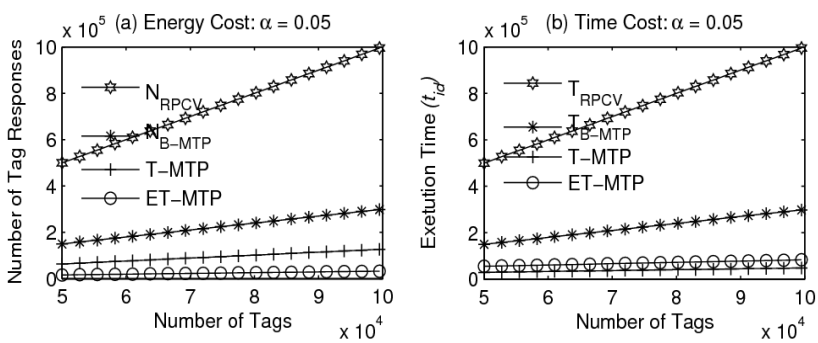


Fig. 7. Performance comparison of RPCV, B-MTP, T-MTP, and ET-MTP with varying tag number n and misplacement ratio α.