Fairness in Collision-Free WLANs

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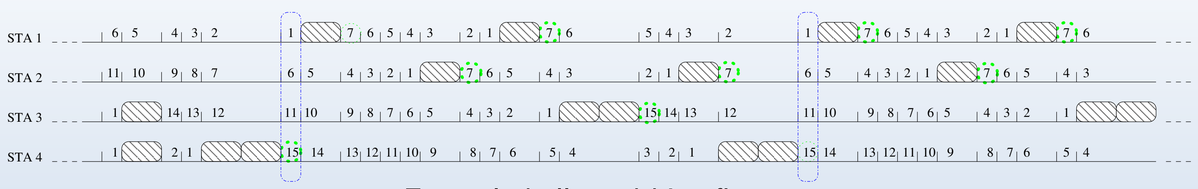
Motivation

This section states the general problem: coordinate access to a shared medium, in a distributed manner avoiding collisions.

- What is a contention protocol for?: explain that the medium is shared.
- Highlight that it is widely used by current WiFi devices.
- What are the repercussions of a collision?

CSMA/CA and CSMA/ECA

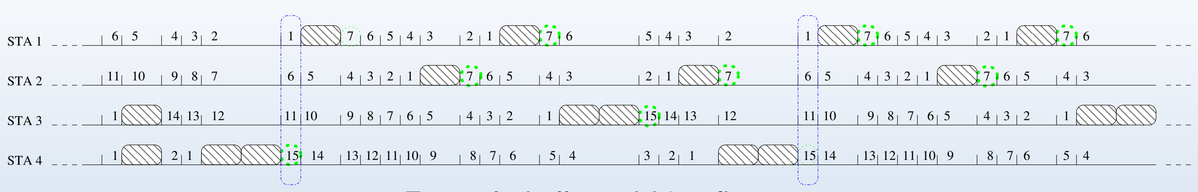
It might be appropriate to detail the behavior of CSMA/CA and CSMA/ECA. A balls and bins figure?



Example balls and bins figure.

Ensuring fairness

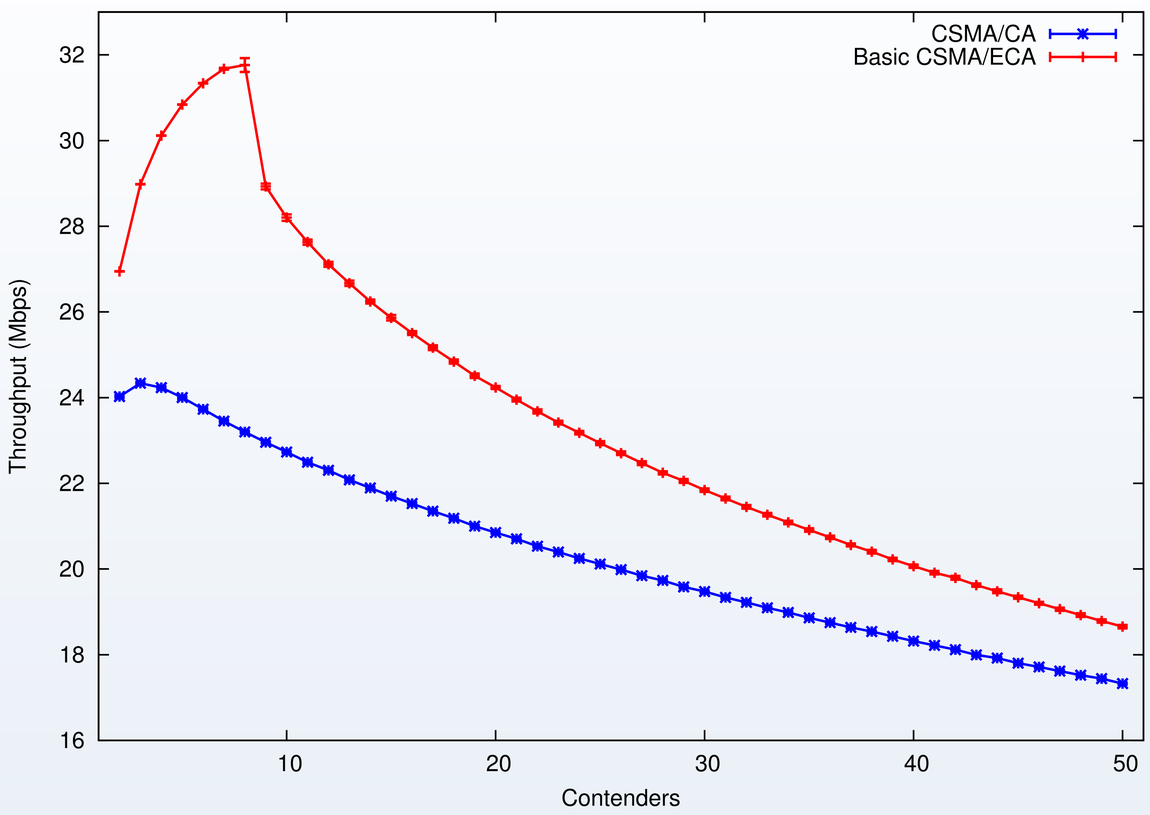
This section introduces the hysteresis and fair share concepts.



Example balls and bins figure.

Throughput and fairness in CSMA/CA and CSMA/ECA

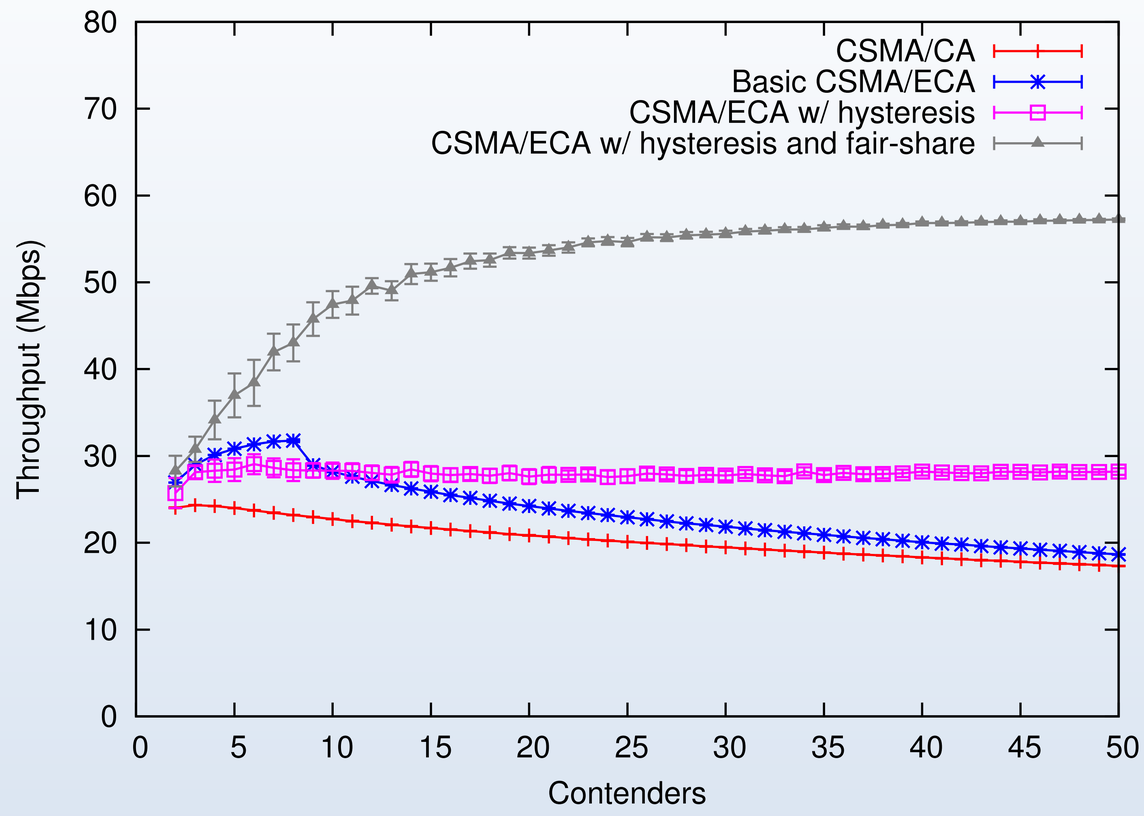
Test



Example balls and bins figure.

CSMA/ECA: hysteresis and fair share

Explanation on how the hysteresis and fair share achieve this increase in throughput. Also to mention the resiliency to slot drift.

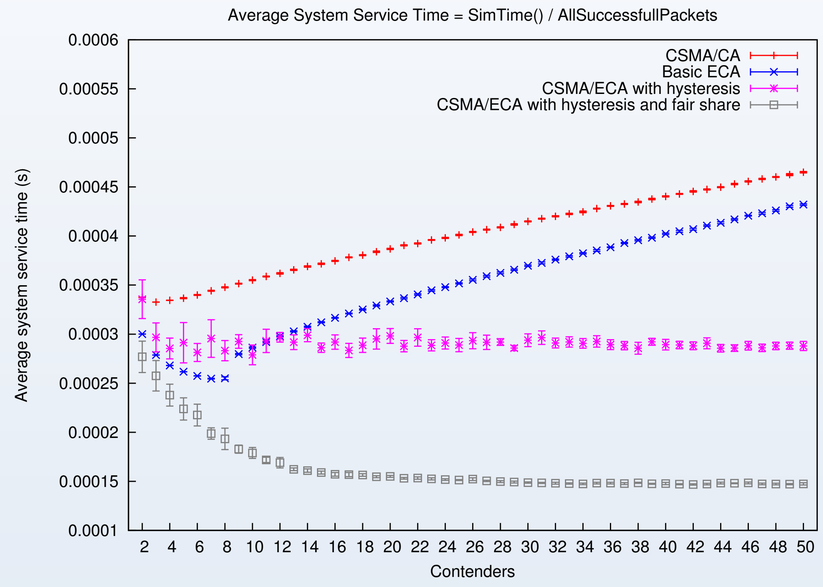


An STB establishes active (used) and inactive (unused) SIP sessions.

Future plans

Some of the future directions of the project:

- Unsaturated scenarios.
- To implement IEEE 802.11e EDCA.
- Wireless MAC Processors.
- Implementation in RFID networks.



Average system service time.

References

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[2] T. Qiu, Z. Ge, S. Lee, J. Wang, J. Xu, and Q. Zhao. Modeling user activities in a large iptv system. In *Proceedings of the 9th ACM SIGCOMM conference on Internet measurement conference*, pages 430–441. ACM, 2009.

[3] T. Qiu, Z. Ge, S. Lee, J. Wang, Q. Zhao, and J. Xu. Modeling channel popularity dynamics in a large iptv system. In *Proceedings of the eleventh international joint conference on Measurement and modeling of computer systems*, pages 275–286. ACM, 2009.