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Why Telegraf's `inputs.net` Plugin Cannot Observe `tc netem` Chaos Tests

Telegraf's `inputs.net` plugin is **unable to observe the effects of `tc netem` network chaos tests** because of how both tools interact with the Linux networking stack.

How Telegraf's `inputs.net` Plugin Works

- The plugin reads network statistics from `/proc/net/dev`.
- These stats include bytes, packets, errors, and drops **at the network interface level** (e.g., eth0, lo).
- The `drop` and `err` counters in `/proc/net/dev` are incremented by the kernel when packets are dropped or errors occur at the device driver or hardware level (such as buffer overflows or hardware faults)[1].

How `tc netem` Works

- `tc netem` operates at the **traffic control (qdisc)** layer, which is above the device driver in the Linux networking stack.
- It simulates network conditions (loss, delay, duplication, corruption) by manipulating packets **before** they reach the hardware/network interface.
- When `tc netem` drops or delays a packet, it does so in the software queue, **not at the hardware or driver level**[1].

Why `inputs.net` Doesn't See Netem Drops

- **Packets dropped or delayed by `tc netem` are not counted in the interface-level drop/error counters in `/proc/net/dev`.**
- The kernel does **not** increment the `drop` or `err` fields in `/proc/net/dev` for packets manipulated by `tc netem`.
- As a result, Telegraf's `inputs.net` plugin, which relies on `/proc/net/dev`, will always report zero (or unchanged) drops/errors, even if `tc netem` is actively dropping packets[1].

Comparison Table

Tool/Layer	Where Drops Are Counted	Visible in `/proc/net/dev`?
Hardware/Driver	Buffer overflows, hardware errors	Yes
iptables DROP	Firewall layer	No

Tool/Layer	Where Drops Are Counted	Visible in `/proc/net/dev`?
tc netem	Traffic control (qdisc, software queue)	No

How to Observe Netem Effects

- Use application-level metrics (e.g., packet loss in `iperf3`, ping, or your own app).
- Use `tc -s qdisc show dev eth0` to see statistics for netem-induced drops/delays.
- For monitoring at the network stack level, consider custom scripts or plugins that parse `tc` statistics[1].

In summary:
Telegraf's `inputs.net` plugin cannot see the effects of `tc netem` because netem operates above the hardware/driver layer, and its actions are not reflected in `/proc/net/dev` counters. Only drops/errors at the device level are visible to `inputs.net`[1].

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1. chat.json