A General Linux Traffic Control Scenario with HTB

Packet Classification:

Incoming packets entering traffic control system for transmission from network device:
- Packets destined for port 80:
  - Policing: packets rate above 1024kbit
  - Scheduling: SFQ
  - Tokens: 1, 2, 3
  - Shaping
- Other packets:
  - Reclassify into non-dedicated other class
  - Policing: rate above 512kbit
  - Scheduling
- Packets destined for port 22:
  - Policing: rate below 512kbit
  - Scheduling: HTB leaf class
  - Rate: 256kbit
  - Ceiling: 512kbit
- SFQ queues:
  - Queues: 1, 2, 3, 4
  - Policing
  - Scheduling

Notes:
This example assumes an HTB qdisc attached to the root.
All qdiscs are shown in cyan.
All classes are shown in brown.
All general terms are shown in purple.
FIFOs are the default qdisc inside an HTB class. Embedded SFQ qdiscs are recommended instead, because they distribute bandwidth more evenly under duress than do FIFO qdiscs.
The diagram shows a very busy traffic control system. This may be atypical, but is intended to be illustrative, not ideal.
Any mechanism which shapes traffic by delaying packets is a non-work-conserving queuing mechanism. HTB classes operate in this fashion.

HTB top level class:
- Rate: 1536kbit
- Ceiling: 1536kbit
- Policing: rate above 1024kbit
- Scheduling: FIFO
- Shaping
- Packets dequeued to hardware at 1536kbit
- Because rate <= ceiling, no packets transmitted above rate