

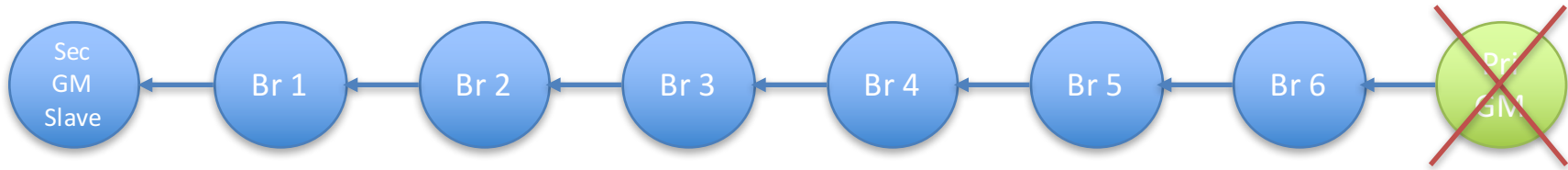
# gPTP switchover time

Discussion in 802.1AS-rev Group



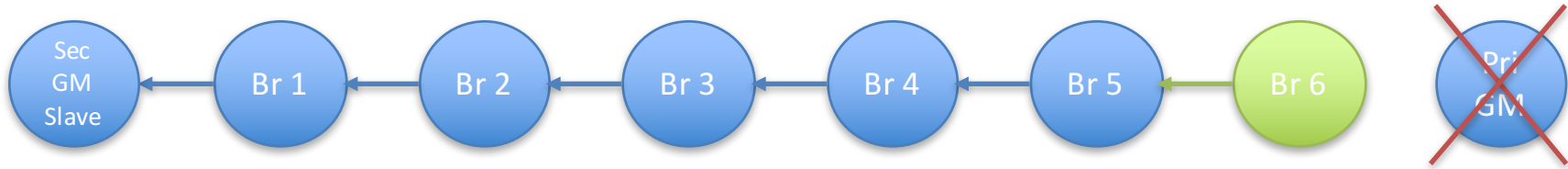
Bogdan Tenea, 4/4/2016

# gPTP bridge chaining



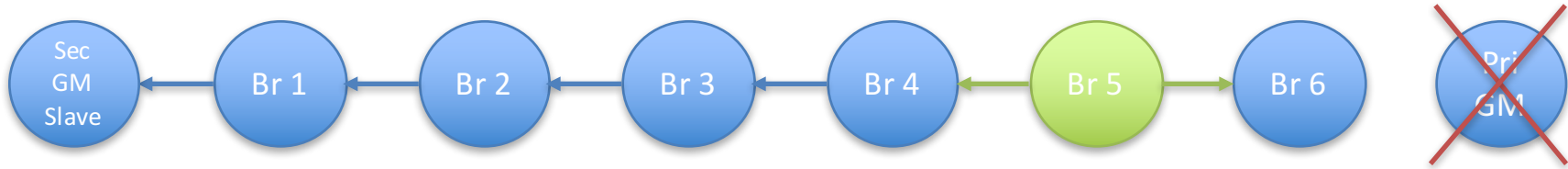
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- Bridges are GM capable and GM enabled with clock class 224
- Clock IDs of bridges are incrementing as per bridge #
- What is the switchover time from Primary GM to Secondary GM?

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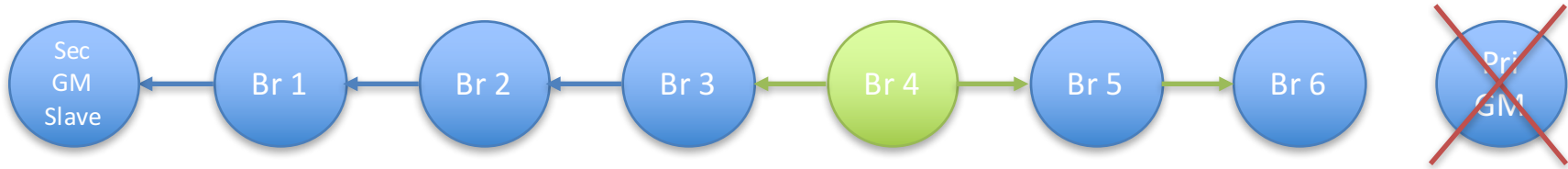
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1. Bridge 6 will Sync Receipt Timeout after  $3 * 125 = 375$  ms and becomes GM, and floods Announce message immediately

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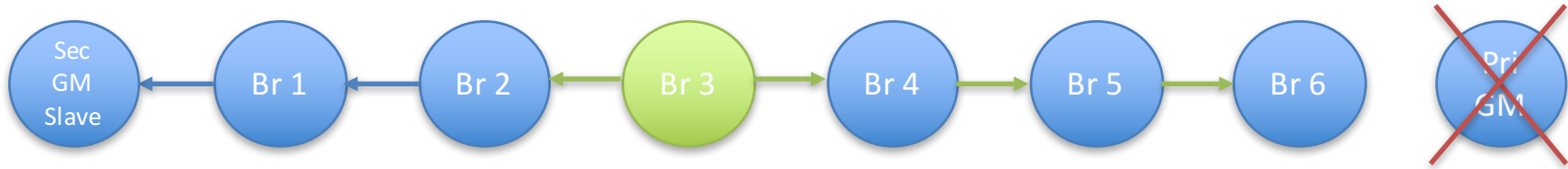
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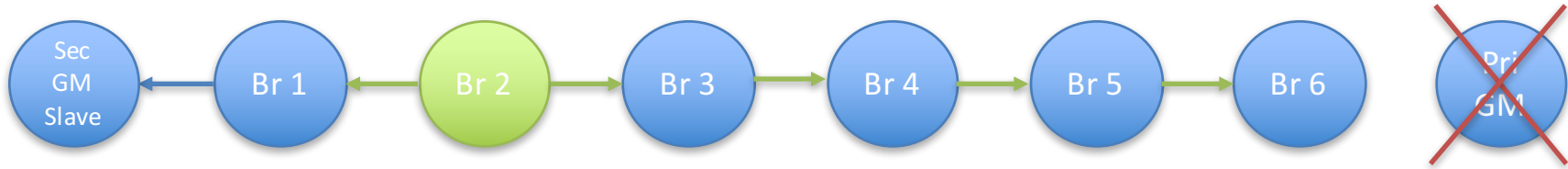
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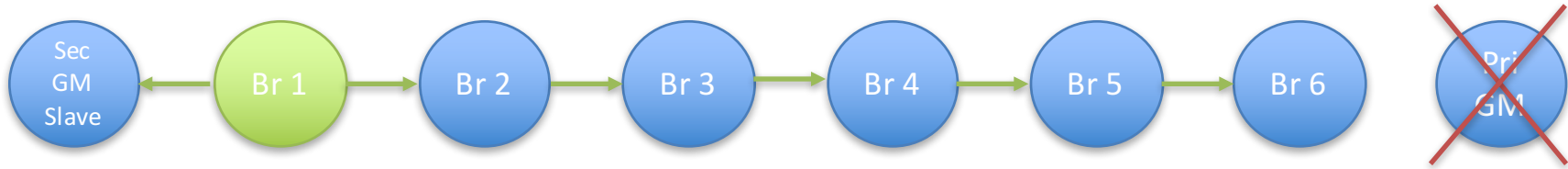
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    4. Bridge 3 receives new lower priority Announce message from Bridge 4, and becomes GM, and floods Announce message immediately
    5. Bridge 2 receives new lower priority Announce message from Bridge 3, and becomes GM, and floods Announce message immediately

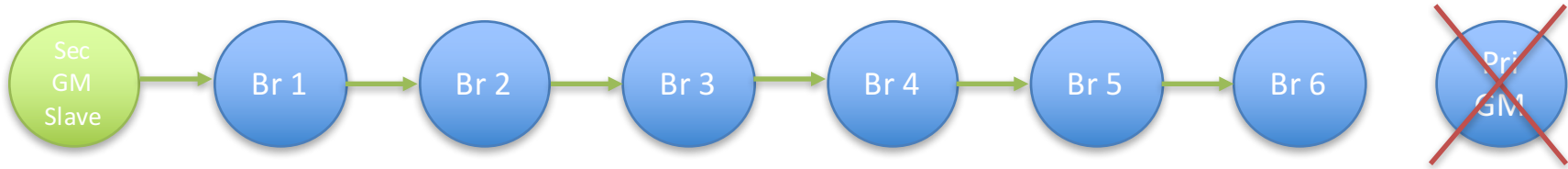
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  4. Bridge 3 receives new lower priority Announce message from Bridge 4, and becomes GM, and floods Announce message immediately
  5. Bridge 2 receives new lower priority Announce message from Bridge 3, and becomes GM, and floods Announce message immediately
  6. Bridge 1 receives new lower priority Announce message from Bridge 2, and becomes GM, and floods Announce message immediately



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- Primary GM and Secondary GM have clock class 6
  - Bridges are GM capable and GM enabled with clock class 224
  - Clock IDs of bridges are incrementing as per bridge #
- What is the switchover time from Primary GM to Secondary GM? **Theoretical: ~3\*125ms; Measured: 5 seconds**
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  5. Bridge 2 receives new lower priority Announce message from Bridge 3, and becomes GM, and floods Announce message immediately
  6. Bridge 1 receives new lower priority Announce message from Bridge 2, and becomes GM, and floods Announce message immediately
  7. Secondary GM, previously acting as Slave, receives new lower priority Announce message from Bridge 1, and becomes new GM  
It will immediately flood Announce messages with itself as GM, that that will be propagated down the chain

## Assertions for theoretical:

1. The secondary GM, till the fail of the primary GM is acting as a Slave, after Sync Receipt Timeout comes online as GM and floods Announce and Sync immediately after receiving a lower priority announce
2. The secondary GM signals any change in phase in lastGMPhaseChange of the FollowUp TLV message – IE, there is no requirement in the standard to keep the recover the clock from the primary and come online with its timebase. Do we need something different for a specification for a hot standby used for working clock that should not experience phase shifts?
3. The only way to disable the transient behavior of steps 1 to 6 that may induce phase and frequency jumps in the network is to disable GM capable on the bridges – IE network engineering. Is this something that we expect would be obvious for a average user ?