CLAIMS

~~**What is claimed is:**~~

1. A method for wireless communication, performed by a first node, of a time synchronized wireless network, associated with a first clock with a first time, comprising:

receiving, from a second node comprising a base station of the time synchronized wireless network, a timing synchronization signal comprising mapping information identifying a mapping for a second time of a second clock ~~of the second node~~ to a frame structure of the time synchronized wireless network and precision time protocol (PTP) synchronization information; and

synchronizing the first time of the first clock to the second time of the second clock based at least in part on the mapping information and the PTP synchronization information.

2. The method of claim 1, further comprising:

configuring a timer function of a local wired interface of the first node based at least in part on the timing synchronization signal, wherein the timing synchronization signal is received over a cellular wireless communication link; and

transmitting a timing control signal to a device connected to the first node via the local wired interface, wherein the timing control signal is based at least in part on the timer function.

3. The method of claim 2, further comprising:

determining that at least one metric of the cellular wireless communication link satisfies a threshold; and

transmitting the timing control signal to control the device based at least in part on the determination.

4. The method of claim 3, wherein the at least one metric of the cellular wireless communication link comprises at least one of: a reference signal received power (RSRP), a signal-to-noise ratio (SNR), a signal-to-interference-and-noise ratio (SINR), a reference signal received quality (RSRQ), a bandwidth parameter, a throughput parameter, or a combination thereof.

5. The method of claim 2, further comprising:

determining that at least one metric of the cellular wireless communication link fails to satisfy a threshold; and

withholding the timing control signal from the device based at least in part on the determination.

6. The method of claim 2, further comprising:

configuring the timer function as a ~~precision time protocol (~~PTP~~)~~ function~~,~~ or a generalized PTP function~~, or a timing and synchronization protocol function~~.

7. The method of claim 2, wherein the device is an end device connected to the local wired interface and controlled by the first node.

8. The method of claim 1, further comprising:

receiving the timing synchronization signal from the second node using at least one of: a primary synchronization signal, a secondary synchronization signal, a system information block, a positioning reference signal, or any combination thereof.

9. The method of claim 1, wherein the PTP synchronization information ~~includes~~indicating the reference time and the delay associated with the reference time of the second clock comprises a timestamp identifier associated with ~~a~~the reference time and a delay identifier relating to an aggregated delay associated with the reference time.

10. The method of claim 1, wherein the PTP synchronization information includes a protocol identifier relating to a time synchronization protocol used by the first node.

11. The method of claim 10, wherein the time synchronization protocol includes at least one of a ~~precision time protocol (~~PTP~~)~~, or a generalized PTP~~, or a timing and synchronization protocol~~.

12. The method of claim 1, further comprising:

transmitting the mapping information and the PTP synchronization information to a third node to synchronize a third time of a third clock of the third node to the second time of the second clock of the second node based at least in part on receiving the mapping information and the PTP synchronization information.

13.———— The method of claim 1, wherein the mapping information and the PTP synchronization information are received on a downlink of a cellular link of the time synchronized wireless network or an uplink of the cellular link of the time synchronized wireless network.

14.———— The method of claim 1, wherein the mapping information identifies a time value for the first time and a frame structure identifier of at least one of a frame number, a hyper frame number, a system frame number, or a subframe number.

15.———— The method of claim 1, wherein the mapping information and the PTP synchronization information are received using a control channel of a cellular interface of the time synchronized wireless network.

16.———— The method of claim 15, wherein the control channel is received using a control plane or a user plane of the cellular interface.

17.———— The method of claim 1, wherein the receiving includes receiving identification information; and

wherein the identification information includes at least one of a cellular link identifier, a node identifier, a cell identifier, a radio bearer identifier, a protocol data unit session identifier, or a protocol data unit connection identifier.

18.———— The method of claim 1, wherein the mapping information and the PTP synchronization information relate to a first time synchronization instance of a plurality of time synchronization instances associated with the first node.

19.———— An apparatus associated with a first node for wireless communication, the apparatus comprising:

~~means for receiving,~~ a processor, memory coupled with the processor; and instructions stored in the memory and executable by ~~a~~the processor to cause the apparatus to: receive, by the first node associated with a first clock and a first time and from a second node comprising a base station of a time synchronized wireless network, a timing synchronization signal comprising mapping information identifying a mapping for a second time of a second clock ~~of the second node~~ to a frame structure of the time synchronized wireless network and precision time protocol (PTP) synchronization information; and

~~means for synchronizing~~ synchronize the first time of the first clock to the second time of the second clock based at least in part on the mapping information and the PTP synchronization information.

20. The apparatus of claim 19, wherein the instructions are further ~~comprising:~~

~~means for configuring~~executable by the processor to cause the apparatus to: configure a timer function of a local wired interface of the first node based at least in part on the timing synchronization signal, wherein the timing synchronization signal is received over a cellular wireless communication link; and

~~means for transmitting~~ transmit a timing control signal to a device connected to the first node via the local wired interface, wherein the timing control signal is based at least in part on the timer function.

21. The apparatus of claim 20, wherein the instructions are further ~~comprising:~~

~~means for determining~~executable by the processor to cause the apparatus to: determine that at least one metric of the cellular wireless communication link satisfies a threshold; and

~~means for transmitting~~ transmit the timing control signal to control the device based at least in part on the determination.

22. The apparatus of claim 21, wherein the at least one metric of the cellular wireless communication link comprises at least one of: comprises a reference signal received power (RSRP), a signal-to-noise ratio (SNR), a signal-to-interference-and-noise ratio (SINR), a reference signal received quality (RSRQ), a bandwidth parameter, a throughput parameter, or a combination thereof.

23. The apparatus of claim 20, wherein the instructions are further ~~comprising:~~

~~means for determining~~executable by the processor to cause the apparatus to: determine that at least one metric of the cellular wireless communication link fails to satisfy a threshold; and

~~means for withholding~~ withhold the timing control signal from the device based at least in part on the determination.

24. The apparatus of claim 20, wherein the instructions are further ~~comprising:~~

~~means for configuring~~executable by the processor to cause the apparatus to: configure the timer function as a ~~precision time protocol (~~PTP~~)~~ function~~,~~ or a generalized PTP function~~, or a timing and synchronization protocol function~~.

25. The apparatus of claim 20, wherein the device is an end device connected to the local wired interface and controlled by the first node.

26. The apparatus of claim 19, wherein the instructions are further ~~comprising:~~

~~means for receiving~~executable by the processor to cause the apparatus to: receive the timing synchronization signal from the second node using at least one of: a primary synchronization signal, a secondary synchronization signal, a system information block, a positioning reference signal, or any combination thereof.

27. The apparatus of claim 19, wherein the PTP synchronization information ~~includes~~indicating the reference time and the delay associated with the reference time of the second clock comprises a timestamp identifier associated with ~~a~~the reference time and a delay identifier relating to an aggregated delay associated with the reference time.

28. The apparatus of claim 19, wherein the PTP synchronization information includes a protocol identifier relating to a time synchronization protocol used by the first node.

29. The apparatus of claim 28, wherein the time synchronization protocol includes at least one of a ~~precision time protocol (~~PTP~~),~~ or a generalized PTP~~, or a timing and synchronization protocol~~.

30. The apparatus of claim 19, wherein the instructions are further ~~comprising:~~

~~means for transmitting~~executable by the processor to cause the apparatus to: transmit the mapping information and the PTP synchronization information to a third node to synchronize a third time of a third clock of the third node to the second time of the second clock of the second node based at least in part on receiving the mapping information and the PTP synchronization information.

31. The apparatus of claim 19, wherein the mapping information and the PTP synchronization information are received on a downlink of a cellular link of the time synchronized wireless network or an uplink of the cellular link of the time synchronized wireless network.

32. The apparatus of claim 19, wherein the mapping information identifies a time value for the first time and a frame structure identifier of at least one of a frame number, a hyper frame number, a system frame number, or a subframe number.

33. The apparatus of claim 19, wherein the mapping information and the PTP synchronization information are received using a control channel of a cellular interface of the time synchronized wireless network.

34. The apparatus of claim 33, wherein the control channel is received using a control plane or a user plane of the cellular interface.

35. The apparatus of claim 19, wherein:

the ~~means for~~ receiving includes receiving identification information; and

wherein the identification information includes at least one of a cellular link identifier, a node identifier, a cell identifier, a radio bearer identifier, a protocol data unit session identifier, or a protocol data unit connection identifier.

36. The apparatus of claim 19, wherein the mapping information and the PTP synchronization information relate to a first time synchronization instance of a plurality of time synchronization instances associated with the first node.

~~37. An apparatus for wireless communication comprising:~~

~~a processor,~~

~~memory in electronic communication with the processor; and~~

~~instructions stored in the memory and executable by the processor to cause the apparatus to:~~

~~receive, by a first node associated with a first clock and a first time and from a second node~~

37. An apparatus associated with a first node for wireless communication, the apparatus comprising: means for receiving, by the first node associated with a first clock and a first time and from a second node comprising a base station of a time synchronized wireless network, a timing synchronization signal comprising mapping information identifying a mapping for a second time of a second clock to a frame structure of the time synchronized wireless network and precision time protocol (PTP) synchronization information indicating a reference time and a delay associated with the reference time of the second clock; and means for synchronizing the first time of the first clock to the second time of the second clock based at least in part on the mapping information and the PTP synchronization information.

38. A non-transitory computer-readable medium storing code for wireless communications, the code comprising instructions executable by a processor of a first node to: receive, by the first node associated with a first clock and a first time and from a second node comprising a base station of a time synchronized wireless network, a timing synchronization signal comprising mapping information identifying a mapping for a second time of a second clock of the second node to a frame structure of the time synchronized wireless network and precision time protocol (PTP) synchronization information~~;~~ indicating a reference time and

a delay associated with the reference time of the second clock; and synchronize the first time of the first clock to the second time of the second clock based at least in part on the mapping information and the ~~synchronization information.~~

~~38. A non-transitory computer-readable medium storing code for wireless communications, the code comprising instructions executable by a processor to:~~

~~receive, by a first node associated with a first clock and a first time and from a second node of a time synchronized wireless network, a timing synchronization signal~~

~~comprising mapping information identifying a mapping for a second time of a second clock of the second node to a frame structure of the time synchronized wireless network and synchronization information; and~~

~~synchronize the first time of the first clock to the second time of the second clock based at least in part on the mapping information and the~~PTP synchronization information.