

A detailed Application Note, including test results is available to qualified customers. To register, please send an email to [TimingandSync@zarlink.com](mailto:TimingandSync@zarlink.com).

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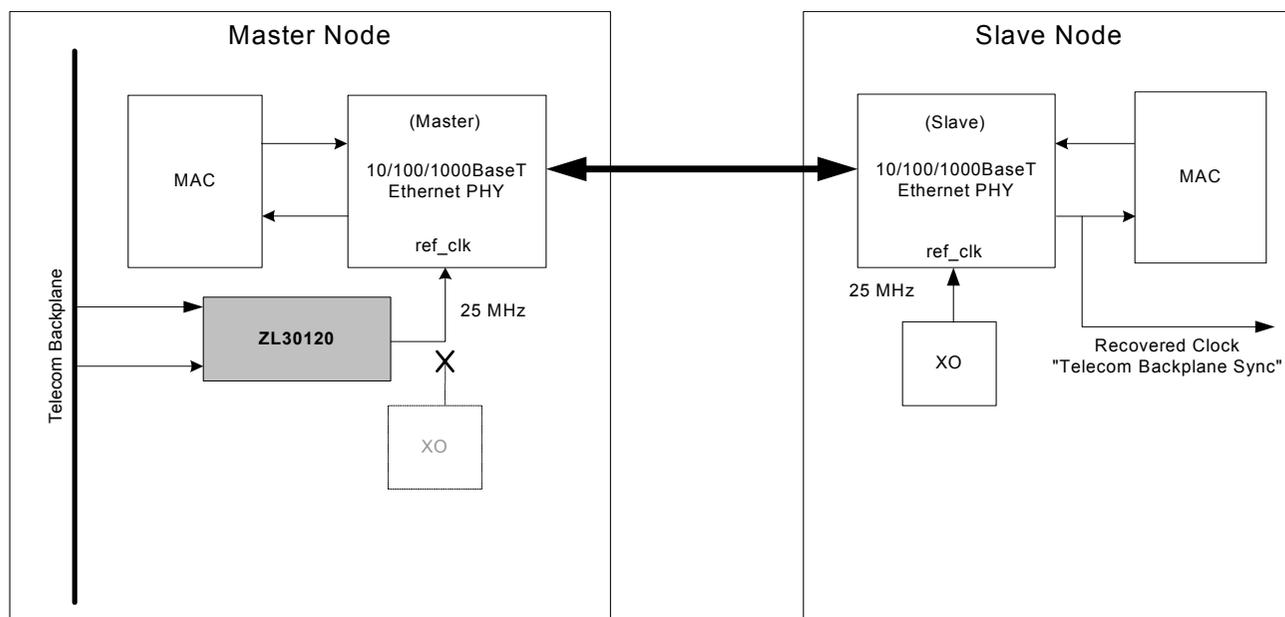
## 1.0 Introduction

Carriers have been moving to packet switched networks (PSN) for some time. They have also been looking to carry circuit switched voice traffic over these networks. The missing link has been the synchronization of networks across the PSN. To this end the ZL30120 provides superior jitter performance to enable this new method of clock synchronization Synchronous Ethernet. Using the layer 1 PHY clock, this application note outlines the suitability of the ZL30120 to the task. This method provides a reliable and repeatable method for transporting TDM clocks across a PSN.

## 2.0 Sync Ethernet Architecture

The ZL30120 brings carrier-grade telecom quality clocks to PSNs to enable the point-to-point distribution of synchronization. As shown in Figure 1, the ZL30120 replaces the master PHY's free-running reference clock normally provided by a crystal oscillator (XO) with a synchronized clock. Synchronization is transferred to the slave PHY using point-to-point distribution. The slave PHY recovers the clock, which in turn can be used by another ZL30120 to generate synchronous clocks for another master PHY.

The ZL30120 is able to lock to Ethernet frequency clock, and also provide 8 clock reference inputs which support clock frequencies with any multiples of 8 kHz up to 77.76 MHz in addition to 2 kHz.



**Figure 1 - An application of point-to-point synchronization distribution over an Ethernet link**