

Keeping up with the times

Growth in the telecommunications industry has increased the need for a high precision, low cost timing source. Cambridge-based firm OptiSynx has become the first to develop one.

Synchronisation has always been critical to telecommunication systems. Without the use of accurate timing signals to synchronise packet switching for example we would not be able to send and receive data over communication networks.

Traditionally, expensive caesium clocks are used as a single frequency source for synchronisation. Recent developments have seen the birth of rubidium clocks, a considerably less expensive but equally less accurate option because they rely on corrections from other sources, e.g. GPS satellites, which are susceptible to aerial damage and interference.

As networks have grown and synchronisation nodes have multiplied, the gap between the two options has widened. Today the existing technologies are either too expensive or not accurate enough to meet the demands of the expanding global telecoms network.

And, new technologies are better described as fixes rather than solutions.

OptiSynx has developed a new molecular

frequency reference design based on existing telecommunications components. It is set to replace the need for the caesium and rubidium clocks in base stations that rely on erratic GPS signals. Whilst the oscillating molecule used remains undisclosed by the firm, OptiSynx claims it requires no outside assistance and delivers the consistency of a caesium reference at a similar cost and size of rubidium clocks.

"Until now the choice has been a superbly accurate £25,000 caesium reference or a less capable £400 rubidium clock. Our design will provide the

telecommunications industry with a high performing and affordable application. It provides a solution for the future and not just a quick fix," said OptiSynx CEO Dominic Mikulin.

OptiSynx is already negotiating with telecommunication companies and expects its clocks to start being installed by the end of the year.