

ClearSight Networks Newsletter

ClearSight External Newsletter
March 2009

ClearSight Networks Receives INTERNET TELEPHONY® Magazine's 11th Annual Product of the Year Award

ClearSight has received a prestigious Product of the Year Award from Internet Telephony. According to the editors of INTERNET TELEPHONY, "they selected the companies which in their view demonstrate the vision, leadership and attention to detail that are the hallmarks of the prestigious Product of the Year Award." Launched in 1998, INTERNET TELEPHONY is the premier publication covering the IP communications industry.



The ClearSight [Network Time Machine](#) (NTM) extends the capabilities of traditional "Sniffer" tools by removing the limitation on the size of the analyzer's capture buffer. It is able to do this because of a sophisticated RAID storage subsystem that is incorporated into the NTM product. Through this unique design, the NTM is able to collect, index and archive up to 44 terabytes of network data making it a must have tool for today's generation of networks which are carrying data, voice and video information in greater and greater volumes.

A unique option that is available to the NTM is the [Atlas](#) Navigation System. As soon as data is captured by the NTM, Atlas begins indexing and classifying the information. From there, new and powerful views based on the data stored in the NTM storage subsystem are available, making it easy to mine application, network and data link information. This is accomplished by drilling down from areas of interest in order to view related trending charts, flow data, and packet data.

Read the [TMC press release](#)

Read more about the [Network Time Machine](#)

Read more about the [Network Time Machine Atlas](#)

Is 10 GbE backwards compatible with GbE? The Magic of SFP+!

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One of the reasons why the migration path from 10/100 Mb/s Ethernet data rates to 1 Gb/s was so smooth and effortless is because 1 Gb/s Ethernet is backwards compatible with 10/100 Mb/s Ethernet. When you deployed a new switch or new device based on Gb/s rates, you did not need to replace existing 10/100 Mb/s equipment. Pricing was another big consideration -- 1 Gb/s ports provide 10 times faster data rates (than 100 Mb/s) but at just slightly more cost than 10/100 Mb/s ports.

Cost is certainly one reason why 10 Gb/s did not follow the same adoption pattern that 1 Gb/s did. Another reason is because 10 Gb/s is not backwards compatible with 1 Gb/s. This means native 1 Gb/s network devices could not talk to native 10 Gb/s ones.

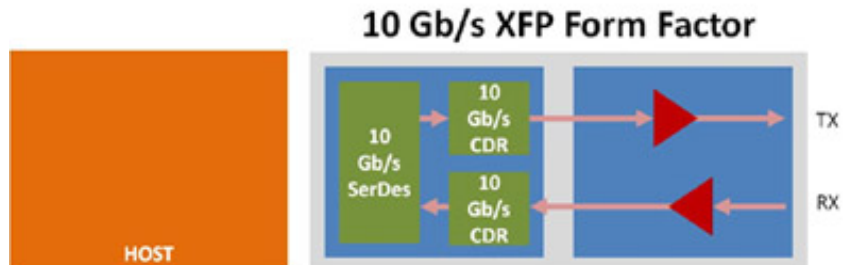
The reason for this has to do with physical layer differences between these two speed standards. 1 Gb/s (and 10/100 Mb/s) Ethernet use an encoding scheme known as 8/10b. A single byte of data (8 bits) is converted over to a 10-bit symbol or character (by ASIC chips called SerDes (Serializer/De-serializer) and Clock Data Recovery (CDR)) before the symbol is transmitted over the wire (or optical cable) bit by bit. We won't go into all the details as to why this is the case, but it has to do with the fact that Ethernet is a serial protocol (bits are transmitted over a single link one at a time) and the extra two bits are used (among other things) for clock recovery (serial buses, unlike parallel buses, do not use dedicated lines for clock synchronization) and to maintain DC balance.

10 Gb/s, on the other hand, uses a different encoding scheme known as 64/66b - where 8 bytes (64 bits) are converted to a 66-bit symbol before transmission for the same exact reasons as in 1 Gb/s with 8/10b. Since it also a serial protocol, the 66 bits of the encoded symbol are transmitted one at a time over the wire. It is because of this physical layer difference (there are other differences but this is one of the key ones) that native 1 Gb/s and 10 Gb/s networking equipment cannot communicate directly with one another.

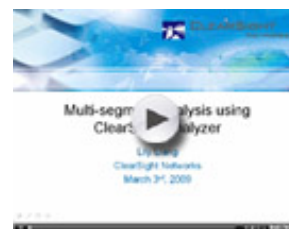
SerDes and CDR work at a specific range of data rates; at present, I am not aware of any SerDes' and CDRs that support both 1 Gb/s and 10 Gb/s line speeds - at least not in a size small enough to fit inside a SFP.

But there is good news. The introduction of the new SFP+ transceiver standard for 10 Gb/s Ethernet allows 10 Gb/s networking equipment using this new form factor specification to link up with equipment and devices operating at the sub-10 Gb/s data rates. SFP+ and SFP form factors are compatible, meaning you can plug a 1 Gb/s SFP into an SFP+ cage. But it requires host products to design in both a 1 GbE and a 10 GbE CDR and SerDes, and the appropriate hardware logic, so that when a 1 Gb/s SFP or 10 Gb/s SFP+ acquire an optical signal, the host can determine the signaling rate and divert it to the correct set of SerDes and CDR for handling.

As datacenters roll out 10 Gb/s infrastructure, the SFP+ form factor, originally intended for 10 Gb/s Ethernet, will further help smooth the transition from 1 Gb/s to 10 Gb/s Ethernet.



Because the 10 Gb/s SerDes and CDR are built into the 10 Gb/s XFP transceiver, only 10 Gb/s line rates can be received and transmitted. Note the original TX/RX signals are optical; but the connection between the XFP and the host is an electrical one.

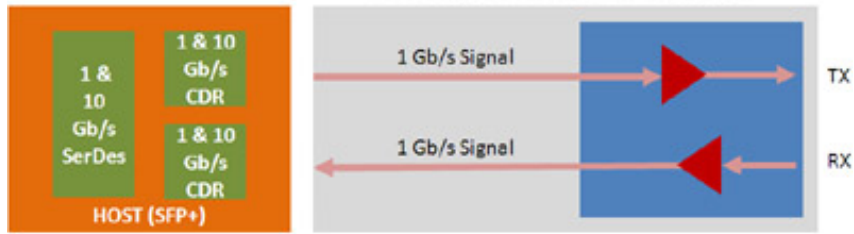


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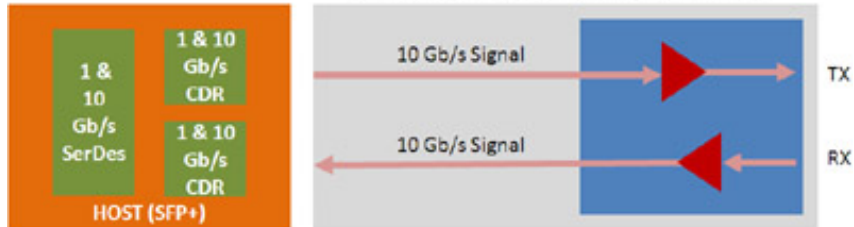
Past Issues

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1 Gb/s SFP Form Factor



10 Gb/s SFP+ Form Factor



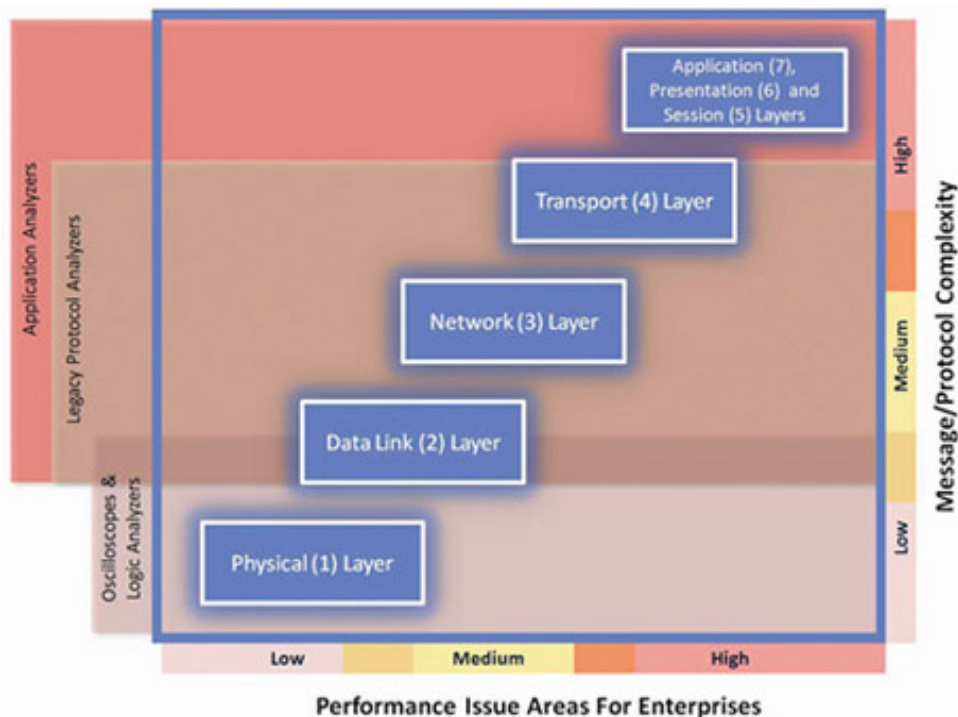
However, since the SerDes and CDR are external (located on the host) to the SFP and SFP+ unit, irrespective of whether a 1 Gb/s SFP or 10 Gb/s SFP+ transceiver is used, the host, outfitted with the correct set of SerDes and CDR (at this point, the optical RX signal has been converted to an electrical one) will be able to handle and process either line rates.

Have any additional questions? or would you like to know more? Email the author of this article at swong@clearsightnet.com.

Optimize Network Performance - Today's management and monitoring tools can help prevent costly downtime

The character of an enterprise network, as well as the sophistication of available network-analysis tools, has changed radically since the first use of Ethernet. Today, companies use the Internet for disseminating information and for e-commerce, affecting the amount of resources a corporation devotes to its network, as well as the importance the organization places on keeping its network running properly.

Along with the growth of network usage, there has been a corresponding increase in the availability of network-analysis and management tools. This is seen in the fragmented nature of the network-management industry; freeware analyzers, enterprise-class appliances and everything that falls in between are each jockeying for a place in the IT manager's tool kit.



Read the entire article at [Communication News](#)

How to make \$100 Million in a Millisecond? Fighting latency and data loss (using [ClearSight Cronos](#))

Within securities markets, trading firms are constantly competing to get the most valuable information and to apply that information in a way that optimizes the prices at which securities are bought and sold. Under these ideal conditions, enormous trading profits can be realized.

Trading orders are often placed electronically, based on trading decisions made using a variety of data inputs such as news feeds, bid and ask quotes, and trading volume history. These data inputs are sent by information and content providers and transferred to feed handlers and trading engines at trading firms via various computer networks. Trades are also placed electronically and using networks.

[more](#)

Zeroing in on ClearSight Networks' Network Time Machine

Peter Sevcik and Rebecca Wetzel from [NetForecast](#) recently penned a blog entry about the [Network Time Machine](#). Here are excerpts from that write-up.

Used by carriers, cable companies and large enterprises, the Network Time Machine differentiates itself from the protocol analyzer pack by high capture rates and large storage capacity. The Network Time Machine product family has capture capabilities ranging from 1.6 to 44 terabytes on a gigabit Ethernet link, and can store up to 40 days' worth of data about a single link under typical overall traffic conditions (average of 10% utilization over a 24-hour period).

A software module called [Atlas](#) indexes and classifies the data for reporting purposes. This enables users to see long-term trends and do capacity planning--and it facilitates forensic analysis. Atlas is especially well suited for monitoring VoIP protocols. In addition to providing MOS scores, jitter and latency, Atlas can retrieve all packets associated with any individual call. The company also touts the product's ability to monitor real-time video traffic.

News Flash

This section is aimed at keeping you informed with the most recent ClearSight news and articles.

Low Latency - Are You Performing? Now Available For Download

(A-TeamGroup - Feb 19, 2009) Even as the financial markets undergo unprecedented turmoil, the drive to lower latency shows no sign of abating. Why is this? Put simply, it's because low latency technologies enable those competing in the financial markets - whether they be sell-side firms, buy-side firms, exchanges or alternativetrading venues - to run ahead of the pack. And to win. Such concepts are explored in the round table debate inside, and we thank those that participated for their insight and wisdom. Read the full article at [A-TeamGroup](#).

How We Tested NEC's Unified Communications Platform

(CIO.com - Feb 09, 2009) For this round of testing, the NEC Unified Communications platform was configured to provide a UC solution for a typical single office environment enterprise installation. Full redundancy for the principal servers, the SV7000 and the OW5000, was included and the deployment was equipped to support up to a maximum of 6,000 users with full voice messaging and unified communications capabilities. Read the full article at [CIO.com](#).

ClearSight Networks' Steve Wong Talks About How To Ensure VoIP Call Quality

(VoIPBiz-News.com - Feb 06, 2009) Steve Wong, vp of marketing at ClearSight Networks, explains to VoIP.biz-news.com some simple steps for remedying poor VoIP quality once it has been uncovered in a network. Read the full article at [VoIPBiz-News.com](#).

ISP Selects Acme Packet's SBC to Boost VoIP Subscriber Growth in '09

(TMCnet.com - Jan 27, 2009) In a good sign for a telecommunications segment that insiders say is gaining traction in this slower economy, a Miami-based Internet service provider reportedly has chosen Acme Packet's so-called "Net-Net 9200" session border controller to bring in more customers. Read the full article at [TMCnet.com](#).

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