

TECHNOLOGY TRENDS

Powering Ethernet for Voice and Data Convergence.

For years Ethernet has been a proven technology, with a mass adoption covering the entire globe and spanning every enterprise where network connectivity is a norm nowadays.

Ethernet is the only media which can provide high capacity pipes cost effectively, for running any kind of application. Today you see a lot of deployment for Metro Ethernet Network where Ethernet switches are used by carriers, to connect to enterprise customers. However, the limitation of the 100m distance on Ethernet restricts its reach in the last mile. One of the unique ways to overcome this limitation is to use a line powered Ethernet device, which can extend the Ethernet distance beyond its 100m limit. Power over Ethernet 802.3af is a standard, normally used to power VoIP phones or WiFi access points. However this is limited to a single hop and also is used primarily within the enterprise.

Technology has been innovated to adopt the POE to outdoor application, whereby Ethernet can be extended to over 1km using Powered Ethernet switches every 100m. The distance is limited by the current carrying capacity of the Ethernet cat 5 cables and also the power consumed by intermediate nodes. This also allows customer connectivity every 100m, from a building or street-side POP. Another innovation in the line is to power the customer VOIP phones or IADs using the same powered Ethernet technology. This ensures guaranteed voice delivery since the powered Ethernet can be protected by the battery, at a central site, similar to a normal PSTN phone line.

Powering Ethernet will definitely lead to true voice and data convergence in the last mile and enable carrier class next generation high bandwidth multi-play application in a more cost effective manner.

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Quote of the Month

It takes the same amount of time to think big or small.

– Voltaire.



Medical Center uses TDMoIP to Run Voice Traffic over Distributed Gigabit Ethernet MAN

Saves Almost \$200,000 a year by eliminating Leased Lines; Achieves ROI in eight months.

UCSF Medical Center in San Francisco has opted to deploy an evolutionary technology to link all its sites, which includes three hospitals as well as 75 offices and clinical locations, distributed across three main campuses onto a single broadband network.

Designed to improve collaboration and communication among clinical, academic and research programs, throughout the medical center and School of Medicine at the University of California, San Francisco, this ambitious "Unified Network" project relies on a Gigabit Ethernet Metropolitan Area Network (MAN), to carry heavy data traffic such as medical imaging files. The original network configuration demanded 35 point-to-point T1 lines for delivering voice traffic among the sites.

VoIP Solutions were a Nightmare

"With new technologies such as Voice over IP (VoIP) available, we wanted to save the cost of the leased lines by also sending the voice traffic over Gigabit Ethernet," explains Stephen Sproul, Manager of IT Infrastructure Operations at UCSF Medical Center. "Several VoIP solutions were tested, but the experiences were a nightmare" according to Sproul. "The VoIP equipment didn't work with our legacy equipment," he notes. "We had a voice network in place that we wanted to continue using."

For that reason, Sproul decided to consider TDM over IP (TDMoIP) technology, an evolutionary solution, developed and patented by RAD Data Communications that runs legacy voice traffic over Ethernet-based networks. "Now, several months later, I am pleased to report that all our voice traffic is running over our high speed Gigabit Ethernet MAN," Sproul states. "Performance thus far has been outstanding," He adds. "The TDMoIP equipment is working seamlessly with our legacy network."

Voice, Fax, Modem, and Data without compromising Quality.

UCSF Medical Center installed RAD's IPmux-8 TDMoIP Gateway at its eight main network locations, with backup units to assure full redundancy. The IPmux series converts data streams from TDM ports into IP packets for transmission over the packet switched network, while a remote unit converts the packets back to TDM traffic. TDMoIP products take advantage of the IP/Ethernet/MPLS network to deliver voice, fax, modem, and data services without compromising traditional PSTN quality.

"We happily disconnected the 35 T1 lines we were using for voice, yielding annual savings approaching \$200,000" Claims Sproul. The modular network design enables the IT department to deploy additional communication spans between buildings as needed. Sproul is also pleased to note that, thanks to all parties involved, the Unified Network project came in on time and on budget, and delivered a return on investment in just about eight months.

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ZyWALL Internet Security Appliances offers Perimeter & Workgroup protection, Site to Site VPN and Remote Access Security protection against hackers and viruses

Trumac Engineering

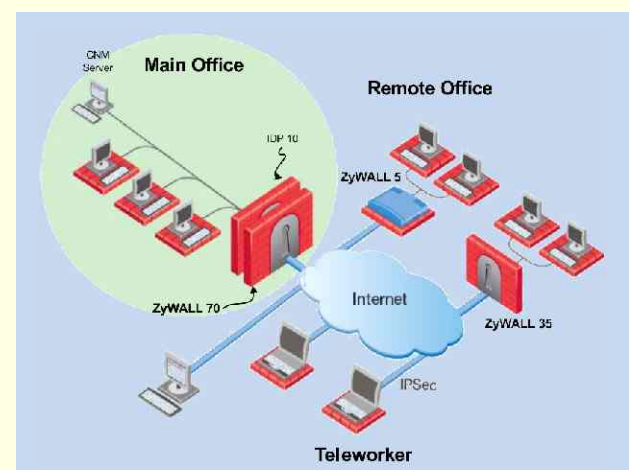
Chooses ZyXEL's ZyWALL 35

TRUMAC engineering was looking for a UTM Solution with a multi-layer approach to protecting users' data in its most effective way, fending off data-theft and overcoming the inherent weakness of single-layer protection. Among the multiple vendor's product choices Zyxel's Zywall-35 ,an Incomparable Flexibility for Applications which was truly all in one with robust security, best in class Anti-virus / Anti-Spam Solution and VPN was the default choice.

TRUMAC evaluated various Security Appliances before finalizing on Zywall-35.

"Zywall's robust security coupled with ease of management appealed us a lot. ZyWALL Internet Security Appliances offers Perimeter & Workgroup protection, Site to Site VPN and Remote Access Security protection against hackers and viruses. The solution covers Outstanding Compatibility, Incomparable Flexibility for Applications, Most Easy-to-use Appliance and the Best TCO/Performance" says Mr. Mehul Panchal of TRUMAC.

Their IT Consultant, Mr. Milind Gavadia says "I was looking for a solution which isn't just good and versatile but also an commitment from a supplier for after Sales Support and Service. Our channel partner, Megastar computer services based in Ahmedabad demonstrated a good understanding of the client's requirement and was successful in closing the sale".



MRO-TEK's Expanding Product Line

Cycus Series

Cycus series from MRO-TEK for Carriers, Service Providers and Enterprises to build cost-effective high capacity networks using one of the most popular technologies Coarse Wavelength Division Multiplexing (CWDM).



Cycus 01

Cycus 08/04 (8/4 channel Passive Mux/De-Mux) increases fiber capacity upto 8/4 folds by combining multiple channels at various CWDM wavelengths over single fiber pair with isolation of 20nm and low insertion loss. Cycus 08/04 with redundancy option can increase the total capacity of the fiber pair upto 40 Gbps.



Cycus 08

Cycus 01 (Single Channel Passive OADM) provide "Drop and Pass" functionality. This is to terminate (Drop) one or more of the wavelengths from the fiber pair locally while allowing other wavelengths to flow through (Pass) to other nodes.

Cycus 02 the Passive Optical Diplexer enables multiplexing of two channels (1310nm, 1550nm or any CWDM wavelengths) for transport over single fiber pair beneficial for point-to-point connectivity.

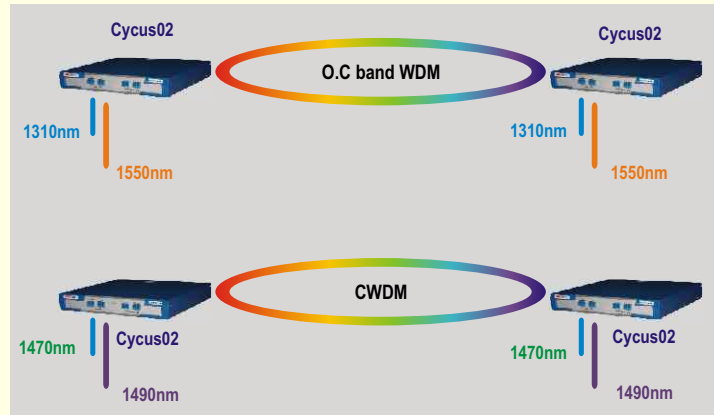
Key Benefits

MRO-TEK's range of Passive CWDM systems enables building flexible, scalable, secure and reliable networks for high availability, flexibility and performance. Being Protocol Independent, they can transport Ethernet, Fiber-channel, SDH, TDM, VoIP, and IPTV to enable delivery of Multi-play Services and other On-demand services. Cycus Series delivers low-cost high bandwidth solutions to maximize the benefits of fiber optic technology like FTTC, FTTB and FTTH.

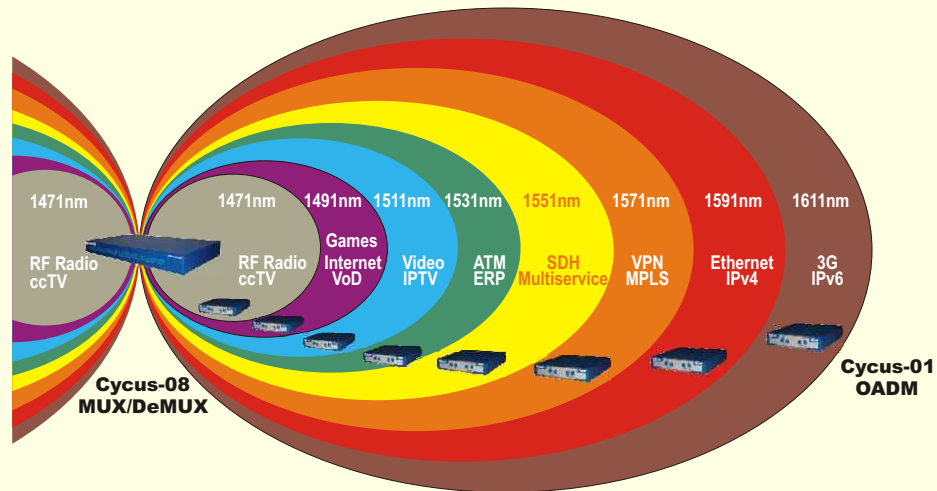
Carriers and Service Providers, Campus networks, Datacenter, Metro Access networks can benefit from Cycus range.

Application

The application diagram below depicts transport of two channels over a single fiber pair using Cycus 02 (1310nm, 1550nm or any other CWDM wavelengths).



The application diagram here depicts transport of upto 8 channels using Cycus08 over a single fiber pair. Cycus01 is used to terminate one channel while allowing other wave-lengths to pass through to its desired destination.



We've Earned Our Stripes

The support and appreciation from customers continue to be the foundation of our inspiration for our constant stride towards excellence. The feedbacks we receive from them serve as an invaluable resource on which we rely to develop our services further. This procedure helps us to achieve our success in the long run.

The two letters of appreciation we have brought out here show how inspiring Customers' feedbacks could be. The first one is from Hutch India, regarding a link upgrade work we did. The other one is from Nortel thanking us for our services.

----- Original Message -----
From: RAJSHEKHAR.DESHRAJ@HUTCHINDIA.com
To: durgaprasad@mro-tek.com
Cc: R.SHIVASTAVA@HUTCHINDIA.com
Sent: Tuesday, August 31, 2004 6:44 PM
Subject: FW: Link upgrade

Thanks Durga for support

----- Original Message -----
From: RAJESH SHRIVASTAVA (AP)
Sent: Tuesday, August 31, 2004 6:06 PM
To: VIKAS SINGH (AP); SATISH KUMAR (AP); ALEX JOHN (AP); VENKATARAMAN N (AP); DINESH KIMOTHI (AP); SATYA SURESH (AP); JAGAN AKULA (AP)
Cc: RAMESH CHANDRA JUNEJA (AP); SUDHEER REDDY (AP); PRASAD KATTA V S (AP); RAJSHEKHAR DESHRAJ (AP)
Subject: Link upgrade

Vizag and Vijaywadha link has been upgraded from existing 256k to 512. This will resolve the problem of system slow complain (initial user feedback is encouraging).

Will like to thank efforts put by Durga Prasad (MRO Tech), Rajsekhar Deshraj, and Sudhir Reddy to take up task on war footing.

Have a smooth and speedy month end.

Thanks and regards

Rajesh

From: Manoj Pandey [mailto:manoj@nortel.com]
Sent: Tuesday, June 21, 2005 12:21 AM
To: VILAS KADIVAL
Cc: naveen@mro-tek.com; manish
Subject: RE: Mrotek Shipments Inv & Packing List

Hi Vilas,

Pls provide us the HAWB copy / #, so i can move this shipment in the morning from Singapore to India on high priority.

I extremely appreciate the efforts from you guys and believe in my comments, I felt extremely great dealing with professionalized suppliers like you.

Thanks once again for all your best efforts.

regards

Manoj

Vignettes from our Corporate Journey



RAD CEO Zohar Zisaphel visits our factory in Electronic City.

RAD CEO's Visit to India



RAD CEO Zohar Zisaphel visits our Corporate Office, Bangalore.



Communicasia 2006



Communicasia 2006 participated - 20 June - 23 June



CONNECT QUIZ-16

1. In the field of display technology what does OLED stand for?
2. What is 'Jerry and David's Guide to the World Wide web' better known as??
3. What is the significance of the message "Welcome to the Dungeon © 1986 Basit * Amjad (pvt) Ltd." ?
4. In the world of The Internet, what is RADIUS?
5. Which networking protocol is based on the principle of Carrier Sense Multiple Access / Collision Detection?
6. In the world of high-speed Ethernet, what does 10Gbase-CX4 refer to?
7. Expand the acronym: CHAT (used commonly over the Internet).
8. AirSnort is a worry to the leading providers of wireless networks. What is it?.
9. What is the historic contribution of Linus Torvalds in the field of computer technology ?
10. Born in India, educated in England and working in the US for the past many decades, he invented fiber optics "the wonder material" in 1954. Fortune magazine named as one of the seven 'Unsung Heroes' in its 'Businessmen of the Century' issue. Who is he?

ANSWERS TO CONNECT QUIZ-16

1. Organic Light Emitting Diode.
2. Yahoo.
3. The quoted text was the message that accompanied the first ever computer virus called "Brain" created by the Pakistani brothers Basit and Amjad Alvis.
4. Remote Authentication Dial In User Service Ethernet protocol.
5. It refers to the four-channel data transfer on copper in 2.5Gbps, together making for 10Gbps..
7. Conversational HyperText Across Technology.
8. It is a program that allows a computer to grab enough data to mount a so-called "passive" (ie, unnoticeable) attack on a wireless network.
9. He was the developer of the kernel for "open source" Linux GNU.
10. Dr. Narinder Singh Kapany.

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