

TECHNOLOGY TRENDS

Delivering dedicated very High Ethernet Bandwidth using Existing Copper Infrastructure

Considering the growth of Ethernet in the recent past, it becomes inevitable to consider transport of Ethernet over the existing TDM infrastructure. The existing bandwidth of 2 Mbps is fast becoming a bottleneck for most of the applications which are bandwidth hungry. At locations with no fiber access, service providers and enterprises are looking out for higher bandwidths for transparent Ethernet services over the existing copper infrastructure, but with little success till date.

With the introduction of G.shdsl.bis technology, we have a solution to overcome the bottleneck. The next generation SHDSL technology allows service providers and the enterprises to offer symmetrical, broadband connectivity for transparent Ethernet services, backhauling and more by leveraging existing copper infrastructure and unparalleled EFM bonding technology.

G.shdsl.bis technology allows to bond upto 4 pairs of copper to deliver upto 22Mbps of bandwidth over a distance of 2.9Kms, thus reducing initial investment cost and deployment time in delivering high speed Ethernet service.

The present generation ADM/SDH units are available with Ethernet support. Thus transporting Ethernet traffic within the SDH cloud has become much simpler. The challenge here is to carry this Ethernet traffic over the last/first mile, hence the G.shdsl.bis technology comes very handy in such cases.

Similarly, in the transportation industry like in Railways, G.shdsl.bis comes in handy in applications like displays and closed circuit TV cameras, commercial and information display, observation and security. Also the technology proves very useful in utility markets where multiple services including voice and Ethernet data needs to be transported over point-to-point or in a daisy chain fashion. Till now, individuals were forced to use fiber links for such applications.

With support for comprehensive and easy OAM, QoS, VLAN support, Q-in-Q, priority, Rate and flow control, G.shdsl.bis technology is here to stay and deliver.

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Quote of the Month

When prosperity comes,
do not use all of it.

Confucius



MRO-TEK International Headquarters
Hebbal, Bangalore

TDMoIP transports voice traffic over MPLS WANs while ensuring QoS

“Pursuing further efficiencies, Yorkshire Water looked for a way to retain their proven voice switches and reduce leased line costs.”

Yorkshire Water has won many awards for customer service and holds the British government's Charter Mark for Service Excellence. In 2006, they were voted utility company of the year for an unprecedented third consecutive year, finishing ahead of all other water, gas, electricity, and Telecom companies in the United Kingdom. Pursuing further efficiencies, Yorkshire Water looked for a way to retain their proven voice switches and reduce leased line costs. The first steps in 2003 involved the elimination of a number of costly 2 Mbps lines by carrying voice traffic over their own packet-switched core network.

Two PABXs were connected to RAD Data Communications' IPmux-1 TDM over IP (TDMoIP®) pseudowire gateways, which convert synchronous TDM voice and signalling traffic into packets for transmission over IP or any other packet-switched infrastructure. To facilitate this transmission, Yorkshire Water commissioned RAD distribution partner Open Networks Engineering to provide the expertise on how to carry voice traffic over an IP network. “This working relationship with Open Networks has supported our systems convergence transformation,” said Steve Groves, Senior Network Analyst at YW. “The business case to eliminate our expensive leased lines, which we used to carry voice, and migrate traffic to our existing IP data network, was compelling,” added Matthew Rowe, Senior Network Analyst at YW.

Migrating to an MPLS Network

Later in 2006, when YW migrated to an MPLS network, there was a need to carry voice from their remote WANs, and the original single-port IPMUX units at the central office were redeployed at these remote sites. Once again, Open Networks enabled YW to carry voice traffic over the WAN while ensuring Quality of Service (QoS). To accommodate all of the new outstations, an eight-port IPMUX-8 central site aggregation solution was installed to transport traffic from multiple E1 trunks over the packet-based network. Open Networks helped again by introducing an echo canceller to further enhance voice quality in all inbound and outbound calls throughout the system.

“Open Networks have supported us all the way with this project and now supply our group with engineering support both during and after regular business hours,” noted Mathew Rowe. “They have aided YW in developing redundant back-up paths and an improved management visibility of sequence errors and jitter on the network,” he continued. “This is a great improvement over the old TDM multiplexers and assists with all troubleshooting situations.”

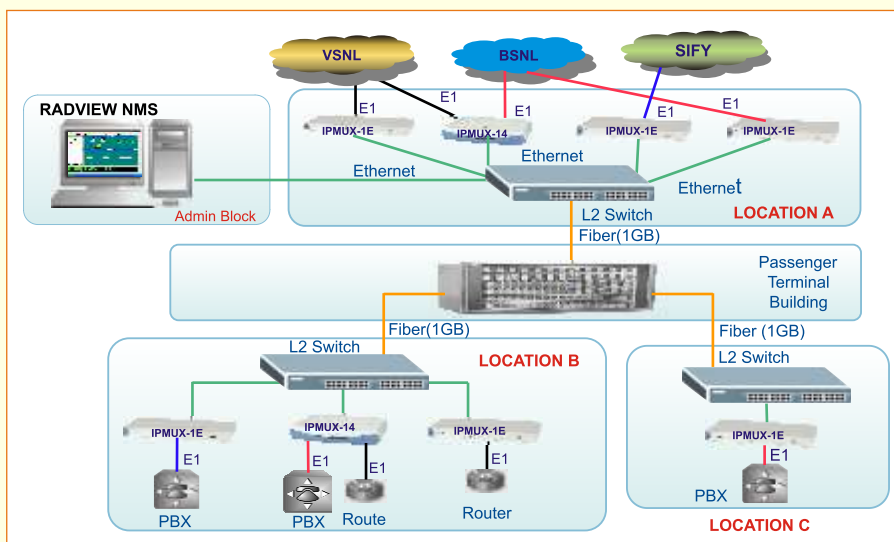
“By employing RAD's TDMoIP gateways, we have fulfilled the brief to improve Yorkshire Water's cost and performance efficiency whilst extending the life of their existing assets,” concluded J.P. Steward, General Manager of Open Networks Engineering Ltd. “It also means that YW have a strong network and are ready to move to new VoIP soft switch PBXs when their investment cycle dictates and the technology matures.”

Bangalore International Airport (BIAL) Enabling of Voice, Lease Line and Internet Applications

“We are happy with MRO-TEK's ability and agility in understanding our requirement and providing a solution which is extremely efficient and secure. Concessionaires who needed out-of-box solution, for their connectivity were extended with their unique solution (E1 links) to function smoothly, which is very critical for efficient airport operations through Bangalore International Airport,” says Albert Brunner, CEO of Bangalore International Airport Ltd.

The new airport in Bangalore - The Bangalore International Airport (BIAL), needed us to deliver Voice, Data and Internet Services to various customers within their huge premises. Different Service Providers terminated their lines at the periphery of the terminal and these lines had to be seamlessly accessed, combined and transferred to BIAL's customers via BIAL's own Ethernet core network.

MRO-TEK proposed and successfully enabled integration between BIAL Internet network infrastructure and Service Provider Network using RAD's TDMoIP product, the IPMUX. The Ethernet backhaul of BIAL, which provides scalable bandwidth in flexible increments, simplified management, and faster & lower-cost provisioning. The RAD IP-MUX was used to connect and transfer E1, PRI and Internet Leased Lines over the existing Ethernet backhaul. IPMUX ensures low end-to-end processing delay, configurable packet size to achieve proper balance between PSN throughput & delay, enhanced buffering mechanism for network packet delay variation, VLANs and finally QoS which reliably transports E1 over the existing Ethernet Core.



The last mile access and delivery solution with the IPMUX was designed implemented and supported to ensure reliable, seamless and cost efficient connectivity to BIAL network infrastructure with different Service Provider Networks.

“The business case to eliminate our expensive leased lines, which we used to carry voice, and migrate traffic to our existing IP data network, was compelling.”

**Matthew Rowe,
Senior Network Analyst,
Yorkshire Water**

“The Ethernet Backhaul of BIAL which provides scalable bandwidth in flexible increments, simplified management, and faster & lower-cost provisioning.”

MRO-TEK's Expanding Product Line

Mogra

Extending the reach of Ethernet solutions

Mogra-Daisy is a potent and winning combination, especially useful for providing connectivity to a distributed customer base, enabling the widest of applications from IPTV to Video-on-Demand. It also enables you to extend Fast Ethernet reach up to 500 mtrs.

Salient Features :

Mogra208 is a Layer2 access aggregation switch to offer QoS and priority for multi-service and IMS traffic differentiating flows based on vLANs. The protocol rich edge switch enables Ethernet and fast Ethernet on copper interfaces, Gigabit on copper/fiber interfaces.



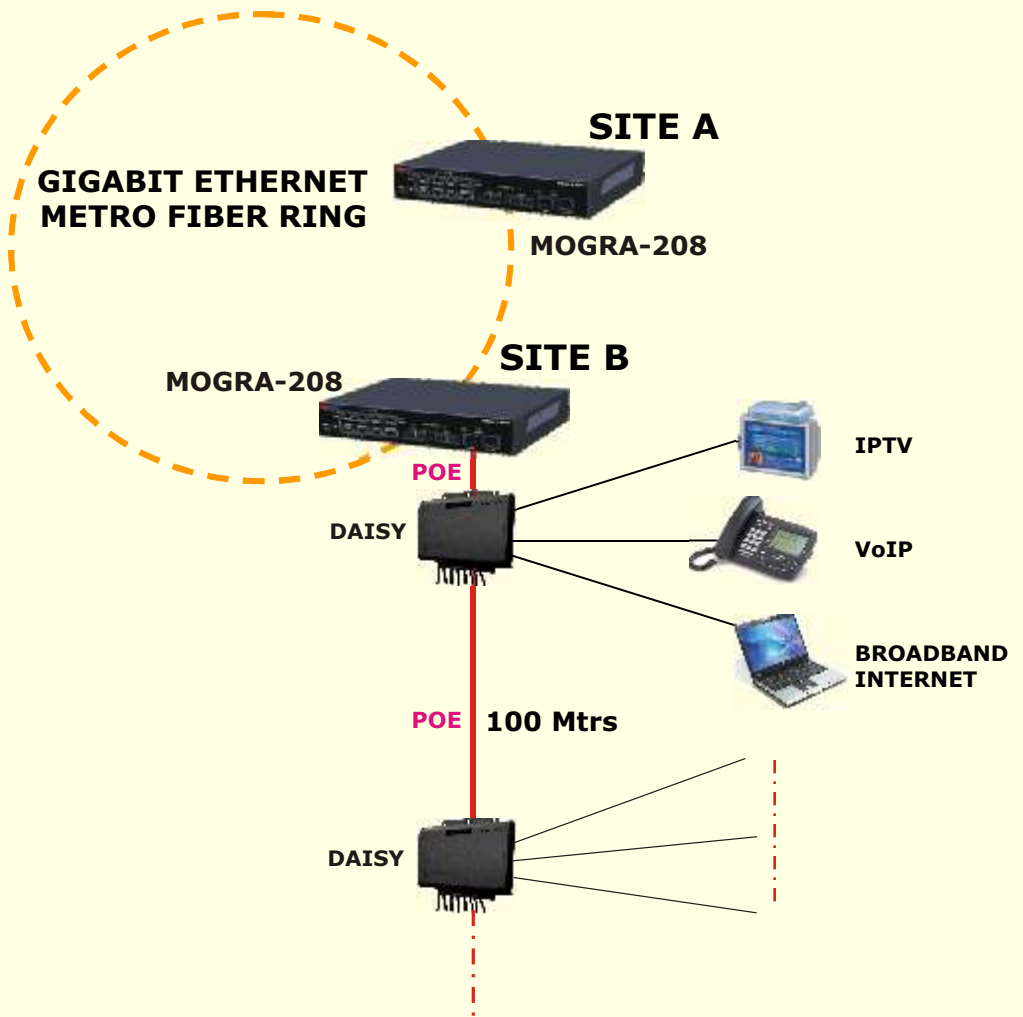
- A managed wire speed service provider edge switch enabling service aggregation with 2 Gig and 8 fast Ethernet interface
- Features RSTP, Stacking, QoS, Rate Limiting, IGMPv3 Multicast and Dying gasp
- Aggregates multi-service traffic like IP/Ethernet, video
- Half 19" 1U high

Daisy

DAISY is a power over Ethernet solution that, apart from extending L2 connectivity, also extends power on its user ports, well enough to power remote devices like IP phones, IADs, low power switches.



- A power over Ethernet last mile switch superimposes power and data over the CAT-05 cable to extend connectivity up to 500meters
- Features 2 ports for Power-in & Power-out and 6 Ports for connecting user devices like IPTV, VoIP, PC
- Enabled with port isolation, short circuit protection
- Conforms to IP64 standard for weather proof enclosure



We've Earned Our Stripes



Awards and Accolades are always a source of inspiration, propelling us to scale new heights in performance.

We are very pleased indeed to acknowledge special messages of commendation of our customer service from valued clients such as Airtel and Idea.

It is appreciation such as this, that keeps us surging ahead in our committed effort to continue to offer our clientele the best in product sales and service support.



Taking Stock. Moving Forward.

AGM, June 25, 2008



Advanced Technical Training for Executives from Dhiraagu, Maldives, from June 16-21 at our International HQ, Bangalore



CONNECT QUIZ-18

1. What is the operating system for mobile telephony launched by Google in November 2007?
2. Which is claimed to be the world's first open source consumer product?
3. What does the acronym CDN stand for?
4. In chat and email lingo, what is TEOTWAWKI?
5. As per Government of India guidelines, what is the frequency band in which spectrum shall be allocated for 3G Telecom services through bidding/auction?
6. What was formerly known as 'Blackcomb' and 'Vienna'?
7. What is the catch phrase introduced by Harvard Business School professor Clayton M Christensen in his 1977 bestseller 'The Innovator's Dilemma'?
8. Which computer virus was named after a topless dancer the virus programmer once knew?
9. What is EVDO and what does it enable you to do?
10. In the computer industry, what is Infinite Lap famous for?

ANSWERS TO CONNECT QUIZ-18

1. Android
2. Open Cola, a brand of cola unique in that the instructions for making it are freely available, and it allows anyone to modify and improve the recipe
3. Content Delivery Network
4. The End Of The World As We Know It (used to indicate a disastrous situation, a catastrophe)
5. 2-1 Ghz
6. Windows 7, the current working name for the next major version of Microsoft Windows as the successor to Windows Vista
7. 'Disruptive Technology'
8. Melissa
9. It stands for Evolution Data Optimised and is the next-generation CDMA technology offering high-speed data transfer in real time
10. It is a street encircling the six main buildings of Apple's headquarters in Cupertino, California

MROTEK™
Access Every Network

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